i-LEAD
innovation - law enforcement agency's dialogue

DRUGS

MARKET & RESEARCH SCAN

2019-2020

This project has received funding from the European Union's Horizon 2020 - Research and Innovation Framework Programme, H2020-SEC-2016-2017-1, under grant agreement no 740685.

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DRUGS

‘Drug trafficking is big business, bringing in a fifth of all profits from organised crime. It ravishes communities, endangers businesses, strains government institutions, and drags down the wider economy.
The effects of illegal drugs on individuals and society is immense and so tackling the drug problem within Europe must be a shared responsibility of all Member States. This workshop will provide a forum for Law Enforcement Agencies to work as a community and work in a collaborative and cohesive way in order to contribute to the fight against the criminal activity of trafficking drugs, in particular the trafficking of cocaine.

According to the European Monitoring Centre for Drugs and Drug Addiction, “Cocaine is Europe’s most commonly used illicit stimulant drug, with about 3.6 million adults (aged 15–64) estimated to have used it in the last year. It is the second most seized drug in Europe, after cannabis. Cocaine is trafficked to Europe from the producer countries of South America by both air and sea using a range of methods and routes”.

In 2016, the European Monitoring Centre for Drugs and Drug Addition published a document entitled: ‘Perspectives on Drugs Cocaine Trafficking to Europe’ which highlighted the increased use of shipping containers for Cocaine trafficking into Europe. The following is an extract from that publication:

‘Cocaine trafficking to Europe is conducted by organised crime groups that are characterised by diversity and adaptability. These groups are innovative and skilled in switching and modifying both trafficking routes and modi operandi to circumvent law enforcement activities. They are quick to identify and exploit new opportunities for cocaine trafficking.

This includes taking advantage of new technology and methods to facilitate access to maritime containers loaded with cocaine (e.g. rip-on/rip-off) and for concealing cocaine (e.g. incorporating liquid cocaine into materials for later extraction). In addition, OCGs also shift transit routes and storage points to capitalise on the presence of ineffective border controls, and areas where instability and poor governance make for weak law enforcement.'

The following is an explanation of the 'rip-on/rip-off' method from the same publication;
'The so-called 'rip-on/rip-off' method involves loading the consignment in the port of departure and recovering it in the port of arrival. The use of one or more corrupt employees at both ends is therefore a key element.'

Year upon year organised crime groups are becoming increasingly sophisticated in the way they carry out the trafficking of all types of illicit drugs. This is demonstrated by the exploitation of legal technologies such as prepaid phones and the internet, which they use to maintain control and keep track of these illegal and valuable consignments. This adds to the complexity of the crime as remote drug trafficking means that the trafficker can maintain anonymity at all times.

This is challenging law enforcement in ways never seen before, alongside a number of other factors and considerations which must be taken into account during an investigation. For example; border controls, money laundering, covert surveillance, intelligence (of routes and organisations), exchange of information among LEAs, communications used by criminals (encrypted and open ones) and sensors and scanners to detect drugs in transports, etc.

However, despite the use of technology by the traffickers, the drugs themselves remain in the physical world and have a physical entity that require successful transportation from country A to country B in order for the criminal to reap the monetary benefits. Vulnerability for Organised Crime Groups (OCG's) exists along the whole chain of cocaine transportation.

From the loading onto bulk vessels to when it is decanted from the shipping containers, which often entails the concealment of smaller consignments within specially designed hides in smaller boats and/or vehicles. These vehicles are then used to convey the cocaine to safe-houses or across land and coastal borders. It is this area that the practitioner workshop will be focused upon; the detection of cocaine within shipping containers and within vehicles. Some of the areas that will be discussed and considered are shown below;

- Exchange of information between countries
- Intelligence systems – to better detect organised crime groups and their trafficking routes
- Communication interception technologies for open and closed sources, including email telegram, Instagram and Facebook
- Cross border surveillance and tracking
- Detection of drug containers

SCENARIO 1

SCENARIO FOR THE ILEAD DRUG TRAFFICKING PRACTITIONERS GROUP

A major route for trafficking cocaine into Europe from the Caribbean is via sea cargo, with the drugs being concealed in shipping containers amongst various legitimate shipments.

The drugs are often unloaded during transit onto smaller boats out at sea, and brought ashore into Europe at unmonitored locations, or they remain in the containers, reaching their points of destinations at ports throughout Europe, with the shipments then being collected by persons using various means.

The seizures of drugs by Law Enforcement in many cases are as a result of intelligence led investigations, or through detection of drugs using a range of techniques. However, criminal gangs are becoming more sophisticated in their drug trafficking activities using technological solutions to cover their tracks, such as encrypted communication devices. They are also becoming more innovative in ways of concealment and becoming better at understanding counter surveillance methodologies.

Background:

Intelligence has been received that a shipment of cocaine will be taken by vehicle to the point of embarkation and during transit within the Atlantic, be transferred from the container ship to a small craft for the remainder of the journey into Europe. During the intelligence gathering phase it transpires that the criminals are using end to end encrypted communications and are aware of surveillance methods used by the police.

The Requirement:

To gather information that can provide additional intelligence in relation to the transit of the cocaine shipment from its source to its destination and will:

1. Identify those involved in the trafficking
2. Gather information that would otherwise would not have been available through current technical means
3. Real time monitoring of the trafficking route

Solutions should be able to:

- Enable encrypted communications to be intercepted in real time
- Enable the electronic systems in vehicles to be interrogated
- Enhance current audio capability reducing background interference

SCENARIO 2

Background

Intelligence has been received that there is a large shipment of cocaine being transported by container and will be offloaded at a port in Europe. The cocaine is concealed within the containers amongst legitimate goods.

The Requirement:

To locate the illicit goods being transported in shipping containers through:

1. Rapid screening
2. Targeted interventions using advanced intelligence analysis

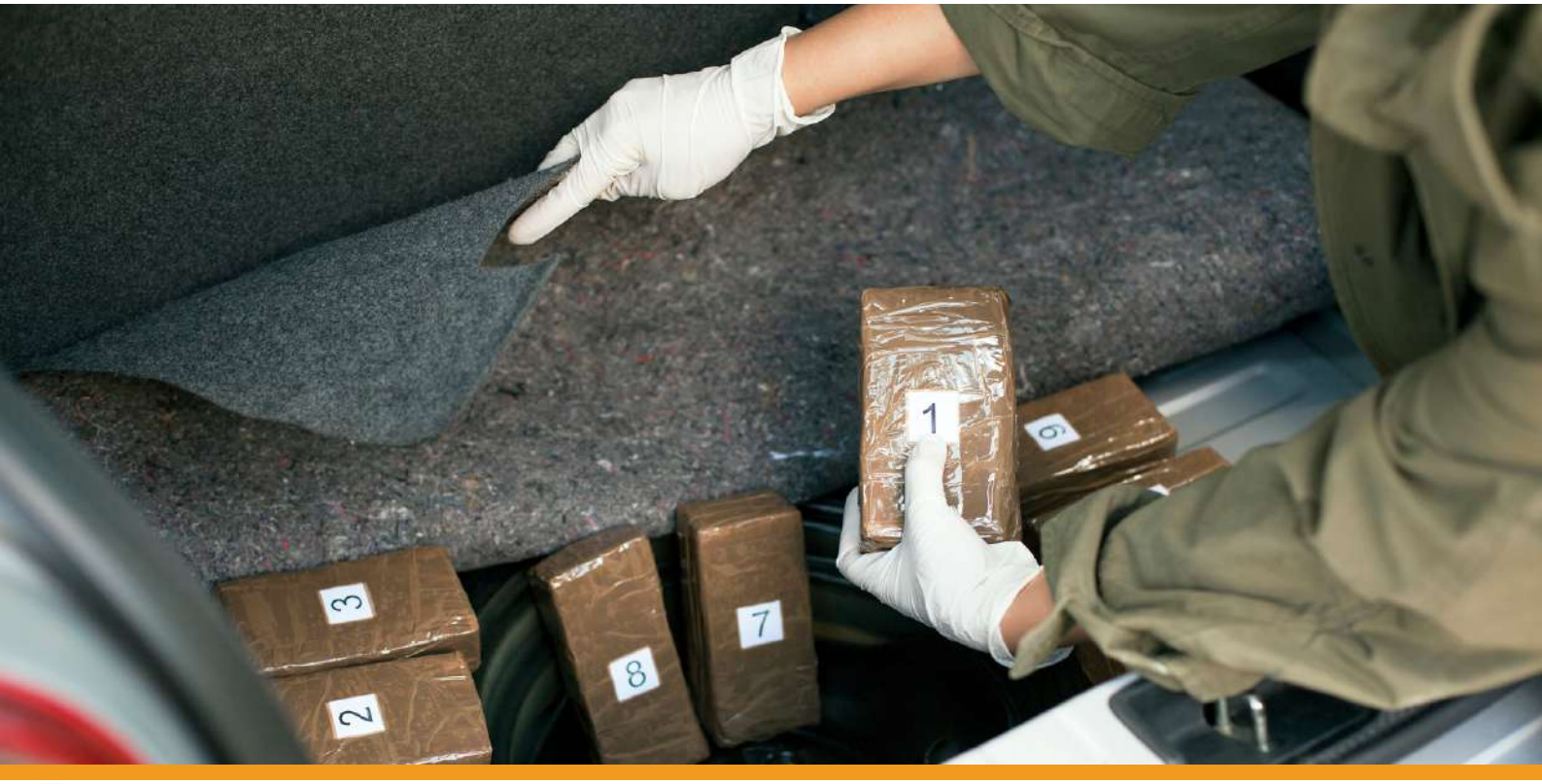
Solutions should be able to:

a. Locate drug shipments through improved automated screening technologies

b. Enhance current search techniques utilising electronic detection methods

c. Provide real time in field analysis of substances

d. Improve screening intelligence to identify potential target container

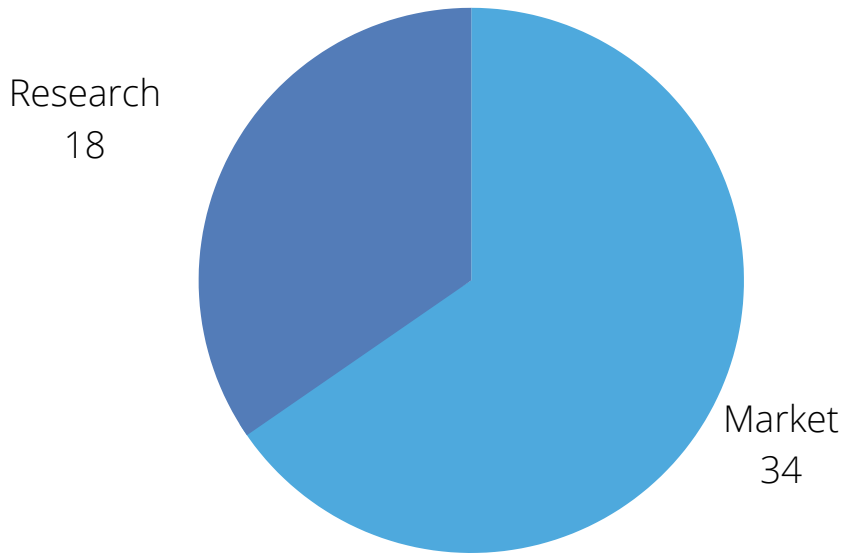


MIND MAPPING

As a result of the mind mapping discussion several technologies have been identified:

- Technologies for decryption of encryption apps and encrypted devices used by criminals to be communicated.
- Technologies to improve the audio-surveillances systems with microarray antennas in cover operations
- Detection technologies for real-time analysis in the field of concealed drugs in containers, boats, cars, buildings... even people.
- Rapid automatic screening of containers
- Electronic sniffers to detect drugs
- Real time-sharing information platform to create intelligence and OSINT tools

MARKET AND RESEARCH SCAN 2019-2020



MARKET SOLUTIONS
Technologies derived from the Market

RESEARCH RESULTS
Technologies as outcomes from research

1	TITLE OF SOLUTION
	BORDERSENS

DESCRIPTION & USE OF THE SOLUTION

BorderSens can enable highly accurate selective detection of trace levels of illicit drugs and precursors by combining robust sensor technologies with the inherent advantages of electrochemical strategies, nano-molecularly imprinted polymers, and multivariate and pattern data analysis.

TECHNOLOGICAL GAPS & CHALLENGES

- Existing detection methods have low precision and high costs

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
 Source: https://bordersens.eu/wp-content/uploads/2020/06/bordersens.mp4?_=1	Consortium Of 16 Partners: University Of Leicester, Universitatea De Medicina Si Farmacie Iuliu Hatieganu Cluj-Napoca, De Federale Overheidsdienst Justitie - Le Service Public Federal Justice, Universidad Autonoma De Barcelona, Inspectoratul General Al Politiei Romane, Metrohm Dropsens Sl, Ministerie Van Financien, Scottish Police Authority, Izertis Sociedad Anonima, Service Public Federal Finances, Swedish Customs, Inspectoratul General Al Politiei De Frontiera, Police Grand-Ducale, Muitines Kriminaline Tarnyba, Home Office https://bordersens.eu/
	TECHNOLOGY READINESS LEVEL (1-9)
	UNKNOWN

2	TITLE OF SOLUTION
	SafeShore

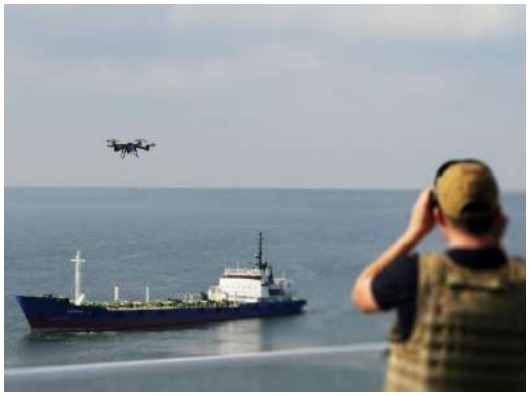
DESCRIPTION & USE OF THE SOLUTION

The main objective of the SafeShore project is to cover existing gaps in coastal border surveillance, increasing internal security by preventing cross-border crime such trafficking in human beings and the smuggling of drugs. It is designed to be integrated with existing systems and create a continuous detection line along the border. One of the treats to the maritime coast are small Remotely Piloted Aircraft Systems (RPAS) which can carry explosives or which can be used for smuggling drugs, boats and human intruders on the sea shore.

The SafeShore core solution for detecting small targets that are flying at low attitude is to use a 3D LIDAR that scans the sky and creates above the protected area a virtual dome shield. SafeShore will also integrate the 3D LIDAR with passive acoustic sensors, passive radio detection and video analytics.

TECHNOLOGICAL GAPS & CHALLENGES

NOT REPORTED

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	Coordinator: Ecole Royale Militaire - Koninklijke Militaire School Consortium Of 11 Partners: Dr Frucht Systems Ltd, Uti Grup Sa, Universita Del Salento, Tg Drives Sro, Institutul De Optoelectronica Sa, Queen Mary University Of London, Optix Ad, Serviciul De Protectie Si Paza, Ministry Of Public Security, Politiezone: De Panne - Koksijde – Nieuwpoort, Inspectoratul General Al Politiei De Frontiera Https://Cordis.Europa.Eu/Project/Id/700643
	TECHNOLOGY READINESS LEVEL (1-9)
	UNKNOWN

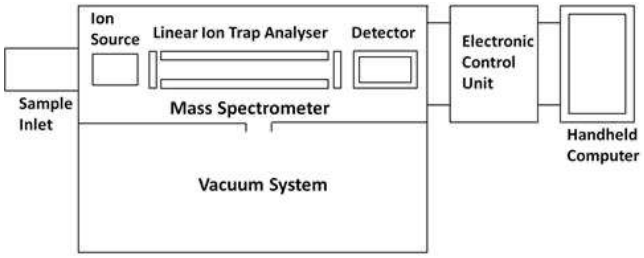
3	TITLE OF SOLUTION
	SNIFFLES

DESCRIPTION & USE OF THE SOLUTION

The concept of the SNIFFLES project is to develop a state-of-the-art miniature and portable electronic gas sensor capable of detecting hidden persons and illegal substances - providing a cost effective and scalable technology to complement the work of sniffer dogs.

TECHNOLOGICAL GAPS & CHALLENGES

- Ensure that the EU's borders remain permeable and efficient for legitimate travellers and goods, while being an effective barrier to cross-border crime.

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	TWI Ltd, University Of Liverpool, Aix-Marseille Université, Da Vinci Laboratory Solutions, Q-Technologies Ltd, SAES Getters Group, Envisiontec GbmH, XaarJet AB, Wagtail UK Ltd http://www.sniffles.eu/
	TECHNOLOGY READINESS LEVEL (1-9)
	4-5

4	TITLE OF SOLUTION
	CHEMSNIFF

DESCRIPTION & USE OF THE SOLUTION

ChemSniff will develop a multi-mode sniffer device for real-time detection of chemical
compounds contained in CBRN-E substances. This will enable high throughput screening of soft targets such as vehicles, people and their personal effects. The technology is based on a linear ion trap (LIT) mass spectrometer (MS) operating in a non-scanning mode. A non-scanning LIT allows selective ion monitoring of target threat molecules using optimal voltages for each ion mass without performing a full mass spectral scan. This result is higher sensitivity, simpler control electronics, smaller size, lower power consumption and cost. The limits of detection of LIT-MS
instrument are in low parts per billion (ppb) with parts per trillion (ppt) levels achievable with suitable analyte enrichment provided by a pre-concentrator. Once the MS fingerprint of an unknown substance is measured, it can be compared online with a database of known substances enabling real-time rapid identification.
The project outcome will be an automated portable MS-based sniffer device, tested and evaluated for a range of security applications and markets by end-users.

TECHNOLOGICAL GAPS & CHALLENGES

- Chemical sniffer device for multi-mode analysis of threat compounds

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	DA VINCI LABORATORY SOLUTIONS BV, Q TECHNOLOGIES LTD https://cordis.europa.eu/project/id/674716
	TECHNOLOGY READINESS LEVEL (1-9)
	UNKNOWN

5	TITLE OF SOLUTION
	DIRAC

DESCRIPTION & USE OF THE SOLUTION

The goal of this project is to develop an advanced sensor system, that combines miniaturized Gas Chromatography (GC) as its key chemical separation tool, and Hollow-Fiber-based Infra-Red Absorption Spectroscopy (HF-IRAS) as its key analytical tool to recognize and detect illicit drugs, key precursors and potential derivatives.

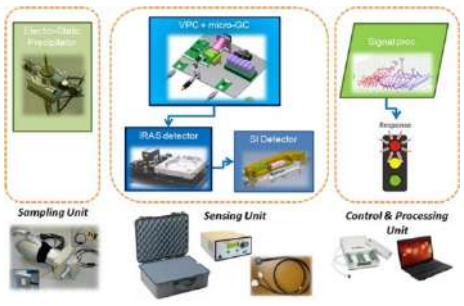
The DIRAC sensor will be developed to:

- be used on the field primarily by customs officers for controls at the EU external frontiers and by law enforcement personnel for intra-Community checks as a rugged and hand-portable unit;
- perform rapid detection of key chemicals;
- reject interferents with minimal false positive alarm rate;
- perform advanced data analyses such as similarity evaluation between the chemical structure of the unknown sample with that of controlled/illicit substances.

The Overall Objective of the project is the development of an advanced sensor for the detection and identification of illicit drugs and key precursors

TECHNOLOGICAL GAPS & CHALLENGES

NOT REPORTED

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	Consortium Of 10 Partners: CREO, FRAUNHOFER INSTITUTE IPM (DE), CNR IMM (I), EADS IW (DE), SELEX ES (I), UNIVERSITY OF LAUSANNE (CH), UNIVERSITY OF GALATI (RO), NICC (BE), NBI (FI), INSTM (I) http://Www.Fp7-Dirac.Eu/
	TECHNOLOGY READINESS LEVEL (1-9)
	UNKNOWN

6	TITLE OF SOLUTION
	MARISA

DESCRIPTION & USE OF THE SOLUTION

Securing European waters requires daily collaboration efforts amongst a broad range of actors. MARISA created a toolkit to improve maritime surveillance knowledge and capabilities.

Test outcomes showed that the sensor enables the handling, separation and examination of samples. It can also distinguish between a number of compounds, and detection is not compromised by humidity or the presence of other chemicals.

TECHNOLOGICAL GAPS & CHALLENGES

- Create improved situational awareness with a focus on delivering a complete and useful comprehension of the situation at sea;
- Support the practitioners along the complete lifecycle of situations at sea, from the observation of elements in the environment up to detection of anomalies and aids to planning;
- Ease a fruitful collaboration among adjacent and cross-border agencies operating in the maritime surveillance sphere (Navies, Coast Guards, Customs, Border Polices) in order to pull resources towards the same goal, leading to cost efficient usage of existing resources;
- Foster a dynamic eco-system of users and providers, allowing new data fusion services, based on a "distilled" knowledge, to be delivered to different actors at sea by the integration of a wide range of data and sensors.

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	Leonardo - Societa Per Azioni https://www.marisaproject.eu/
	TECHNOLOGY READINESS LEVEL (1-9)
	UNKNOWN

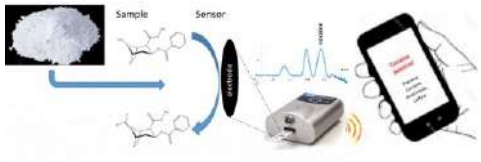
7	TITLE OF SOLUTION
	NARCOREADER

DESCRIPTION & USE OF THE SOLUTION

Drug use continues to be a problem of major concern for public authorities worldwide. According to the World Drug Report elaborated by the United Nations Office of Drugs and Crime (UNODC) approximately 207,000 drug-related deaths occur per year. With between 162 million and 324 million people aged 15-64 having used an illicit drug — mainly substances belonging to canabinoids, opioids, cocaine or amphetamine-type stimulants group — at least once in the previous year, drug abuse continues to have devastating consequences on human health.
This project proposes to develop novel, inexpensive and portable multisensing devices adapted for the rapid on-site screening of a number of illicit drugs, using recent advances in biomimetic materials coupled with electrochemistry. The multisensing devices will facilitate (1) detection and capturing illicit drugs crossing borders and (2) identification of drug users (e.g. drivers of vehicles at roadside, employees at work places, prisoners). In addition to rapidity and high selectivity of the detection, the sensing strategies will also give information about (1) the type of drug and cutting agents (2) amount of drug present in biological samples. Moreover, the strategies employed will bring insights for better understanding of bio-mimicking nanoplatforms leading to more efficient technologies in health and biotech.
The achievement of the actions goal will lead to reducing the incidence and prevalence of illicit drugs use and to a better management of drug-related problems with high societal impact. The underlying technologies will open doors for a broader range of applications.

TECHNOLOGICAL GAPS & CHALLENGES

Novel, inexpensive and portable multisensing devices adapted for the rapid on-site screening of a number of illicit drugs

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	Universiteit Antwerpen https://cordis.europa.eu/project/id/753223/fr
	TECHNOLOGY READINESS LEVEL (1-9)
	UNKNOWN

8	TITLE OF SOLUTION
	COMPASS2020

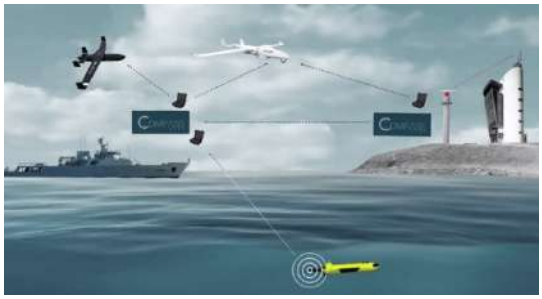
DESCRIPTION & USE OF THE SOLUTION

COMPASS2020 aims to demonstrate the combined use and seamless coordination of manned and unmanned assets to achieve greater coverage, better quality of information and shorter response times in maritime surveillance operations. By combining innovative technologies and integrating them within the current operational procedures, COMPASS2020 solution ensures long range and persistent surveillance, increasing the situational awareness of Coast Guards and maritime authorities, thus increasing the cost-effectiveness, availability and reliability of the operations.

The major goal of COMPASS2020 is to demonstrate an operational solution to ensure long range and persistent surveillance, increasing the situational awareness of coast guards and maritime authorities, and, thus, increasing the cost-effectiveness, availability and reliability of the operations.

TECHNOLOGICAL GAPS & CHALLENGES

NOT REPORTED

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	Consortium Partners: Tekever Asds, Naval Group, Airbus Defence And Space Gmbh, Edisoft-Empresa De Servicos E Desenvolvimento De Software Sa, Eca Robotics, Nederlandse Organisatie Voor Toegepast Natuurwetenschappelijk Onderzoek – Tno, Institutul National De Cercetare-Dezvoltare Aerospatiala, Elie Carafoli- Incas Bucuresti, Isd Lyseis Olokriromenon Systimatonanonymos Etaireia, Stichting Koninklijk Nederlands Lucht - En Ruimtevaartcentrum, Centro De Analise E Operacoes Maritimas-Narcoticos, Nato Science And Technology Organisation, Home Office, Ministarstvo Saobracaja I Pomorstva, Uprava Pomorske Sigurnosti I Upravljanja Lukama
	TECHNOLOGY READINESS LEVEL (1-9)
	UNKNOWN

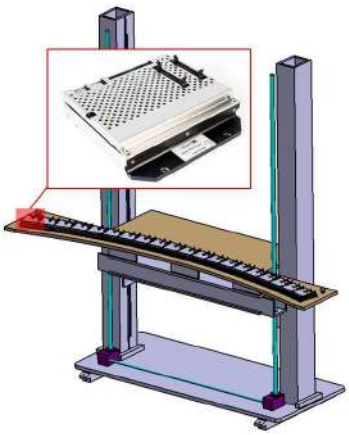
9	TITLE OF SOLUTION
	ACXIS

DESCRIPTION & USE OF THE SOLUTION

"Automated Comparison of X-ray Images for cargo Scanning" with reference material (use of historic images in an automated environment) to identify irregularities. The project ACXIS develops a manufacturer independent reference database for X-ray images of illegal and legitimate cargo, procedures and algorithms to uniform X-ray images of different cargo scanners and measurement parameters, and an automated identification of potentially illegal cargo. Historic images of real detections and images of illegal cargo mock-ups as well as images of legitimate cargo will be integrated into the reference database.

TECHNOLOGICAL GAPS & CHALLENGES

NOT REPORTED

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	Coordinator: EIDGENOSSISCHE MATERIALPRUFUNGS- UND FORSCHUNGSANSTALT Consortium of partners: APSS SOFTWARE & SERVICES AG, Commissariat à l'Energie Atomique et aux Energies Alternatives, Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V., SMITHS HEIMANN SAS, Eidgenössische Zollverwaltung, MINISTERIE VAN FINANCIEN https://cordis.europa.eu/project/id/312998
	TECHNOLOGY READINESS LEVEL (1-9)
	UNKNOWN

10	TITLE OF SOLUTION
	MESMERISE

DESCRIPTION & USE OF THE SOLUTION

MESMERISE will develop and test a High-resolution non-intrusive scanner up to TRL 5 able to automatically detect and identify both internal and external concealed commodities being entirely independent of human operator interpretation and training and based on two complementary technologies: ultra-low-dose Multispectral X-ray transmission and Infrasonic interrogation.

A novel x-ray detector, in addition to a higher imaging resolution, captures 256 channels of spectroscopic information, allowing a step change in material identification. Crucially, this level of resolution has the potential to enhance the detection of narcotics and explosives concealed in the body -a highly complex problem with currently available equipment.

A second subsystem for detecting externally concealed items based on a novel, intrinsically safe, technology (infrasound near-field acoustic holography) is entirely new to security screening. Low-fq MEM Micro-technology shall also be exploited to provide an automated version of non-contact pat-down.

Both sub-systems will be able to work independently, or together to provide complementary information and improve the detection of externally concealed objects. Automated algorithms for both subsystems and, through data fusion techniques, for the combined system will identify chemical substances, recognise pattern and detect anomalies with100g threshold in any part of the body, including prosthetic elements or plasters.

TECHNOLOGICAL GAPS & CHALLENGES

- Multi-Energy High Resolution Modular Scan System for Internal and External Concealed Commodities

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)

	Coordinator: University of Alcala Consortium of 12 partners: MULTIX SA, ADANI, Commissariat à l'Energie Atomique et aux Energies Alternatives, CENTRO DE INVESTIGACIONES ENERGETICAS, MEDIOAMBIENTALES Y TECNOLOGICAS-CIEMAT, HOME OFFICE, MINISTERIO DEL INTERIOR, UNIVERSITATEA DUNAREA DE JOS DIN GALATI, HORNIG WOLFGANG, San Jorge Tecnológicas S.L., TOLLREGION OSLO OG AKERSHUS, INSTITUTO NACIONAL DE TECNICA AEROESPACIAL ESTEBAN TERRADAS, DETECTION TECHNOLOGY SAS https://cordis.europa.eu/project/id/700399
	TECHNOLOGY READINESS LEVEL (1-9)
	5

11	TITLE OF SOLUTION
	INDECT

DESCRIPTION & USE OF THE SOLUTION

The EU-funded project "Intelligent information system supporting observation, searching and detection for security of citizens in urban environment" (INDECT, http://www.indect-project.eu/) worked on developing solutions designed for police and other law enforcement authorities in the EU. Focusing on automatic threat detection in urban environments, the project team developed a set of tools supporting decision-making in counteracting threats and criminal activities.

European scientists and researchers developed solutions and tools for automatic threat detection. The primary objective was to develop advanced and innovative algorithms for human decision support in combating terrorism and other criminal activities, such as human trafficking, child pornography, detection of dangerous situations (e.g. robberies) and the use of dangerous objects (e.g. knives or guns) in public spaces. Efficient tools for dealing with such situations are crucial to ensuring the safety of citizens.

A significant part of the project was dedicated to the development of tools and methods for data and privacy protection. The processed information is protected before its transmission or storage to prevent any attempts at unauthorized access.

TECHNOLOGICAL GAPS & CHALLENGES

- Intelligent Information System Supporting Observation, Searching and Detection for Security of Citizens in Urban Environment

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	Coordinator: AGH University of Science and Technology
	TECHNOLOGY READINESS LEVEL (1-9)
	2

12	TITLE OF SOLUTION
	CRIM-TRACK

DESCRIPTION & USE OF THE SOLUTION

The detection of illegal compounds is an important analytical problem which requires reliable, selective and sensitive detection method that provides the highest level of confidence in the result. Moreover, to contribute in the successful development the automated target acquisition, identification and signal processing of data from the sensor is mandatory.

The aim of the CRIM-TRACK project is to demonstrate a working sensing device that can be developed into a portable, miniaturized, automated, rapid, low cost, highly sensitive, and simple "sniffer" and detection unit, based on a disposable micro-colorimetric chip. The unit can be used for identification of a wide variety of illegal drugs, drug precursors and home-made explosives. The project combines highly advanced disciplines, like organic chemistry, micro fabrication and hardware technology, machine learning and signal processing techniques. It will provide custom officers, police and other authorities with an effective tool to control trafficking of illegal drugs and drug precursors.

TECHNOLOGICAL GAPS & CHALLENGES

- Functional prototype in controlled experiments and for drug sniffing only used for 1 type

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	Coordinator: DANMARKS TEKNISKE UNIVERSITET Consortium of partners: CRANFIELD UNIVERSITY, SECURETEC DETEKTIONS-SYSTEME AG, PRO DESIGN Electronic GmbH, GAMMADATA INSTRUMENT AB, MINISTERIE VAN FINANCIEN, MYKOLO ROMERIO UNIVERSITETAS, FORSVARET OG FORSVARSMINISTERIETS STYRELSER https://cordis.europa.eu/project/id/313202
	TECHNOLOGY READINESS LEVEL (1-9)
	4

13	TITLE OF SOLUTION
	ALFA

DESCRIPTION & USE OF THE SOLUTION

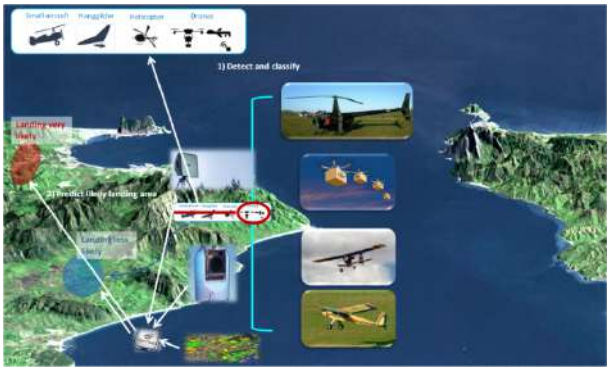
Efficient pursuit of drug trafficking requires timely warning and knowledge of the intended landing site or dropping zone. This will allow law enforcement entities to intercept the drugs and smugglers on the ground, as well as the pilot in case of landing.

ALFA provides a solution for the detection of small aircraft that are used to smuggle drugs from Morocco to Spain and Portugal. The system will assist the police officers to hunt down and arrest the smugglers.

The ALFA project is developing a system that can cope with the above mentioned situation. The ALFA system consists of radars, cameras and other sensors that are specifically designed to detect small aircraft and drones. Moreover, the system can reveal much information about the craft, like for example the rotational speed of the engine and, for a drone, the number of rotors. This all helps the identification of the drone or aircraft.

TECHNOLOGICAL GAPS & CHALLENGES

NOT REPORTED

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	Coordinator: TECHNIKON FORSCHUNGS- UND PLANUNGSGESELLSCHAFT MBH Consortium of 8 partners: NEDERLANDSE ORGANISATIE VOOR TOEGEPAST NATUURWETENSCHAPPELIJK ONDERZOEK TNO, INOV INSTITUTO DE ENGENHARIA DE SISTEMAS E COMPUTADORES, INOVACAO, THALES NEDERLAND BV, ENGINEERING - INGEGNERIA INFORMATICA SPA, MINISTERIO DA ADMINISTRACAO INTERNA, ATOS SPAIN SA, TECHNISCHE UNIVERSITAT BRAUNSCHWEIG, MINISTERIO DEL INTERIOR

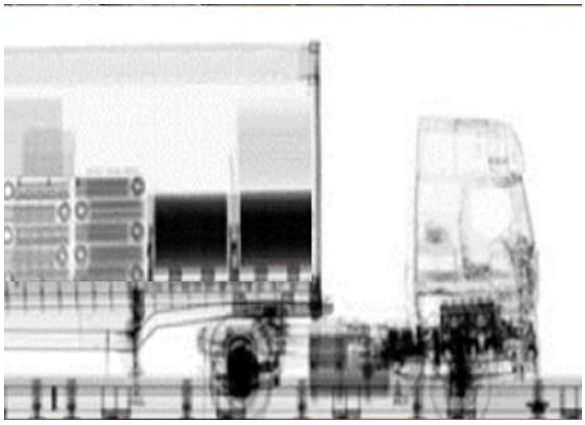
14	TITLE OF SOLUTION
	CBORD

DESCRIPTION & USE OF THE SOLUTION

Efficient NII (non-intrusive inspection) of containerised freight is critical to trade and society. Freight containers are potential means for smuggling (e.g. tobacco), illegal immigration, trafficking of drugs, mis-declared goods and dangerous illicit substances, including explosives, nuclear material, chemical and biological warfare agents and radioactively contaminated goods. One inspection NII technology cannot cope with all these targets.
The C-BORD Toolbox and Framework will address all these targets and enable customs to deploy comprehensive cost-effective container NII solutions to potentially protect all EU sea- and land-borders, satisfying a large range of container NII needs.
C-BORD will increase the probability of finding illicit or dangerous content with at least equal throughput of containers per time unit, reduce the need for costly, time-consuming and dangerous manual container inspections by customs officials, and in case a container is opened, increase the probability of finding illicit materials.

TECHNOLOGICAL GAPS & CHALLENGES

- Maximise effectiveness and reduce safety risks for custom agents when opening containers for inspection.
- Reduce false negative and false positive alarms.

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	Coordinator: Commissariat à l'Energie Atomique et aux Energies Alternatives Consortium of Partners: ARTTIC, Hochschule Bonn-Rhein-Sieg, COSTRUZIONI APPARECCHIATURE ELETTRONICHE NUCLEARI CAEN SPA, CHAMBRE DE COMMERCE ET D'INDUSTRIE DE REGION PARIS ILE-DE-FRANCE, Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V., ENERGIATUDOMANYI KUTATOKOZPONT, NARODOWE CENTRUM BADAN JADROWYCH, OSLO

	CENTRE FOR SCIENCE IN SOCIETYAS, MINISTERIE VAN FINANCIEN, SYMETRICA SECURITY LTD, SMITHS HEIMANN SAS, Università degli Studi di Padova, The University of Manchester, IZBA ADMINISTRACJI SKARBOWEJ W GDANSKU, NEMZETI ADO- ES VAMHIVATAL, JRC -JOINT RESEARCH CENTRE- EUROPEAN COMMISSION, AGENZIA DELLE DOGANE E DEI MONOPOLI, ECOLE NORMALE SUPERIEURE https://cordis.europa.eu/project/id/653323
	TECHNOLOGY READINESS LEVEL (1-9)
	6-7

15	TITLE OF SOLUTION
	COSMIC

DESCRIPTION & USE OF THE SOLUTION

The COSMIC Analytics System for detection of CBRNE components in containers is the key integrator component dealing with all information and data gathered from the COSMIC sensors in order to be: stored, processed and visualized in a Dashboard. The data collected from the new COSMIC sensors (chemical, biological, radiological, nuclear and explosives), will be injected in the COSMIC Analytics System following the SOS Standard interface. The existing sensors (X-Ray and RPM) as well as the information included in the Container Manifest, will be entered manually in the Analytics System by the end-user (Customs Operator). The Analytics System collects data from:
COSMIC Primary Sensors. Data and measurements from the COSMIC primary chemical, biological and explosives sensors will be injected into the Analytics System to be stored and processed. In the biological sensor case, processing techniques including machine learning (artificial neural networks) will be applied, allowing to classify biological samples (virus/bacteria).
COSMIC Secondary Sensors. Those containers that triggered a CBRNE alarm during the Primary Stage inspection, will be inspected through the COSMIC Secondary Sensors. The data collected from the Secondary Sensors (Chemical, Biological, Radiological, Nuclear and Explosives), will be injected in the Analytics System over the SOS interface, to be stored and processed.
Changing some of the sensor filters, this solution could be used for drug detection.
COSMIC proposes a novel technological approach for the detection of CBRNE materials hidden in shipping containers. COSMIC project includes the research, design and implementation of a three stage (primary, secondary, focused manual inspection) detection system using new set of innovative sensors.

TECHNOLOGICAL GAPS & CHALLENGES

- Mobility of the system.

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)

Coordinator: LINGACOM LTD, SOCIEDAD EUROPEA DE ANALISIS DIFERENCIAL DE MOVILIDAD SL, ATOS SPAIN SA, TECHNION ISRAEL INSTITUTE OF TECHNOLOGY, BEN-GURION UNIVERSITY OF THE NEGEV, MINISTERIE VAN FINANCIEN, MINISTERIO DEL INTERIOR, AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS, MINISTRY OF PUBLIC SECURITY, ATOS IT SOLUTIONS AND SERVICES IBERIA SL
https://cordis.europa.eu/project/id/786945

TECHNOLOGY READINESS LEVEL (1-9)
6-7

16	TITLE OF SOLUTION
	ePOOLICE

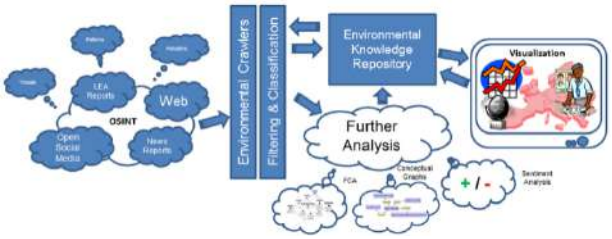
DESCRIPTION & USE OF THE SOLUTION

Organized crime is becoming more diverse in its activities and methods including "greater levels of collaboration between criminal groups, greater mobility in and around the EU, a diversification of illicit activity, and a growing dependence on a dynamic infrastructure, anchored in key locations and facilitated by widespread use of the Internet" (the Director of Europol, in his foreword to the OCTA 2011 report). An important means for law enforcement in combatting such crime is strategic early warning which is heavily depending on an efficient and effective environmental scanning.

From this, the e-POOLICE project will—in close collaboration with law enforcement partners, as well as criminological and legal experts—develop a prototype of an environmental scanning system implementing solutions applying the most promising technological advances and breakthroughs as provided by the RTD partners. The solutions will be tested an evaluated through running realistic use case scenarios that are developed by our user partners.

TECHNOLOGICAL GAPS & CHALLENGES

- Large and increasing amount of potentially relevant information that is accessible on-line from different media, in unstructured and disparate forms.
- Use of multiple languages by criminals.
- Managing ethical and privacy issues related to personal information available online.

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	Coordinator: INGENIERIA DE SISTEMAS PARA LA DEFENSA DE ESPANA SA-SME MP Consortium of Partners: West Yorkshire Police Authority, AALBORG UNIVERSITET, Commissariat à l'Energie Atomique et aux Energies Alternatives, THALES SIX GTS FRANCE SAS, Fraunhofer-Gesellschaft zur Förderung der angewandten Forschung e.V., UNIVERSIDAD DE GRANADA, SHEFFIELD HALLAM UNIVERSITY, INTHEMIS, LEGIND TECHNOLOGIES AS, SAS SOFTWARE LIMITED, MINISTERIO

	DEL INTERIOR, POLICE AND CRIME COMMISSIONER FOR WEST YORKSHIRE, UNITED NATIONS INTERREGIONAL CRIME AND JUSTICE RESEARCH INSTITUTE, HOCHSCHULE FUR DEN OFFENTLICHEN DIENST IN BAYERN, EUROPEAN UNION AGENCY FOR LAW ENFORCEMENT COOPERATION (EUROPOL), INSTITUTET FOR FREMTIDSFORSKNING FORENING, THALES NEDERLAND BV, D4TEC APS https://cordis.europa.eu/project/id/312651
	TECHNOLOGY READINESS LEVEL (1-9)
	6-7

17	TITLE OF SOLUTION
	PERSEUS

DESCRIPTION & USE OF THE SOLUTION

PERSEUS contributes to Europe's efforts to monitor illegal migration and combat related crime and goods smuggling by proposing a large scale demonstration of a EU Maritime surveillance System of Systems, on the basis of existing national systems and platforms, enhancing them with innovative capabilities and moving beyond EUROSUR's 2013 expectations.
PERSEUS articulates this demonstration through 5 exercises grouped in 2 campaigns, implementing missions of drug trafficking and illegal migration control and delivering surveillance continuity from coastal areas to high seas. The project delivers a comprehensive set of validated and demonstrated recommendations and proposes standards.
PERSEUS has assembled major users and providers, ensuring privileged access to existing surveillance systems and assets for an optimised coverage of the area of interest. These users will define, assess and validate the alignment of PERSEUS's recommendations to their needs. PERSEUS also includes an evolution mechanism to enlarge the user base and integrate emerging technologies during its lifetime.
PERSEUS will augment the effectiveness of operational capabilities of the existing systems – a relevant and coordinated contribution to the establishment of an integrated European-wide maritime border control system.

TECHNOLOGICAL GAPS & CHALLENGES

- supporting the network created by National Contact Centres, Frontex and EMSA through increased capabilities, including transnational exchange of useful and available information, and associated procedures and mechanisms, thereby supporting the creation of a common information sharing environment
- of a common situational picture
- improved detection and identification of non-collaborative/suspicious small boats and low flying aircraft
- enhanced and increasingly automated detection of abnormal vessel behaviours, identification of threats and tracking of reporting and non-reporting vessels

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)

N/A	Coordinator: INDRA SISTEMAS SA https://cordis.europa.eu/project/id/261748
	TECHNOLOGY READINESS LEVEL (1-9)
	UNKNOWN

1	TITLE OF SOLUTION
	Computercriminaliteit III: Law on detection and prosecution of computer criminality

DESCRIPTION & USE OF THE SOLUTION

Computercriminaliteit III (Computer criminality III) is the Dutch law that increases the detection and prosecution possibilities of computer crime in the criminal law and criminal procedure code. The law has been put to use since March 1, 2019.
Amongst other things, with this law police and justice can secretly investigate device data at distance. Investigating officers are given more possibilities to perform detection for serious crimes. Depending on the circumstances they can make data inaccessible, copy data and tap or observe communication. This is also a way to bypass encryption. At the current level it is not probable to gain results from a network tap, due to encryption of communication. It is now possible, under the exact right circumstances naturally, to exploit a criminal device on the weak spot in the software and use this access for the goals mentioned above.

TECHNOLOGICAL GAPS & CHALLENGES

- Exploits and access are complex and situation dependent.

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	Commissie voor Justitie en Veiligheid (J&V)
	TECHNOLOGY READINESS LEVEL (1-9)
	9

2	TITLE OF SOLUTION
	HI-SCAN 100100T

DESCRIPTION & USE OF THE SOLUTION

The HI-SCAN 100100T is a state-of-the art X-ray inspection system for scanning objects up to a size of 100 x 100cm.
Designed to meet the needs of airports, customs facilities, transportation operations, carriers and parcel services – in applications where high security and the screening of large objects are required.
The low installation height of the conveyor system facilitates the connection of supplementary feed and/or discharge conveyor systems for heavy freight.

TECHNOLOGICAL GAPS & CHALLENGES

- It still only measures cocaïne and methamphetamine.

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	SMITHS DETECTION
	TECHNOLOGY READINESS LEVEL (1-9)
	9

3	TITLE OF SOLUTION
	HANSKEN

DESCRIPTION & USE OF THE SOLUTION
The Netherlands Forensic Institute created a forensic search machine or data platform which is software that can search efficiently through large quantities of data on data carriers. The system creates a copy that can be searched. There is the possibility to search on anything relevant, like words, characteristics, certain messages or photos from the same source. Researches can filter the tracks until a selection they want to manually look into. There is a continuous development of Hansken to adjust it to search needs.

TECHNOLOGICAL GAPS & CHALLENGES
• It is not a real time data sharing platform.

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
Hansken The open digital forensic platform investigate - innovate - share	NFI (Netherlands Forensic Institute)
	TECHNOLOGY READINESS LEVEL (1-9)
	9

3	TITLE OF SOLUTION
	Checkpoint.Evo[plus]

DESCRIPTION & USE OF THE SOLUTION

Checkpoint.Evoplus is a digital-led solution that helps checkpoints achieve the highest level of security and improved operations by delivering critical insights and enabling remote screening.
Checkpoint.Evoplus' intelligence software analyses data from various systems, sensors and components from across an entire screening area to generate a full range of invaluable insights. This data makes it easy to monitor performance metrics in real-time for faster and better decision-making.
Consolidated KPIs provide an overall view of the system status with clear audio and visual notifications drawing attention to any changes in the customised performance thresholds. It also generates historical data and reports required for resource planning and general administration. KPIs can be monitored and shared via a central dashboard which can also be accessed from mobile devices.
Networked images can be collected from all security lanes and delivered to a team of operators based at a remote location, away from the distractions of the busy checkpoint. Suspicious areas are marked and classified on the images, so staff at the checkpoint know exactly where to focus secondary inspections.
Checkpoint.Evoplus is compatible with both 2D and 3D screening, allowing for the benefits of the software to continue when upgrading to a 3D system.

TECHNOLOGICAL GAPS & CHALLENGES

- Checkpoint.Evoplus is compatible with both 2D and 3D screening, allowing for the benefits of the software to continue when upgrading to a 3D system.

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	SMITHS DETECTIONAL GAPS &

	**TECHNOLOGY READINESS LEVEL (1-9)** 9

3	**TITLE OF SOLUTION** **EAGLE® M60 ZBx**

DESCRIPTION & USE OF THE SOLUTION

The Rapiscan Eagle® M60 ZBx is an advanced, multi-technology, mobile inspection system for scanning cargo and vehicles at seaports, border crossings, and security checkpoints. The system offers high-quality transmission X-ray technology with material discrimination for powerful imaging of dense cargo and Z Backscatter® technology for enhanced detection of organic threats and contraband with photo-like imaging for easier image interpretation.

TECHNOLOGICAL GAPS & CHALLENGES

NOT REPORTED

ILLUSTRATION	**NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)**
	RAPISCAN
	TECHNOLOGY READINESS LEVEL (1-9)

	9

4	TITLE OF SOLUTION
	FirstView-LINX

DESCRIPTION & USE OF THE SOLUTION
FirstView-LINX works over a standard Ethernet network to integrate HI-SCAN X-ray imaging and IONSCAN 500DT trace detection systems. Based on a package's shipping barcode, FirstView-LINX can automatically archive key data from our screening equipment – such as the X-ray image and/or trace results – including the date and time and the operator that screened the package.

TECHNOLOGICAL GAPS & CHALLENGES
NOT REPORTED

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	SMITHS DETECTION

	TECHNOLOGY READINESS LEVEL (1-9)
	9

5	TITLE OF SOLUTION
	INCENT.CONTROL

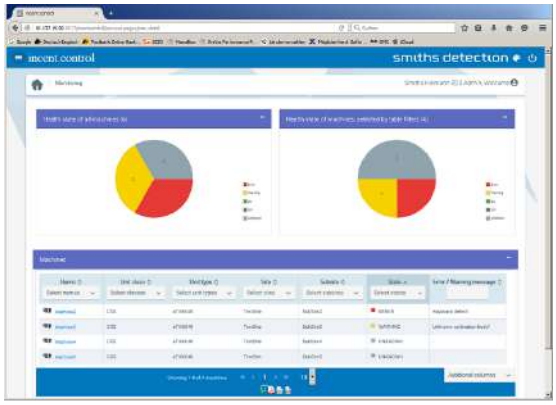
DESCRIPTION & USE OF THE SOLUTION

A web-based management platform for CXS/EDS networks, incent.control provides mobility, flexibility, cost reduction and IT security to those responsible for managing security checkpoints, explosives detection systems or any other networked Smiths Detection sensor product.
Can be used for checkpoints, hold-baggage screening systems, X-ray units, trace products and other sensors.
Using incent.control, the user's web browser is connected with the Smiths Detection server. The application being delivered by the server, there is no need to install any software onto individual devices.
In existing MatriX Server or HMS systems, the activation of incent.control requires only a software update of the server.
incent.control is complementary to existing HMC workstations.

TECHNOLOGICAL GAPS & CHALLENGES

NOT REPORTED

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)

	SMITHS DETECTION
	TECHNOLOGY READINESS LEVEL (1-9)
	9

6	**TITLE OF SOLUTION**
	MATRIX SERVER

DESCRIPTION & USE OF THE SOLUTION

The MatriX Server enables networking functions and software applications. It is the essential core of any networking solution in many different market sectors, including ports and borders, urban security, defence and, of course, aviation.

In aviation, the major applications supported by the server are system management and X-ray image distribution for hold baggage and checkpoint screening – driven by advanced screening and management platforms such as Checkpoint.Evoplus.

It facilitates everything from small networks and functions such as centralised screening and real-time management data, to linking large, international airport groups. Up to 600 X-ray scanners can be supported by one MatriX Server.

Each system is assembled and configured according to individual customer requirements and tested to ensure turn-key operation. Premium components and commercially available standard hardware, deliver excellent reliability. Additional features include extended temperature range; spatial redundancy solutions; single mode optical fibre technology; and external data interfaces to support risk-based screening and remote maintenance.

TECHNOLOGICAL GAPS & CHALLENGES

NOT REPORTED

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	SMITHS DETECTION
	TECHNOLOGY READINESS LEVEL (1-9)
	9

7	TITLE OF SOLUTION
	B-SCAN

DESCRIPTION & USE OF THE SOLUTION

The B-SCAN series helps to reduce the smuggling of drugs, weapons, mobile phones and other contraband.
It is available in four models, to support both general and limited-use applications, in accordance with ANSI N43.17 2009 guidelines.
General-use refers to screening systems that use extremely low X-ray dose rates to screen a person. The dose rate is so low that there is, in effect, no need to monitor the number of screenings an individual can have in a year.
16HR-LD 100 – lowest-dose system is for applications such as regular inmate screening for contraband. Operating at 0.1μSv per inspection, allowing for 2,500 scans/year.
16HR-LD 250 – Operates at a dose rate of 0.25μSv per inspection (1,000 scans/year).
Limited use refers to screening systems that use a higher dose rate per scan to provide superior images. The use of these systems must be controlled and the annual scan count for a given person is limited. Scan and Image Management (SIM) software is used to fully log and control the use of the system so that any individual receives only the appropriate number of scans.
Because B-SCAN uses fixed sensor components, it is a reliable and easy-to-maintain system, with low costs of ownership over its lifetime.
There are currently several hundred B-SCAN systems in use around the world in a variety of applications, such as prisons, airports and customs checkpoints.
Other applications include mines and refineries, helping to reduce incidents of diamond, gem and precious-metal thefts by employees.
All models have been independently verified to meet the ANSI guidelines.

TECHNOLOGICAL GAPS & CHALLENGES

NOT REPORTED

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)

	SMITHS DETECTION
	TECHNOLOGY READINESS LEVEL (1-9)
	9

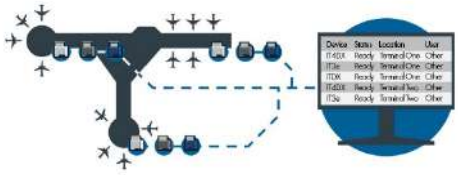
8	TITLE OF SOLUTION
	REMOTE CONNECT™ V3

DESCRIPTION & USE OF THE SOLUTION

Remote Connect Console V3 further enhances the capabilities of our Itemiser family of trace detection devices and fulfills a major operational and security need. Remote Connect software lets customers securely monitor, analyze and command their fleet of Itemiser devices, regardless of location, from any networked computer.
Users have an easy-to-use dashboard view of all networked Itemiser devices, with color-coded device status information, customizable instrument reporting , real-time system monitoring , a centralized database, and more . Data is securely and automatically backed up and can easily be accessed for additional analysis.
As a result, airports and other secure sites can enjoy true centralized device control while further streamlining operations and reducing costs.

TECHNOLOGICAL GAPS & CHALLENGES

NOT REPORTED

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	RAPISCAN
	TECHNOLOGY READINESS LEVEL (1-9)
	9

9	TITLE OF SOLUTION
	SURVEILLANCE VANS

DESCRIPTION & USE OF THE SOLUTION

Drug trafficking requires advanced level of surveillance, which often exceeds the modern satellite GPS applications and technological solutions. The reason behind is the need of the human factor (investigator) to be in proximity with the surveillance object. Currently many Law Enforcement Agencies have expressed the need of specialized VAN type vehicles equipped with cutting edge technology on cameras (x-ray backscatter, nano-technology), long-range microphones, tracking chemical powder (applied by surveillant, including CBRN material), also including innovative live streaming and geolocation tools (4G & RF) and software (triangulation). Additionally, the option of drone deployment should be further examined.
Embedded or separate technologies might include decryption tools (i.e. Pretty Good Privacy), PASSIVE Interception and IMSI Catchers

TECHNOLOGICAL GAPS & CHALLENGES

- Number Of Vans / Feasibility / Cost

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
ONEX Technology Systems Business Solutions	ONEX S.A.
	TECHNOLOGY READINESS LEVEL (1-9)
	4-5

10	TITLE OF SOLUTION
	PROGENY RESQ

DESCRIPTION & USE OF THE SOLUTION

The Rigaku Progeny ResQ 1064 nm handheld Raman analyzer provides emergency responders, law enforcement agencies and the military with the industry's most comprehensive tool for chemical threat identification, CBRNe detection, and narcotics classification in a fast and simple handheld form.
Faced with increasingly sophisticated chemical threats and global drug trafficking, Progeny ResQ provides users with confidence to detect explosive threats quickly and accurately in harsh environments, identify a wide range of narcotics and illegal drugs, respond to suspicious hazardous materials that risk public safety.

TECHNOLOGICAL GAPS & CHALLENGES

- NUMBER OF DEVICES / LIBRARY UPDATES

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	RIGAKU
	TECHNOLOGY READINESS LEVEL (1-9)
	UNKNOWN

11	TITLE OF SOLUTION
	Ahmia

DESCRIPTION & USE OF THE SOLUTION

Ahmia searches hidden services on the Tor network. Ahmia collects a list of known onion sites, information about these sites and saves it to its database. It also enables Visualizations.

Ahmia is mainly divided into three parts. Codes for these parts are open source and available on Github.

- Index: It refers to the data that Ahmia has collected. We use Elascticsearch to maintain this data.
- Crawler: It is the part that crawls onions on the Tor network and feed it to the index. Scrapy is one of the crawlers that we use.
- Site: It is the backbone of Ahmia that includes the design of the website and makes the search engine work.

Ahmia collects a list of known .onion sites, information about these sites and saves it to its database. Collected data is filtered to remove child abuse content (Refer: Blacklist).

Once data is filtered, it is available for search at Ahmia.

TECHNOLOGICAL GAPS & CHALLENGES

- Locate hidden services on TOR network
- Crawl TOR based network
- Enable ELSA sensitive content removal

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
AHMIA *Tor Anonymity Network Search Engine*	Ahmia Project

	TECHNOLOGY READINESS LEVEL (1-9)
	9

12	TITLE OF SOLUTION
	ASGARD
DESCRIPTION & USE OF THE SOLUTION	
ASGARD aims to contribute to LEA Technological Autonomy, by building a sustainable, long-lasting community for law enforcement agencies (LEAs) and the R&D industry. This community will develop, maintain and evolve a best-of-class tool set for the extraction, fusion, exchange and analysis of Big Data, including cyber-offense data for forensic investigation. ASGARD will help LEAs to significantly increase their analytical capabilities. Forensics being a focus of ASGARD, both intelligence and foresight dimensions are addressed by the project.	
TECHNOLOGICAL GAPS & CHALLENGES	
• Provide most recent investigative technologies to support new generation of cyber-crimes and cyber tools used by criminals.	
ILLUSTRATION	**NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)**
	ASGARD

	TECHNOLOGY READINESS LEVEL (1-9)
	UNKNOWN

13	TITLE OF SOLUTION
	HIWIRE™ Cyberecon

DESCRIPTION & USE OF THE SOLUTION

HIWIRE™ Cyberecon -builds detailed, cross-platform profiles, linking accounts, profiles, addresses, phone numbers, pictures, and web footprints.

Functionalities:

Profiles Research features people-search and business-search tools, integrating birth databases and company registers across the globe.

Start from Scratch searches begin with a single piece of information, using Machine Learning algorithms to extrapolate searches into full web footprints.

Integrated Workflow integrates fully with HIWIRE(tm) and other popular reporting tools. Export offline reports for fieldwork or send short summaries in common formats.

HIWIRE™ Connect- Send Messages on Mobile Social Chat Networks uses a clean and simple CRM-style GUI designed to speed message managing and alerting across popular mobile network applications.

Functionalities:

The New Deep Web Mobile social chat networks boast a high attachment and engagement rate ideal platforms for mass alerting, notification, and communication. Provides real-time notification and communication features, including account management and end-user retention details end-user retention details.

Dedicated interface unifies and simplifies high-volume messaging. A single operator can send and receive alerts across multiple networks, utilizing custom messaging.

OBTIGO – Data Fusion Solutions for Intelligence - combines Big Data processing capabilities and Artificial Intelligence (AI) methods to deliver End-to-End solution in a

single product for Investigation, Monitoring, Case Management, Reporting and Big Data Analytics.

It is a purpose-built solution for Military Intelligence and Law enforcement teams, drawing from years of experience in providing intelligence systems to government and commercial customers around the world

Artificial Intelligence Solution integrates Natural Language Processing (NLP) and a semantic engine for big data sense-making. By correlating extracted Entities, Topics and Relations with data patterns and major events, OBTIGO™ provides much greater insight into risks and investigation with actionable recommendations.

With OBTIGO™, you are operating on all your data, including structured and unstructured data, in hundreds of formats. A comprehensive data preparation layer automatically transform data, normalize it, analyze and correlate it with existing data. Special proprietary methods are used to prepare unstructured data for AI.

TECHNOLOGICAL GAPS & CHALLENGES
NOT REPORTED

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	WebintPro

	**TECHNOLOGY READINESS LEVEL (1-9)** 9

14	**TITLE OF SOLUTION** **Hunchly**

DESCRIPTION & USE OF THE SOLUTION

Hunchly automatically tracks the URL, timestamps, and hashes every page you visit during an investigation. This saves you hours in documentation time, so you have more time for performing investigative work.
Hunchly includes tools for you to quickly build disclosure packages for court. Compile the evidence you need to disclose and know that all of the forensic history is included. Hunchly's evidence signing allows a 3rd party to easily validate the evidence that you have submitted.

TECHNOLOGICAL GAPS & CHALLENGES

- Internet browsing is very dynamic activity resulting in different information flow over the network.
-
- To log it correctly, forensically sound, while not interfering the performance, result and not leaving the footprint is a challenge.

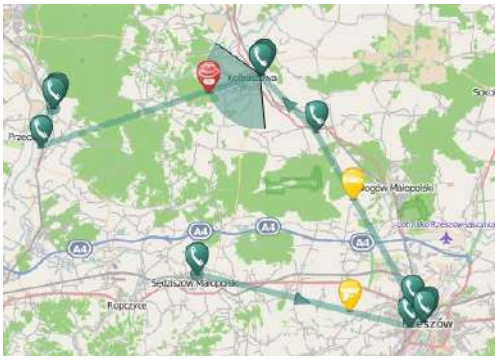
ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
HUNCHLY	Hunchly

	TECHNOLOGY READINESS LEVEL (1-9)
	9

15	TITLE OF SOLUTION
	LINK 2

DESCRIPTION & USE OF THE SOLUTION
LINK is a comprehensive data analysis platform aimed to aid criminal analysis. It's dedicated for analysts of public security services. The software has developed tools for data import, processing, analysis and visualization. Nevertheless, LINK is easy to use application that can be used for simple and advanced analyses.

TECHNOLOGICAL GAPS & CHALLENGES
• Enable network analysis on big data sources • Data correlations on key dimensions (relation, geo, quantitive attributes) on big data sources • Information visualization for quick insights generation

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	FS LAB
	TECHNOLOGY READINESS LEVEL (1-9)

	9

16	TITLE OF SOLUTION
	RAMSES

DESCRIPTION & USE OF THE SOLUTION

The overall objective of RAMSES is to design and develop a holistic, intelligent, scalable and modular platform for Law Enforcement Agencies to facilitate digital Forensic Investigations. The system will extract, analyze, link and interpret information extracted from Internet related with financially-motivated malware.

It focus on 2 case studies: ransomware and banking.

RAMSES HAS 3 MAIN AIMS

- Developing effective guidelines and collaborative methodologies for LEAs investigations.
- Developing a set of tools for Internet Forensics.
- Demonstrating the impact of the RAMSES platform, through several pilot exercises in different countries, training and awareness campaigns.

TECHNOLOGICAL GAPS & CHALLENGES

- Provide comprehensive analysis platform supporting holistic view on cases and investigations

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	RAMSES

	TECHNOLOGY READINESS LEVEL (1-9)
	4

17	TITLE OF SOLUTION
	Real time network, text, and speaker analytics for combating organized crime (ROXANNE)

DESCRIPTION & USE OF THE SOLUTION
The technical development will be centered around the ROXANNE platform, which will enhance criminal network analysis capabilities by providing a framework for extracting evidence and actionable intelligence based on speech, language and video technologies. The intention is not to replace humans but automate time-consuming tasks, and support LEA decision-making. Its early version will offer preliminary SLT, VA and NA capabilities to collect end-user feedback. The final version will provide multilingual, probabilistic tools interfacing SLT and NA technologies, boosted by natural language processing (NLP) and relation analysis in the synoptic criminal activity graph. ROXANNE will achieve full compliance with relevant INTERPOL and EU legal and ethical frameworks, including innovative approaches to data protection management such as privacy by design.

TECHNOLOGICAL GAPS & CHALLENGES
• Provide integrated intelligence combining speech, language and video data. • Automate intelligence process on heterogeneous data. • Provide multilingual data analysis and semantic interpretation. • Provide comprehensive data relationship analysis integrating speech, language and video data with multilingual perspective.

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)

ROXANNE	ROXANNE
	TECHNOLOGY READINESS LEVEL (1-9)
	5

18	**TITLE OF SOLUTION**
	VizKey™

DESCRIPTION & USE OF THE SOLUTION

VizKey™ - the software environment for analysts and investigators to collect, represent, explore and provide information in an understandable form for the recipient. VizKey™ depicts large amounts of information in a graphic form and represents data by objects and their relationships. Together with the functionality of data analyses, it helps to understand what happens, find and identify key figures and events.

The most outstanding distinctness of VizKey™ is that the software consists of several inseparable modules:

1. Interface for creating charts and information analysis. Drag and drop icons on the chart area manually and define relations between them. Itís reasonable when you need to sketch an idea and/or the amount of information you have is not too big.
2. Database. Find and explore data from VizKey™ database(s). With VizKey™ you will never have the problem of where to keep collected data and how to combine it with recently received information. VizKey™ database can be located on server or personal PC, be part of Oracle, MS SQL or My SQL database and it has no limits.
3. Interface for data import. Import large volumes of information from structured fi les. It makes the life much easier - instead of spending the time and defining every object manually, you can transform a huge volume of information in graphical format within few minutes. Transfer information from multiple fi les into VizKey™, detect similar objects, merge them into one and you will see more clearly all implicit relations and activities.

4. Interface for making queries from external databases. Receive information on the VizKey™ chart area from external database(s). It doesn't matter how information looks like in external database. On VizKey™ chart you will see the picture composed by graphic elements. "Draw" the complex query by using objects and relations, define conditions to searchable elements, check the result and show it on the chart.

FUNCTIONALITY

- Layouts - 8 layout types;
- Find Path between 2 objects;
- Common neighbor of 2 selected objects;
- Merge similar objects;
- Find chart objects - simple and complicated visual search on chart and from database(s);
- Network analysis or Social Network analysis - find the most important object;
- Clusters - objects that are more connected to each other group

TECHNOLOGICAL GAPS & CHALLENGES

- Visualize data in meaningful manner to support insight generation and informed, evidence based decision-making process, on big data storages.
- Provide the tool for hypothesis, idea development on big data storages.
- Organize the data integration and processing on several data sources (incl. external db).

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	VizKey™
	TECHNOLOGY READINESS LEVEL (1-9)
	9

19	TITLE OF SOLUTION
	AS&E® MINI Z®

DESCRIPTION & USE OF THE SOLUTION

The MINI Z® system is the world's first handheld Z Backscatter® imaging system that highlights organic threats and contraband. Its portable form factor allows the operator to scan in hard-to-reach places, helping customs and law enforcement screen vehicles, walls, furniture, car interiors and more for drugs, currency and explosives.

TECHNOLOGICAL GAPS & CHALLENGES

NOT REPORTED

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	RAPISCAN
	TECHNOLOGY READINESS LEVEL (1-9)
	9

20	TITLE OF SOLUTION
	IONSCAN 500DT

DESCRIPTION & USE OF THE SOLUTION

The IONSCAN 500DT is a highly sensitive desktop trace detector used to accurately detect and identify a wide range of military, commercial and homemade explosives threats and common illegal/controlled narcotics.

By incorporating two Ion Mobility Spectrometry (IMS) detector modules into a single unit, detection is perfectly optimised and balanced for different sample types.

Analysis results can be stored directly on the detector, or printed out with the built-in printer, or exported via the USB port.

TECHNOLOGICAL GAPS & CHALLENGES

NOT REPORTED

ILLUSTRATION	NAME OF ORGANISATION(S) OR PROJECT(S) OR DEVELOPER(S)
	SMITHS DETECTION
	TECHNOLOGY READINESS LEVEL (1-9)
	9

ABOUT I-LEAD

i-LEAD's focus is on the incapability of groups of operational Law Enforcement Agencies (LEA) practitioners defining their needs for innovation. This will be done in a methodological way, also with the help of the research & industrial partners supplemented by a broad range of committed stakeholders. i-LEAD will build the capacity to monitor the security research and technology market in order to ensure a better matching and uptake of innovations by law enforcement agencies with the overarching aim to make it a sustainable Pan-Europan LEA network.

Earlier funded European research with a high technology readiness level as well as pipeline technologies will be closely monitored and assessed on its usefulness. Where possible, a strong dissemination towards the ENLETS and ENFSI members will take place to enable them to take up the actions from this research. i-LEAD will indicate priorities in five practitioner groups as well as aspects that needs (more) standardization and formulate recommendations how to incorporate these in procedures. As a final step, i-LEAD will make recommendations to LEA members on how to use Pre-Commercial Procurement PCP) and Public Procurement of Innovation (PPI) instruments.

i-LEAD
innovation - law enforcement agency's dialogue

Authors:

ianus consulting

Contributors:

EOS European Organisation for Security

Polish Platform for Homeland Security

Ελληνική Αστυνομία

L3CE Lithuanian Cybercrime Center of Excellence for Training, Research & Education

TNO innovation for life

Gobierno de España Ministerio del Interior

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This project has received funding from the European Union's Horizon 2020 - Research and Innovation Framework Programme, H2020-SEC-2016-2017-1, under grant agreement no 740685.