

Science for Humanity



Human presence, Movement &
heartbeat Detection System (MDS)

Frontex, the European Border and Coast Guard Agency, is engaged in efforts to strengthen controls at Europe's external borders

Migration matters

Mass migration into Europe reached a crisis point in 2015, with peak numbers of people entering from the Middle East and north Africa. Many of these people were fleeing conflict – a great number were refugees from the Syrian civil war, for example – but the influx proved overwhelming to those European countries where many of the migrants were arriving. In particular, the crisis had a great impact on Greece and Italy, which did not have sufficient infrastructure to support the sudden arrival of people through illegal channels, to register migrants, or to process asylum applications.

Assisting throughout the crisis was Frontex, which in October 2016 became the European Border and Coast Guard Agency. The organisation provides technical assistance to countries facing pressure from increased migration or cross-border crime from outside the EU. It also provides technical equipment such as boats, helicopters and aircraft, and has taken an active role in intercepting the inflatable craft often used by migrants and people-smugglers to cross the Mediterranean.

The EU-Turkey agreement

Thanks in part to this work, the influx slowed significantly in late 2016, although it was impacted by a number of other factors, according to Frontex spokesperson Izabella Cooper: “The influx of migrants into Greece dramatically dropped. It is down by more than 97% if you compare the current situation with that of two years ago, and this is because of two factors: one is the EU-Turkey agreement, and the other is the closure of the Balkan route.”



The EU-Turkey deal was an agreement in which each Syrian refugee arriving on the Greek islands would be returned to Turkey, in exchange for a Syrian asylum seeker who had made a successful application in Turkey, to be rehoused in Europe. The western Balkan route was used by many migrants entering the EU through Greece to make their way via the Former Yugoslav Republic of Macedonia to Serbia, then to Hungary and Croatia, and on towards western Europe. Illegal border crossings in the region rose 16-fold from 2014-2015, to 764,000, and in October 2015 President of the European Commission Jean-Claude Juncker convened a meeting to address the problem. The route was officially closed in March 2016, and migration numbers along the route dropped significantly.

This does not mean that migration into Europe has stopped altogether, however. Some countries are still struggling to cope, although now, the primary departure point of these migrants is not Turkey, but Libya, and their main nationality is no longer Syrian, but various sub-Saharan African countries. There are two primary reasons why Syrians are no longer arriving in the same record numbers seen last year, Cooper explained: “The first is that some north African countries have introduced visas for Syrian citizens. The second is that it simply became too dangerous because of different militia groups controlling different areas, and people travelling with families became much more careful when choosing their route.”

The role of Frontex

The situation in Libya is very different, as political instability in the region has allowed for a significant rise in people-smuggling operations, which has continued to facilitate migration on a greater scale than would otherwise be possible. Cooper continued: “There are some parts of Libya, particularly those areas from which a majority of migrants are departing – such as the western Tripolitania

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region – where smugglers are not being countered in any way by law enforcement.” This unchecked freedom for people-smugglers to operate has led to a big increase in migrants using this route to illegally enter Europe. She added: “So far this year, around 60,000 people have arrived in Italy, mainly from Libya. This constitutes a 23% increase compared to the same period last year.”

For this reason, one of Frontex’s priorities is to dismantle smuggling networks, which are not only facilitating a great number of illegal entries into Europe, but are also extremely dangerous for those migrants who use them. As well as groups of migrants being crowded on to makeshift boats, which often sink, some are kidnapped and held for ransom or forced into slavery in order to pay for passage. Nevertheless, these networks retain a strong grip on the route through Libya and remain in high demand. As a result, smuggling is an exceptionally profitable criminal enterprise; according to Europol figures, in 2015, the years which saw the biggest flows of migrants into the EU during the crisis, smuggling networks made around €4-6bn in profit.

Frontex and other EU organisations are taking a proactive approach to dismantling these networks, Cooper assured: “Operation Sophia is run by EU Navfor Med, which is the military branch of the European Union, and they have vessels out there. Their specific mandate is to disrupt the business model of the smugglers; however, they haven’t managed to get authorisation to enter the Libyan territory, so for now they operate in international waters.” The operation was launched in 2015 and has a mandate to identify, capture and dispose of vessels and other assets that are used by people-smuggling networks. As of September 2016, forces had managed to arrest 87 smugglers and traffickers, removed around 300 vessels from use by criminal organisations, and rescued nearly 26,000 migrants through 178 separate search and rescue operations. In June 2016, the Council of Europe added supporting tasks to the mandate, including training coastguards and naval forces in Libya to enhance their capability to disrupt smuggling networks.

However, despite this success, the pressure of migrants from Libya is ongoing and in response Frontex was given an extended mandate in



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October 2016. Among these duties, the organisation has been tasked with interviewing migrants and monitoring sea passages to gather intelligence on smuggling networks, which can then be passed to relevant authorities in whichever country Frontex is operating in, or to Europol, which can then launch formal investigations.

This line of work has proved invaluable, not only to the disruption of smuggling networks, but also towards tackling the causes of migration. Cooper emphasised that most refugees and migrants are only leaving their countries because they feel they must, and that this must be addressed in the countries of origin, not only those countries of transit through which they are escaping: “As long as there is a war in Syria, there will be refugees leaving the country. As long as there is extreme poverty and famine, people will leave to seek better prospects elsewhere. Stabilisation of the situation in these war-torn countries must be part of the solution, as well as the provision of economic development assistance.”

Such provision requires political action, and the essential intelligence-gathering operations Frontex are undertaking, to create an holistic solution. “Libya is a good example,” Cooper explained. “We need to dismantle the smuggling networks and open legal channels which would allow refugees to apply for asylum without having to put themselves into the hands of smugglers.”

The European Union has acknowledged the need for globally focused solutions, which Cooper welcomes – the European Agenda of Migration, tabled by the European Commission in 2015, recognises that the impact of poverty and conflict does not end at national borders, as well as the need to use the EU’s global role to address the root causes of migration. The agenda also offers a strategy by which to reduce illegal migration and will continue to direct the EU’s efforts to prevent illegal migration and protect border security.

Frontex

<http://frontex.europa.eu/>



Defence Management Review introduces the European Border and Coast Guard Agency and examines how its widened mandate will strengthen EU security and ease migratory pressure

Protecting Europe

The end of 2016 marked the launch of the new European Border and Coast Guard (EBCG), which has been heralded by the commission as the first step towards a ‘truly integrated system of border management’. Established in direct response to the migrant and refugee crisis, which, according to first vice-president Frans Timmermans, “exposed clear weaknesses and gaps in existing mechanisms aimed at making sure that EU standards are upheld”, the EBCG combines a new and improved Frontex – which has been revamped as the European Border and Coast Guard Agency – with the national authorities responsible for border management, and is intended to bolster efforts to manage migration, enhance the EU’s internal security, and safeguard the free movement of persons.

Rescuing Schengen

A founding principle of the EU, the free movement of persons has suffered significant attack in light of the still-ongoing migrant crisis, which in 2015 alone saw more than one million people attempt the journey into Europe and over 3,770 die while trying to cross the Mediterranean. The crisis all but destroyed the passport-free Schengen travel zone in 2016 when a number of European countries introduced border controls in a desperate attempt to reduce the amount of migrants seeking entry. Earlier hopes that Schengen would reopen its doors by the end of the year have proved short-lived: in January 2017, first vice-president Frans Timmermans recommended that member states be allowed to “maintain temporary border controls for a further three months”. The commission is now looking to the new European Border and Coast Guard to rescue

Frontex will this year deploy three offshore patrol vessels from Finland, Romania and France. For the first time, they will have multinational European crews

the area by ensuring the strong and shared management of the EU’s external borders and thereby lessening internal pressures.

“The current migration and security challenges know no borders and require a truly European approach. Where Frontex used to be limited to supporting member states in managing their external borders, the new border agency will go beyond this. What we are creating today is more Europe: to manage our external borders, to step up returns of irregular migrants, to allow our asylum system to function properly for those in need and to strengthen checks at the external borders of the European Union. The border package we are presenting today will increase security for our citizens and ensure high standards of border management,” said migration commissioner Dimitris Avramopoulos, commenting on the original EBCG proposal in December 2015. In July of 2016 – despite objections from European United Left/Nordic Green Left and Greens/European Free Alliance MEPs, who tabled a rejection amendment in the hopes of overturning the proposal – it was endorsed by parliament; just three months after that, the new European Border and Coast Guard Agency had been launched.

Updated mandate

The new agency – which despite its makeover is still commonly known as Frontex – enjoys a significantly wider mandate than its previous incarnation. The original Frontex suffered from being too ill-equipped in terms of powers, operational staff and resources to provide sufficient support during the refugee crisis, being as it was dependent upon contributions from the member states. Its new remit has been specifically designed to overcome these limitations and will see it play a much greater role in the return of irregular migrants, the prevention of cross-border crime, and – alongside both the



© Robert Cutts



European fisheries control and maritime safety agencies – surveillance operations.

Central to this is a greater pool of resources from which the agency can draw in times of increased border pressure. To this end, a ‘rapid reaction pool’ and ‘rapid reaction equipment pool’ have been placed at the disposal of the agency. Consisting of some 1,500 border guards and other officers, as well as resources such as vessels and helicopters – and coming in addition to the more than 100,000 border guards who make up member state capacity – these resources can be called upon in the event of an urgent situation to intervene at short notice when requested by a member state or where a member state is unable or unwilling to act. Extra manpower in the form of new Frontex personnel is meanwhile also expected (permanent staff is anticipated to double to 1,000 by 2020), while EU funding is set to increase to €320m in three years – additional resources which should consign shortages and delays to the past.

On 7 January Frontex was also equipped with three new ‘return intervention teams’ consisting of return monitors, escorts and specialists (690 in total), which will enable it to play a greater role in helping member states to return migrants to their country of origin. Commission figures suggest this has already proven effective: since becoming operational, the agency has organised 78 return operations to return 3,421 irregular migrants – more than in the whole of 2015. Meanwhile, a stronger complaint mechanism has been put in place to monitor and protect the fundamental rights of migrants.

Also included in Frontex’s updated mandate is the prevention of cross-border crime. To this end, its new powers allow it to process the personal data of people who are suspected of being involved in criminal activity – i.e. migrant smuggling, terrorism or human trafficking – as well as irregular migrants collected by officers deployed by the agency. It is also authorised to collect information such as licence plate and vehicle identification, telephone or ship identification numbers, which are necessary for the analysis of migrant routes and methods used in different types of cross-border crime,



Frontex executive director Fabrice Leggeri (left) and Dimitris Avramopoulos at the launch of the new European Border and Coast Guard Agency on 6 October 2016

and to share this information with member state authorities and Europol in a measure designed to further strengthen the security of the EU.

Taking stock

Towards the end of January, the European Commission took stock of the progress that’s been made towards making the EBCG fully operational. According to Avramopoulos, early indications are impressive: “In only three months, we have made incredible progress in rolling out the activities of the European Border and Coast Guard. The rapid reaction pools of border guards and equipment are in place now, ensuring that there will no longer be shortages of staff or equipment for emergency situations across the EU. In addition, the new pools of return intervention teams will support member states’ efforts to enhance the return of irregular migrants – a core element of our European Agenda on Migration.”

Indeed, in addition to the stepping up of return activities and creation of rapid reaction pools, the European Border and Coast Guard Agency has already made headway in one of its key roles: helping to ensure that EU standards for border management are implemented at all external borders. A common vulnerability assessment methodology, which will annually assess whether member states are sufficiently equipped to cope with challenges at external borders, has been adopted and data collection in this area is already underway, with member states expected to fix any identified issues as a matter of urgency.

Nonetheless, more work remains to be done, and the commission is now calling on Frontex to make full use of its new mandate and further increase return efforts, and urging member states to fully reply to calls for deployment.

Time will tell if the new European Border and Coast Guard goes far enough to help restore Schengen to its fully functioning former glory in the timescale laid out by Timmermans, but the impressive progress made so far suggests it has a fighting chance.



Human presence, Movement and heartbeat Detection System (MDS)

MDS – Human presence, Movement and heartbeat Detection System

Today, a lot of potentially illegal immigrants try to enter countries and cross borders by hiding in a vehicle, causing an increasing demand for entrance/exit security in prisons, critical infrastructures and military compounds. Port security also becomes an important issue in this domain. Our technology, known worldwide as 'Human presence, Movement and heartbeat Detection System' (MDS), inspects and detects human presence in any kind of vehicle and its cargo.

General technical information

MDS detects human presence in all kind of vehicles and cargoes within 15-47 seconds, with almost 100% accuracy, through simultaneous use of one to four extremely sensitive geophones (seismic sensors), a ground vibration sensor, a low-frequency microphone, and unique, patent-approved digital signage software. The MDS is operational in temperatures from -25°C to +60°C. It is lightweight (20-35 kg), and our portable and mobile version fits in the trunk of a car.

Our MDS technology is used for:

- Border security;
- Prisons and other correctional facilities;
- Homeland security;
- Entrance security at critical infrastructures; and
- Port security.

The only 100% European technology is currently deployed in the following countries:

Germany, Belgium, the Netherlands, Luxembourg, Switzerland, Spain, Morocco, Ukraine, the Czech Republic, Slovakia, Croatia, Bulgaria, Romania, China, Hungary, Slovenia, the UK, the US, and others.

Human presence, Movement and heartbeat Detection System

MDS Portable

MDS Portable fits in any car without any problem. The single components are quickly connected. For this small suitcase, the place of action is simply anywhere.

MDS Mobile

MDS Mobile is already connected with the individual components and is immediately usable. With its attractive size, it fits in a mini-bus or car trunk without any problem. It is particularly suitable for missions wherein speed and flexibility are needed.

MDS Stationary

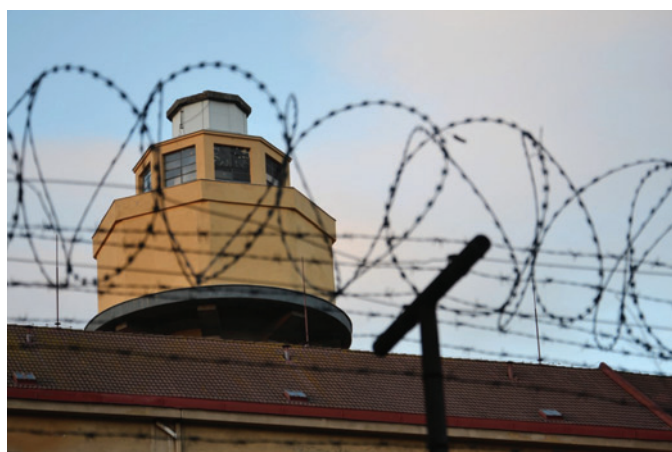
Given that MDS Stationary is permanently installed, it is particularly suitable for routine checks. MDS Stationary is installed to secure prisons from escape attempts and critical infrastructures from acts of terrorism. MDS Stationary is also installed at several border crossings and harbours.



Critical structures (power plants, transport companies, army compounds)



Port security, border crossings



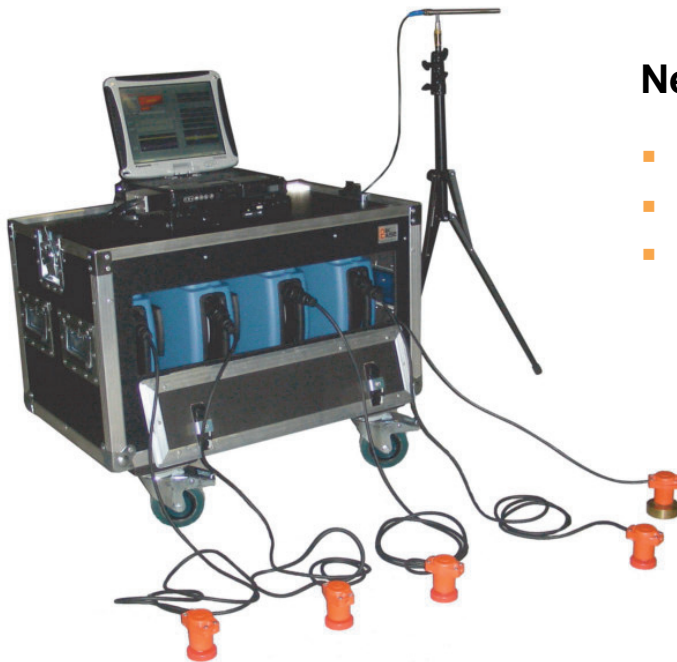
Correctional facilities (prison entrance and exit)

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Our Products

MDS Portable
MDS Mobile
MDS Stationary



Newest Generation Human Detector

- High performance Detection
- Easy to use
- Efficient

Proudly made in
Europe 

The **MDS** system has been developed to detect hidden human beings in vehicles and/or in their load. It detects any movement generated by a hidden human being. The MDS collects the movements with seismic sensors and analyses the data using an advanced signal processing algorithm.

The control is carried out by special sensors, which are placed on the vehicle and which transmit the measured data to the MDS main unit. The collection and evaluation of the data requires less than 30 seconds. For a complete check, it usually takes less than two minutes – including handling (placing and removing) of the sensors.

Lorries are mostly sealed, which makes it very difficult to check their cargo. Because of legal reasons, the authorities are not allowed to open up a sealing if the lorry driver's documents are complete. Besides the fact that it is legally not permitted, the process of opening up a sealing would be very time consuming.

This way, it is possible for hidden stowaways or illegal immigrants to enter a country without getting noticed. Other methods, such as CO₂ tests or X-rays, are not always suitable or can be easily bypassed.

With our simple method called MDS or “***the newest generation human detector***”, any type of lorry can be inspected for hidden stowaways with an almost 100% precision. This makes it possible to control lorries in ports and border-crossings, or just along the road. With this system, illegal immigrants can be detected and smugglers deprived of their most important supply route.

Typical applications:

The MDS Mobile is already connected with the individual components. It is immediately usable. With its attractive size, it fits in a mini bus without any problems. The Mobile version is particularly suitable for missions where speed is needed:

- ports
- border-crossings
- critical compounds

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