



EU enlists researchers' support to tackle smuggling and security threats at sea

Researchers, national authorities and the EU work together to address maritime challenges like smuggling, illegal fishing and security threats.

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A container ship sailing at night through the Baltic Sea, travelling along the Polish coast, pulls alongside a fishing boat. This behaviour immediately triggers the Polish authorities and raises questions.

“You need to ask why are two vessels meeting in the middle of the sea in the middle of the night? Are they involved in smuggling or illegal migration? Are they buying fish from the fishing vessel?” said Isto Mattila, an expert in maritime security and information sharing at Laurea University of Applied Sciences in Finland.

As this behaviour could be indicative of several illegal activities, when the ship next pulls into port, it needs to be investigated. But that might not be in Poland. It could be in Helsinki, Finland, for instance, or any of the nine countries bordering the Baltic Sea.

For the Finnish authorities to identify the ship as suspicious, they need to be alerted by the Polish maritime authorities who spotted the meetup. But this is not as simple as it sounds.

“These coast guards, environmental entities, police, have all created maritime surveillance systems operated and developed by different industrial partners in Europe,” said Mattila.

These different IT systems use different database languages and often cannot communicate with each other.

This hypothetical scenario from Mattila – who had been a navy captain with the Finnish border guard for nine years before going into research – illustrates the very real complexity of monitoring Europe’s seas.

Sharing security

With this dilemma in mind, EU-funded researchers have been working to optimise a common platform that would make sharing information among different maritime authorities much easier.

On 1 July 2024, the EU's Common Information Sharing Environment (CISE) finally became operational. This was in part thanks to an EU-backed research initiative called EU CISE 2020, which was coordinated by Matilla.

Thanks to CISE, all EU countries can now cooperate better in tackling challenges such as people smuggling, illegal fishing, pollution and potential security threats.

All but five European countries – Czechia, Luxembourg, Hungary, Austria and Slovakia – have a sea border, and 80% of the EU's foreign trade is carried out by sea. Hundreds of different European authorities involved in maritime surveillance stand to benefit from this platform.

A common language

The CISE system adds a vital translation and information exchange layer that sits above and between all the different surveillance systems.

“Through this adapter, all the data that the primary system produces – whether French or Finnish or Swedish – will be translated into a common language,” explained Mattila.

The network will also be able to convert this common language into the data language of all the different systems, allowing them to communicate and exchange information with each other.

The four-year EU CISE 2020 project, which ended in 2018, was a crucial milestone in the development of CISE. It tested the system by connecting it to maritime authorities in 11 EU countries.

This enhanced data sharing will allow EU countries to quickly communicate with each other about potential threats and emergency situations, and work together to ensure that maritime trade runs smoothly.

According to Mattila, the system could also improve safety at sea for individuals.

“If you are in a sailing boat and get into difficulties, for example, you might be rescued much faster.”

Customs cooperation

The next step towards well-coordinated monitoring of Europe's sea borders and trade is integrating maritime surveillance seamlessly with border control and customs agencies.

Work is already taking place to include them in the maritime information exchange platform. The plan is to do this through the development of a Customs Extended Common Information Sharing Environment (CE-CISE).

“These initiatives relate to all operations that serve to control border crossings,” explained Dr Souzanna Sofou, the Greek coordinator of the CONNECTOR project from Satways, a company that specialises in security and public safety applications for police and coast guard.

“The ultimate goal is ensuring effective management of EU external borders,” she said.

Open and secure

The European Commission's objective in funding the research and development of innovative maritime systems is to have open but well-controlled and secure borders.

“The point is for European citizens to be able to exercise their right of free movement, but also to safeguard the borders,” said Sofou. She is coordinating a two-year EU-funded research effort called CONNECTOR, which

is working to establish the CE-CISE.

Involving 17 partners from the EU, Switzerland and Moldova, including customs, border and coast guard authorities, the research team is analysing the requirements of customs and border authorities and developing the technical environment for them to be added to the platform.

Allowing customs agencies in different countries to rapidly exchange intelligence information in this way will enable them to work together and deal with illegal activities such as cross-border trafficking.

Cross-border trials

To better understand the needs of the customs and other border agencies, the various participants have come together to discuss the common problems they face, the things that can be improved, and the technologies that are still missing.

The CONNECTOR team will be running three trials in 2025 – national, cross-border and transnational – bringing together customs, border and maritime authorities. During the trials, the end users will use the new technologies in predefined scenarios.

The new capabilities for end users that will be tested include the exchange of intelligence information via CE-CISE, a common operational picture, and shared, more accurate, risk assessment for integrated border management authorities.

“The most important thing is to start making the connections that allow for cooperation between different agencies,” said Sofou.

To explore how different scenarios, such as smuggling, might play out, the researchers will use simulated data based on experience from previous customs operations. These simulations will be used to help train border and customs agents.

“Our beautiful Union is a group of countries with different rules and, as we want to be together under the same umbrella, we have to understand one another and speak the same language. Even if we have to use computers to do so,” said Sofou.

“We need alignment of our responsibilities and our expectations, and most of all, we need cooperation.”

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