



BORDERLINK

Newsletter

Issue 3 | 2026

**TEN INNOVATIONS TESTED DURING
mid-term trials in Dublin**



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Welcome to the BORDERLINK Newsletter #3

Dear reader,

In our previous issue, we shared that we were preparing for the mid-term trials. These have now taken place. From 1 to 3 September 2026, the consortium gathered at in Dublin for the BORDERLINK Mid-Term Demonstrations and Assessments, hosted by Irish Revenue, where all ten innovations were presented for the first time to their intended users. Over twenty customs representatives from across Europe attended, alongside colleagues from the European Commission DG TAXUD.

Three intensive days followed: a field visit at Dublin Port, hands-on sessions where officers used our training platform to create synthetic X-ray images, plenary talks on Danube data sharing, and a first look at the seized-cigarette intelligence database and the Green Customs game, as some of the highlights. The week concluded with the first BORDERLINK EU Customs Forum, where we asked feedback from the customs experts in the room: what would it take for your administration to turn these innovations into practice?

Their response was both positive and encouraging. The innovations were deemed practical and, in many cases, already quite advanced. The challenges they highlighted were not so much technical but legal and organisational—issues like legal frameworks for cross-border data sharing, availability of follow-up funding, and integrating new tools into existing operations.

This issue reports where each innovation stands after the Dublin mid-term trial and what comes next. We are grateful to Irish Customs for hosting us, and to every officer who spent the most of the week telling us what works and what does not.

Frank Janssens
BORDERLINK Coordinator



About **BORDERLINK**

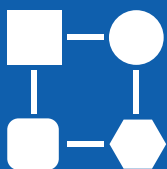
BORDERLINK is a Horizon Europe project funded by the European Union, the UK, and Switzerland that enhances customs and border management by pioneering innovative technologies, developing reference databases, and establishing standards to improve interoperability and interconnectivity.

By improving interoperability, BORDERLINK enables seamless cooperation between customs administrations, border control agencies, and security stakeholders.

EXPECTED OUTCOMES



More efficient and quicker availability, for EU customs practitioners, of reference data (such as spectra) on threats and dangerous and/or illicit materials.



Increased interoperability of existing (and foreseeable upcoming) customs control equipment at tactical level, multi-supplier, multi-authority and cross-border.



Building capabilities for a more harmonized European application of customs controls based on risk management and trade facilitation.

“ From demonstration to adoption

Halfway through the project, BORDERLINK's ten innovations have progressed from concept to field testing.

What follows in this issue is a snapshot of each innovation as of September 2026: what was demonstrated, how users responded, and what the second half of the project must deliver.

In the pages ahead, explore each innovation's progress, current status, and next steps.

**IN THE FOLLOWING PAGES,
DISCOVER EACH INNOVATION'S
DEMO**



Innovation 1: Data interoperability in the inland waterways domain

WHAT IS THIS INNOVATION ABOUT?

This innovation facilitates secure, real-time data exchange between authorities along inland waterways, enhancing customs risk assessment for river traffic, especially on the Danube.

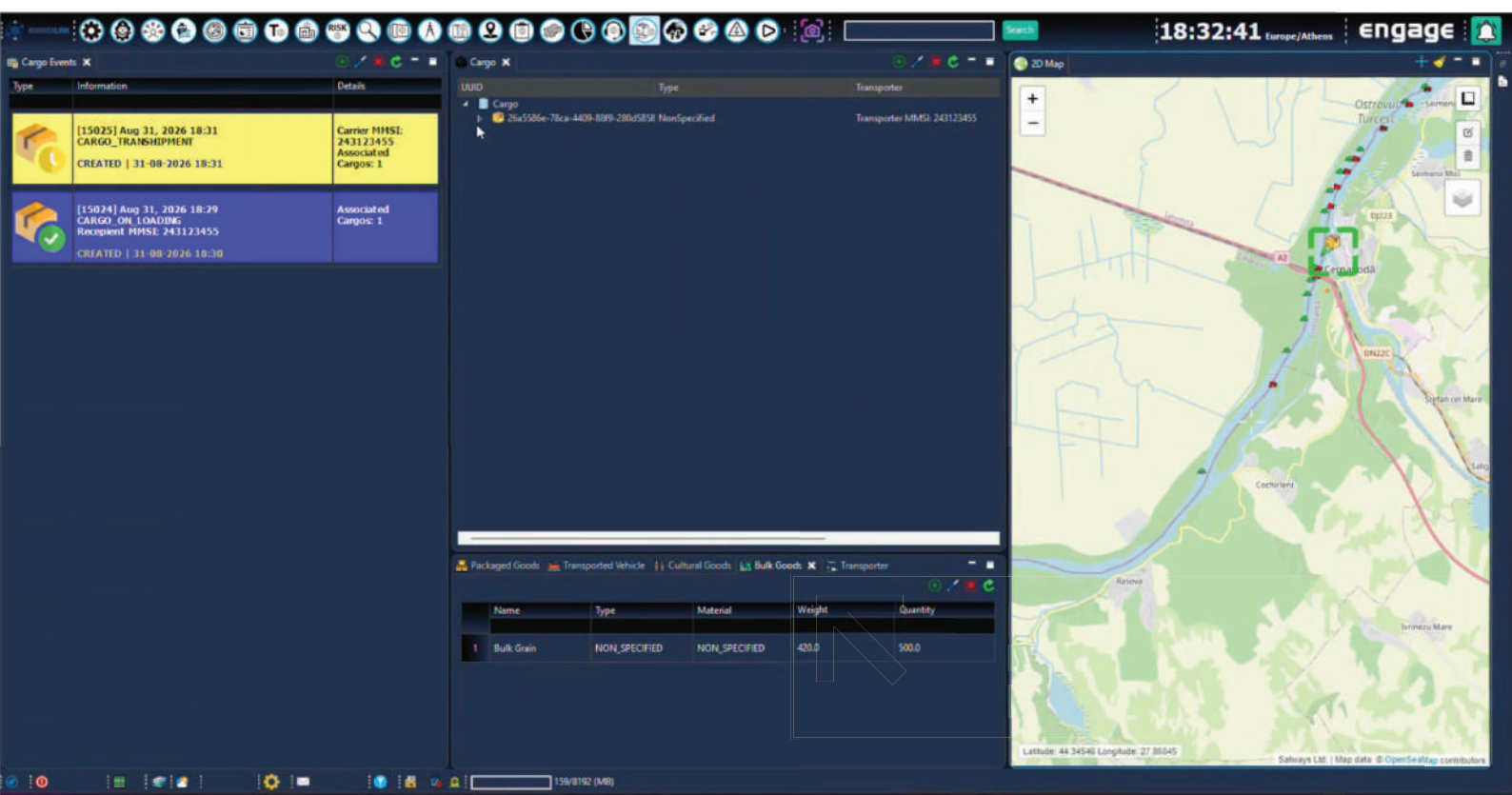
CURRENT STATUS

In Dublin, the innovation received a full plenary session. The Hungarian National Association of Radio Distress-Signalling and Infocommunications (RSOE) illustrated actual Danube river traffic: project cargo and steel alongside bulk goods like grain and coal, with navigation increasingly hampered by low water in Hungary’s shallow stretches. Satways, the work package leader, then showcased the current interface and database for sharing information between Hungarian authorities and riverine countries.

The discussion made one point clear: the remaining challenges are as much institutional as technical. The interface can be built, but its value depends on cross-border agreement on the data to be shared.

NEXT STEPS

The second half of the project will complete the design and development of the blockchain-powered connection between Hungarian Customs and the Common Information Sharing Environment (CISE), and continue the dialogue with the authorities whose data gives the platform its value. The full solution is to be presented during the final demonstrations in the first months of 2028, in real operational setting at Mohács, Hungary, on the Danube.



Innovation 2: Standard Test Units

WHAT IS THIS INNOVATION ABOUT?

Standard Test Units simulate realistic smuggling scenarios, supporting training and performance testing of Non-Intrusive Inspection (NII) systems customs use.

CURRENT STATUS

Standard Test Units were demonstrated during an afternoon visit to Dublin Port. The container unit includes a liftable, rotatable passenger car with concealment points in the seats, doors, floor, ceiling, dashboard, and engine bay, plus five cargo types that create about fifteen smuggling scenarios. The trailer unit carries eight cargo types and roughly fifty standalone test items simulating tobacco, alcohol, firearms, and drugs in resin, powder, pill, and herbal forms. The trailer is dedicated to performance testing, providing side and top views to evaluate penetration, spatial resolution, contrast sensitivity, wire detection, and material discrimination, with a separate module for backscatter assessment.

As of today, all four Standard Test Units are operational: container, truck, van and trailer. Two scanning campaigns are complete so far: Svinesund land port in southern Norway and Dublin Port, where the same staged situations were scanned on different equipment.

“The STUs here are absolutely fantastic. It helps us find and look and see even more how deeper and how much extra work we have to be able to do in order to detect smuggling coming into the state.” — Irish Customs officer, Dublin Port

NEXT STEPS

Three further scanning sites are planned over the coming year, including Oslo seaport, a second Nordic seaport and the land border crossing between Hungary and Ukraine. The vision is that the resulting image material will be uploaded to the training platform, and the comparison between sites will show how differently scanners perform and how performance testing relates to actual detection of concealed goods.



STANDARD TEST UNITS (STU)

Standard Test Units (STU) are specially designed training tools with **built-in dynamics, staged smuggling scenarios** that include various types of threat objects such as explosives, firearms, drugs, tobacco, illegal immigrants, and others.



STC
STANDARD TEST CONTAINER



STT
STANDARD TEST TRUCK



STV
STANDARD TEST VAN



ANSI
TRAILER

Innovation 3: Certified X-ray operator training

WHAT IS THIS INNOVATION ABOUT?

The standardised and certified training programme equips customs officers with the skills needed to analyse X-ray images and recognise potential threats. Project partner INTA opened the second morning with a two-hour session presenting the platform's vision: a first-of-its-kind online suite of X-ray interpretation exercises for customs officers, combining instructional videos with hands-on tasks. The material covers topics such as using filters in image interpretation and understanding how X-ray system geometry informs screening methods. It was also one of the innovations shown in the dedicated demonstration rooms on both days. INTA brought laptops so that participants could work through the platform themselves rather than watch a demonstration, and several customs officers went straight past the introduction to the image-analysis exercises. The platform was described by participants as fully functional, and the most common question was how soon it could be made available to their own administrations.

CURRENT STATUS

The training content and e-learning platform are fully functional and have been tested by users.

NEXT STEPS

Feedback from Dublin is being analysed to guide the improved second version, with image material from the Standard Test Units added to the platform to provide officers with exercises based on dynamic, purpose-made concealments rather than solely historical images from customs operations.



Innovation 4: Library of synthetic X-ray images

WHAT IS THIS INNOVATION ABOUT?

A Threat Image Projection system that produces high-quality synthetic X-ray data for operator training, enabling authorities to simulate realistic smuggling scenarios.

The problem this innovation solves is a shortage of usable X-ray images: real seizure imagery is scarce, sensitive and slow to accumulate. The answer is a library of X-ray images with threats digitally inserted into them.

In Dublin the tool was put directly into participants' hands in the main demonstration room, on both days. Officers chose their own concealment locations, inserted simulated threats into the most difficult positions they could think of, and then looked at the results as an image analyst would. The hands-on exercise made the point better than any presentation could have.

The feedback from customs officers was very positive. Participants described the platform as a genuinely novel tool, valuable both for training officers in image interpretation and as a possible source of training data for AI-based X-ray image analysis — a use case that becomes more interesting the larger the library grows.

CURRENT STATUS

The application is operational, with 200 of a planned 1,000 images in the library.

NEXT STEPS

Work continues on expanding the range of threat items and building the library out to its thousand-image target, with the scenarios enriched by the material coming from the Standard Test Units.



Testing the library



Innovation 5: Federated database for sharing of X-ray images

WHAT IS THIS INNOVATION ABOUT?

The system enables customs authorities to share X-ray images securely across borders while ensuring that the data remains under national control.

Of all ten BORDERLINK innovations, this is the one that depends most on trust of its users. It was presented early on the first day precisely because it raises the difficult question: will customs administrations share operational images across borders at all?

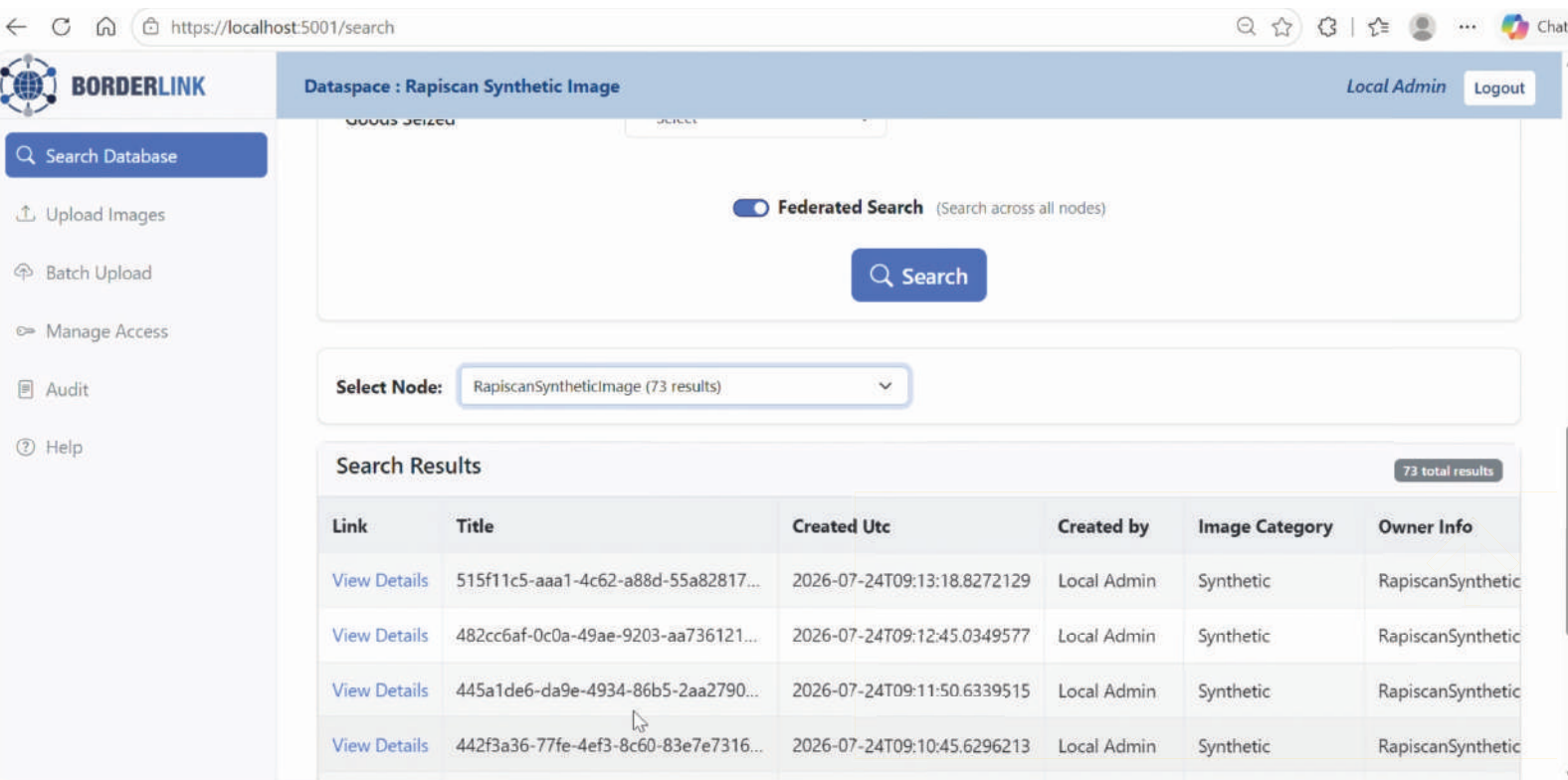
The design is the answer to that question. Under the federated architecture, images stay on the servers of the administration that owns them. A single web portal allows an authorised user to search across participating nodes, and an image moves only when it is explicitly requested and the owning authority's authentication and local permissions allow it. Every transfer is intentional and auditable. Presented in these terms, the concerns about data security and confidentiality raised in the room were eased to a considerable extent

CURRENT STATUS

The core architecture and the web frontend are working, and the system was demonstrated as an end-to-end capability in Dublin.

NEXT STEPS

Development continues on the basis of the mid-term feedback, followed by deployment into the field with end-user support. In parallel, the consortium will keep working on the legal and governance questions that will ultimately decide whether cross-border image sharing happens at scale.



The screenshot displays the BORDERLINK web application interface. The top navigation bar includes the BORDERLINK logo, a search bar, and user controls for 'Local Admin' and 'Logout'. The main content area is titled 'Dataspace : Rapiscan Synthetic Image'. It features a 'Federated Search' toggle and a 'Search' button. Below the search bar, a 'Select Node' dropdown menu shows 'RapiscanSyntheticImage (73 results)'. The 'Search Results' section displays a table with 73 total results. The table columns are Link, Title, Created Utc, Created by, Image Category, and Owner Info. The first four rows of results are visible, each with a 'View Details' link.

Link	Title	Created Utc	Created by	Image Category	Owner Info
View Details	515f11c5-aaa1-4c62-a88d-55a82817...	2026-07-24T09:13:18.8272129	Local Admin	Synthetic	RapiscanSynthetic
View Details	482cc6af-0c0a-49ae-9203-aa736121...	2026-07-24T09:12:45.0349577	Local Admin	Synthetic	RapiscanSynthetic
View Details	445a1de6-da9e-4934-86b5-2aa2790...	2026-07-24T09:11:50.6339515	Local Admin	Synthetic	RapiscanSynthetic
View Details	442f3a36-77fe-4ef3-8c60-83e7e7316...	2026-07-24T09:10:45.6296213	Local Admin	Synthetic	RapiscanSynthetic

Innovation 6: Cloud library for reference Raman spectra

WHAT IS THIS INNOVATION ABOUT?

The shared Raman spectra database enables customs administrations to securely access and exchange spectral data, supporting material identification and the detection of emerging threats using Raman devices from different manufacturers. Many customs administrations already use handheld Raman devices, but the instruments and their reference libraries differ from one administration to the next, and each is tied to its manufacturer. When a new substance appears in one country, there is no straightforward way to pass that knowledge to the next. The BORDERLINK database is deliberately manufacturer-independent: officers can search for substances missing from their local library and obtain the spectra they need. In Dublin, the platform was demonstrated in a small-room session on both days, showing how a shared molecular fingerprint database lets handheld devices identify substances on the spot.

The discussion it sparked was among the week's most practical, and the key issue concerned speed of analysis rather than substance. Customs laboratories could integrate the platform relatively easily. Frontline officers, however, often need an answer within seconds, and a process that requires spectra to be uploaded and downloaded through a separate computer may prove too slow and cumbersome at the border. Adoption will depend on

CURRENT STATUS

The database is working and was tested by users during the mid-term demonstrations.

NEXT STEPS

Development continues with the functionality and features that customs authorities asked for in Dublin, with particular attention to making the platform fast enough for frontline use.



Innovation 7: Eco-friendly recycling services for seized cigarettes

WHAT IS THIS INNOVATION ABOUT?

The Rezero's recycling machine enables customs authorities to recycle seized cigarettes, recover valuable materials, and minimize environmental impact. The demonstration of machine took place in a customs warehouse at Dublin Port where seized goods are stored while they wait to be dealt with.

Until recently, seized cigarettes were incinerated, packaging, tobacco, filters and all. Now, the innovative Rezero recycling line now cuts each carton at the point where filter and tobacco meet and sends the two halves down separate paths. The filter material is recovered and becomes new products such as buttons and sunglass frames. The machine is fully adjustable to the small variations in cigarette dimensions between brands, so a single setup handles a whole seizure (a single seizure can run to ten million cigarettes). Around a quarter of a billion cigarettes have passed through the machinery to date.

CURRENT STATUS

The system is operational in real conditions in Ireland, with the tobacco separation process in its final design stages.

NEXT STEPS

The team is analysing the feedback gathered in Dublin and deploying improved units for operational testing by additional customs authorities across Europe. Data generated through this process continues to be integrated into the BORDERLINK cigarette intelligence database.

MACHINE IN ACTION



Innovation 8: Intelligence database of seized cigarettes

WHAT IS THIS INNOVATION ABOUT?

The system strengthens the fight against illicit cigarette trafficking by combining intelligence and forensic analysis, enabling authorities to link seizures across countries and trace illicit cigarettes to their sources of production.

The first mock-up of the user interface was shown to participants on the third day, and with it the reasoning behind the database. Illicit cigarette factories depend on a small number of critical raw materials, above all filter rods and acetate tow (the main ingredient of filter rods). If a seizure can be linked to the supplier of its filter material, the picture changes: instead of a single interception, authorities gain a line of sight to the companies supplying illicit manufacturers.

The database is designed to answer two further questions that no national system can answer alone. How are cigarette seizures trending across different European countries? And do illicit cigarettes encountered in one country originate from the same factory as those found in another?

Behind the interface, the harmonised data model and the laboratory work continue in parallel, with chemical and physical analysis of filters aimed at identifying the distinctive characteristics of acetate tow and production features.

CURRENT STATUS

The database blueprint is close to complete and the first user interface has been presented to users; laboratory screening is under way. The full production of the secure online database has begun.

NEXT STEPS

Finalising the database architecture and establishing the workflow that brings laboratory results into the system, so that seizure linkage and traceability become part of everyday cross-border intelligence work.

BORDERLINK

Cases

My work

Intelligence

Organisation

Alex Morgan

Organisation coordinator

AM

Cases

Browse the complete authority-provided seizure and batch information available within your authorised scope.

Operational cases

Withdrawn

Archived

Create case

Import case

Import multiple cases

Download template

Filters

Clear all

▼ Case and seizure

Keyword or reference

Search authorised records

Seizure date

Any date

Country

All authorised countries

Product

All products

Brand

All brands

Country: Ireland ×

Country: United Kingdom ×

Complete record view • authorised information

BL-IE-26-0148

Operational • Submitted version 2 • Last activity today, 08:42

Create modification

Withdraw

Archive

Providing authority

AGENCY NAME

Irish Revenue

AUTHORITY ID

AUTH-IE-001

COUNTRY CODE

IE

Seizure location

LOCATION TYPE

Port

COUNTRY CODE

IE

LOCATION NAME

Dublin Port

CITY / MUNICIPALITY

Dublin

Seizure information

NATIONAL CASE NUMBER

REV-2026-4821

TRANSPORT MODE

Sea

OTHER GOODS CO-SEIZED

No

SEIZURE DATE

24 Aug 2026

DECLARED ROUTE

CN → IE

Innovation 9: Educational games on Green Customs

WHAT IS THIS INNOVATION ABOUT?

The educational game trains customs officers in product document checks, laboratory results, and the use of Digital Product Passports (DPPs) during inspections. In the first version of the game, developed by the Cross-Border Research Association as a hybrid tabletop–online exercise, participants act as customs officers reviewing shipment documentation, Digital Product Passport mock-ups, and other paper and online evidence to decide whether to release or seize a shipment of teddy bears entering the EU.

The underlying question is a topical one: how can Digital Product Passports be used in customs risk assessment and controls to identify illicit or non-compliant products?

Participants praised the game for its authenticity and its creativity, and for how effectively it demonstrates risk assessment, document review and the use of external data sources in compliance checks. Several customs officers took copies of the gamepack home to show to colleagues in their own administrations, which is as good an endorsement as a training product can get.



CURRENT STATUS

The first version of the game has been played by its intended users.

NEXT STEPS

Refining the game on the basis of the Dublin feedback and extending it towards a full training product that administrations can run themselves.

Digital version coming soon!



Innovation 10: BORDERLINK Observatory

WHAT IS THIS INNOVATION ABOUT?

The central knowledge hub, BORDERLINK observatory, provides project partners and external stakeholders with structured, reliable, and up-to-date information on innovations in customs and border management.

The Observatory is now live on the project website, centralising information on relevant projects, studies, and technologies. Dublin marked its first full presentation to an external audience: the session opened the third day, targeting visiting customs representatives and inviting them to subscribe. Over the course of the mid-term week, the Observatory gained several new followers.

The platform remains structured around two areas: the Thematic Observatory for BORDERLINK partners, with curated content on AI in customs, detection technologies, blockchain, Green Customs, among other key topics; and the Stakeholder Area, offering access to selected, non-sensitive information on the project's innovations.

CURRENT STATUS

Live, operational and continuously updated, with a growing external user base.

NEXT STEPS

Monthly content updates to the Thematic Observatory, further development of the Stakeholder Forum, and continued work to convert the interest shown in Dublin into an active community.



Mid-term demos in the BOB EU Customs Forum.

Mid-Term Demonstrations and Assessments Programme & Resources

Here you can find the agenda and presentations related to the BORDERLINK Mid-Term Demonstrations and Assessments.

[Download the latest PDF agenda here](#)

Last update: 31 August 2026

Presentations

Innovation 1: Data interoperability in the inland waterways domain

- [2.9.2026 Engage C3i Presentation](#)
- [2.9.2026 Hungarian CISE Node for Danube navigation](#)
- [2.9.2026 Data Interoperability in the Inland waterways' domain.pdf](#)
- [2.9.2026 Technical Presentation](#)

Innovation 2: Standard Test Units

- [2.9.2026 Standard Test Units](#)

Innovation 3: Certified X-ray operator training

Innovation 4: Library of synthetic X-ray images



JOIN the **BORDERLINK** Observatory

For any questions, please contact us at
cbra@cross-border.org.



• **FOR BORDERLINK PARTNERS**

• Visit: <https://www.borderlink.eu>

• Navigate to “The Observatory” and create your account.

• Access the Thematic Observatory to stay up to date with the latest developments, curated insights, and innovation progress across key areas such as AI, detection technologies, Green Customs, and risk management.



• **FOR EXTERNAL STAKEHOLDERS**

• Visit: <https://www.borderlink.eu>

• Navigate to “The Observatory” and create your account.

• Join the Stakeholder Forum Area to engage with specific innovation communities, exchange expertise, and contribute to shaping the future of customs practices.

ANNOUNCEMENT: THE BORDERLINK MID-TERM FILM IS NOW ONLINE

A short film of the Mid-Term Demonstrations and Assessments is in production and will be published on the BORDERLINK website and our social media channels in the coming weeks.

Filmed over the three days in Dublin, it takes viewers out to Dublin Port for the outdoor demonstrations — inside the Standard Test Units and their staged concealments, and into the warehouse where seized cigarettes are separated and recycled — and then back to the demonstration rooms, where customs officers worked through the X-ray training platform, built their own synthetic X-ray images, searched the Raman spectra data space and tried the federated database for themselves.

Along the way, the partners behind each innovation explain in their own words what problem they are solving and what comes next, and the visiting customs officers give their verdict.



Scan to watch the video



“Explore our BLOG”

Stay up to date with the latest insights, reflections, and project developments by visiting the BORDERLINK blog.

Our articles provide a closer look at key events, technological trends, and expert perspectives shaping the future of customs and border management.



<https://www.borderlink.eu/blog>

Our PARTNERS



The BORDERLINK project unites a diverse group of 18 expert organisations from across Europe, coordinated by CBRA Services (Belgium). These partners come together to drive innovation in customs interoperability, intelligence sharing, and cross-border enforcement.

Customs & Border Control Authorities

National Tax and Customs Administration (Hungary)
Revenue Commissioners / Irish Customs (Ireland)
UK Border Force (United Kingdom)
Norwegian Customs Administration (Norway)

Technology Providers & Industry Partners

Rapiscan Systems Limited (UK)
Satways (Greece)
INTA, JSC (Lithuania)
Rezero Limited (Ireland)
Analyze IQ Limited (Ireland)
Agilent Technologies Lda UK Limited (UK)

Research & Academic Institutions

Delft University of Technology (Netherlands)
University of Nottingham (UK)
University of Galway (Ireland)
University of Lausanne (Switzerland)

Supporting & Coordination Organisations

Cross-Border Research Association (Switzerland)
Vicesse Research GmbH (Austria)
RSOE (Radios Segélyhívó és Infokommunikációs Országos Egyesült, Hungary)
CBRA Services (Belgium, project coordinator)



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