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PEN-CP

Pan-European Network of
Customs Practitioners

MAGAZINE

**PEN-CP announces four Innovation Grant calls -
companies and research organizations welcome
to submit proposals until 1 June 2024**



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PEN-CP Innovation Grants

PEN-CP is a dynamic innovation-boosting network of expert Customs practitioners. Among its regular activities, PEN-CP publishes periodic calls on various knowledge and innovation instruments and events, all of which aim to identify solutions for today's biggest customs challenges. Depending on the type of instrument or event involved, individual calls for participation may target external experts and innovators or Customs administrations – or professionals from all of these realms.

During 1 March – 1 June 2024 we invite companies and research organizations to make submissions across our four PEN-CP Innovation Grant (PING) calls. (Note: these calls are not open to individual persons or government agencies).

- **Call ID: PING-2024-1–Dark-Web**
 - **Title: Dark web monitoring to counter illicit trade in New Psychoactive Substances (NPSs), firearms, and other contraband**
- **Call ID: PING-2024-2–Cannabinoids**
 - **Title: Enhanced handheld instruments for accurate measurement of cannabinoid levels in hemp and cannabis products**
- **Call ID: PING-2024-3–Biodegradable-Plastics**
 - **Title: A Software tool and database to help customs officers verify the declared biodegradability of plastics**
- **Call ID: PING-2024-4–Passenger-Drugs**
 - **Title: Fast non-intrusive screening of passenger flows to detect and deter body-worn drugs**

While each of the four PING projects has a different scope and purpose, all share a common vision: to create the opportunity for selected suppliers to make concrete innovations, which will receive real-world testing and assessment by expert Customs end users.



Call ID: PING-2024-1 – Dark-Web

Title: Dark web monitoring to counter illicit trade in New Psychoactive Substances (NPSs), firearms, and other contraband

Summary: *In the context of customs risk assessment, PEN-CP customs partners aim for cutting-edge knowledge on the merits of accessing information and retrievable data from dark web marketplaces that trade in goods such as NPSs, firearms, and one additional illicit product/ material (to be chosen by the Selected Supplier). Such information may be useful for risk assessment purposes (shipment targeting, operator profiling, etc.). The Selected Supplier will use an existing technology/software (whether their own or from a third party) to carry out monitoring and analysis activities in the dark web, and PEN-CP customs partners will assess the value of the information presented during the project and in the final report. The results and findings can potentially help shape the future direction on how Customs administrations would best benefit from 'information in the dark web'.*

Context, customs challenge and innovation opportunity

Today, a substantial portion of illicit cross-border trade is carried out covertly on the dark web, an encrypted portion of the internet that is inaccessible to conventional web browsers. The dark web hosts anonymous marketplaces for a wide range of illicit products, from illegal drugs and counterfeits to firearms and other weapons. Within the dark web, there is potential to access a valuable intelligence source for customs, providing evidence on trending illicit products, new smuggling techniques, shifts in destination countries, and other matters. More specific details may also be gathered, including addresses, payment techniques, routings, shipping schedules, and the configuration of various types of packaging. Such insights would help customs officers to stay abreast of trafficking activities, allowing them to adjust their control strategies accordingly, and focus inspection resources on high-risk shipments.

There is significant potential to leverage dark web intelligence for customs risk management purposes. However, the current adoption of dark web monitoring within customs agencies

remains limited, owing to factors including the lack of proven concepts and operational tools, limited resources and lack of expertise. This conceptual and technical gap prevents customs agencies from monitoring the dark web effectively and integrating their findings into effective and informed customs risk management processes.

Innovation Grant: technical elements and expected results

- The anticipated outcome of this Innovation Grant is the delivery of a comprehensive report and a proof-of-concept for a proven dark web monitoring technique. This innovative approach aims to support customs data collection and analysis, particularly targeting risk assessment purposes.
- In terms of illicit commodities, the Innovation Grant should focus on the cross-border trade of New Psychoactive Substances (NPSs) and firearms. In addition, applicants are expected to address one additional illicit commodity of their preference within the project's scope.
- While applicants are strongly encouraged to showcase their existing technologies and services, they are still granted the freedom to propose any technologies, provided these demonstrate the potential to extract valuable information from the dark web for the explicit purpose of customs risk assessment.
- Potential techniques encompass automated web crawling, translation and transliteration methods, social engineering, as well as various data analytics approaches.
- The outputs of this work will undergo iterative refinement in collaboration with customs experts throughout the project, ensuring that the outcomes genuinely contribute value to customs operations.
- No transfer of IP rights is foreseen.

Anticipated project tasks include:

- Live kick-off and user requirement meeting with customs in the UK (Sep2024, exact date to be confirmed as part of the contract process).
- Configuring dark web monitoring tool(s) and

running a round of information collection and analysis.

- Mid-term online meeting with customs, presenting interim results and agreeing details for the second round of dark web monitoring activities (Oct/Nov2024).

- Executing second round of dark web monitoring activities
- Production of full report, and presentation of the report at the final PEN-CP live event (Switzerland, Jan2025).

Call ID: PING-2024-2 – Cannabinoids

Title: Enhanced handheld instruments for accurate measurement of cannabinoid levels in hemp and cannabis products

Summary: *In the context of material identification, and in 'border operational conditions', PEN-CP customs partners wish to deploy a handheld analytical device (such as FTIR) capable of quickly determining whether certain legal thresholds (THC, CBD or other cannabinoids compounds) in hemp and cannabis products are exceeded. Using their existing technology/product as the basis, the Selected Supplier will extend its capabilities (adding to the reference library, fine tuning sensors or algorithms, etc.) to match customs requirements. At project conclusion, PEN-CP customs partners will assess the performance level of the enhanced technology/product – and the results can potentially help shape the future direction of further developments (this would be outside PEN-CP context, as the current project finishes 31.1.2025).*

Context, customs challenge and innovation opportunity

Customs are responsible for enforcing rules on imported goods at the borders of the EU Customs Union. For legal and illegal cannabis and hemp products, customs laboratories use various methods to analyze whether THC, CBD and other cannabinoids are present, and if so, at what levels. (Note: some illicit cannabis products can consist of high levels of cannabinoids other than THC/CBD.). These substances could be naturally occurring cannabinoids, or synthetic/ semisynthetic variants added to the products (e.g., HHC). Tests used include gas chromatography (GC), Raman spectroscopy, mass spectrometry (MS), and high-performance liquid chromatography (HPLC). However, a drawback of the laboratory analysis process is the significant time and cost of sending samples from border checkpoints to the laboratory.

Fortunately, FTIR (Fourier Transform Infrared Spectroscopy) and similar handheld product identification technologies have evolved to become more compact, field deployable and user-friendly for non-expert personnel. These advancements have facilitated the transition of these instruments from use in customs laboratories to border posts. As a result, many European customs deploy such instruments in their routine border control operations.

Despite their technical and operational capabilities, however, FTIR and similar technologies are infrequently used in border inspections of cannabis and hemp shipments. The extension of FTIR use to accurately measure THC, CBD and other cannabinoid levels in hemp and cannabis products, including enhancing and expanding reference libraries, could become an effective new capability for customs. This capability would allow customs agencies to evaluate whether internationally traded hemp products meet legal concentration thresholds for THC and CBD. Furthermore, such devices could also be used by other regulatory agencies to determine the accuracy of THC, CBD and other cannabinoid levels reported in publicly available products.

Innovation Grant: technical elements and expected results

- This Innovation Grant aims to expand the use of technologies such as FTIR or other handheld technologies that are capable of determining THC, CBD and other cannabinoid levels in hemp and cannabis products at border checkpoints.
- The resulting reference data should have the capability to analyse hemp and cannabis products in various formats, including oil-based solutions, vape liquids, suspensions,

capsules, drops, sprays, and powders. Both legal and illegal hemp and cannabis products should be considered.

- The reference data should also offer THC, CBD and other cannabinoid compound contents expressed in terms of weight/weight, weight/volume, or percentage concentration values.
- Adherence to standard file formats for FTIR and similar technologies are encouraged to support interoperability across different manufacturers, product generations, and product types.
- The focus of this Innovation Grant is not to develop new sensors or instruments but to broaden the application scope of FTIR and similar devices already in use by customs at the borders, including through the expansion of existing reference libraries.
- Reflections on possible cross-compound interference in measurements, including THC, CBD, HHC, and other cannabinoid types.
- Full IP rights of the developed technology will remain with the supplier.
- Optional: Conduct a performance comparison between the handheld device and state-of-the-

art benchtop models, focusing on parameters such as Limit of Detection (LOD) and Limit of Quantification (LOQ).

- Optional: Further research on edibles and plant materials is encouraged.

Anticipated project tasks include:

- Live kick-off and user requirement meeting with customs in Norway (Sep2024, the exact date to be confirmed as part of the contract process).
- First round of technical development, using relevant hemp and cannabis samples (access to required controlled hemp and cannabis samples will be jointly explored with customs).
- Mid-term online meeting with customs, to present technical performance so far, and agree details for the second technical development round (Oct/Nov2024).
- Second round of technical development, including performance testing.
- Presenting the technical product and technical report at the final PEN-CP live event (Switzerland, Jan2025).



Call ID: PING-2024-3 – Biodegradable-Plastics

Title: A Software tool and database to help customs officers verify the declared biodegradability of plastics

Summary: *In the context of material identification, both for customs laboratory and border officer users, PEN-CP customs partners seek a software tool and database ('IT system') which contain information on known manufacturers, traders and their product catalogues, as well as applicable industry standards/norms and applied visual signs on biodegradable plastics (both raw materials and finished products). This IT system will provide an initial layer of assurance on whether plastics declared as biodegradable are likely to be accurately declared. The Selected Supplier will design and develop a prototype for such an IT system and populate the database with information available both in public domain and collected directly (by email requests) from the industry sources. Near the completion of the project, PEN-CP customs partners will assess the value of the IT system in their operations. If effective, the IT-system may be used by customs administrations after project completion, including conducting database queries on demand, and executing database updates (e.g. on a 3-monthly cycle).*

Context, customs challenge and innovation opportunity

The emerging "green trade rules" are expected to offer biodegradable plastics lower duty rates, exemptions from quotas, and other benefits compared to traditional, non-biodegradable plastics. However, this preferential treatment exposes the plastic trade to potentially fraudulent activities, with dishonest traders misrepresenting regular plastics as biodegradable in order to evade proper duty payments and circumvent trade restrictions.

Acting as the primary frontline border control agency, customs play a key role in enforcing a broad range of regulations related to the trade of environmentally sensitive goods, including plastics. A challenge for customs agencies today is the lack of quick, accurate methods distinguishing biodegradable plastics from their conventional counterparts. Existing identification methods depend largely on sophisticated

laboratory instruments or natural decomposition experiments that may take months to complete.

A potential solution to the identification challenge is the creation of a reference database of verified manufacturers of raw materials and finished products, and of distributors who comply with biodegradable plastic regulations (e.g., ISO standards). This database could be built by scanning online product catalogues and information sheets, and by processing databases of companies certified by various certification organizations (e.g., TÜV) using web crawling techniques. It would help customs distinguish between companies not involved in biodegradable plastics trade and legitimate traders. Altogether, the database would streamline the control tasks for frontline customs officers at the border. They would no longer need to rely on material identification sheets from traders, or to subject plastic samples to expensive and time-consuming laboratory testing. Instead, they could simply query the name of the trader or manufacturer to determine whether they indeed deal in biodegradable plastics.

Innovation Grant: technical elements and expected results

- This Innovation Grant is expected to deliver an operational prototype, encompassing both a database of verified traders of biodegradable plastics and an intuitive user interface for querying the database.
- The database should have at least 1000 records of manufacturers of raw materials and products and at least 1000 records of trading companies. The final number of records will be determined during the kick-off meeting discussions and agreement.
- Applicants are encouraged to propose techniques for scanning the internet for manufacturers, distributors, and buyers of biodegradable plastics. This may involve the utilization of advanced tools such as web crawlers or similar technologies.
- The information sources used to construct the database comprise a range of entities, with a

particular emphasis on national environmental authorities and trade bodies.

- Integrating the database with widely used company information repositories, such as DnB or Orbis, is considered advantageous. This integration enhances the database's value by leveraging comprehensive and standardized company data from trusted sources, offering an additional layer of reliability and completeness.
- The tool and database architecture should be future-proofed to allow the addition of new functionalities down the road (e.g. to coordinate workflow and facilitate communication between customs and Environmental Regulatory Agencies).
- The use of open-source tools and databases is required. Alternatively, it must be possible to migrate the database easily to an open-source platform without loss of functionality at the end of the project.
- Concerning the technical outputs resulting from the Innovation Grant work, PEN-CP will retain IP rights at the end of the project.

Anticipated project tasks include:

- Live kick-off and user requirements meeting with customs in Hungary (Sep2024, the exact date to be confirmed as part of the contract process).
- Technical design, first round of application development, information collection and database population.
- Mid-term meeting with customs (online), to present the information content and functionalities achieved so far and agree details for the second round of development (Oct/Nov2024).
- Second round of application development, information collection and database population.
- Presenting the technical product and technical report at the final PEN-CP live event (Switzerland, Jan2025).



Call ID: PING-2024-4 – Passenger-Drugs

Full title: Fast non-intrusive screening of passenger flows to detect and deter body-worn drugs.

Summary: *In the context of material identification, and in ‘border operational conditions’, PEN-CP customs partners wish to deploy a real-time, non-invasive screening method that operates without hindering traveller flows at the border, while accurately detecting and identifying such drugs as heroin, cocaine and MDMA smuggled on the body. The Selected Supplier will use their existing technology/product as the basis, and extend its capabilities (additions to reference library, fine-tuning of sensors or algorithms, etc.) to match customs requirements. At the end of the project, PEN-CP customs partners will assess the performance level of the enhanced technology/product – and the results can potentially help shape the future direction of further developments (this would be outside PEN-CP context, as the current project finishes 31.1.2025).*

Context, customs challenge and innovation opportunity

Customs have many responsibilities at the borders of the EU Customs Union, including detecting and deterring smuggling of illicit drugs. One popular method is for the smuggler to conceal illicit drugs on their body, usually under clothing, and then attempt to blend in with the many legitimate travellers crossing the border. Customs process a large number of travellers just to detect this small minority who wish to break laws or harm society. This time-consuming process, although necessary, may ultimately delay legitimate travellers, and at moments of high traffic across the border, potentially could allow smugglers to pass without being checked.

Customs would prefer to focus their efforts on the higher risk minority seeking to evade controls by smuggling illicit drugs on their body. They are therefore seeking technology that is capable of:

- Screening non-invasively, without breaching traveller privacy or rights.
- Being deployed without interfering with the flow of travellers.
- Posing no health risks for travellers or Customs personnel.
- Being commodity-specific for key drugs, and

not solely an anomaly detector.

- Providing a high probability of detection (POD) and low false-alarm rate (FAR).
- Guiding the operator to an area of risk on the body by means of an interface.

The customs environment differs significantly from that of aviation security, where all passengers are required to remove outer garments and empty their pockets before being screened. In a customs application, travellers may be wearing or carrying coats, bags and other belongings as they move through a border. Customs require appropriate technology to accurately and seamlessly screen for given threats in this scenario.

There has been considerable investment in the aviation security sector, which is highly regulated. The same level of regulation does not apply to the Customs operational environment. PEN-CP partners believe that some technologies, developed primarily for security or other purposes but not yet adopted (or deemed unsuitable for their intended application), could be beneficial to the customs community. Likewise, technologies which have been successful, or partially successful, in their original application could prove to be valuable Customs tools. A successful technology, integrated seamlessly at a border, would result in an increase in detections of smuggled drugs. This would reduce interventions on legitimate travellers, while strongly deterring those seeking to evade controls.

Innovation Grant: technical elements and expected results

- The Innovation Grant aims to expand or adapt the application of technologies to detect and identify designated drugs - technologies which were primarily designed for non-Customs purposes (including security applications) - for deployment in a customs environment.
- The technology should be largely autonomous, requiring no direct oversight by a Customs officer.
- By the end of the action, the device will be expected to demonstrate accurate detection

of cocaine hydrochloride but show potential to detect heroin freebase and MDMA, in operational or near-operational conditions.

- The focus of this Innovation Grant is not on developing new sensors or instruments, but on broadening the application scope of existing technologies. These technologies may already be in use, or may be being designed or developed, for a range of security applications, including the detection of explosives.
- PEN-CP customs partners will support the action by providing samples of relevant drugs threats at a specified location. The selected supplier will be expected to comply with any regulations in force at that location.
- No device or technology that generates ionising radiation will be considered.
- The full IP rights to the device or technology will remain with the selected supplier.

Anticipated project tasks include:

- Live kick-off and user requirement meeting with Customs (or Border Force) in the UK (Sep2024, the exact date to be confirmed as part of the contract process)
- First round of technical development including data capture, using relevant heroin, cocaine and MDMA samples followed by validation.
- Mid-term meeting with customs (online), presenting technical performance so far, and agreeing on details for the second technical development round (Oct/Nov2024)
- Second round of technical development, including determining background false alarm rate, followed by performance testing and establishing POD and FAR, which could lead to pilot.
- Presenting the project outputs and technical results at the Final PEN-CP event (live event in Switzerland, Jan2025).



Common instructions for all PING calls

Announcement of call for proposals

This call for proposals for PEN-CP Innovation Grants (PINGs) is published on the PEN-CP project website at www.pen-cp.net/calls and on the European Commission portal at <https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home> (the direct link to the EC call text page will not be known at the time that the call is published on the PEN-CP website).

Eligibility of applicants

- The call is targeted for companies and research organizations (as 'legal persons'), which have a well-recognized ID such as a national registration number, a VAT number, etc.
- Proposals from individual persons or consortia are not eligible and will not be considered in the evaluation.
- Proposals from applicants with prior involvement in customs innovation projects are encouraged.

Application process

- Step 1: To express interest, the applicant should send an email to pen-cp@cross-border.org, specifying the call identifier in the subject line. The email should include the contact details of the applicant's designated representative, including their email address and phone number.
- Step 2: In a return email, the applicant will receive a designated applicant ID, indicating clearance to proceed with the full proposal submission.
- Step 3: The applicant should submit the full proposal by sending the three required documents to pen-cp@cross-border.org AND pen-cp-arttic@eurtd.com

Required documents for full proposal submission

- Document 1 – Technology starting point, main outputs and expected results
 - Explain the starting point with the technologies you propose to use and/or develop/innovate further.
 - Provide a comprehensive outline of the project's main outputs and results. This may incorporate technical diagrams where

appropriate.

- Please ensure that the document does not exceed 3 pages.
- Document 2 – Methodology, work plan and risk management
 - Detail the methodology, work plan and risk management plan, as well as any accompanying resources such as Gantt charts, person-day allocations, etc.
 - Please ensure that this document does not exceed 3 pages.
- Document 3 – CV of the project manager and CV of a key expert
 - Submit curricula vitae (CVs) for the project manager and one other key expert, detailing their respective relevant experience and skills
 - While there is no page limit, we encourage you to follow the Europass standard format.
 - Additional action: Please include in the project manager CV cover page a web link to a (national) Register of Commerce or similar institution, where the legal entity data is visible. Alternatively, please include a separate extract document on the legal entity data.
- Please do not include a financial bid, since the grant amount is pre-determined as described at the end of this document.

Submission language

- All documents must be in English.

Proposal evaluation and scoring

- Document 1 – Technology starting point, main outputs and expected results (max 42 points, threshold 25 points)
 - Suitability of the technologies / solutions you plan to use for project execution.
 - Feasibility to achieve the planned outputs and results of the project.
 - Anticipated impacts for the broader customs community.
- Document 2 – Methodology, work plan, risk management (max 42 points, threshold 25 points)
 - Proposed approach, techniques, and methodologies for conducting the project.

- Project timeline with tasks outlined in the work plan, considering organization, scheduling, and resource allocation for efficient project execution.
- Summary of key project risks and related mitigation measures.
- Document 3 – CV of the project manager and a key expert (max 16 points, threshold 10 points)
- Capability to effectively carry out technical work and all project tasks.
- Demonstrated experience and skills relevant to the project.
- Past involvement in customs innovation projects is viewed favorably.
- Full proposal: total points max 100 (threshold 60 – aggregation of individual document thresholds).

Evaluation and contract signing process

- Step 1: Evaluation of all proposals through scoring and ranking.
- Step 2: Selection of the applicant (referred to as the Selected Supplier) with the highest score and initiation of the contractual process.
- Step 3: Notification of evaluation results to all other applicants.
- Step 4: Contracting with the Selected Supplier.
- Step 5: If the contract cannot be finalized with the Selected Supplier, the next highest scoring applicant may be invited for contract negotiation (then proceed with Step 4).

Questions and Answers

- All questions should be addressed to pen-cp@cross-border.org AND pen-cp-arttic@eurtd.com
- Please specify the call identifier in the subject line of your email.
- All questions from applicants will be published along with their respective answers at www.pen-cp.net/calls

Publication of evaluation results

- Results of the evaluations will be published in due course at www.pen-cp.net/calls

Innovation Grant Panels

- Each PEN-CP Innovation Grant (PING) has its dedicated Innovation Grant Panel, whose responsibilities will include proposal

evaluation, project steering, and assessment of outputs and results.

- The Panels will comprise three PEN-CP experts, at least two of whom will be representatives of PEN-CP member customs administrations.

Dates & deadlines

- Official call publication date: 1 March 2024
- Deadline for proposal submission: 1 June 2024 (by 5pm Brussels time)
- Proposal evaluation results available: 15 June 2024 (target date)
- Project start date: Latest by 1 September 2024 (and earliest on 1 July 2024)
- Project duration: Maximum 5 months (project must finish by 31.1.2025 latest)

Grant amount, payments travel expenses and IP rights

- Grant amount: 59.500 EUR (fixed)
- Payment terms: The grant will be paid in two instalments: 60% upon project kick-off, and the remaining 40% following the delivery and presentation of final outputs and results at the designated PEN-CP event.
- The Selected Supplier will be responsible for covering the expenses related to two trips for attendance at live project meetings, which include the kick-off and the final presentation.
- IP rights issues, including possible transfers, are explained separately in each PING call.

Contact person for all queries

Valentina Scioneri, PEN-CP Administrator, Cross-border Research Association (CBRA), valentina@cross-border.org , tel & WhatsApp +39 334 159 8179

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Editor:

Juha Hintsu (CBRA Switzerland)

Editorial Team:

Mike Ellis (UK)

Toni Männistö (Finland)

Johan Ponten (Sweden)

Valentina Scioneri (Italy)

Layout:

Susan Wilander (Finland)

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All open calls (Experts Reports, Open Innovation instruments etc.) by PEN-CP:

<https://www.pen-cp.net/calls>

For more information on PEN-CP, please visit:

www.pen-cp.net

or email to:

pen-cp@cross-border.org



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