



European Commission  
Directorate-General for Informatics

# Report on the Interoperable Europe Roadshow in Portugal

## Semantic Interoperability Supporting Activities 2024-2025

Specific Contract BEACON-RoC28539

Date: 23/03/2025

Doc. Version: v1.0



Commission européenne, B-1049 Bruxelles / Europese Commissie, B-1049 Brussel - Belgium. Telephone: (32-2) 299 11 11.  
Office: 05/45. Telephone: direct line (32-2) 2999659.

Commission européenne, L-2920 Luxembourg. Telephone: (352) 43 01-1.

## Document Control Information

Settings	Value
Document Title:	Report on the Interoperable Europe Roadshow in Portugal
Project Title:	Semantic Interoperability Supporting Activities 2024-2025
Document Author:	PwC EU Services
Project Owner:	Leontina Sandu
Project Manager:	Catarina Arnaut
Doc. Version:	V1.0
Sensitivity:	Limited
Date:	23/03/2025
Status:	For review by the Contracting Authority

## Document Approver(s) and Reviewer(s):

Name	Role	Action	Date
Georges Lobo	Business Manager	Accepted	23/03/2025

## Document history:

Revision	Date	Created by	Short Description of Changes
0.1	18/03/2025	PwC EU Services	Creation of the document
1.0	23/03/2025	PwC EU Services	Acceptance by the Contracting Authority

## Configuration Management: Document Location

The latest version of this controlled document is stored in the EC Teams: [Task 03](#).

Disclaimer
<p>This report was prepared for the European Commission by PwC EU Services. The views expressed in this report are purely those of the authors and may not, in any circumstances, be interpreted as stating an official position of the European Commission. The European Commission does not guarantee the accuracy of the information included in this report, nor does it accept any responsibility for any use thereof. Reference herein to any specific products, specifications, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favouring by the European Commission. All care has been taken by the author to ensure that s/he has obtained, where necessary, permission to use any parts of manuscripts including illustrations, maps, and graphs, on which intellectual property rights already exist from the titular holder(s) of such rights or from her/his or their legal representative.</p>

## Table of Content

1.	Executive summary .....	4
2.	Plenary session 18 February 2025 .....	5
2.1.	Welcome, Opening, Introduction and Agenda .....	5
2.2.	EU Digital Regulation synergies and policy .....	5
2.3.	SEMIC Service Offering .....	6
2.4.	IOP assessments.....	8
2.5.	Monitoring Mechanism & IOPEU Monitoring activities .....	9
2.6.	OOTS, DCAT-AP for HVD and LDES.....	11
2.7.	Portugal’s interoperability success stories .....	12
2.8.	Closing remarks.....	14
3.	Breakout Sessions at AMA 19/02/2025.....	16
3.1.	Introduction .....	16
3.2.	SEMIC DCAT-AP for HVD .....	16
3.3.	Semantic Tooling and Registry.....	16
3.4.	Monitoring IOP Assessments .....	17
3.5.	IOPEU Academy .....	18
3.6.	SEMIC LDES/AI.....	18
3.7.	Closing .....	19
4.	Concluding remarks .....	20
5.	Annex .....	21
5.1.	Agenda.....	21
5.2.	Group picture .....	22

## 1. EXECUTIVE SUMMARY

The Interoperable Europe Roadshow in Portugal took place on 18 and 19 February 2025. This event played an important role in engaging public authorities and other stakeholders in Portugal to better understand the legal obligations stemming from the Interoperable Europe Act, as well as to learn about the initiatives led by the European Commission to support the EU Member States in this journey.

On the first day of the Roadshow, the European Commission introduced a large audience to IOP assessments and the existing monitoring mechanism, as well as the services available to enhance semantic interoperability. Specifically, we delved into topics such as the Once-Only Technical System, DCAT-AP for High Value Datasets, and Linked Data Event Streams.

This event also offered the opportunity to learn about interoperability success stories in Portugal. Four public authorities shared their interoperability journeys, key achievements and challenges for specific initiatives.

On the second day of the Roadshow, a series of targeted breakout sessions were organised to facilitate in-depth discussions and the sharing of experiences in several key areas: the use of DCAT-AP for High Value Datasets, the application of Semantic Tooling and Registry management, the processes involved in Monitoring IOP Assessments, and the educational initiatives of the IOP EU Academy.

This Roadshow allowed for insightful discussions which resulted in concrete follow-up actions:

- DG DIGIT and AMA will explore the opportunity of a twinning exercise between Portugal and another EU country about mapping data flows into a single national portal.
- SEMIC will follow up with the Roadshow participants and invite them to assist SEMIC in developing and reviewing the OOTS data models.
- SEMIC will evaluate the possibility of a pilot with AMA for the usage of LDES in publishing CPSV-AP data.
- SEMIC will evaluate the need and the audience for a training on SHACL shapes and data validation.
- AMA will consider performing a live exercise in Portugal on the IOP Assessment completion with follow-up from the European Commission.
- The AMA Academy will share the list of priority topics with the Interoperable Europe Academy team in order to continue the discussion on course reuse and other possibilities of cooperation.
- The Interoperable Europe Academy will share the list of new courses and inform the AMA Academy about all new courses which are translated into Portuguese.
- DG DIGIT will share a follow up email with all participants which will include all materials which were mentioned during the different sessions.

## 2. PLENARY SESSION 18 FEBRUARY 2025

The first day of the Interoperable Europe Roadshow took place at Auditório Mar da Palha, in Lisbon, Portugal. It brought together representatives from various public administrations, as well as other stakeholders. The main highlights of the first day are described hereafter.

### 2.1. WELCOME, OPENING, INTRODUCTION AND AGENDA

The first day of the Interoperable Europe Roadshow in Portugal was opened by Sofia Mota, President of the Agency for Administrative Modernization (Agência para a Modernização Administrativa, AMA) and Leontina Sandu, Head of the Interoperability and Digital Government Unit at the European Commission's Directorate-General for Digital Services (DG DIGIT).

Sofia Mota explained the role that AMA plays in the context of the Interoperable Europe Act. As mandated by the Act, AMA serves as the single point of contact for Portugal, responsible for fostering and facilitating interoperability both within the country and with the European Union. She underscored the critical nature of cooperation in ensuring the efficient delivery of digital public services. This cooperation extends beyond national boundaries, providing opportunities to both learn from and share insights with the broader European community.

Leontina Sandu introduced the concept of the Interoperable Europe Roadshows, which are designed to facilitate constructive discussions on interoperability, enabling participants to share and learn from each other's initiatives. The Roadshow in Portugal is particularly timely as the European Commission is in the process of establishing its Multiannual Financial Framework. This framework contains two relevant objectives: (1) enhancing competitiveness and (2) simplifying processes and reducing administrative burdens. Interoperability plays a crucial role in achieving both goals. Portugal adopted its first National Regulation for Digital Interoperability in 2012 followed by a revision of this regulation in 2018. Since its initial adoption, Portugal has gained valuable experience that can significantly contribute to shaping the implementation of the Interoperable Europe Act implementation and inspiring the Multiannual Financial Framework. Portugal's expertise positions it as a key stakeholder in the implementation and refinement of the Interoperability Assessments mandated by the Interoperable Europe Act. Furthermore, the significance of Portugal's involvement in the [InvestEU Programme](#) was underscored.

Leontina invited the Roadshow attendees to join the SEMIC 2025 conference, scheduled to take place in Denmark on 24 and 25 November 2025.

The introductory session featured a video message from Margarida Balseiro Lopes, the Portuguese Minister of Youth and Modernisation. In her message, she emphasised the importance and advantages of digital public services, interoperability, and both national and international cooperation.

Concluding the introductory session, Georges Lobo and Claudia Oliveira presented the agenda for the first day of the roadshow (see annex).

### 2.2. EU DIGITAL REGULATION SYNERGIES AND POLICY

Claudia Oliveira presented the EU Digital Regulations landscape that contribute to the EU Digital Single Market. Through an interactive example (an EU citizen changing jobs and

moving countries), the following regulations, frameworks and programmes were explained:

- **Digital Regulations:** [Open Data Directive](#), [Interoperable Europe Act](#), [Data Governance Act](#), [Data Act](#), [eIDAS 2](#), [AI Act](#);
- **Commission communication:** Competitiveness Compass;
- **Framework:** Digital Decade;
- **Funding Programme:** Digital Europe Programme

Many examples were provided on how the life of an EU citizen is simplified thanks to these regulations and frameworks. *For instance: The AI Act ensures that the AI-powered recruitment tools for screening applications used by the EU citizen's employer are fair and prevent bias.*

The session deep dived into the [Interoperable Europe Act \(IEA\)](#). More specifically, an overview of the main elements included in the Act was provided, focusing on the following ones:

- Mandatory interoperability assessments;
- Strengthened interoperability support;
- Structured and co-owned EU cooperation; and
- Recognised reusable interoperability solutions.

The Act-related milestones for the year 2025 were presented, as well the new requirements for Member States following the Act's entry into force. The audience was encouraged to visit the [Interoperable Europe Portal](#), the one-stop shop for all interoperability and EU digital government content, where several spaces are being created to host useful resources related to the Act's implementation.

### 2.3. SEMIC SERVICE OFFERING

Georges Lobo and Catarina Arnaut introduced the SEMIC action and its objectives, offering an overview of the services provided by SEMIC to the community. SEMIC, the Semantic Interoperability Community managed by DG DIGIT, aims to enhance semantic interoperability among EU Member States. It achieves this by:

- Providing and aligning semantic assets in compliance with and supporting the implementation of EU regulations relevant to the public sector.
- Identifying opportunities for alignment on semantic definitions, metadata and reference data sources.
- Raising awareness on the importance of data and metadata management.

SEMIC offers four types of services, namely *Specifications, Pilots, a Toolkit and a Knowledge hub.*, across five priority domains:

- Data Spaces
- Catalogues of Services
- Base Registries
- Interoperability policy implementation
- AI for interoperability

#### *Specifications*

SEMIC provides three types of specifications: Vocabularies, Application Profiles, and Technical Specifications.

- **Core Vocabularies:** A set of standards for describing core concepts used across all Member States.
- **Application Profiles:** These enable the standardized usage of vocabularies within specific contexts.
- **Technical Specifications:** Facilitate the use of other SEMIC specifications by providing the necessary technical support.

Through these efforts, SEMIC supports the broader goal of enhancing interoperability across the EU, aligning with the objectives of the Interoperable Europe Act.

### *Pilots*

Every year, various pilots are organised to support semantic interoperability within the Union. These pilots range from assisting Member States in implementing interoperability solutions, to developing new solutions, and proving the viability of novel technologies in the field of semantic interoperability. The outcomes of these pilots are shared with the community, allowing everyone to benefit from the lessons learned. These pilots may lead to new service offerings provided by SEMIC, either as tools or specifications.

### *Toolkit*

The toolkit shared by SEMIC aims to help Member States identify suitable tools for their specific use cases. These tool recommendations and insights facilitate the adoption of semantic solutions and workflows, enabling Member States to take the lead in their own interoperability journeys.

### *Knowledge hub*

Finally, the SEMIC knowledge hub serves to facilitate the understanding and adoption of semantic interoperability solutions. The knowledge hub contains success stories, training resources and other relevant documentation. Success stories illustrate tangible benefits and opportunities, serving to inspire and share lessons learned. Training sessions offer a more formalised approach to disseminating knowledge within the community, covering both technical and organisational aspects. Lastly, other documentation provides the community with the necessary information to understand and reuse SEMIC assets.

The complete service offering can be accessed through the [SEMIC Support Centre](#), which either hosts relevant resources or links to relevant external initiatives such as the EU Academy, GitHub, or the Interoperability Test Bed (ITB).

## **Q&A**

These presentations were followed by a session of questions and answers.

*Question 1: How can semantic interoperability play a role in a legal context?*

Answer 1: Semantic interoperability can significantly enhance the legal domain by standardising the way legal information is represented and exchanged across different systems. The European Legal Identifier data model is an example of this, as it supports the creation of legislation. SEMIC specifications facilitate this process with data models and vocabularies that are compatible with relevant EU legislation, thus enabling consistent and accurate handling of legal information across Member States.

*Question 2: How can we convince organisations to collaborate?*

Answer 2: To convince organisations to collaborate, it is effective to identify a specific need or problem that can be addressed through cooperation and present a viable solution.

Engaging with existing collaborative projects is advantageous, as these entities already have a collaborative mindset. By proposing to expand their scope or create a new working group focused on your specific topic, you increase the likelihood of acceptance.

*Question 3: We are currently struggling to identify who has what data and who needs data for what actions. How could that be supported?*

Answer 3: A potential solution is to systematically map data flows within public administrations an approach followed by Finland, where they have consolidated this information into a single national portal. Portugal could engage in a twinning exercise with Finland to learn from their experience.

### Summary of actions

- DG DIGIT and AMA will explore the opportunity of a twinning exercise between Portugal and another EU country about mapping data flows into a single national portal.

## 2.4. IOP ASSESSMENTS

Felicitas Bitzenhofer presented the session on the Interoperable Europe Assessments (IOPAs). Mandated by the [Interoperable Europe Act \(Article 3\)](#), **the goal of the IOP Assessments** – which entered into force in January 2025 – is to ensure that digital and interoperability aspects are considered as early as possible in the policy-making process. They will allow to identify barriers to cross-border interoperability at an early stage and facilitate the implementation of digital public services that require cross-border data exchange

An **assessment must be performed** before taking a decision on new or substantially modified binding requirements set by a Union entity or a public sector body concerning one or more trans-European digital public services and which influences cross-border interoperability. For example, an IOP Assessment is needed for the *European Disability and Parking Card as it fulfills the criteria mentioned above*

- *It is a legislative Proposal*
- *It is from the European Commission (Union entity).*
- *It shall be provided by public sector bodies to natural persons across the EU (each Member State shall introduce it).*
- *It shall ensure mutual recognition of the card across the EU (most likely requires interaction across borders by means of network and information systems and therefore affect cross-border interoperability).*

**All the relevant information regarding IOP Assessments** can be found under the [Interoperability assessments space](#) on the IE Portal. This includes the **Guidelines for Interoperability Assessments** – created by the Member State drafting group – that contain six chapters covering the main concepts, the assessment process, reporting, and multiple examples. Additionally, within that space, assessment reports can be drafted and published, and a repository of reports will be available as they are produced. This collaborative space also hosts a community section to ask questions and to interact with other community members.

The next steps regarding IOP Assessments include:

- Translation of the guidelines in all EU languages to be published on the Interoperable Europe Portal. (March 2025)



- Interoperable Europe academy learning session and seasonal school with hands on sessions on Interoperability assessments (April and May 2025),
- Publication of study on support for interoperability assessments (May 2025)
- Introductory course on interoperability assessments (June 2025)

## Q&A IOP Assessments

### Question 1: Do IOPA have to be conducted for all types of services?

They are mandatory before taking a decision on a binding requirement (obligation, prohibition, condition, criterion or limit of a legal, organisational, semantic or technical nature):

- Set by a Union entity or a public sector body
- Concerning one or more trans-European digital public services
- And which has an effect on cross-border interoperability

If some of these criteria are not fulfilled, an assessment is not mandatory, but it can still be performed in a voluntary basis.

[This page](#) defines in which cases an assessment is legally required.

### Question 2: What does cross-border interoperability mean exactly?

Cross-border interoperability refers to the ability to exchange data across borders. This does not only include the technical exchange of data but also the organisational aspects, the legal legitimisation for the exchange and the semantic understanding of the data being exchanged. In reality, Cross-border interoperable services include all those for which, to deliver an optimal domestic service, exchange of data between countries is needed. For example, to fine EU citizens in Country A whose license plate registered in Country B, Country A needs to be able to access Country B's base registries, to extract the personal information (name, address, etc.) of the person committing the infraction.

### Question 3: For the assessment, in case there is the need to interact with several PA entities in a country, which motivations would you highlight to engage them more?

The assessments entered into force in January of 2025 and if the conditions above are fulfilled, they are mandatory to be performed at all government levels. The motivations to perform assessments – including voluntary ones – are linked to reducing costs (as solutions can be reused), bringing simplification (as the process will need to be documented and done early in the process) and avoiding vendor lock-in (for the reasons stated before). Interoperability assessments can also improve processes by allowing the different Public administration entities to share their perspectives and experiences and this way break down existing silos through enabling communication and collaboration.

### Question 4: What are the profiles you recommend public entities have in their teams to prepare for IOEU compliance?

These teams should ideally be multidisciplinary, including experts from different fields, such as business architecture, business analysis, policy maker, legislators and lawyers, IT specialists, etc.

## 2.5. MONITORING MECHANISM & IOPEU MONITORING ACTIVITIES

During this session Claudia Oliveria and Noémie Custers introduced how monitoring was performed before the [IE Act](#) entered into force. This was done by tracking the level of

implementation of the [EIF \(European Interoperability Framework\)](#) within each concerned country, which is reflected in [this interactive dashboard](#).

However, **Article 20 of the IEA** tackles monitoring and evaluation, and a new Interoperability Monitoring Mechanism (MM) – based on the Act's requirements – is currently being developed by DG DIGIT and the Joint Research Centre (JRC). The aim is to establish a comprehensive monitoring framework under the Interoperable Europe Act that drives evidence-based policy innovation.

A comparison between the two Monitoring Mechanisms (EIF and the new Act's MM) was done during the session, highlighting the larger scope and target of the new MM compared to the EIF. The proposal for the new Monitoring Mechanism will be presented for approval to the Interoperable Europe Board on May 2025, and a first data collection is already foreseen for this year. The MM is composed of five elements, including:

- Progress of trans-European digital public services and crossborder interoperability
- Progress towards EIF by Member States
- Take-up of interoperability solutions
- Cooperation with GovTech for public sector innovation
- Enhanced public sector interoperability skills

Lastly, during the session, the [IOPEU Monitoring space on the Portal](#) was presented, where users may find:

- **Up-to-date information** on the state-of-play of digital public administration and interoperability. Key resources include: Digital Public Administration factsheets, Country case studies and initiatives, Monitoring dashboards, Digital policy reports, etc.
- **Resources to provide assistance and support** to EU national administrations in the alignment to the EIF and in fulfilling the IE Act's requirements. These include: Solutions on the EIF Toolbox; Online Trainings; Best practices.
- **Engagement activities** with EU public administrations such as workshops and webinars, to share best practices, including Peer-review sessions between Member States; Roadshows; Coffee talks and webinars; News articles, etc.

During the session, a Sli.do survey was opened in order to understand whether participants know about the IOPEU Portal and the changes that the Act brings to their daily work tasks. The results showed that:

- 50% of the participants of the roadshow heard about the Act, but they are not sure about how it impacts their daily work. During the day, many questions related to the Act were answered, but the participants were advised to contact EC by emails or use the Support Centre via the Interoperable Europe Portal in case of further doubts.
- Participants answered that they stay informed on digital government transformation/ interoperability matters through the Interoperable Europe Portal, as well as through other channels such as subscription lists; news, events and reports; case studies, etc. Participants were encouraged to browse the Portal and discover its resources, as well as to attend the webinar held on 21 February 2025 by the Portal team on "a user journey on the Portal".

**Question 1: Will the IoP MM data collection be fully automated or partially? Will national entities like AMA have to intervene at any stages of the data collection process? Will AMA have to, for example, validate the IoP MM data for Portugal after the data collection is done?**

The IoP MM data collection has been designed to reduce the reporting burden on Member States, focusing on reuse of existing multi-level monitoring data. Thus, the main data sources will be secondary: retrieved from the Interoperability Assessments (IoPA), the Portal solutions, the Interoperable Europe Academy, etc. No validation from AMA or any other national agency will be needed, as the data will come from already self-disclosed information, such as the IoPA.

### **Question 2: Can you share some output that resulted from the EIF monitoring mechanism?**

Last year was the last edition of the European Interoperability Framework data collection. Data on countries' results can be found in this [Power BI dashboard on the Portal](#). Disclosing said results, not only helped Member States benchmarking their interoperability and digital transformation efforts against other countries, but also supported their assessment of their own advancements vis-à-vis previous years. Additionally, through the EIF MM, many best practices have been collected that served as an inspiration to other Member States, with the common goal to enhance the design and delivery of seamless cross-border public services in Europe.

#### **Summary of actions**

- The Monitoring team will share the follow up email with all participants which will include all materials which were mentioned during the session.

## **2.6. OOTS, DCAT-AP FOR HVD AND LDES**

Florian Barthelemy presented the role of SEMIC in the context of the Once-Only Technical System (OOTS). The OOTS will be a government-to-government data environment that will streamline and expedite cross-border administrative procedures. The 21 life events covered within the scope of the OOTS are divided across five domains: population data, education data, vehicle data, social security data, and business data. Within the OOTS, SEMIC focuses on the data models used for the data to be exchanged.

SEMIC provides mappings between various standards, ensuring a unified understanding and facilitating integration with existing systems. SEMIC also models the evidence types for which no existing systems exist, doing so by reusing concepts from well-established cross-border initiatives where possible.

At the core of SEMIC's work is the creation of a data dictionary that enables a unified understanding of terms within the OOTS. Currently, five out of 27 population domain evidence types and four out of 18 education domain evidence types have been modelled. Work on the vehicle evidence types is anticipated for the first quarter of 2025, while work in the social security and business domains is expected in the third quarter of 2025.

Anastasia Sofou introduced the Data Cataloguing Application Profile for High Value Datasets (DCAT-AP for HVD), which plays a crucial role in the framework of the Open Data Directive and its Implementing Regulation for high-value datasets. She highlighted that the deadline for reporting these datasets has already passed, emphasising the importance of compliance.

The objectives of DCAT-AP for HVD include:

1. Enabling Existing Users: It helps current DCAT-AP users to publish their high-value datasets (HVDs) in accordance with the legislation.
2. Assisting Member States: It supports Member States in publishing their HVDs, allowing them to benefit from the existing DCAT-AP framework.
3. Facilitating Data Ingestion: It allows data.europa.eu to ingest, host, and republish HVDs efficiently.

Using DCAT-AP for HVD ensures compatibility with various DCAT-AP ecosystems and use cases, such as open data portals, data spaces, base registries and existing publication strategies. This compatibility is achieved by introducing additional requirements on DCAT-AP to maintain alignment with existing implementations and domain-specific extensions.

There are three domain extensions of DCAT-AP relevant to high-value datasets:

- BRegDCAT-AP: For base registries.
- GeoDCAT-AP: For geospatial data.
- StatDCAT-AP: For statistical data.

These extensions ensure that high-value datasets are managed and published in a way that is consistent and interoperable with existing systems and standards.

Emiel Dhondt discussed the integration of Linked Data Event Streams (LDES) with DCAT-AP for High Value Datasets (HVDs), highlighting how LDES can enhance data sharing. DCAT-AP ensures metadata quality to meet various reporting needs, but the question of how to share this data remains. LDES offers a solution by providing a novel linked data publication strategy. Unlike traditional methods that place the burden on one party to publish or aggregate data, LDES distributes this responsibility more evenly.

LDES functions as a stream of changes to an existing dataset, so only changes are communicated rather than the entire dataset. This approach maintains a clear history, allowing users to analyse how a current state was reached or revert to previous statuses. LDES can publish any linked data. LDES DCAT-AP feeds were created to facilitate the sharing of DCAT-AP data. This tailored implementation simplifies the process by providing a clear approach. LDES DCAT-AP feeds were developed in collaboration with Sweden and were adopted by data.europa.eu for data ingestion. This integration demonstrates a practical application of LDES to support the efficient sharing and management of high-value datasets.

### **Summary of actions**

- SEMIC will follow up with the Roadshow participants and invite them to assist SEMIC in developing and reviewing the OOTS data models.
- SEMIC will evaluate the possibility of a pilot with AMA for the usage of LDES in publishing CPSV-AP data.

## **2.7. PORTUGAL'S INTEROPERABILITY SUCCESS STORIES**

### **AMA**

The team from AMA highlighted Portugal's approach to enhancing interoperability through the establishment of a single national interoperability portal. All public institutions are mandated to offer their services through this portal, initially serving as a directory to guide users to the appropriate websites. However, the goal is to evolve the portal to host these services directly, thereby unifying and enhancing the overall citizen experience.

AMA provides various tools to support this initiative, including solutions for electronic identities (eIDs), interoperable public payment systems, electronic signatures, vehicle registration and dematerialised bank accounts. Over the years, these services have witnessed increased adoption, reflecting their effectiveness and the growing demand for digital solutions. AMA's ongoing efforts aim to expand the range of services available on this portal, thereby further promoting digitalisation and interoperability within Portugal.

## **DGEA**

Ana Saraiva from the Directorate-General of Economic Activities (DGEA) in Portugal presented a success story involving the digital transformation of the stallholder license process. Previously, obtaining a stallholder license required individuals to visit a public service one-stop-shop to complete paperwork and gather necessary information from various public institutions, particularly regarding fiscal data. These one-stop-shops have been valuable in identifying overlapping data requirements and creating synergies in public service provision.

Leveraging the legal requirements from a [national decree law no. 10/2015](#) and funding from COVID resilience initiatives, DGEA executed a three-phase project to digitise and unify services related to the stallholder license. In the first phase, they identified all relevant data and its original sources. The second phase involved centralising this data in a public service registry and integrating it with the Portuguese interoperability portal, while conducting continuous testing with stakeholders. In the final phase, the digital stallholder license was fully developed and deployed.

The new system allows stallholders to request their licenses online through a simplified form, with backend processes handling necessary cross-checks via an interoperable framework. The digital license is accessible through an app, making it easy for stallholders to use and for authorities, such as the police, to verify.

## **IRN**

Pedro Fontes from the Portuguese Institute for Registries and Notaries (IRN) shared a success story about the digital transformation and interoperability of Portugal's national registries. IRN oversees crucial registries related to Citizen, Company, Land and Vehicle Data. The institute embarked on a comprehensive digitalisation initiative to ensure all interactions with these registries are fully digital. This transformation was guided by several key principles, including human-centred design, digital by default, once-only principle, paperless operations, privacy by design and by default, and security by design.

One of the notable achievements of this project was the alignment of data across various registries, which facilitated the creation of a single unified access point for registry information. This integration not only streamlined access but also supported seamless data flow to the appropriate public service providers, as identified in a public service catalogue.

The digitalisation and unification of registries positioned IRN to effectively meet cross-border interoperability requirements in the context of various European and international systems, such as the Business Registers Interconnection System (BRIS), the Business Object Reference Identifier System (BORIS), European Unique Digital Identity (EUDI), IBEROREG, European Land Registry Association (ELRA), Legal Entity Identifier (LEI), the sirc system, and the EU Citizen Card.

IRN's approach to interoperability projects involves four steps:

1. Gather an interdisciplinary team of experts.
2. Analyse the data.

3. Develop the solution.
4. Deliver the solution.

This structured approach not only enhances inter-registry data sharing but also aligns with broader European interoperability initiatives, ultimately improving efficiency and accessibility in public service delivery.

## **DGES**

Priscila Couto, representing the Directorate-General for Higher Education (DGES), presented one of their success stories: the initiative for awarding grants to higher education students.

This public service involves the collaboration of four distinct authorities: DGES, Higher Education Institutions, the Tax Authority, and Social Security. Annually, prior to the commencement of the academic year, approximately 110,000 students apply for grants, with around 80,000 applications receiving approval. Traditionally, the process required students to obtain verification from the Tax Authority and Social Security. Considering that information is required for entire family units, this could result in up to 400,000 individual requests for documentation.

By harmonising the data and fully digitising and streamlining the process, the speed of claims processing has significantly increased, while ensuring safety, reliability and a substantial reduction in the number of documents generated. Despite these advancements, challenges remain, as many applications need to be processed within a limited timeframe.

## **2.8. CLOSING REMARKS**

The first day started by discussing the synergies between the different EU regulations, frameworks and funding schemes linked to interoperability, using a user-perspective approach to better understand their interconnections and impact on citizens' lives.

The European Commission also presented the new Monitoring Mechanism, co-created with the EU Member States, which aims to operationalise Article 20 of the IE Act, by capturing the outcomes, progress and results of cross-border interoperability. The proposal will be presented to the IE Board in May 2025.

This Roadshow was very important to present and explain what the European Commission is doing in relation to semantic interoperability through its SEMIC action. Most participants had never heard about the services offered to promote semantic interoperability. The European Commission explained in detail the scope of OOTS, its domains and evidence mapping state-of-play. Our team highlighted the importance and benefits of DCAT-AP as a de facto standard for data catalogues and particularly how it can be used for high value datasets. Both examples (OOTS and High Value Datasets) show how determinant the collaboration between Member States, and AMA in this case, and the Commission, is in shaping Europe's digital objectives for citizens and organisations. All public administrations have a role to play. As a third example, SEMIC explained how Linked Data Event Streams not only allow for keeping datasets up-to-date, but they also allow for checking what data changed throughout time.

This Roadshow also allowed for experience exchange by sharing interoperability success stories from Portugal. These presentations were insightful and represent relevant examples to be further disseminated with other EU Member States.

As a key outcome of this Roadshow, we identified synergies through the organisation of a twinning exercise will be organised between Portugal and another country to exchange

best practices on base registries and core vocabularies. Finally, we also learnt that the audience is interested in exploring further AI4Interoperability along with other services provided by the European Commission.



### **3. BREAKOUT SESSIONS AT AMA 19/02/2025**

The second day of the Interoperable Europe Roadshow entailed the organisation of targeted breakout sessions to foster in-depth discussions and experience exchange about specific topics.

#### **3.1. INTRODUCTION**

Sofia Mota and Leontina Sandu shared some reflections regarding the preceding day of the Roadshow. They also set the expectations for the second day.

#### **3.2. SEMIC DCAT-AP FOR HVD**

This was a hybrid session which also included representatives from other public authorities. A brief summary of the presentation given on the first day was provided to the audience to ensure a common level of understanding regarding DCAT-AP for HVD. The audience was then invited to ask questions.

##### **Reporting deadlines**

The reporting deadlines for HVD were clarified. This was mainly relevant for the Business registries as those HVD have not been reported yet.

##### **Linked data**

To enable a more technical understanding of DCAT-AP, a generic introduction to Linked data was given by the SEMIC team. The audience expressed their concerns regarding compliance with reporting standards. The SEMIC team showed how to use the Interoperability Test Bed to test the validity of data instances.

##### **SHACL validator**

SEMIC showed the SHACL validator hosted on the Interoperability Test Bed (ITB) which allows validation of any type of linked data against SHACL constraints. All the ITB validators are available as Open-Source software and as a web application allowing MS to integrate the validation service into their processes. From the discussion, a training need concerning the use of the SHACL validator was identified, particularly to explain SHACL shapes and data validation.

##### **Summary of actions**

- SEMIC will evaluate the need and the audience for a training on SHACL shapes and data validation.

#### **3.3. SEMANTIC TOOLING AND REGISTRY**

Claudio Baldassare provided an update on the ongoing tooling initiatives under SEMIC, highlighting the Tooling Assistant and the reference architecture for tooling. Following this overview, AMA inquired about potential tools to facilitate the publication of a public service catalogue. Based on AMA's specific needs and constraints, several options are available. The Finnish tooling solution is one option if there is a requirement for a comprehensive system that addresses all aspects related to semantic data, metadata and data models. Alternatively, specific tools can be considered such as VocBench or CKAN.



The discussion then shifted to the sharing and reuse of semantic data standards. SEMIC introduced the Semantic Registry. This registry aims to develop a decentralised platform accessible via API and GUI, allowing users to explore existing data standards. The platform will also enhance transparency regarding the utilisation of various standards, enabling users to understand the prominence of each model. SEMIC's objective is to establish such a registry to connect various Member States and EU institutions. If a Member State requires a new data model, the registry can be consulted to determine whether an EU body has already provided a suitable model or to explore the modelling solutions adopted by other Member States for similar challenges.

### **3.4. MONITORING IOP ASSESSMENTS**

The IOPEU Monitoring and Assessment Team facilitated a workshop on the new IOP monitoring mechanism focusing on how the IOP Assessments will contribute to the data collection within the new monitoring framework.

The session began with an overview of the new Monitoring Mechanism, including details on the specific indicators that will be developed using information gathered from the IOP Assessments. The DIGIT Monitoring team explained the distinction between output indicators and outcome indicators. They also provided details on the use of secondary data sources to reduce the reporting burden. Finally, they presented an in-depth explanation of how data collected through the IOP Assessments will be used to inform the specific indicators. These include:

- Element 1:
  - Output Indicator: Total number of TDPS that have undergone interoperability assessments.
  - Outcome Indicator: Percentage of TDPS with resolved interoperability barriers.
- Element 2:
  - Output Indicator: Percentage of Member States adopting the latest EIF version
  - Outcome Indicator: Percentage of TDPS reporting no interoperability barriers to implementation.
- Element 3:
  - Outcome Indicator: Interoperability solutions take-up index (expressed as a percentage)

During the workshop, both EC and Portugal representatives discussed the reporting timeline and the practices followed by the Portugal reporting team. This exchange helped to clarify the potential benefits of aligning reporting timelines of the IOPEU Monitoring and DPA Factsheets with other monitoring and data collection mechanisms of the European Commission.

Additionally, the DIGIT and JRC teams working on the IOP Assessments provided a detailed explanation of the assessment process and guidelines. They conducted a live demo of the webpages where assessments can be completed, illustrating the available guidelines and the decision tree designed to assist public administrations in using and completing the assessments.

The Portuguese representatives showed a high level of awareness of the IOP Assessments and expressed interest in conducting an assessment and learning more from this experience. Particularly, they asked specific questions about their applicability to different types of TDPS and key aspects of their completion. They also engaged in preliminary brainstorming on potentially selecting a TDPS to conduct a first assessment, suggesting

performing a live exercise on the IOP Assessment completion supported by the European Commission.

#### **Summary of actions**

- Consider performing a live exercise in Portugal on the IOP Assessment completion with accompaniment from the European Commission.

### **3.5. IOPEU ACADEMY**

The breakout session was organised between Interoperable Europe Academy and AMA Academy to exchange and strengthen their collaboration on digital training initiatives.

AMA Academy has been actively reusing courses from Interoperable Europe Academy since 2024. Currently, three courses are included in the AMA Academy's curriculum, one in Portuguese and two in English. Additionally, AMA has identified key topics that should be covered in future training programs.

The session served as a platform for both academies to exchange updates, as each has recently developed new courses and defined roadmaps for future developments. Additionally, the meeting aimed to explore opportunities for ongoing exchange, support mechanisms, and alignment of training strategies to better serve public administration professionals.

During the session, both academies presented their latest initiatives, including newly launched courses, and announced upcoming events such as webinars and seasonal schools. AMA Academy highlighted its efforts in expanding the volume of training content and live events to better address the evolving needs of public servants. Interoperable Europe Academy introduced its latest courses, reinforcing its commitment to providing translations to all EU Languages. AMA Academy emphasised that the courses it has reused were highly successful and noted the importance of offering content in Portuguese to maximize accessibility for public servants. However, they also recognized the value of English-language courses, as many public servants at AMA are actively engaged in international cooperation and require training in English to support their work across borders.

#### **Summary of actions**

##### Actions

- The AMA Academy will share the list of priority topics with the Interoperable Europe Academy team in order to continue the discussion on course reuse and other possibilities of cooperation.
- The Interoperable Europe Academy will share the list of new courses and inform the AMA Academy about all new courses which will be translated into Portuguese.

### **3.6. SEMIC LDES/AI**

This session was planned but did not take place due to time constraints. A follow-up session will be planned between SEMIC and AMA to further explore these SEMIC assets and their relevance to Portugal.

### **3.7. CLOSING**

Both Leontina and Sofia thanked all organisers and participants for attending the 2-day roadshow. Many topics were discussed in these 2 days ranging from monitoring to, trainings and semantics. Further follow-up will be needed to fully capture the value of the last two days. Not only can AMA and the European Commission help each other but the outcomes of the roadshow might go beyond and help other administrations in the European Union. Interoperable Europe is looking forward to Portugal's participation in the InvestEU Programme. The importance of the Multiannual Financial Framework to advance cross-border interoperability was also highlighted. Finally, Leontina Sandu invited again AMA to join the SEMIC2025 conference.

## 4. CONCLUDING REMARKS

The Interoperable Europe Roadshow in Portugal contributed to important discussions and experience exchanges in key areas such as semantic interoperability, the IOPEU Monitoring, IOP Assessments, and the IOP Academy. Engaging discussions on these topics revealed opportunities to learn from Portugal's approach to Interoperability and identified ways in which the European Commission could offer support through its initiatives in these areas.

This Roadshow was not only informative but also laid the groundwork for the future of Interoperability in Portugal and the broader European Union. Opportunities for collaboration with Portugal were pinpointed in areas like IOP twinning exercises, targeted support for interoperability and HVD reporting and the adoption of new technologies. The specific follow-up actions that have been identified include:

- DG DIGIT and AMA will explore the opportunity of a twinning exercise between Portugal and another EU country about mapping data flows into a single national portal.
- SEMIC will follow up with the Roadshow participants and invite them to assist SEMIC in developing and reviewing the OOTS data models.
- SEMIC will evaluate the possibility of a pilot with AMA for the usage of LDES in publishing CPSV-AP data.
- SEMIC will evaluate the need and the audience for a training on SHACL shapes and data validation.
- AMA will consider performing a live exercise in Portugal on the IOP Assessment completion with follow-up from the European Commission.
- The AMA Academy will share the list of priority topics with the Interoperable Europe Academy team in order to continue the discussion on course reuse and other possibilities of cooperation.
- The Interoperable Europe Academy will share the list of new courses and inform the AMA Academy about all new courses which are translated into Portuguese.
- DG DIGIT will share a follow up email with all participants which will include all materials which were mentioned during the different sessions.

## 5. ANNEX

### 5.1. AGENDA

18/02/2025

09:30 – 09:50	Welcome and Opening
09:50 – 10:10	Introduction and Agenda
10:10 – 10:40	EU Digital Regulation Synergies and Policies
10:40 – 11:10	SEMIC Service Offering
11:30 – 12:00	IOP Assessments
12:00 – 12:30	Monitoring Mechanism & IOPEU Monitoring Activities
12:30 – 13:00	Q&A
14:15 – 14:50	OOTS and DCAT-AP for HVD
14:50 – 16:10	Portugal Interoperability Success Stories
16:10 – 16:30	Closing and Highlights of the Day

19/02/2025

09:30 – 10:00	Introduction
10:00 – 11:00	Bilateral meeting between Sofia Mota and Leontina Sandu
10:00 – 11:00	Breakout meeting 1: SEMIC DCAT-AP for HVD
11:00 – 12:00	Breakout meeting 2: Semantic Tooling and Registry
11:00 – 12:00	Breakout meeting 3: Monitoring IOP Assessment
11:45 – 12:30	Breakout meeting 4: IOPEU Academy
12:00 – 12:30	Breakout meeting 5: SEMIC LDES/AI
12:30 – 13:00	Closing

## 5.2. GROUP PICTURE

