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Romanian roadshow

DEP Action on Promoting semantic interoperability amongst the European Union Member States (SEMIC)

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EXECUTIVE SUMMARY

As part of the SEMIC Action, the European Commission proactively engages with EU Member States to share information about its service offering and seek opportunities for further collaboration in relation to semantic interoperability. To enable knowledge sharing and experience exchange, the SEMIC Action organises Roadshows in EU Member States so that public administrations and other organisations can learn how Core Vocabularies and application profiles help them to use time more efficiently when re-designing data models and ensuring an alignment between national, regional and local initiatives and the EU level to promote the cross-border exchange and re-use of data. The Roadshows also aim at creating an opportunity for Member States to share detailed feedback and provide input regarding future developments.

The second roadshow was organised in Bucharest, Romania and took place on 9 and 10 March 2023. Romania has done valuable work on the creation and maintenance of Base Registries and digital services. It made available 15 Base Registries and efforts on harmonising and connecting them are ongoing. During the two-day Roadshow, Romanian authorities interacted with the SEMIC action on a range of topics including Access to Base Registries, the Data Governance Act, Personal Data Spaces, The National Interoperability Framework Observatory (NIFO), the proposal for the Interoperable Europe Act and more.

The discussions revolving around Base Registries particularly allowed for further exploring how to interconnect Base Registries at national level, fostering their usage and overcoming key challenges. In this context, the audience exchanged best practices and agreed on concrete action points to further enhance the interconnection of Base Registries.

The presentations about NIFO and Romania's National Interoperability Framework provided insights into the state-of-play of interoperability in Romania. Following a presentation about the areas and principles used to assess interoperability, the European Commission also reported the results achieved by Romania which provided a basis for fruitful discussions on how to further develop Romania's interoperability roadmap.

The roadshow resulted in concrete action points aimed to 1) support Romania in addressing key challenges related to the implementation of data models and governance in Base Registries, and 2) enhance interoperability efforts in the country. These actions include, among others, the sharing of best practices for key challenges experienced by Romania, identification of success stories, fostering the international community, mapping of common semantics and promotion of SEMIC standards.

This document summarises the main presentations and discussions held during the Roadshow. It also entails a roadmap for collaboration between the SEMIC Action and Romania which clearly defines actions to be implemented in an agreed timeline.

OVERVIEW OF THE PRESENTATIONS AND DISCUSSIONS AT THE ROMANIAN ROADSHOW

This chapter summarises the main presentations and discussions held at the Romanian Roadshow which took place on 9 and 10 March 2023.

1.1. Thursday, 9 March (Day 1)

The first day of the Roadshow focused on Base Registries, where two-way presentations by the SEMIC action and the Romanian ministries provided a basis for discussions on improving and interconnecting Base Registries. Next, the Data Governance Act and Personal Data Spaces were presented, opening a dialogue with Romania on their state-of-play, ideas, and comments on these topics.

1.1.1. Opening words by Romanian representatives

Different authorities in Romania are implementing several projects revolving around interoperability, namely:

- Governmental cloud platform;
- Single Sign On project;
- Single Digital Gateway; and
- In the near future, the National Platform for Interoperability.

Romania wants to improve and scale-up their interoperability efforts in collaboration with SEMIC. Some challenges they have experienced so far are related to the Single Digital Gateway (SDG) and Once-only Principle (OOP). Ongoing implementations of EU laws show that there is an opportunity for policy and implementation levels to work more closely, where digitalisation can become an enabler for data-driven law making. Next, Romania has achieved strong progress with the Single Sign On project, as they consider identity to be a key pillar for interoperability. This has allowed, among others, the ability of signing criminal records online in Romania.

1.1.2. Introduction – European Commission

As mentioned by the Head of the Interoperability Unit at Directorate-General for Informatics (DG DIGIT), there are several initiatives shaping interoperability at European level, such as:

- A recent legal initiative proposed by the European Commission, the Interoperable Europe Act; and
- Specifications and other relevant and free-to-use tools supporting Base Registries.

The team leader for semantics at the same unit at DG DIGIT, explained that SEMIC offers semantic building blocks that allow for a common understanding of data and publication on the web, including specifications, pilots, tooling and knowledge hub.

These semantic building blocks can support Romania in increasing their interoperability by the provision of concrete guidelines and tools.

1.1.3. Interconnecting Base Registries – European Commission

Base registries represent authoritative databases and a trusted source of basic information on data items such as people, companies, vehicles, licences, buildings, locations and roads. This key information supports European public services and is owned and managed by each EU Member State (or within an EU country). Interconnecting Base Registries at local and EU level

and providing access rights to certain authorities and public administrators – following the appropriate security and privacy measures – could help foster interoperability / interconnection across European public services.

The SEMIC action provides best practices, community knowledge sharing and concrete tools to support Member States in increasing their interoperability. In the context of Base Registries, different semantic assets can facilitate the exchange of authentic data across regions and countries through a common data understanding.

Concretely, Core Vocabularies are reusable, simplified and extensible data model capturing fundamental characteristics of an entity. Often, these Core Vocabularies are further specified into Application Profiles, which describe how a Core Vocabulary is to be applied in a particular domain or application. This is indicated by the 'AP' extension in the specifications below.

These relate to Base registries through the following assets:

- Datasets can be modelled with DCAT-AP
- Public services can be modelled with CPSV-AP
- BRegDCAT-AP combines DCAT-AP and CPSV-AP
- Base registries entities (Persons, Events, Locations ect) can be modelled with Core vocabularies.

Supported by good data and IT practices, such as (linked) data formats or API maintenance, Romania can use these specifications to further enable their semantic interoperability.

Following this presentation, Romanian representatives shared some of the challenges they face at the moment, such as cross-border exchange and data privacy (particularly in the context of the Education Data Registry). In addition, a Romanian representative also informed about the government's short-term plans to map 36 life and business events that are needed in relation to the different Registries.

Actions identified

- The Romanian Agency for Education to analyse the Romanian educational data models together with the SEMIC Action to identify the value of a mapping to other models such as ELMO/ELM (Educational data model) or Core Vocabularies. For example, entities modelled in their registries (e.g. student) could be mapped to existing educational models which capture additional information about courses, skills, learning outcomes, etc., enabling new combinations of data for additional use cases. This will need to be investigated with the Romanian Agency.
- The SEMIC Action to provide best practices and existing tools (e.g., CPSV-AP spreadsheet) to Romanian representatives, for instance for transforming their data to linked data.
- The SEMIC Action to provide support to Romanian representatives in the mapping of business and life events.

1.1.4. Presentations from the different Romanian base registries

During the roadshow, Romanian representatives presented seven national base registries in more detail. The table below summarises the main characteristics of each registry, the key challenges faced by the respective authorities, and the agreed action points to be taken up by the SEMIC Action and Romania.

Base Registry	Presenter	Description	Challenges	Action points
Register of Persons	Ministry of Internal Affairs	The registry contains: IDs, Home address, Residence, Citizen's photo, ID Cards, Notices... In addition, the Ministry of Internal Affairs also has a pilot in one county, where 9000 electronic IDs are replacing physical IDs. Romania is also digitising the archive for the last 100 years.	1) The need for a common approach between base registries 2) Validation of identities 3) Data quality	1) Work with Romania to analyse more in detail the support needs expressed during the meeting; for instance, the need to be able to validate the legal status of a person, if they exist, are married etc. 2) Under the public document regulation (EU), XSD Public Documents data models were created for Birth, Marriage, Divorce... The Ministry has opportunities for further advancements on the semantic level. The SEMIC Action can provide the data models to the Ministry. 3) Share best practices from Finland and the Netherlands cadastres on interconnecting base registries for primary data. Other relevant sources can be found on Joinup. The SEMIC Action and the Ministry of Internal Affairs could further investigate the use of LDES in this context.
General directory of driving licenses and registered vehicle	Ministry of Internal Affairs	The registry that interconnects a diverse range of national and EU authorities in a central database. In this registry, every criterion set by the European Commission and EIF is fulfilled (semantic, legal, organisational, technical).	/	/
Archiving Registry	Ministry of Internal Affairs	This is the administration that has a legal mandate to archive information. The registry contains this information.	1) An ingestion challenge, where taking over records from other registers is a difficulty. 2) Interoperability challenges. Keeping the data from all base registries accessible across time and make it available back to users is an important improvement opportunity.	1) Together with the Ministry, compare Romanian needs to needs experienced by the Netherlands and Finland and facilitate knowledge sharing sessions between them and other Member States 2) Based on common needs between NL, FI and RO, identify potential solution areas to structure the discussions.

Base Registry	Presenter	Description	Challenges	Action points
Register of Taxpayers	the Ministry of Finance and National Agency for Fiscal Administration	The register has two parts: legal entity taxpayers and individual taxpayers. 1) Legal entity: an integrated system with a central database that offers data both internally and publicly. Search engines are offered in addition to the registry, as well as web services. Information Tax Identification Numbers (NIF), taxable persons registered for VAT purposes or farmers applying a certain financial regime... 2) Individual taxpayers: It includes Tax Identification Numbers (NIF) by processing the information from the fiscal registration statements, as well as document metadata, status codes, VAT registrations etc. It is interoperable with the National Trade Office. This registry together with Register of Persons are the most advanced in the country.	/	/
Company and Insolvency Registry	National Trade Register Office	Includes the Company Registry and the Insolvency Registry. All companies in Romania register through their local offices, which keep an archive of company files. It is mostly digitalised (OCR). The NTR stores and reports on all data related to these companies. The registries are modelled using an extension of BRIS.	Semantic challenges in modelling mandates tied to persons. For example, a company representative wants to open a business in another country. The representative uses a portal but often does not have full powers (mandate) to do the registration. Modelling semantics of powers and mandates is challenging.	The SEMIC Action to invite Romania to the discussions on Core Business and BRIS
Insolvency proceedings bulletin (IPB)	National Trade Register Office	Debtors are published in the IPB, with data on names, addresses, fiscal id codes, court and case numbers, etc.	Data flows are not automated	1) The SEMIC Action to share findings and best practices from Estonian Data Tracker with the National trade register office and colleagues to address their questions about criminal investigations

Base Registry	Presenter	Description	Challenges	Action points
Registry for students	Ministry of Education	Several registries are maintained by them: research and organisations, brainmap.ro, higher education, national student enrolment registry… Most of these registries are connecting with the student registry, but there is room for improvement (it is not fully connected in some cases).	1) Updating the data is costly 2) Validation in relation to other registries is a challenge. When a person provides information to one register, it is difficult to cross-check this with other information on the same person. 3) Legal constraints hamper implementation	1) The SEMIC Action to share information on interesting past projects with the Ministry of Education, such as the DEAP proof-of-concept developed by the European Commission, ELMO and The European Learning Model. 2) Create visibility around his use case as inspiration for other BR's. This register is a success story in Romania, so it could be a foundation to learn from for the other registries. The SEMIC Action can help facilitate this visibility through its community.

Table 2: Overview of the different Base Registries presented, including description, challenges, action points

1.1.5. Data Governance and Personal Data Spaces – European Commission

Next, an overview on the [Data Governance Act](#), the [Data Act](#), the [Digital Market Act](#) and the [Interoperable Act](#) was explained. These legal frameworks form the pillars of strengthening the mechanisms to increase data availability, interoperability and data subject control.

This legal framework is linked to SEMIC in several ways, with [Data Spaces](#) playing a key role. Common European data spaces will ensure that more data becomes available for use in the economy, society and research, while keeping the companies and individuals who generate the data in control. As part of this strategy, Personal Data Spaces are emerging intermediary services that allow users control over the sharing and use of their data. Different technologies can enable these services such as MyData, Solid, and CozyCloud. Some of the benefits that Personal Data Spaces can provide are ownership, security, access control and data altruism.

SEMIC is currently building a community around Personal Data Spaces' technologies and implementations and supporting this community to grow and contribute to the data economy. More concretely, in the first quarter of 2023, the SEMIC Action organised a series of three workshops which will lead to the elaboration of a white paper. The lessons learnt through these workshops will be compiled in a white paper to be shared before the summer of 2023. To this end, three workshops on PDS are organised.

The audience indicated that this is an advanced topic that is beyond their current area of priority in the short term. However, the SEMIC action can support technical and semantic experts of Romania in the analysis and implementation of specifications like LDES, Wikibase/Wikidate to facilitate knowledge building in the mid- to long-term.

Actions identified

- The SEMIC Action will support technical and semantic experts of Romania in the analysis and implementation of specifications like LDES, Wikibase/Wikidata.
- The SEMIC Action will share more information about Personal Data Spaces implementations and pilots throughout Europe with Romania.

1.2. Friday, 10 March (Day 2)

The second day of the Roadshow focused on the Interoperable Europe Act, the Romanian National Interoperability framework, the National Interoperability Framework Observatory (NIFO) and the Berlin Declaration Monitoring Mechanism (BDMM).

1.2.1. Interoperable Europe Act - European Commission

Romania first presented the Romanian Interoperability Framework. From the Interoperability Law, different legislative packages are put forward by the Romanian lawmakers in the form of three frameworks: Base Registers, Reference Norms for Achieving Interoperability, and the National Interoperability Platform. An overview is displayed in the figure below.
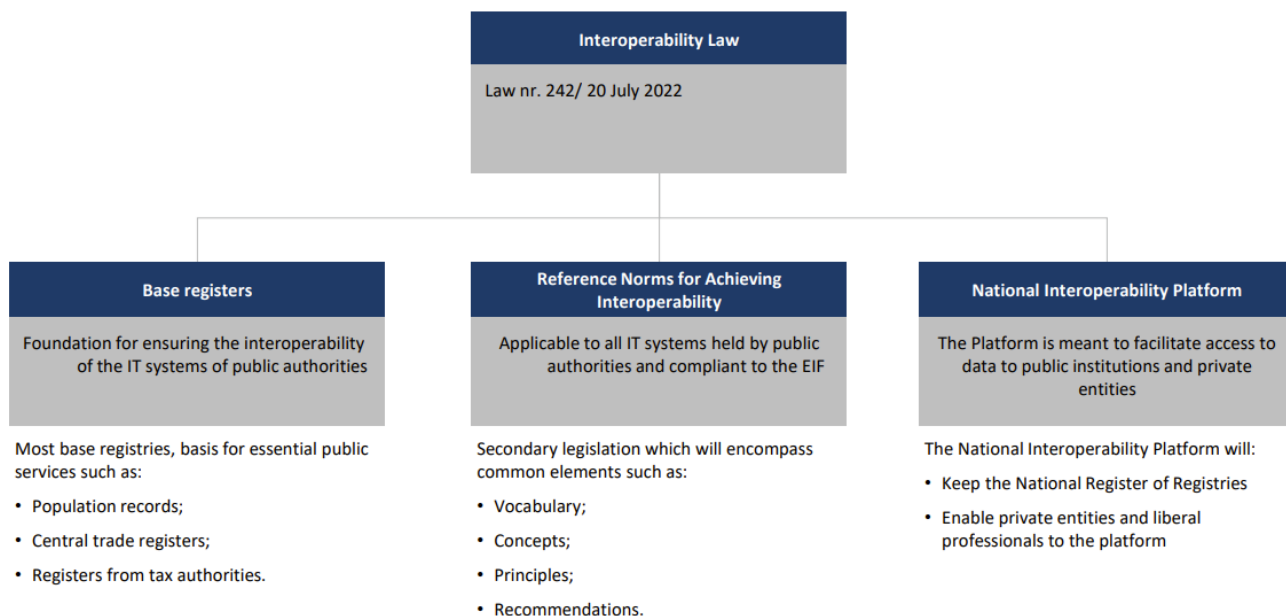
Figure 1: National legal framework for interoperability in Romania

Next, the Interoperable Europe Act was explained. First, the act was contextualised including the problem statement, the needs it aims to meet and its objectives. After, the key components of the Regulation were put forward in more detail.

1.2.2. NIFO – European Commission

NIFO, the National Interoperability Framework Observatory aims to monitor the implementation of the revised version of the European Interoperability Framework (EIF) and to help foster the capacity building policy and modernisation of public administrations. It also aims at becoming an online community of practice and the prime source of information regarding digital public administration and interoperability matters within Europe. Three different services offered to Member States by NIFO were presented: the Information Observatory, the Community of Practice and Assistance & Support.

Furthermore, the EIF offers 47 recommendations, which are organised around three pillars:

- The 12 principles that should guide policy-makers in the implementation and design of interoperability in public administrations;
- The interoperability layers, which present different aspects of interoperability that should be addressed in the design of European public services;
- The conceptual model, which aims at designing and delivering integrated public services.

The Romanian representatives indicated that answering these questions and providing accurate data is time-consuming. A key obstacle here is that knowledge is fragmented and difficult to collect. The audience also informed that a Romanian platform of Interoperability is in progress, which will be an entry point to 15 base registries which should be properly reflected in the monitoring mechanism. It was agreed to report more frequently about Romania's progress in relation to its interoperability efforts to allow for a more accurate assessment of the country's level of maturity.

Next, the Berlin Declaration Monitoring Mechanism (BDMM) was introduced. After presenting the BDMM, Claudia Oliveira presented the results of the assessment of Romania against this monitoring mechanism. Some of the key findings include:

- Romania had strong performance in principles 3, 11, 4:
    - Providing digital services and information, user friendliness
    - Promote fundamental rights and democratic values
- Improvement opportunities can be identified on openness, trust and transparency. However, a lack of data might lead to false conclusions. For example, a low performance is reported on the Base Registries, but it is clear from earlier presentations that Romania is quite advanced on this front.

Finally, support areas of where the Commission can provide help was put forward. The EIF toolbox can support in the journey to interoperability and compliance offering an online assistant, an active community and other resources (best practices, examples...). Additionally, a 'twinning exercise' is being organised that matches countries and facilitates discussions between two Member States. The Commission proposed to organise a discussion between Romania and another country (e.g. Sweden); this suggestion was well-accepted by Romanian representatives.

Actions identified

- The European Commission to gather and share best practices for providing the data on the different KPIs with Romania. Support on reporting the correct data would be advantageous for Romania.
- The European Commission to explore further the opportunity offered by the twinning exercise between Romania and another peer-reviewer country.

1.2.3. Closing remarks

The European Commission closed the roadshow thanking the audience for their interest and participation, while mentioning several other interesting opportunities such as funding options, the creation of the European digital consortium, the Recovery and Resilience Facility, the Govtech Incubator, and the Chips Act that is coming up in the near future.

ROADMAP OF SEMIC – ROMANIA COLLABORATION

Several action points emerged from the interactive discussions. These can be classified into three categories:

- Actions that are part of a long-term roadmap on which Romania and the Commission could collaborate on in the future

- Short-term actions which may lead to a collaboration

- Short-term actions without consecutive activities

We describe below the first and second categories of actions. The figure below proposes a tentative timeline to tackle actions that could form a basis for a collaboration between Romania and the Commission. Short-term actions are indicated in green, whereas long-term actions are indicated by a blue bar. Please note that this is a tentative timeline that is subject to a prioritisation and general agreement with Romania.

Month		April	May	June	July	August	September	October	November	December
Communication and visibility	Establish a common channel between SEMIC and Romania to publish their respective materials and experience		▰▰		Communication through channel					
	Provide best practices learned from FI and NL on archiving with the Romanian Archiving system, with a focus on making data available to citizens		▰							
	Create visibility around the Registry for Students as inspiration for other BR's in Romania		▰							
	Consolidate and make visible implementations and pilots on Personal Data Spaces throughout Europe.				▰▰▰▰▰▰					
Base Registries	Leverage existing mapping in RO between Base Registries, Public Services and Life/Business Events to assess needs for data models		▰▰▰							
	Create and maintain a landscape of the Romanian Base Registries				▰▰▰▰▰					
	Introduce and assess needs for LDES and PDS technologies which can be piloted with specific Romanian BR's		▰▰							
	Collect information about the Romanian Agency for Education, its use cases, needs and next steps			▰						
	Contact _____ to define its support on XSD models for Birth, Marriage, Divorce and other specific semantic needs from the Registries of Persons and Civil status		▰▰▰▰							

Figure 2: SEMIC – Romania collaboration roadmap

In different sessions of the roadshow, the parties introduced or referred to many materials and initiatives which would benefit from further dissemination: at Romanian level, within and across agencies and organisations and, at European level, between DGs and Member States. Examples of such dissemination materials included: events organised by SEMIC, piloting activities in the EU, concrete implementations of different assets, publications, etc.

Short-term (before July)

Establish a common channel between SEMIC and Romania to publish their respective materials and experience. This could be achieved thanks to a connection between points of contacts: one in Romania and one from the SEMIC team.

Three concrete short-term actions have been identified for this channel:
- Create visibility around the Registry for Students as inspiration for other Base Registries in Romania.

Stakeholders	Roles	Contact points
ADR	Owner and coordinator	
SEMIC	Support	

- Consolidate and make visible current implementations and pilots conducted on Personal Data Spaces throughout Europe.

Stakeholders	Roles	Contact points
SEMIC	Owner	

- Provide best practices learned from FI and NL on transforming archiving systems from relational data to linked data and making data available to end-users across time.

Stakeholders	Roles	Contact points
SEMIC	Owner	

Benefits:
- Contribute to extra visibility for Romania and its work across countries.
- Reach domain-specific agencies in Romania and expand the community of practitioners.

Longer-term
- A similar approach could be used with all Member States willing to participate. This would establish de facto an informal network of points of contact which would cross-feed the news, independently from its origin, across the Member States and Commission's DGs.

Stakeholders	Roles	Contact points

Stakeholders	Roles	Contact points
SEMIC	Owner and coordinator	
Member States	Participator	

- This network of contact points could be supported by setting the right environment at European level for sharing and discovering best practices and other relevant materials. This could take different forms, from a GitHub repository to exchange open-source software or code or data model specifications, to an online catalogue for semantic models.

Stakeholders	Roles	Contact points
SEMIC	Owner and coordinator	
Member States	Participator	

Base Registries

The second category of actions described in the roadmap are specific to Base Registries, as the Romanian representatives had a particular interest for this topic throughout the roadshow. Here, two types of activities can be distinguished, each with short-term and long-term actions.

Generic activities related to Base Registries with ADR (The Authority for Digitization of Romania) in a coordinating role

Short-term (before September)

- Based on the existing mapping between Base Registries, Public Services and Life/Business Events from Romania, SEMIC will:
  - o Support the ADR in identifying the services for which data does not exist or lacks quality.
  - o Assess the need to define a data model to start collecting data on Public Services or Life/business Events, or to improve its harmonisation and quality monitoring.
  - o Support ADR to map the Base Registries to existing SEMIC core vocabularies.

Stakeholders	Roles	Contact points
ADR	Owner and coordinator	
SEMIC	Support	

Longer-term
- The SEMIC team will provide support to progressively create and maintain a landscape of the Romanian base registries by collecting key information about Romanian Base Registries to identify Romania's maturity and needs:
  - o List the data domains for which a base registry is recognised as an authentic source of information.
  - o List the public services using data from a Base Registry.
  - o Map the public services to business and life events.
  - o List the opportunities and barriers of base registries. Support ADR to identify the generic needs (e.g., define common persistent identifiers) which would benefit from a centralised support.

Stakeholders	Roles	Contact points
ADR	Owner and coordinator	
SEMIC	Support	

Specific activities with Romanian Base Registries

Short-term (before end of July)
- The SEMIC team will introduce and assess the need for Linked Data Event Streams and Personal Data Spaces technologies which could be piloted with specific Romanian base registries.

Stakeholders	Roles	Contact points
ADR	Owner and coordinator	
SEMIC	Support	
Registry for Students	Piloting registry	
National Trade Register	Piloting registry	
Archiving registry	Piloting registry	

- In addition, SEMIC and some of the Romanian Base Registries will further define other support activities:

  o SEMIC will collect information about the Romanian Agency for Education, its use cases, needs and next steps. In particular, SEMIC will identify semantic needs, starting from educational semantic models used across borders for different cases. This can be combined with the previous action.

Stakeholders	Roles	Contact points
ADR	Owner and coordinator	
Agency of Education	Participator	
SEMIC	Support	

  o SEMIC will contact Romania to define its support on XSD models for Birth, Marriage, Divorce and other specific semantic needs from the Registries of Persons and Civil status.

Stakeholders	Roles	Contact points
ADR	Owner and coordinator	
Ministry of Internal Affairs	Participator	
SEMIC	Support	

NIFO and BD monitoring mechanisms

- Romania expressed interest to participate in the proposed twinning exercise with Sweden. The Commission will explore further the twinning exercise between Romania and Sweden and inform them of the next steps in the short- and long term.

Stakeholders	Roles	Contact points
European Commission	Owner and coordinator	
ADR	Participator	

- Romania expressed the challenge of providing data on interoperability efforts to NIFO. NIFO is looking for alternative ways of collecting necessary data to reduce this burden and optimise provision of accurate and complete data by Member States, while maintaining the value it provides.

Stakeholders	Roles	Contact points
European Commission	Owner and coordinator	
ADR	Participator	

- As a lot of possibilities for funding are available, the Commission will involve Romania in the Europe Digital Consortium Agreement and relevant GovTech initiatives.

Stakeholders	Roles	Contact points
European Commission	Owner and coordinator	
ADR	Participator	

ANNEX

List of follow-up activities and actions

Topic	Activity/Action	Covered during
Follow-up activities		
Specifications	Share XSD Data models (birth, marriage, divorce...) with Romania for the Registry of Persons	2.1.4: Register of persons
Best Practices	For the Registry of Persons, investigate Romania's needs regarding validation of the legal status of a person. Support to be provided.	2.1.4: Register of persons
Tooling	Provide support to Romanian representatives for transforming their data to linked data.	2.1.3
Community	Invite Romania to the discussions on Core Business and BRIS	2.1.4: National trade register
Community	Explore further options for the twinning exercise between Romania and Sweden	2.2.2
Community	Involve Romania in the Europe Digital Consortium and GovTech initiatives	2.2.3
Best Practices	Share findings from Estonian tracker system with the respective Romanian representative	2.1.4: Insolvency proceedings bulletin
Best practices	Share information on DEAP with Romania to serve as inspiration	2.1.4: Registry for students
Best practices	Share best practices from Finland and the Netherlands cadastres on interconnecting Base Registries for primary data.	2.1.3
Best practices	Gather and share best practices for data provision on the different KPIs (NIFO, BDMM) with Romania.	2.2.2
Best practices	European Commission to look for other ways of collecting data on NIFO and BDMM to reduce the burden for Member States	2.2.2
Activities derived from the Roadmap of SEMIC-Estonia collaboration		
Category 1 – Short term actions		
Communication and visibility	Establish a common channel between SEMIC and Romania to publish their respective materials and experience	

Communication and visibility	Provide best practices learned from FI and NL on archiving with the Romanian Archiving system, with a focus on making data available to citizens
Communication and visibility	Create visibility around the Registry for Students as inspiration for other BR's in Romania
Base Registries	Leverage existing mapping in RO between BR, PS and Life/Business Events to assess needs for data models
Base Registries	Collect information about the Romanian Agency for Education, its use cases, needs and next steps
Base Registries	Contact Romania to define its support on XSD models for Birth, Marriage, Divorce and other specific semantic needs from the Registries of Persons and Civil status
Category 2 – Long-term actions	
Communication and visibility	Consolidate and make visible implementations and pilots on Personal Data Spaces throughout Europe.
Base Registries	Create and maintain a landscape of the Romanian Base Registries • Collect information about the schemas used by the different BRs under the coordination of the ADR • Dive further in the identifiers defined to see if good practices are applied
Base Registries	Introduce and assess needs for LDES and PDS technologies which can be piloted with specific Romanian Base Registries

Table 2: Overview of actions (follow-up activities, short term roadmap actions, long term roadmap actions

Picture