D4.10 Moving Abroad – Pilot Planning

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List of Acronyms

Abbreviation / acronym	Description
API	Application programming interface
AS4	Applicability Statement 4
CA	Certification Authority
CEF	Connecting Europe Facility
DC	Data Consumer
DE	Data Evaluator
DE4A	Digital Europe for All
DNS	Domain name system
DO	Data owner
DP	Data provider
DR	Data requestor
DT	Data transferor
eID	Electronic Identity
eIDAS	Electronic Identity and Trust Services: Regulation (EU) No 910/2014
ER	Explicit Request (as defined in the SDGR)
ESL	Evidence service locator
IAL	Issuing authority locator
IDK	Information Desk
IdP	Identity Provider
JSON	JavaScript Object Notation
LoA	Levels of Assurance
MOR	Multilingual Ontology repository
MS	Member State
MVP	Minimum Viable Product
NUTS	Nomenclature of Territorial Units for Statistics
OOP	Once-Only Principle
OOP TS	The Once-only Technical System as defined in the SDGR
PKI	Public-key infrastructure
PSA	Project Start Architecture
REST	Representational state transfer
SAML	Security Assertion Markup Language
SDGR	Single digital gateway regulation
SMART	Specific, measurable, achievable, realistic, time-bound
SML	Service metatada locator
SMP	Service metadata publisher
TLS	Transport Layer Security
TS	Technical system
UC	Use case

Abbreviation / acronym	Description
UI	User interface
USI	User-supported intermediation
UX	User experience
WP	Work Package (logically ordered set of activities of the DE4A project).
WP2	Work package for Architecture Vision and Framework
WP3	Work package for Semantic Interoperability Solutions
WP4	Work package for cross-border Pilots for Citizens and Business and Evaluation
WP5	Work package for common component design & development
WP7	Work package for legal and ethical compliance and consensus building
XSD	XML Schema Definition

Executive Summary

The Moving Abroad (MA) pilot of the DE4A project, implements eProcedures for moving and living abroad in Luxembourg, Portugal, Romania, Slovenia, Spain and Sweden. It improves currently available cross-border procedures by implementing the Once Only Principle (OOP).

Piloting solutions to these highly complex processes are an important step in breaking down barriers in the European single market. In the end people should be able to move to other Member State as easy as they do nationally. The MA pilot highly values experience from piloting real eProcedures.

The MA pilot addresses some of the most important (research) questions for successfully implementing the SDGR and SDGR-related processes. Besides validating the OOP technical System for evidence exchange in real use cases it goes beyond the minimum service to support people being more mobile. Furthermore, the MA pilot pilots several SDGR-specific and related functions, like explicit request and preview, canonical evidence and record matching.

This deliverable specifies the design of the MA pilot and provides a plan for managing all activities in the upcoming two phases: customization & integration phase and pilot running phase. Both phases will iterate twice, having a first iteration with an initial scope and sequentially a final iteration with an extended scope.

There is a mixed approach to the piloting phase in DE4A where it is necessary to accommodate both a policy agenda as well as a technical agenda (based on an agile approach). Each MS have very different needs in actions in relation to their national side requirements and system updates. The best examples are maybe Slovenia and Sweden. They see huge benefits with the pilots, but they are working very hard to change their systems that are to connect to the pilot in both real cases and test environments mimicking the real world. This leads to have some MS that will be not fully ready for piloting in first iteration (i.e. Romania, Slovenia) and only will pilot on second iteration.

First iteration will test the use cases of Change in population registry, Change of address and Request of Birth, Marriage and Death certificates. The Pension use case will be further defined and aim to be piloted in the second iteration. For the second iteration we are also likely going to try the Intermediation (IM) pattern in the Pension Use-Case.

This deliverable provides a source for the piloting Member States to know the tasks to customize & integrate the components, test the components, involve real users and run the pilots. As none of the piloting Member States can run a pilot without at least one other Member State, central to this document is pilot-alignment: making sure Member States converge their activities at pre-defined milestones.

The main characteristics of the MA pilot management are summarised below.

- The DE4A project identified two pilot iterations: the first pilot iteration and the second pilot iteration. The User Supported Intermediation (USI) pattern will be piloted in the first iteration, being the minimum viable product for piloting MA.
- The DE4A project adopted the agile approach. In the MA pilot this is reflected in the way pilot partners cooperate in stand-ups, reviews, refinement meetings, use of JIRA, etc. Furthermore, several milestones have been defined in order to progress in the customization & integration of components on a step-by-step basis. Evaluation of the results of one milestone will be input to the second milestone's activities. Also, the testing activities have been organised in an agile way. Each milestone requires the Member States to perform national or cross-border tests. After achieving all milestones, the testing activities should be concluded and the pilot should be ready to go live.

- The MA pilot introduces new solutions to cross-border exchange.
- By the nature of the eProcedures to pilot the frequency of the eProcedures is relatively low. There is just a limited number of people from each Member State moving to another Member State. The pilot Member States will involve these people as much as possible, but also involve testers of all walks of life. The pilot does not expect to gather high volume quantitative metrics.

This document is intended for all partners participating in the MA pilot as well as DE4A work packages that provide inputs to the pilot (WP2 with architecture, WP3 and WP5 with common components) and that depend on the pilot's results (e.g. WP6 for the Business Use Case).

1 Introduction

1.1 Purpose of the document

Detailed planning of pilot activities leading to pilot launch as well as activities to undertake during pilot's running in both iterations". Member State (MS) detailed planning of going live and running phase activities, encompassing the two foreseen iterations. Participants will be responsible for developing their own work breakdown schedule for the delivery of the pilot, jointly producing a combined pilot management plan integrated across all the MS, delivered to allow the coordination of interoperability testing. The planning includes a description of the process to involve and give support to users in each new MS. It covers the activities required to successfully implement and bring pilot services into cross-border operational status in the production environment (i.e. pilot pre-production testing, setting up of pilot services suitable for their connection to the interoperability layers and planning of steps for that connection), considering in particular milestones and indicators to evaluate execution of such plans and inter-dependencies with other work packages, in particular WP3, WP5. Furthermore, it details the activities required by each pilot to ensure a smooth running of the services and to gather all necessary results both for Pilots Evaluation and for public reporting of progress and benefits.

- MVP 1.0 (including two increments aligned between pilots and with WP5) and second iteration scoping
- DC and DP services customization
- Pilot test Strategy (different phases and scopes of testing) and MS Specific Test Plans (including Test Criteria and Test Cases) guided by Acceptance Criteria. Process for internal test reporting and analysis of test results in relation to acceptance gates (allowing to move from one testing phase to the next).
- Test credentials end evidence samples exchange
- Support and Change Control at Pilot Level (consistent with WP5 approach for this)
- Implementation of agreed UI Guidelines (including usability and accessibility and how to test them) e.g. for Explicit Request, Preview
- User engagement plans to try to ensure sufficient users to validate the pilot
- Plan of online Connectathons involving all MS that will be ready to launch pilots by Go Live date
- Focus group testing by real users before formal Go Live (second Iteration)
- Pre-production finalisation activities and Go Live decisions formalized by DE4A MS-C

Since the pilots connect services that already often are existing at a national or regional level, strategies are devised aimed at engaging for these services those foreign users that would benefit from the convenience and security of ubiquitously accessing such services with their eID. MA will open up new opportunities to engage and offer services to users which could not previously benefit from cross-border Once-Only procedures. User engagement plans specific to each pilot and type of user are provided that take into account identified barriers and will be followed-up closely in their implementation. Fall-back mechanisms are considered in case number of users is not enough for a scenario i.e. testing group of users close to the pilot and incentives. The support from MS public administrations and of private entities will also be mobilised to achieve this engagement of end-users for the pilots.

MS in the pilot are engaged to understand the scope defined in previous Use Case definition deliverables and produce a delivery plan associated to that scope and also their MS-specific constraints, with key milestones produced for each MS (chapter 5and translated into a higher-level integrated project plan (chapter 4which provides key dates for starting cross border testing, based on timely availability of:

- WP5 DE4A common components specifications and code
- MS infrastructures (eIDAS nodes and their integration with DE portals and where applicable data services, eDelivery Gateways and SMPs, trust infrastructure elements e.g. PKI certificates
- Syncing of test planning with DE4A WP5 test cycles for the different foreseen combinations of MS evidence exchange (in 2-MS scenarios for the first iteration).
- Test cases for different scenarios, quality gates and evidence examples & test credentials for developer testing in pre-production environment
- WP4 DOs and DEs customized for integration with DE4A common infrastructure for the different use cases
- Setup of user focus groups for testing in production environment
- Regular monitoring of progress of activities within each increment of the MVP and re-planning process, also related to risk reporting and mitigation to EB.

This deliverable specifies the design of the MA pilot and provides a plan for managing all activities in the upcoming two phases: customization & integration phase and pilot running phase.

First iteration will test the use cases of Change in population registry, Change of address and Request of Birth, Marriage and Death certificates. The Pension use case will be further defined and aim to be piloted in the second iteration.

For the second iteration we are also likely going to try the Intermediation (IM) pattern in the Pension Use-Case.

1.2 Structure of the document

The structure of this document is as follows:

- Chapter 2 specifies the goals of the pilot, the criteria to meet and the way to measure them.
- Chapter 3 specifies the design of the pilot. It mentions the major design decisions, the generic (updated) pilot process, the data model for the registration of Moving Abroad evidence types and the common and specific components to use or deploy.
- Chapter 4 focusses on the activities that need to be performed to implement the pilot design specified in chapter 3. The activities have been defined on a generic level, meaning they are not MS specific, e.g. the eProcedure portal needs to add an eIDAS-login option, connect to the national eIDAS node, implement the explicit request, invoke the DE4A connector, preview the data, etc. The activities focus on the customization & integration phase and are organised into 4.1 common component customization & integration activities, 4.2 specific component customization & integration activities, 4.3 testing activities and 4.4 user involvement activities.
- Chapter 5 includes a high-level management plan for management of the pilot phases ahead, specifies the milestones, the timelines and the activities related to achieving the milestones. Furthermore, it mentions the prerequisites and dependencies as well as the risks identified.
- Chapter 6 presents the management plan for the running-phase, including Go-live criteria, running phase avidities, milestones, planning, governance and risks.
- Chapter 7 describes the national side activities

1.3 Glossary adopted in this document

The table below defines some of the most relevant terms used in this document.

Term	Definition
Activity	Work to be done by partners involved in the MA pilot to customize & integrate the components, test, involve users and run the MA pilot. Activities have been defined in a generic (meaning non-Member State specific) manner.

Term	Definition
Register	The *authentic* source of data and information. It is a set of data held by a body that has been appointed by a legal act to manage these data. The data is authoritative in the area of moving abroad. All data providers in the Moving Abroad pilot manage authentic sources of data and information.
Common component	A component used by multiple Member States for piloting Moving Abroad. E.g. the DE4A connector and the eIDAS node.
Person identifier	A number or string by which a person can uniquely be globally recognised. In the Moving Abroad pilot, individuals need to be identifiable across borders.
Competent authority	Any Member State authority or body established at national, regional or local level with specific responsibilities relating to the information, procedures, assistance and problem-solving services covered by the SDGR. In the Moving Abroad pilot, the competent authority can be a data provider or a data consumer.
Component	Software used for implementing a coherent set of features required for piloting Moving Abroad.
Consent	Any freely given, specific, informed and unambiguous indication of the data subject's wishes by which he or she, by a statement or by a clear affirmative action, signifies agreement to the processing of personal data relating to him or her (GDPR, 2016/679 art. 4 point 11). Consent is one of the justifications for data exchange between public authorities. Often it is only a Privacy Enhancing measure. In this document “consent” refers to consent as defined in the GDPR for data protection purposes. For the SDGR user control the term “explicit request” and “user preview” will be used.
Data consumer	The role played by an organisation/administration that is in demand of the Data in order to fulfil its mission to society not industry.
Data evaluator	A data consumer authorized to receive and process data from citizens, via the Once Only Technical System. Other naming: service provider
Data owner	A data provider owning information about citizens, a base registry or a secondary registry that might be necessary for another organisation to exercise their competencies.
Data provider	The legal entity that is in charge of the Data deployment.
Data requestor	A data consumer making search and request for data possible in terms of technology.
Data transferor	A data provider technical responsible for the actual data transmission.
eProcedure Portal	A website presenting the user with one or more eServices for individuals and families. In the Moving Abroad pilot these services will also include SDGR procedures and services under the Service Directive. The portal may be a gateway to several service providers and registers.
Evidence	Any document or data, including text or sound, visual or audio-visual recording, irrespective of the medium used, required by a competent authority to prove facts or compliance with procedural requirements.
Explicit request	SDGR: The competent authorities responsible for the online procedures referred to, shall, upon an explicit, freely given, specific, informed and unambiguous

Term	Definition
	request of the user concerned, request evidence directly from competent authorities issuing evidence in other Member States through the technical system (2018/1724 Art. 14 point 7).
Identity Provider	The organisation authenticating a person.
Iteration	A set of sequential phases to define, prepare, run and evaluate the MA pilot for a specific set of functionalities. The MA pilot (as dictated on DE4A level) has two pilot iterations.
Level of Assurance	The certainty to which a person's identity has been established. The eIDAS regulation defines LoA Low, Substantial and High.
Milestone	A predefined (intermediate) result of the MA pilot customization & integration phase.
Natural person	A Natural person in the Moving Abroad pilot is a physical person.
OOP Technical System	The set of components to request and provide the evidence, notify the data evaluator and update person data in the MA pilot.
Preview	SDGR: The technical system shall enable the possibility for the user to preview the evidence to be used by the requesting competent authority and to choose whether or not to proceed with the exchange of evidence.
Procedure	A sequence of actions that must be taken by users to satisfy the requirements, or to obtain from a competent authority a decision, in order to be able to exercise their rights.
Specific Component	A component used by one Member State specifically for the configuration of that Member State.
Task	Work to be done by one of the partners in the Moving Abroad pilot. Tasks have been defined in a Member State specific manner. By performing the tasks, the Member State achieves the MA milestones agreed upon.
User	A person with a need to use the services.

2 Pilot benefits logic and metrics

2.1 Final version of success criteria and connection to common pilot criteria

The Benefits Logic Method that is applied in DE4A, was introduced in previous DE4A D4.9[1] and describes a first setup for the pilot goals and success criteria, as well as the relationship to the Technical Common Criteria (Efficiency, Openness etc.) and the piloting principles Use, Value, Learning and Adoption, which are here understood as follows:

Use: measurable results related to the use of the procedures piloted and usability of the implemented cross-border once-only procedures (e.g. does the interoperability model/solution work; which barriers are being encountered);

Learning: whether the pilot helps to prepare the stakeholders for the future (i.e. collecting and distributing lessons learned/ creating feedback loops);

Value: whether the pilot improves efficiency or effectiveness of the students and organizations involved (e.g. do the data consumers and data providers experience added values, such as administrative burden reduction);

Adoption: whether the pilot facilitates the process where a Service Provider (Data Consumer) or Data Provider introduces new IT tools provided by the pilot to support a (new) way of working. Adoption is limited to the adoption by service and data providers that will be part of the pilot. Adoption is not merely focused on whether a provider was finally able to introduce/integrate with DE4A but rather on all the possible lessons to be learned from this process.

This chapter revisits this topic by refining and updating the goals and success criteria based on newly established insights and knowledge, but also progresses by defining quantitative and qualitative metrics for each success criterion. In this process, pilot partners aimed to cover as many Technical Common Criteria as possible. Furthermore, the fact that DE4A is a research project is emphasized in the goals and success criteria.

2.1.1 Pilot goals

The Moving Abroad pilot's main objective is to lower barriers (paper-based processes, language challenges etc.) for citizens wanting to move abroad. The goals that were first described in D4.9 have been refined in D4.10, and are displayed in the table below:

Table 1: Pilot Goals

Actor	ID	Goal
Public authorities	A	Improve the quality of Moving evidence data within the service fulfilment process by re-using data from authentic sources, thereby reducing manual work and lowering processing costs.
Citizens	B	Simplified procedures and reduced manual work, lower transaction costs and improving enrolment speed for the moving citizen(s)
Project	C	Evaluate the OOP-components supporting the cross-border information flow: ▸ Assess technical impact on national services already in place ▸ Evaluate connections of national systems to the OOP TS

Actor	ID	Goal
	D	Evaluate whether the solutions designed to the MA specific challenges have proven adequate in piloting the MA eProcedures: ▸ Usability of harmonised Moving Abroad Evidence model ▸ Usability and security of Explicit Request and Preview ▸ Need for record matching on Natural Persons

The pilot exists to objectively assess the fulfilment of the pilot goals stated above and learn on the usability as well as the level of adequacy of the solutions that are set up in the DE4A project, in the perspective to the objective and goals of the MA-pilot as stated above. Goal D is more of a research goal, requiring an explorative approach in the metrics.

2.1.2 Success criteria

The criteria and metrics for the pilot should be Specific, Measurable, Achievable, Realistic and Time-bound (SMART)[2], and relate to the Technical Common Criteria to be able to combine the results of the MA-pilot to the results of other pilots in the DE4A Program. On the other hand, the criteria should enable to learn as much as possible on the objective and goals for the MA-pilot, meaning that they should not be restrictive and limit/control (qualitative) feedback from users and processes. To maximise learning (more than proving), metrics will often be set up as a combination of a quantitative measurement or appreciation, and a free-format observation allowing for unstructured qualitative feedback to be collected. In the forms that will be used for the measurements, each quantitative metric is broken down to more detailed topics in order to collect fine grained results.
On some occasions, criteria should also be applicable to the baseline (traditional situation without usage of the OOP TS) so the results can be compared, and the effects can be properly determined. This will hold true for the DE perspective and to a certain extend also for the DO perspective. A person will on the other hand, only apply for a service once (either in the traditional procedure or in the DE4A pilot-procedure).
A final consideration on criteria, is that the eProcedures to pilot are in general low volume. The value of quantitative feedback should not be overestimated, which makes the combination with qualitative feedback even more important.
To prevent complex evaluation of the pilot it is vital not to make the criteria and related (quantitative) measurements too detailed. A limited, carefully set of criteria and metrics have been chosen that target the core value of the MA-pilot and respecting the research-objective of the DE4A program.
The next tables display how the pilot goals are decomposed into success criteria that will be used for the MA pilot, and maps these criteria to:

- the Common Pilot Principles (Use, Learning, Value and Adoption)
- the Technical Common Criteria (Openness, Transparency, Reusability, Technical Neutrality and Data Portability, User Centricity, Inclusion and accessibility, Security & Privacy, Administrative simplification, Effectiveness & Efficiency).

This mapping allows for combining the results of the MA pilot with the results from other pilots (Doing Business Abroad, Studying Abroad) in the DE4A Program.

Table 2: Success Criteria for Public Authorities

ID	Criterion	Technical Common Criteria	Principles
Pilot goal A: Improve the quality of personal/moving data within the service fulfilments process by re-using data from authentic sources, thereby reducing manual work and lowering processing costs			
A1	The DE recognizes the moving data is of higher quality, more reliable and easier to process when using the OOP TS to retrieve moving data directly from the DO. (e.g. data is available in an electronic and structured format for easy processing in the systems of the DE, data requires less correcting, is up to date, reliable and leads to less exceptions when processing, moving data is more meaningful, has less inconsistencies and errors, is more complete).	Reusability, Transparency, Effectiveness & Efficiency, Administrative Simplification	U, A, L, V

Table 3: Success Criteria for persons applying for a service

ID	Criterion	Technical Common Criteria	Principles
Pilot goal B: Reduce manual work, lower transaction costs and improving enrolment speed for the move			
B1	The user acknowledges the procedure for applying for a service to be effective and efficient (e.g. the procedure requires acceptable effort, the procedure is not complex, has no language barriers, no interruptions. The user spends little time to correct data and experiences no errors after finishing the enrolment process).	Reusability, Effectiveness & Efficiency, Administrative Simplification, Transparency	U, A, L, V
B2	The user acknowledges the method to proof their authorisation as effective and efficient (e.g. requires little effort, is established with simple and effective communication, is reliable).	Reusability, Effectiveness & Efficiency, Transparency, Security and Privacy	U, A, L, V

Table 4: Success Criteria and Research Questions

ID	Criterion	Technical Common Criteria	Principles
Pilot goal C: Evaluate the OOP-components supporting the cross-border information flow: ▸ Assess technical impact on national services already in place ▸ Evaluate connections of national systems to the OOP TS			
C1	The DO believes the cost and effort for integrating to the DE4A Connector will eventually be outweighed by the benefits.	Openness, Technical Neutrality and Data Portability	U, A, V
C2	The DE believes the cost and effort for integrating to the DE4A Connector will eventually be outweighed by the benefits.	Openness, Technical Neutrality and Data Portability	U, A, V

ID	Criterion	Technical Common Criteria	Principles
C3	The participating Member States believe the cost and effort for setting up and deploying the DE4A Connector in their national infrastructure will eventually be outweighed by the benefits.	Openness, Technical Neutrality and Data Portability	U, L, V
Pilot goal D: Evaluate whether the solutions designed to the MA specific challenges have proven adequate in piloting the MA eProcedures			
D1	Has the Moving Evidence Model proven adequate for cross-border exchange of information on companies for the MA eProcedures?	Openness, Neutrality and Data Portability, Reusability	U, V, L
D2	Have the explicit request and preview requirements as specified in the SDGR proven suitable for the moving eProcedures	Administrative Simplification, User Centricity, Inclusion and Accessibility	U, L
D3	Have the mechanisms for record matching at the DC proven adequate for the MA eProcedures?	Administrative Simplicity	U, L

2.2 Qualitative and quantitative metrics

In order to learn about the success criteria (and determine if goals are achieved), one or more items must be measured per success criterion during the pilot runs. This paragraph addresses these metrics, per success criterion. Each metric is connected to a process step in D4.9 to specify when the measurement should be executed. The following metrics are defined (see tables below) after a process of careful selection and prioritization. A set of draft forms is included in Annex B, displaying each metric to be broken down into more fine-grained questions in order to collect all details and secure careful answering by the respondents.

In many cases, metric concerns a valuation by the user, expressed in a scale of 5 values. Because DE4A is a research project, each metric of this type will be accompanied by a query of a qualitative nature, allowing the user to share their observations, considerations on the subject, which can be used to motivate the expressed appreciation on the topic/metric. These qualitative responses will be used in interviews with the respondents afterwards and can be used to determine the direction in which the DE4A solution can be improved.

Table 5: Criteria and Metrics

ID	Description of criteria and metric
Criterion A1	**The DE recognizes the moving data is of higher quality, more reliable and easier to process when using the OOP TS to retrieve moving data directly from the DO.**
A1.1	The appreciation the DE expresses on the moving data being (considerably) more reliable, equally reliable or (considerably) less reliable than before. (e.g. being available in an electronic and more structured format, being more complete, correct and meaningful).
A1.2	The appreciation the DE expresses on processing of the moving data requires (considerably) more, equally or (considerably) less effort than before (e.g. amount of work for interpreting and judging, solving exceptions).
A1.3	The estimated benefit (effort to resolve exception, manually changing data, communication cost) the DE gets from moving data that is always up to date, being (considerably) much to (considerably) limited.

ID	Description of criteria and metric
Criterion B1	**The user acknowledges the procedure for applying for a service to be effective and efficient**
B1.1	The appreciation the user expresses on the effort to effectively complete all elements of the procedures (e.g. collecting moving information, language barriers, communication, problem solving, required effort, simplicity, number of errors and interruptions).
Criterion B2	**The user acknowledges the method to proof their authorisation as effective and efficient**
B2.1	The satisfaction the user expresses on the adequacy of the method used for providing the DE with convincing proof of being entitled to represent another person (e.g. language barriers, required effort and cost, simplicity, number of errors and exceptions).
Criterion B3	**The user acknowledges the duration of completing the online eProcedure activities to apply for a service as acceptable.**
B3.1	The satisfaction the user expresses on several aspects the duration of the process to apply for a service or registration (e.g. moving data collection, authentication data, eProcedure activities, duration).
Criterion C1	**The DO believes the cost and effort for integrating to the DE4A Connector will eventually be outweighed by the benefits.**
C1.1	The estimate of the DO on the benefits of the OOP TS usage (vastly) exceeding, being on par or being (considerably) less than the cost and effort spent to integrate the OOP TS.
C1.2	The cost (manhours) for integrating the data service to the DE4A Connector. To be provided only if cost is not confidential.
Criterion C2	**The DE believes the cost and effort for integrating to the DE4A Connector will eventually be outweighed by the benefits.**
C2.1	The estimate of the DE on the benefits of the OOP TS usage (vastly) exceeding, being on par or being (considerably) less than the cost and effort spent to integrate the OOP TS.
C2.2	The cost (rounded to 10k) for integrating the eProcedure portal to the DE4A Connector. To be provided only if cost is not confidential.
Criterion C3	**The participating Member States believe the cost and effort for setting up and deploying the DE4A Connector in their national infrastructure will eventually be outweighed by the benefits.**
C3.1	The appreciation the MS expresses on the effort, cost and time involved in setting up a node and deploying a DE4A Connector being (considerably) more, on par or (considerably) less than expected.
C3.2	The cost (rounded to 10k) involved to set up and deploy the DE4A Connector. To be provided only if costs are not confidential.
Research question D1	**Has the Moving Evidence Model proven adequate for cross-border exchange of information on moving for the MA eProcedures?**
D1.1	The appreciation of the DE on the extent to which the Moving Evidence Model fits their needs, being (considerably) less than expected, as expected or (considerably) more than expected.
Research question D2	**Have the explicit request and preview requirements as specified in the SDGR proven suitable for moving eProcedures?**
D2.1	The user's appreciation on various virtual scenarios concerning repeatedly using the OOP TS (for updates or requesting evidence with multiple data owners).

ID	Description of criteria and metric
Research question D4	**Have the mechanisms for record matching at the DC proven adequate for the MA eProcedures?**
D3.1	The appreciation of the DE on the challenges to do record matching on Natural Persons a on their part.

2.2.1 Pilot Goal A: Improve the quality of Moving evidence data within the service fulfilment process by re-using data from authentic sources, thereby reducing manual work and lowering processing costs.

In this and the following subsections, the metrics for each criterion are defined in detail:

Table 6: Metric A1.1

Criterion A1	The DE recognizes the moving data is of higher quality, more reliable and easier to process when using the OOP TS to retrieve moving data directly from the DO.		
Metric A1.1	The appreciation the DE expresses on the moving data being (considerably) more reliable, equally reliable or (considerably) less reliable than before. (e.g. being available in an electronic and more structured format, being more complete, correct and meaningful).		
What	The appreciation the DE expresses on the reliability of moving data, judging from the following perspectives: ▸ Availability in electronic format ▸ Availability in structured format ▸ Completeness of available data ▸ Correctness of available data ▸ Meaningfulness of available data	**Unit/scale**	Considerably more reliable More reliable Same reliability Less reliable Considerably less reliable
Responsible	DE	**Process step**	UC1 - 6.1 Decide on registration and register approval
Type	Quantitative - scale	**Method to gather results**	Form
Target	More than 50% of respondents appreciates the reliability (average of all perspectives) of moving data as (considerably) more reliable than in the baseline.		

Table 7: Metric A1.2

Criterion A1	The DE recognizes the moving data is of higher quality, more reliable and easier to process when using the OOP TS to retrieve moving data directly from the DO.		
Metric A1.2	The appreciation the DE expresses on processing of the moving data requires (considerably) more, equally or (considerably) less effort than before (e.g. amount of work for interpreting and judging, solving exceptions).		
What	The appreciation the DE expresses on the effort required to process moving data during the approval of the application for a service, judging from the following perspectives:	**Unit/scale**	Considerably more effort More effort Same effort Less effort Considerably less effort

Criterion A1	The DE recognizes the moving data is of higher quality, more reliable and easier to process when using the OOP TS to retrieve moving data directly from the DO.		
	▸ Interpretation of data ▸ Solving errors and exceptions		
Responsible	DE	**Process step**	UC1 – 6.1 Decide on registration and register approval
Type	Quantitative – scale	**Method to gather results**	Form
Target	More than 50% of respondents appreciates the effort (average of all perspectives) of processing moving data as (considerably) less than in the baseline.		

Table 8: Metric A1.3

Criterion A1	The DE recognizes the moving data is of higher quality, more reliable and easier to process when using the OOP TS to retrieve moving data directly from the DO.		
Metric A1.3	The estimated benefit (effort to resolve exception, manually changing data, communication cost) the DE gets from moving data that is always up to date, being (considerably) much to (considerably) limited.		
What	The benefits the DE estimates the fact that Moving data is always up-to-date, judging from the following perspectives: ▸ Manual effort to maintain moving data ▸ Number of errors and exceptions due to moving data being deprecated ▸ Solving errors and exceptions due to moving data being deprecated ▸ Communication effort and cost to retrieve up-to-date moving data	**Unit/scale**	Considerably high benefits High benefit Medium benefit Little benefit Hardly any benefit
Responsible	DE	**Process step**	UC1 – 6.1 Decide on registration and register approval
Type	Quantitative – scale	**Method to gather results**	Form
Target	More than 50% of respondents estimates the benefits (average of all perspectives) of always having up-to-date moving data as Medium or (considerably) high benefit.		

2.2.2 Pilot Goal B: Simplified procedures and reduced manual work, lower transaction costs and improving enrolment speed for the moving citizen(s)

Table 9: Metric B1.1

Criterion B1	The user acknowledges the procedure for applying for a service to be effective and efficient		
Metric B1.1	The appreciation the user expresses on the effort to effectively complete all elements of the enrolment procedure (e.g. collecting moving information, language barriers, communication, problem solving, required effort, simplicity, number of errors and interruptions).		
What	The appreciation the user expresses on the effort required to complete the enrolment/registration procedure, judging the following activities: ▸ Collecting moving data ▸ Solving language barriers ▸ Providing required data to the DE ▸ Solving problems ▸ Simplicity of the procedure	**Unit/scale**	Very much effort Much effort Reasonable effort Little effort Very little effort
Responsible	Citizen	**Process step**	UC1 – 6.1 Decide on registration and register approval
Type	Quantitative – scale	**Method to gather results**	Form
Target	More than 50% of respondents appreciates the effort (average of all perspectives) to complete the enrolment/registration procedure as reasonable (or less) effort		

Table 10: Metric B2.1

Criterion B2	The user acknowledges the duration of completing the online eProcedure activities to apply for a service as acceptable.		
Metric B2.1	The satisfaction the user expresses on several aspects the duration of the process to apply for a service or registration (e.g. moving data collection, authentication data, eProcedure activities).		
What	The satisfaction the user expresses on the duration of the following activities in the procedure to enrol/register: ▸ Collect and provide moving data ▸ Collect and provide proof of authorisation ▸ Completing the forms in the eProcedure portal ▸ Dealing with Explicit Request & Preview	**Unit/scale**	Very satisfied Satisfied Sufficient Unsatisfied Very unsatisfied

Criterion B2	The user acknowledges the duration of completing the online eProcedure activities to apply for a service as acceptable.		
Responsible	Citizen	**Process step**	UC1 - 6.1 Decide on registration and register approval
Type	Quantitative - Scale	**Method to gather results**	Form
Target	More than 50% of respondents estimates the effort (average of all activities) to complete the enrolment/registration procedure as (very) satisfactory.		

2.2.3 Pilot Goal C: Evaluate the OOP-components supporting the cross-border information flow

Table 11: Metric C1.1

Criterion C1	The DO believes the cost and effort for integrating to the DE4A Connector will eventually be outweighed by the benefits.		
Metric C1.1	The estimate of the DO on the benefits of the OOP TS usage (considerably) exceeding, being on par or being (considerably) less than the cost and effort spent to integrate the OOP TS.		
What	The estimate expressed by the DO on the benefits compared to the cost and effort that is required to integrate with the DE4A Connector, considering the following expected benefits for the DO: ▸ Less manual effort for processing ▸ Lower communication cost ▸ Lower risk for error due to manual processing and language challenges ▸ Shorter duration for processing	**Unit/scale**	Considerably exceeding cost and effort Exceeding cost and effort On par with cost and effort Less than cost and effort Considerably less than cost and effort
Responsible	DO	**Process step**	N/A
Type	Quantitative - Scale	**Method to gather results**	Form
Target	More than 50% of respondents estimate the benefits to (vastly) exceed the cost and effort.		

Table 12: Metric C1.2

Criterion C1	The DO believes the cost and effort for integrating to the DE4A Connector will eventually be outweighed by the benefits.		
Metric C1.2	The cost (manhours) involved to integrate the data service to the DE4A Connector. To be provided only if costs are not confidential.		
What	A rough indication of the cost involved to integrate the DO data service to the DE4A Connector.	**Unit/scale**	Hours

Criterion C1	The DO believes the cost and effort for integrating to the DE4A Connector will eventually be outweighed by the benefits.		
	This is an optional metric; in case the cost are confidential.		
Responsible	DO	**Process step**	N/A
Type	Quantitative	**Method to gather results**	Form
Target	none		

Table 13: Metric C2.1

Criterion C2	The DE believes the cost and effort for integrating to the DE4A Connector will eventually be outweighed by the benefits.		
Metric C2.1	The estimate of the DE on the added value of the OOP TS usage (considerably) exceeding, being on par or being (considerably) less than the cost and effort spent to integrate the OOP TS.		
What	The estimate expressed by the DE on the benefits compared to the cost and effort that is required to integrate with the DE4A Connector, considering the following expected benefits for the DE: ▸ Less manual effort for processing during evaluation of the application, as well as fulfilment of the service requested ▸ Lower communication cost ▸ Lower risk for error due to manual processing and language challenges ▸ Shorter duration for processing ▸ More complete, valuable, consistent and correct data available ▸ Data being always up-to-date ▸ Trustworthiness of the data	**Unit/scale**	Considerably exceeding cost and effort Exceeding cost and effort On par with cost and effort Less than cost and effort Considerably less than cost and effort
Responsible	DE	**Process step**	N/A
Type	Quantitative - Scale	**Method to gather results**	Form
Target	More than 50% of respondents estimate the benefits to (vastly) exceed the cost and effort.		

Table 14: Metric C.2.2

Criterion C2	The DE believes the cost and effort for integrating to the DE4A Connector will eventually be outweighed by the benefits.		
Metric C2.2	The cost (manhours) involved to integrate the eProcedure portal to the DE4A Connector. To be provided only if costs are not confidential.		
What	A rough indication of the cost involved to integrate the DE eProcedure portal to the DE4A Connector. This is an optional metric; in case the cost are confidential.	**Unit/scale**	hours
Responsible	DE	**Process step**	N/A
Type	Quantitative	**Method to gather results**	Form
Target	none		

Table 15: Metric C3.1

Criterion C3	The participating Member States believe the cost and effort for setting up and deploying the DE4A Connector in their national infrastructure will eventually be outweighed by the benefits.		
Metric C3.1	The estimation the Member State expresses on the effort, cost and time involved in setting up a node and deploying a DE4A Connector being (considerably) more, on par or (considerably) less than expected.		
What	The estimate expressed by the Member State on benefits compared to the cost, effort and time involved in setting up and deploying the DE4A Connector, considering the following expected benefits: ▸ Lower communication cost ▸ Shorter process duration ▸ Reliable communication ▸ Connection to reliable data sources	**Unit/scale**	Considerably exceeding cost and effort Exceeding cost and effort On par with cost and effort Less than cost and effort Considerably less than cost and effort
Responsible	MS	**Process step**	N/A
Type	Quantitative - Scale	**Method to gather results**	Form
Target	More than 50% of respondents estimate the benefits to (vastly) exceed the cost and effort.		

Table 16: Metric C3.2

Criterion C3	The participating Member States believe the cost and effort for setting up and deploying the DE4A Connector in their national infrastructure will eventually be outweighed by the benefits.		
Metric C3.2	The cost (manhours) involved to set up and deploy the DE4A Connector. To be provided only if costs are not confidential.		
What	A rough indication of the cost involved to set up and deploy the DE4A Connector. This is an optional metric; in case the cost are confidential.	**Unit/scale**	hours
Responsible	MS	**Process step**	N/A
Type	Quantitative	**Method to gather results**	Form
Target	none		

2.2.4 Pilot Goal D: Evaluate whether the solutions designed to the MA specific challenges have proven adequate in piloting the MA eProcedures

Goal D concerns research questions, aiming to learn from the pilot in a more explorative nature. The criteria and metrics are set up as research questions

Table 17: Metric D1.1

Research question D1	Has the moving Evidence Model proven adequate for cross-border exchange of information?		
Metric D1.1	The appreciation of the DE on the extent to which the moving Evidence Model fits their needs, being (considerably) less than expected, as expected or (considerably) more than expected.		
What	The appreciation the DE expresses on the extent to which the moving Evidence model satisfies their needs for information on the company, in order to process the request for service adequately, judging the following elements: ▸ Natural person identification ▸ Contact points ▸ Address	**Unit/scale**	Very adequate Adequate Sufficient Inadequate Very inadequate
Responsible stakeholder	DE	**Process step**	UC1 - 6.1 Decide on registration and register approval
Type	Quantitative - Scale	**Method to gather results**	Form

Research question D1	Has the moving Evidence Model proven adequate for cross-border exchange of information?
Target	None (research topic)

Table 18: Metric D2.1

Research question D2	Have the explicit request and preview requirements as specified in the SDGR proven suitable for company eProcedures (representation scenarios)?		
Metric D2.1	The user's appreciation on various virtual scenarios concerning repeatedly using the OOP TS (for updates or requesting evidence with multiple data owners).		
What	The thoughts and considerations of the user when presented various options to use Explicit Request and Preview, in different scenario's like ▸ Explicitly request and preview to collect evidence from multiple DOs ▸ Recurring ER/P in case of updates on person Information.	**Unit/scale**	None
Responsible stakeholder	Citizen	**Process step**	N/A
Type	Qualitative	**Method to gather results**	Form
Target	None (research topic)		

Table 19: Metric D3.1

Research question D3	Have the mechanisms for record matching at the DC an DP proven adequate and effective for the MA eProcedures ?		
Metric D3.1	The appreciation of the DE on the need to do record matching on Natural Persons on their part.		
What	The thoughts and considerations of the DE on the need, adequacy and effectiveness to perform record matching on natural Persons	**Unit/scale**	None
Responsible stakeholder	DE	**Process step**	N/A
Type	Qualitative	**Method to gather results**	Form
Target	None (research topic)		

3 Pilot design

In the "use case definition and requirements" phase the MA pilot's use cases have been defined and analysed and requirements have been defined. The results have been documented in Deliverable 4.9. In the current project phase ('pilot planning') the project formulated working assumptions, addressed common topics, designed the moving abroad data evidence type, designed the pilot processes per Member State, identified gaps to bridge by the Member States and constructed the solution architecture for the first use case.
This chapter specifies the design of the MA pilot:

- The scope of the first and second iteration to specify the MVP and the final scope (Section 3.2)
- The major design decisions at pilot level that guide the functionality and technology needed to pilot (section 3.3)
- The generic pilot process based on the reference USI pattern of the project start architecture (section 3.4).
- The data model design that specifies the Moving data evidence type (section 3.5)
- The common components that are needed for implementing the eIDAS network and the DE4A TS (section 3.6)
- The specific implementation and integration planned at the data evaluator (eProcedure portal) and the data owner (data service) (section 3.7)

3.1 Pilot scenarios, use cases and patterns

This section provided a quick recap of the use cases and interaction patterns from D4.9

3.1.1 Use cases

D4.9 defines three use cases[1]:
Use case 1: Request Address Change
Use case 2: Request Civil State Certificates
Use case 3: Request Pension Information - Claim Pension

Providing the following scenarios (see next page)

[1] The description of the use cases has been refined after delivery of D4.9.

Table 20: Piloting scenarios including iterations

			Data Consumer Member State						
			RO	SE	PT-AMA	PT-SEF	ES	LU	SI
			SimProcedure UC1 UC2	eProcedure UC1 UC2 {UC3}	eProcedure UC1	eProcedure UC1 {DE} UC2 DE} UC3 {DE}	eProcedure UC2 UC3 {DE}	eProcedure UC1 UC2	UCi UC2 UC3
Data Provider Member State	RO	Real Data UC1 UC2		UCI UC2	{UC1}	UC1 UC2	UC2	UC1 UC2	
	SE								
	PT-AMA	Real data UC1 (DT) {UC2}	UC1	UC1				UC1	
	PT-SEF	Real data UC1 {DO}	UC1	UC1				UC1	
	ES	Real data UC1 {DO} UC2 DO} UC3 {DO}	UC1 UC2	UC1 UC2 {UC3}	UC1	UC1 UC2 {UC3}		UC1 UC2	
	LU	UC1 {UC2}	UC1 {UC2}	UC1 {UC2}	UC1	UC1 {UC2}	{UC2}		
	SI	UCI UC2 UC3							

Legend:
Not available
First iteration
Second iteration

3.1.2 Interaction patterns

Use Case 1 and 2 implement the USI (User Supported Intermediation) interaction pattern. While Use Case 3 implements the IM (Intermediation) interaction pattern.

3.1.3 Pilot scenarios

Deliverable 4.9 describes the pilot scenarios that the pilot partners will pilot. Each scenario specifies the eProcedure portal that will be using the cross-border evidence:

Table 21: Pilot Scenarios

Scenario #	Scenario Name	eProcedure Portal	Use Cases to Pilot		
			UC1: Change of Address	UC2: Civil Status	UC3: Claim Pension
MA1	Moving to Sweden	Skatteverket.se/folkbokforing/invandring	x	x	x
MA2	Moving from Portugal	(PT citizens only)	x		

Scenario #	Scenario Name	eProcedure Portal	Use Cases to Pilot		
		https://eportugal.gov.pt/en/servicos/alterar-a-morada-do-cartao-de-cidadao#:~:text=Through%20the%20digital%20assistant%20of,address%20on%20the%20Citizen%20Card.			
MA3	Moving to Portugal	(non-PT European citizens) SEF system	x	x	x
MA4	Moving from Portugal	(non-PT European citizens) SEF system	x		
MA5	Moving to Romania	A dedicated eProcedure portal will be set up for piloting.	x		
MA6	Moving from Romania	A dedicated eProcedure portal will be set up for piloting.	x		
MA7	Moving to Romania	With the implementation of digital civil state system, a dedicated eProcedure portal will be set up for piloting.		x	
MA8	Moving from Romania	With the implementation of digital civil state system, a dedicated eProcedure portal will be set up for piloting.		x	
MA9	Moving to Luxembourg	The MyGuichet platform on the PSC (Point of Single Contact) guichet.lu	x	x	
MA10	Moving from Luxembourg	The MyGuichet platform on the PSC (Point of Single Contact) guichet.lu	x		
MA11	Moving from Spain	ES citizens (Citizen Folder)	x	x	x
MA12	Moving to Spain	ES citizens (Citizen Folder)		x	x
MA13	Moving from Spain	Non ES (EU Citizens) (Citizen Folder)	x		x
MA14	Moving to Spain	Non ES (EU Citizens) (Citizen Folder)			x
MA15	Moving from Slovenia	(Not defined yet)	x	x	

3.1.3.1 Restriction to piloting with 2 Member States

There are several constraints to how piloting will be achieved, below is a list of the current pilot partners and their roles. Depending on the role (DE or DO), the different partners will be matched to pilot between them.

Table 22: Pilot partners´ role

PILOT DIRECT PARTNER	ROLES per Use Case
MPTFP-SGAD	UC1 {DO} UC2, UC3 {DE, DO}
RO-MoAI	UC1, UC2 {DE, DR, DO, DT}

PILOT DIRECT PARTNER	ROLES per Use Case
SKV	UC1, UC2, (UC3) {DE, DR}
SI-MPA	UC1, UC2 {DR, DT}
CTIE	UC1, UC2 {DE, DR, DO, DT}
AMA IP	UC1 {DT}, UC2 {DE, DR}, UC3 {DE, DR}
SEF	UC1 {DO, DE}, UC2 {DE}, UC3 {DE}

Table 23: Other Indirect Agents involved in pilots

COUNTRY	ROLES per Use Case	NAME
ES	N/A	N/A
ES	N/A	N/A
PT	UC1 {DE, DO, DT}	IRN
SI	N/A	N/A
SE	N/A	N/A
LUX	N/A	N/A

3.2 Minimum Viable Product (first Iteration) and final scope (second iteration)

In order to be able to develop and implement the MA pilot process (per participant) and to carry out the tasks the pilot process has been designed and described in detail.

3.2.1 First iteration (MVP/"Early Adopters") scope

The description of action defines two pilot runs: the initial pilot run and the final pilot run. In order to respect timelines and to allow for swift piloting, the DE4A project interpreted the initial pilot run as the piloting of the minimum viable product.

The first pilot iteration includes:

- User Support Intermediation pattern
- One Evidence Request
- Request Evidence in Procedure
- Preview Evidence in data Service
- Use Evidence in Procedure
- Three evidence types: Change of Address and Civil State Certificate and Birth/Death Certificate
- Interrupted Procedure with support for Save and Resume (optional but recommended)
- Static Look-up of Evidence Type, Data Service, Authorized Authorities

In the first pilot iteration the pilot scenarios that were defined in Section 3.1.3 and that cover use case 1 and 2 will be piloted. Any choices and remarks that apply for a specific pilot scenario are displayed in the table below.

The first pilot run of 3 use cases includes:

Table 24: Participation on MVP

	MVP as data consumer	MVP as data provider
PT	No	(only PT citizens): UC1
RO	No	No
SE	No	No
ES	UC2	UC1, UC2 (maybe 3)
SI	No	No
LU	UC1, UC2	UC1

3.2.2 Second iteration scope

The following list is a proposal of functional scope for the second iteration of the Moving Abroad pilot. The actual list of items to be included in the second iteration is yet to be decided by participating Member States.

- Intermediation pattern
- Improved usability in Procedure and data Service based upon knowledge gained from the first iteration regarding:
  - Information about the OOP System in Procedure
  - Giving consent to use the OOP System in Procedure
  - Using the OOP System for Evidence Exchange
  - Preview of Evidence in data Service
  - Redirection between Procedure and data Service
  - Using the exchanged Evidence in the Procedure
  - User support and guidance
- Improved fault tolerance and error handling in the OOP System, for example:
  - OOP System not available
  - Evidence not available
  - data Service not available
  - Evidence Provider not available
  - Delayed response from Evidence Provider
  - Evidence not received
  - Incorrect Evidence received
- Request multiple Evidences in the same procedure instance
- GDPR Incident and Problem Management in the OOP System
- (Re-)Alignment with SDG
  - Handle any critical deviations from the SDG and progress made in other important EU-related projects
- Notification of deregistration conclusion
- Allow for the family contact person to retrieve evidences and submit eProcedure on behalf of all family members.

The following Member States will participate in the second iteration of the MA pilot.

Table 25: Member States in second iteration

Member State	Role(s)	Scenario(s)	Use Case(s)	Target Environment
SE	Data Consumer	Moving to Sweden	UC1, UC2, (UC3)	Operational
PT (non-PT European citizens)	Data Consumer	Moving to Portugal	UC1, UC2, (UC3)	Operational
PT (non-PT European citizens)	Data Provider	Moving from Portugal	UC1	Operational
PT (PT citizens)	Data Provider	Moving from Portugal	UC2 (tbc)	Operational
RO	Data Consumer Data Provider	Moving to Romania Moving from Romania	UC1, UC2	Operational
LU	Data Consumer	Moving to Luxembourg	UC1, UC2	Operational
LU	Data Provider	Moving from Luxembourg	UC1, UC2(tbc)	Operational
ES	Data Consumer Data Provider	Moving to Romania Moving from Romania	UC1, UC2	Operational
SI	Data Provider	Moving from Slovenia	UC1, UC2 (UC3)	Operational

Please note that the remainder of this document details the first pilot iteration (MVP), except where stated otherwise.

3.3 Major design decisions at pilot level

The following design choices apply:

Table 26: Design Decisions

#	Application component	Design choice for first pilot iteration (MVP)	Motivation	Release
1	eProcedure portal – session management	The application service 'eProcedure save and resume' will be implemented.	The procedure is likely to time-out before the preview is completed.	Final
2	Information desk – Evidence type translator	Static configuration is sufficient for first iteration.	Simple scenario with few participants.	First
3	Information desk – Authorization controller	Static configuration is sufficient for first iteration.	Simple scenario with few participants.	First
4	Evidence Interchange Management	Static configuration is sufficient for first iteration.	Simple scenario with few participants.	First

#	Application component	Design choice for first pilot iteration (MVP)	Motivation	Release
5	Trust Architecture - Record matching	Record matching with eIDAS is optional.	Not supported by all member states in the pilot.	First Final
6	Trust Architecture - Data encryption/decryption	'Data encryption/decryption' is implemented in two phases: first between the OOP-nodes of the participating members states and then between the OOP-node and National . For the pilot, only TLS will be used (not message/payload encryption).	Conform DE4A-standards.	First

3.3.1 Piloting in operational conditions

Explanation to how in the context of each participating MS things will be implemented. Some pilot partners will fully integrate the pilot in their production eProcedure portals and data services, some will implement the pilot in an isolated section of the eProcedure portal or DO service and others will use a dedicated pilot eProcedure portal / Data Service. All pilot partners will involve real users and evidences. All data providers will send real evidence data.

Table 27: MS overview piloting in production

	Pilot real users?	Pilot real data?	Pilot eProcedure portal	Name (descriptive) of eProcedure / Use Case
PT	Yes	Yes	ePortugal – Change of Address System (PT citizens only)	First iteration will pilot only PT citizens going abroad, UC1.
PT	Yes	Yes	SEF system (non-PT European citizens only)	Second iteration will pilot non-national European citizens moving to Portugal: UC1, UC2, (UC3). Second iteration will pilot non-national European citizens moving from Portugal: UC1.
RO	Yes	Yes	Pilot eProcedure portal	In the second iteration, a dedicated portal will be set up for piloting, as there is currently no digital civil state system.
SE	Yes	Yes	Swedish Tax Agency Portal	Request moving to Sweden
ES	Yes	Yes	Pilot eProcedure portal	ES citizens going abroad UC2
SI	Yes	Yes	Pilot eProcedure Portal	Not defined yet
LU	Yes	Yes	MyGuichet platform of the PSC guichet.lu	In the second iteration, a dedicated procedure will be set up for piloting

Furthermore:

- The MA pilot will rely on the national and EU legislation that is already in place for use of identity data (eIDAS) to pilot.
- The MA pilot assumes the SDGR provides sufficient legal basis to pilot the OOP technical system with production data in anticipation of (this part of) the SDGR going into effect end of 2023. To confirm this point of view, pilot partners will create a Memorandum of understanding for cross-border piloting.
- The MA pilot will inform the user – as part of the explicit request - that the OOP TS is used for exchange of data before the SDGR is into effect when the initial pilot starts.

3.3.2 Approach to use of eIDAS network

Table 28: MS overview of notified eIDs

Member State	Notified eID(s)	Level of Assurance	Accepts non-notified eID for piloting (Yes/No, at DE and/or DO)
ES	Spanish ID card (DNIe)	High	No
LU	Luxembourg eID card	High	No
PT	Portuguese national identity card (eID card). Digital mobile key (CMD- Chave Móvel Digital). Professional Attributes Certification System (Pre-notified)	High High N/A	No
RO	Not notified yet	N/A	
SE	Not notified yet	Substantial	No
SI	Not notified yet	N/A	

Table 29: MS overview of eIDAS nodes

Member State	Type of Node 1st iteration (Pre-prod or production, version of CEF reference SW / eIDAS specification)	Accepts eIDAS eID / National eID of the MS / Both (at DE, DO)
ES	Pre-prod v2.4 (confirmed)	Both (at DE, DO)
LU	Pre-prod v1.4.4 (future migration to v2.5) – Acceptance of non-notified eIDs will perhaps be possible in pre-prod but certainly not in production e	Both (at DE, DO)
PT	v1.4.3 (now) v2.5 (after November 2021) On pre-production environment: notified and non-notified. On production environment: only notified.	Both (at DE,DO). for PT citizens accepts: eIDAS eID, PT eID and mobile key. for non-PT European citizens only accepts eIDAS eID or a mobile key. A mobile key should be associated to a PT certificate of temporary/ permanent residency, a passport or an eIDAS eID.

Member State	Type of Node 1st iteration (Pre-prod or production, version of CEF reference SW / eIDAS specification)	Accepts eIDAS eID / National eID of the MS / Both (at DE, DO)
RO (Non-Notified.)	N/A: Romania will not participate in 1st iteration in MA Pilot Use CEF reference software –in second iteration	Both (at DE, DO) –in second iteration
SE (Non-Not.)	Sweden will not participate in the first iteration. Will use regular eIDAS node based on attrib. profile v1.2 in second iteration.	DE only
SI (Non-Not.)	Pre-prod v2.3 (v2.5 from Q1 2021) (confirmed)	

3.3.3 Data evidence types for Cross-border exchange

For MVP 1.0 only one type of evidence will be requested in each use case. The moving data evidence type is characterised by a certain number of mandatory attributes and some optional ones to allow all data providers to construct the evidence. One request will be fulfilled with exactly one response. Data will not be requested from multiple data providers at once ('multiple evidence cases'). The moving abroad data evidence is fully structured data.

MA uses only a basic authority check in evidence exchange. The participating data requestors are known in advance and the data provider will not check whether the data consumer is authorised to request the data. Furthermore, the evidence status overview will be limited to the values (1) success and (2) fail. No intermediate information about the evidence status will be communicated.

Table 30: Evidence types per Member State

Evidence Type	MS Provider	DO ENTITY NAME	TERRITORIAL LEVEL	DT ENTITY NAME	ADDITIONAL PARAMETERS
ResidencyProof	ES	National Institute of Statistics (INE)	NUTS 0	MPTFP-SGAD	
BirthCertificate	ES	Ministry of Justice	NUTS 0	MPTFP-SGAD	{ 2ndFamilyNameAbsence, registralDate, registralPlace) OR {2ndFamilyNameAbsence, registralDate, RegistralBook, RegistralVolume, RegistralPage}
MarriageCertificate	ES	Ministry of Justice	NUTS 0	MPTFP-SGAD	{2ndFamilyNameAbsence, registralDate, registralPlace) OR {2ndFamilyNameAbsence, registralDate, RegistralBook,

Evidence Type	MS Provider	DO ENTITY NAME	TERRITORIAL LEVEL	DT ENTITY NAME	ADDITIONAL PARAMETERS
					RegistralVolume, RegistralPage}
DeathCertificate	ES	Ministry of Justice	NUTS 0	MPTFP-SGAD	{2ndFamilyNameAbsence, registralDate, registralPlace) OR {2ndFamilyNameAbsence, registralDate, RegistralBook, RegistralVolume, RegistralPage}
ResidencyProof	RO	MoAI	NUTS 0		
BirthCertificate	RO	MoAI	NUTS 0		
MarriageCertificate	RO	MoAI	NUTS 0		
DeathCertificate	RO	MoAI	NUTS 0		
BirthCertificate	SI	(Slovenian) Ministry of Interior	NUTS 0	SI-MPA	
MarriageCertificate	SI	(Slovenian) Ministry of Interior	NUTS 0	SI-MPA	
DeathCertificate	SI	(Slovenian) Ministry of Interior	NUTS 0	SI-MPA	
ResidencyProof	LU	CTIE (Registry of physical persons)	NUTS 0	CTIE (MyGuichet platform)	
BirthCertificate	LU	CTIE (Registry of physical persons)	NUTS 0	CTIE (MyGuichet platform)	
MarriageCertificate	LU	CTIE (Registry of physical persons)	NUTS 0	CTIE (MyGuichet platform)	
DeathCertificate	LU	CTIE (Registry of physical persons)	NUTS 0	CTIE (MyGuichet platform)	
ChangeOfAddress	PT	IRN (PT citizens)	NUTS 0	AMA	
ChangeOfAddress	PT	SEF (non-PT citizens)	NUTS 0	AMA	

Legend:

MS	NUTS 0	NUTS 1	#	NUTS 2	#	NUTS 3	#	LAU	#
ES	Country	Agrupacion de comunidades autónomas	7	Comunidades y ciudades autónomas	19,0	Provincias + islas + Ceuta, Melilla	59	Municipios	8131
LU	Country	-	1	-	1,0	-	1	Communes	102
NL	Country	Landsdelen	4	Provincies	12,0		40	Gemeenten	355
AT	Country	Gruppen von Bundesländern	3	Bundesländer	9,0	Gruppen von Gemeinden	35	Gemeinden	2096
PT	Country	Continente + Regiões Autónomas	3	Grupos de Entidades Intermunicipais + Regiões Autónomas	7,0	Entidades Intermunicipais (Comunidades Intermunicipais + Áreas Metropolitanas) + Regiões Autónomas	25	Freguesias	3092
RO	Country	Macroregiuni	4	Regiuni	8,0	Judet + Bucuresti	42	Comuni + Municipii + Orase	3181
SI	Country	-	1	Kohezijske regije	2,0	Statistične regije	12	Občine	212
SE	Country	Grupper av riksområden	3	Riksområden	8,0	Län	21	Kommuner	290

3.3.4 Explicit Request, Preview and Logging

3.3.4.1 Sweden

Explicit request of evidence takes place after user authentication. The user can choose to provide information required by manually filling in a form or to use the OOP-System. If the user decides to pre-fill the form at the DO, the eProcedure creates a request via the OOP-system to the data service. The eProcedure redirects the user to the data service to preview the evidence. After the preview is completed, the user returns to the eProcedure to complete remaining steps and submit the form.

The eProcedure implements explicit request by providing the user (citizen) with information about the use of the OOP System as well as means to request transfer of evidence.

The request mechanism is developed using a component-based framework, which can be reused in other eProcedures at the Swedish Tax Agency. Information about the OOP System and terms of usage is provided to the eProcedure via headless CMS. The layout is adapted to the context of the eProcedure facilitating moving to Sweden.

Evidence preview is not provided in the Swedish eProcedure. Instead, the user (citizen) is redirected to the data service in the user's home country which is statically pre-configured in the IDK.

The eProcedure will support full audit and traceability as well as usage statistics.

3.3.4.2 Portugal

For the PT citizen going abroad, the other MS eProcedure portal will redirect the user to the PT Previewer portal. There, the user will browse his/her evidences and if and after consenting, the PT Authorization System will gather the evidences from the data owner and forward them to the other MS eProcedure system. The Authorization system will support full audit and traceability. On the second iteration, AMA system expects to be notified of successful conclusion, by the coming to MS eProcedure.

For the PT citizen moving back to Portugal, the system will not use cross-border evidences. On the second iteration, at the end of the process, the AMA system will notify the coming from cross-border system of successful eProcedure conclusion.

For the non-PT European citizen moving to Portugal, piloted in second iteration by SEF, the SEF system eProcedure will redirect the user to the coming from MS Evidences Previewer portal where he/she will be able to preview and consent evidences being forwarded to the SEF system. At the end of the process, the SEF system will notify the coming from cross-border system of successful eProcedure conclusion.

For the non-PT European citizen moving from Portugal, piloted in second iteration by SEF, the other MS eProcedure portal will redirect the user to the PT Previewer portal. There, the user will browse his/her evidences and if and after consenting, the PT Authorization System will gather the evidences from the data owner and forward them to the other MS eProcedure system. The Authorization system will support full audit and traceability. The SEF system expects to be notified of successful conclusion, by the coming to MS eProcedure.

3.3.4.3 Spain

In Spain, the evidence will be previewed at a centralized point or 'Citizen Folder' —an ad hoc implementation will be required— where citizens will be able to access and review the information that the administrations hold about them.

3.3.4.4 Romania

In Romania, after the implementation of the digital civil state system, a dedicated version of eProcedure portal will be developed.

On second iteration, after user consent regarding personal data protection, the eProcedure will explicitly request evidence after user authentication. The OOP-System will be used for providing required information. After the preview is complete the user gives his agreement regarding evidence transfer and returns to the eProcedure portal to follow the remaining steps. The eProcedure will provide information about the OOP System and terms of usage and will also be able to log full audit and traceability.

3.3.4.5 Luxembourg

For the use cases where LU acts as evidence requester, the explicit request will be implemented, in compliance with the requirements of SDGR Art. 14, in the context of the existing online procedures that will have to be modified and adapted in order to make cross-border exchange of evidences possible. These online procedures will be provided via the MyGuichet platform of guichet.lu and will reuse the functionalities provided by default by this platform. The MyGuichet platform provides for example by default the possibility to interrupt a procedure and to restart it later on where you left it. For the evidence requester use cases, as the USI pattern is used, preview will logically not take place at evidence requester side but at evidence provider side. Luxembourg will therefore not offer any preview for these use cases but will nevertheless display in the context of the online procedure the

evidences received after exchange via the central system from the evidence provider. The user will also still have the possibility to visualise and delete the received evidence as long as he has not submitted the respective procedure.

For the use cases where LU acts as evidence provider, the preview of the evidence will be implemented, in compliance with the requirements of SDGR Art. 14, via the existing MyGuichet platform of guichet.lu and will reuse as far as possible the functionalities already offered by this platform: authentication by using eIDAS notified eIDs, preview of the evidences kept on the user in the authentic sources (e.g. the registry of physical persons), etc. A functionality allowing the user to confirm that he wants to exchange the evidence(s) via the central exchange system will be added to the already existing preview functionality. The preview will be possible for all the versions of the evidence that will be provided, i.e. at least for the canonical evidence and the lawfully issued, original evidence.

3.3.4.6 Slovenia

Slovenia cannot provide project details at this point since there are still some decisions and reallocation on resources to be made internally. Slovenia's situation has had to been taken into account in this project deliverable.

3.3.5 Record Matching

3.3.5.1 Sweden

The eProcedure will support eIDAS via integration with the regular eIDAS node in Sweden. The eProcedure will require eIDAS authentication to use the OOP-System. The eProcedure will enable the user to resume an incomplete request using eIDAS authentication. Sweden participate in the roles of DE/DR.

3.3.5.2 Portugal

The preview portal will support eIDAS via integration with the regular eIDAS node in Portugal. The preview portal will require eIDAS authentication to use the OOP-System. The preview portal will enable the user to resume an incomplete request using eIDAS authentication. Portugal participates in the role of DR in the first iteration for the PT citizen only. Portugal participates in the role of DE/DR in the second iteration for the non-national European citizen.

For non-national European citizens, an authentication mechanism using a national eID (temporary or permanent European citizen certificate of residency) or a first attempt record matching mechanism may be used.

3.3.5.3 Spain

Record matching in Spain is done centrally: The (DIP) Data Intermediation Platform / Data Owner, at the General Secretariat for Digital Administration, provides a centralized point where record matching is made once the request has been received from an authenticated user on the Data Evaluator.

3.3.5.4 Romania

The eProcedure portal will support eIDAS via integration with the pre-production eIDAS node in Romania. The eProcedure will require eIDAS authentication to use the OOP-System. The eProcedure will enable the user to resume an incomplete request using eIDAS authentication.
RO will participate in the second iteration as DE/DR.

3.3.5.5 Luxembourg

Record matching will continue to work exactly as it works already today. No new functionalities have to be implemented. Users of the national eID card are anyway already and automatically matched with the unique national number kept in the registry of physical persons. Other users, i. e. users using other national eID means than the national eID card (e.g. token, smartcard, usb stick, mobile phone solutions provided by LuxTRust (luxtrust.lu)) or eIDAS notified eIDs will have to auto-enroll their eID when using for the first time any service offered by MyGuichet.lu (online procedures, personal space, access to the authentic sources, access to electronic documents delivered in the digital mail box of the personal space, etc.). This auto-enrollment procedure leads to a linking between the unique ID of the certificate of the used eID and the unique national number kept in the registry of physical persons. Once this linking is done a first time, the matching between the eID used and the unique national number kept in the register of physical persons is automatic and MyGuichet can link directly, unambiguously and reliably to the data kept on the respective person in the register of physical persons.

3.3.5.6 Slovenia

Slovenia cannot provide project details at this point since there are still some decisions and reallocation on resources to be made internally. Slovenia's situation has had to been taken into account in this project deliverable.

3.3.6 Other assumptions

The following assumptions apply for all member states participating in iteration 1 of the MA pilot.

- Country of origin of user is the DP country
- Performing only a basic authority check (participating data requestors are known in advance and the data provider will not check whether the data consumer is authorized to request the data),
- Evidence status overview is limited to the values (1) success and (2) fail and no intermediate information about the evidence status from the OOP-System.

3.4 Generic process for the pilot and Solution Architecture

The MA pilot will use the User-Supported Intermediation pattern as specified in the project start architecture and described in detail in the Solution Architecture, included in Annex A .

3.5 Data models design

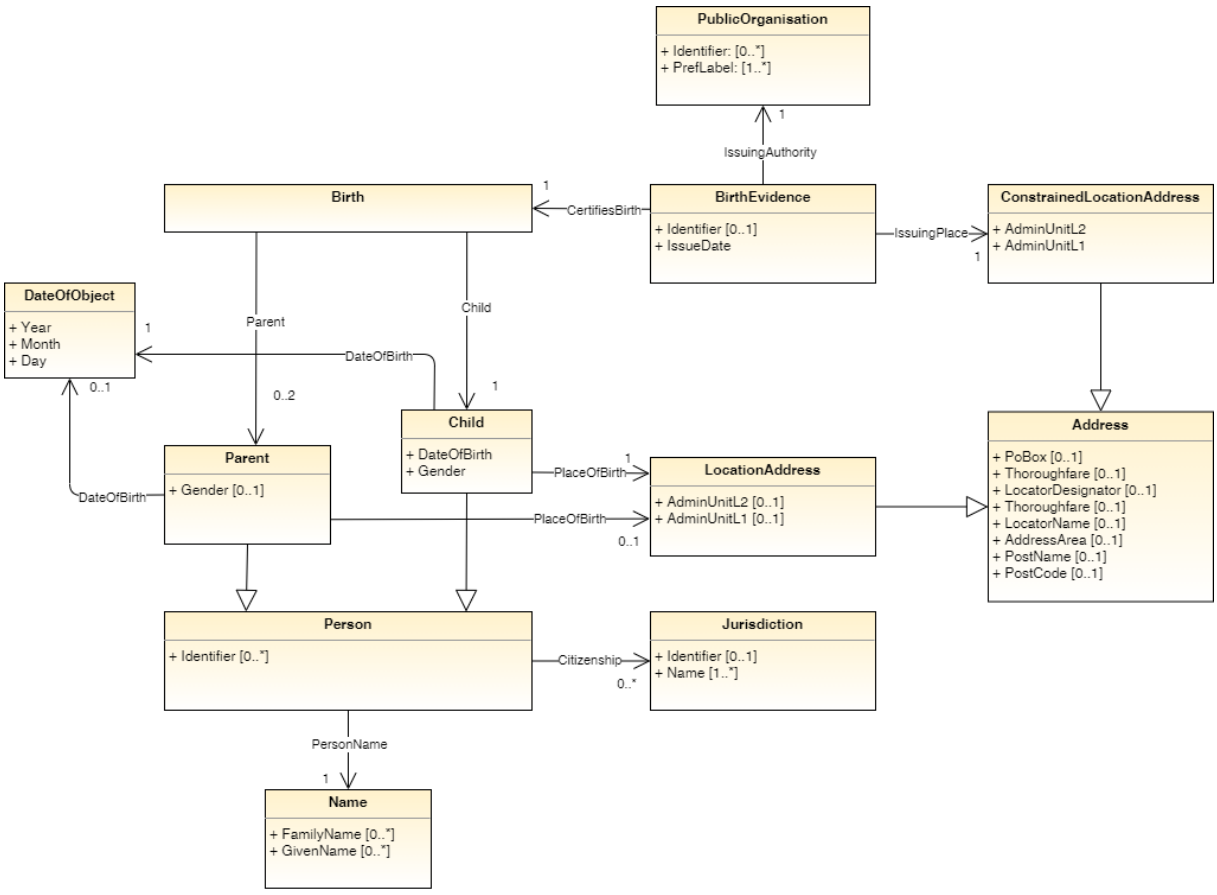


Figure 1: MA Data model of evidencetype BirthCertificate

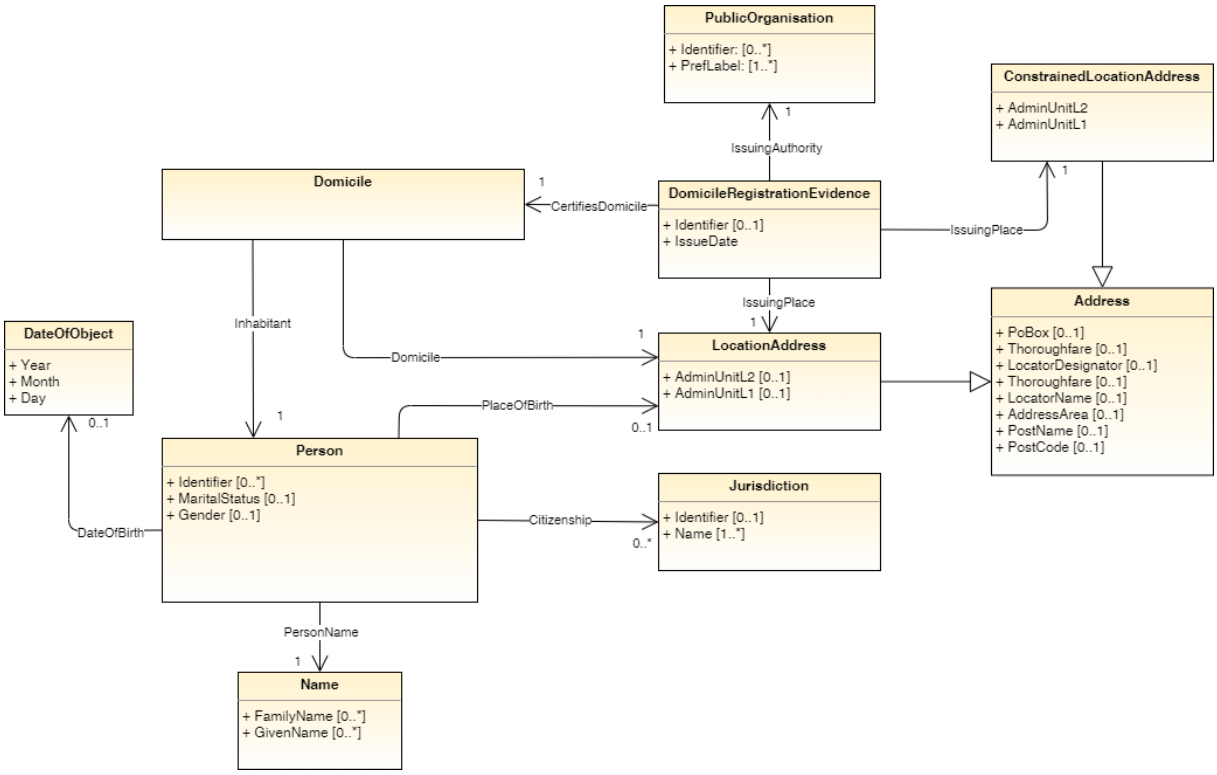


Figure 2: MA Data model of evidencetype DomicileRegistrationData

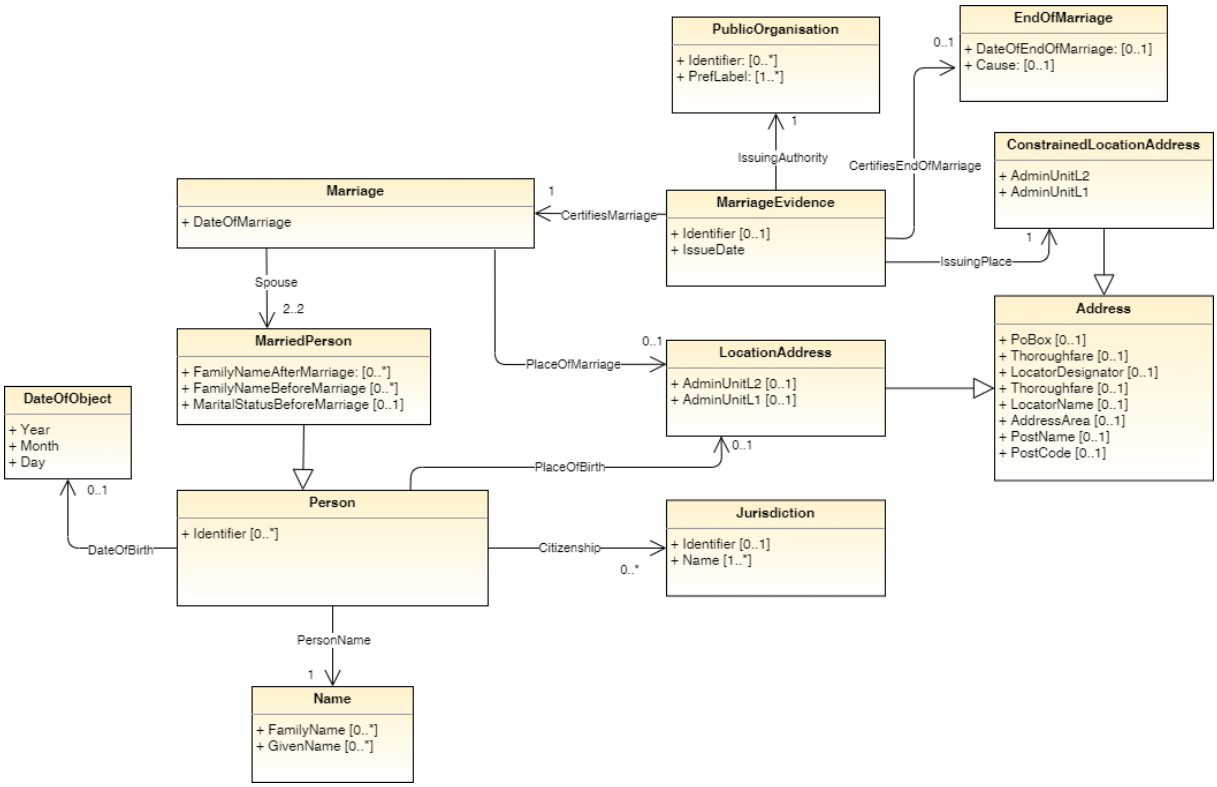


Figure 3: MA Data model of evidencetype MarriageCertificate

Table 31: Domicile Evidencetype Information

DE4A name	Property type	Cardinality	Data type	Related Vocabulary	Controlled vocabulary	Definition
DomicileRegistrationEvidence	Class					This class contains elements related to the Domicile Deregistration Evidence.
Identifier	Object	[0..1]	Identifier	cva:Cvidentifier		An unambiguous reference to the Domicile Registration Evidence.
IssueDate	Datatype	[1..1]	Date	udt:Date		The most recent date on which the Domicile Registration Evidence instance was issued.
IssuingAuthority	Object	[1..1]	PublicOrganisation			A Public Organization with official authority in charge of issuin7g the Domicile Registration Evidence.
IssuingPlace	Object	[1..1]	LocationAddress			The location address where the Domicile Registration Evidence was issued.
CertifiesDomicile	Object	[1..1]	Domicile			Attesting in a formal way that the Domicile is true.
PublicOrganisation	Class					Any organization that is defined as being part of the public sector by a legal framework at any level.
Identifier	Object	[0..*]	Identifier	cva:Cvidentifier		Many organizations are referred to by an acronym or some other identifier. For example, among the EU institutions, the ECB is the identifier for the European Central Bank, OLAF for the European Anti-Fraud Office, and so on. These are formally recognized by the European Commission which provides a list of such acronyms. Analogous lists should be used in other contexts.
PrefLabel	Datatype	[1..*]	Text	udt:Text		As defined in the ORG Ontology, a preferred label is used to provide the primary, legally recognized name of the organization. An organization may only have one such name in any given language. Primary names may be provided in

DE4A name	Property type	Cardinality	Data type	Related Vocabulary	Controlled vocabulary	Definition
						multiple languages with multiple instances of the preferred label property.
Domicile	Class					This class contains elements related to the domicile
Inhabitant	Object	[1..1]	Person			Person, living in the residence or domicile
Domicile	Object	[1..1]	ConstrainedLocationAddress			Current domicile inhabited by person
Person	Class					An individual natural person who may be dead or alive, but not imaginary.
PersonName	Object	[1..1]	Name			The family name and given name of a Person. At least one of the two must exist.
Identifier	Object	[0..*]	Identifier	cva:Cvidentifier		The identifier relation is used to link a Person to any formally issued Identifier for that Person.
DateOfBirth	Object	[0..1]	DateObject			The day on which the person was born.
Gender	Datatype	[0..1]	Code	udt:Code	Human Sex	The chromosomal state, and reproductive organs and structures of a Person that allows them to be distinguished as female or male or not applicable, not known or not stated.
MaritalStatus	Datatype	[0..1]	Code	udt:Code	Marital Status	An indicator of the marital status
PlaceOfBirth	Object	[0..1]	LocationAddress			The Location where the person was born

DE4A name	Property type	Cardinality	Data type	Related Vocabulary	Controlled vocabulary	Definition
Citizenship	Object	[0..*]	Jurisdiction			The citizenship relationship links a Person to a Jurisdiction that has conferred citizenship rights on the individual such as the right to vote, to receive certain protection from the community or the issuance of a passport.
Jurisdiction	Class					The authority that an official organization has, to make legal decisions about somebody/something.
Identifier	Object	[0..1]	Identifier	cvb:JurisdictionID		The value for the id property is a URI for that Jurisdiction.
Name	Datatype	[1..*]	Text	cbc:Name		The name is simply a string that identifies the Jurisdiction, typically a country, with or without a language tag.
ConstrainedLocationAddress	Class					The Address of a location based on the INSPIRE Address representation. It is subclass of the class Address.
AdminUnitL2	Datatype	[1..1]	Text	cvb:AdminunitSecondline	NUTS/LAU	The region of the address, usually a county, state or other such area that typically encompasses several localities.
AdminUnitL1	Datatype	[1..1]	Text	cvb:AdminunitFirstline	Country	The uppermost administrative unit for the address, almost always a country. Best practice is to use the ISO 3166-1 code.
LocationAddress	Class					The Address of the place of birth based on the INSPIRE Address representation. It is subclass of the class Address.
AdminUnitL2	Datatype	[0..1]	Text	cvb:AdminunitSecondline		The region of the address, usually a county, state or other such area that typically encompasses several localities.
AdminUnitL1	Datatype	[0..1]	Text	cvb:AdminunitFirstline	Country	The uppermost administrative unit for the address, almost always a country. Best practice is to use the ISO 3166-1 code.
Address	Class					Representation of address based on the INSPIRE Address Representation.

DE4A name	Property type	Cardinality	Data type	Related Vocabulary	Controlled vocabulary	Definition
PoBox	Datatype	[0..1]	Text	cvb:PoBox		The Post Office Box number. INSPIRE's name for this is "postalDeliveryIdentifier" for which it uses the locator designator property with a type attribute of that name. This vocabulary separates out the Post Office Box for greater independence of technology.
Thoroughfare	Datatype	[0..1]	Text	cvb:Thoroughfare		Quoting from the INSPIRE guidelines, a thoroughfare is: "an address component that represents the name of a passage or way through from one location to another. A thoroughfare is not necessarily a road, it might be a waterway or some other feature.
LocatorDesignator	Datatype	[0..1]	Text	cvb:LocatorDesignator		The locator designator is defined by the INSPIRE guidelines as "a number or a sequence of characters that uniquely identifies the locator within the relevant scope(s). The full identification of the locator could include one or more locator designators." In simpler terms, this is the building number, apartment number, etc. For an address such as "Flat 3, 17 Bridge Street", the locator is "flat 3, 17."
LocatorName	Datatype	[0..1]	Text	cvb:LocatorName		Based on the INSPIRE guidelines, locator name is defined as: "Proper noun(s) applied to the real world entity identified by the locator. The locator name could be the name of the property or complex, of the building or part of the building, or it could be the name of a room inside a building. The key difference between a locator and a locator name is that the latter is a proper name and is unlikely to include digits. For example, "Shumann, Berlaymont" is a meeting room within the European Commission headquarters for which locator name is more appropriate than locator.

DE4A name	Property type	Cardinality	Data type	Related Vocabulary	Controlled vocabulary	Definition
AddressArea	Datatype	[0..1]	Text	cvb:CvaddressArea		Taking the definition from INSPIRE, the address area is: the name or names of a geographic area or locality that groups a number of addressable objects for addressing purposes, without being an administrative unit." This would typically be part of a city, a neighbourhood or village.
PostName	Datatype	[0..1]	Text	cvb:PostName		The key postal division of the address, usually the city. (INSPIRE's definition is "One or more names created and maintained for postal purposes to identify a subdivision of addresses and postal delivery points.)
PostCode	Datatype	[0..1]	Text	cvb:PostCode		The post code (a.k.a postal code, zip code etc.). Post codes are common elements in many countries' postal address systems.
Name	Class					A name of a person that includes the family and given name.
FamilyName	Datatype	[0..*]	Text	cbc:FamilyName		A family name is usually shared by members of a family. This attribute also carries prefixes or suffixes which are part of the family name, e.g. "de Boer", "van de Putte". Multiple family names, such as are commonly found in Hispanic countries, are recorded in the single family name field so that, for example, Miguel de Cervantes Saavedra's Family Name would be recorded as "de Cervantes Saavedra".
GivenName	Datatype	[0..*]	Text	cvb:GivenName		A given name, or multiple given names, are the denominator(s) that identify an individual within a family. These are given to a Person by his or her parents at birth or may be legally recognised as 'given names' through a formal process. All given names are ordered in one field so that, for example, the given name for Johann Sebastian Bach is 'Johann Sebastian'.

DE4A name	Property type	Cardinality	Data type	Related Vocabulary	Controlled vocabulary	Definition
DateObject	Class					Structured representation of date with year, month and day of the month.
Year	Datatype	[0..1]	Year	xsd:gYear		A gregorian calendar year. The value space of Year is the set of Gregorian calendar years as defined in § 5.2.1 of ISO 8601. Specifically, it is a set of one-year long, non-periodic instances e.g. lexical 1999 to represent the whole year 1999, independent of how many months and days this year has.
Month	Datatype	[0..1]	Month	xsd:gMonth		A gregorian month that recurs every year. The value space of Month is the space of a set of calendar months as defined in § 3 of ISO 8601. Specifically, it is a set of one-month long, yearly periodic instances.
Day	Datatype	[0..1]	Day	xsd:gDay		A gregorian day that recurs, specifically a day of the month such as the 5th of the month. The value space of Day is the space of a set of calendar dates as defined in § 3 of ISO 8601. Specifically, it is a set of one-day long, monthly periodic instances.

Table 32: Marriage Evidencetype Information

DE4A name	Property type	Cardinality	Data type	Related vocabulary	Controlled vocabulary	Definitions
MarriageEvidence	Class					Official document or data proving the Marriage of two Persons.
Identifier	Object	[0..1]	Identifier	cva:Cvidentifier		An unambiguous reference to the Marriage Evidence.
IssueDate	Datatype	[1..1]	Date	udt:Date		The most recent date on which the Marriage Evidence instance was issued.

DE4A name	Property type	Cardinality	Data type	Related vocabulary	Controlled vocabulary	Definitions
IssuingAuthority	Object	[1..1]	PublicOrganisation			A Public Organisation with official authority in charge of issuing the Marriage Evidence.
IssuingPlace	Object	[1..1]	ConstrainedLocation Address			The Location where the Marriage Evidence was issued.
CertifiesMarriage	Object	[1..1]	Marriage			Attesting in a formal way that the Marriage is true.
CertifiesEndOfMarriage	Object	[0..1]	EndOfMarriage			In case of divorce, this property includes information on the end of marriage
PublicOrganisation	Class					Any organisation that is defined as being part of the public sector by a legal framework at any level.
Identifier	Object	[0..*]	Identifier	cva:Cvidentifier		Many organisations are referred to by an acronym or some other identifier. For example, among the EU institutions, the ECB is the identifier for the European Central Bank, OLAF for the European Anti-Fraud Office, and so on. These are formally recognised by the European Commission which provides a list of such acronyms. Analogous lists should be used in other contexts.
PrefLabel	Datatype	[1..*]	Text	udt:Text		As defined in the ORG Ontology, a preferred label is used to provide the primary, legally recognised name of the organisation. An organisation may only have one such name in any given language. Primary names may be provided in multiple languages with multiple instances of the preferred label property.
Marriage	Class					A legally accepted relationship between two Persons in which they live together.
DateOfMarriage	Datatype	[1..1]	Date	udt:Date		The date on which the Marriage took place.

DE4A name	Property type	Cardinality	Data type	Related vocabulary	Controlled vocabulary	Definitions
Spouse	Object	[2..2]	MarriedPerson			The Person who was married.
PlaceOfMarriage	Object	[0..1]	LocationAddress			The Location where the Marriage took place.
MarriedPerson	Class					A Person who has entered into a Marriage.
FamilyNameAfterMarriage	Datatype	[0..*]	Text	udt:Text		This property contains the family name after the Marriage of the Person.
FamilyNameBeforeMarriage	Datatype	[0..*]	Text	udt:Text		This property contains the family name before the Marriage of the Person.
MaritalStatusBeforeMarriage	Datatype	[0..1]	Text	udt:Code	Marital Status	Situation with regard to whether a Person was single, married, separated, divorced or widowed.
Person	Class					An individual natural person who may be dead or alive, but not imaginary.
DateOfBirth	Datatype	[0..1]	DateObject			The day on which the Person was born.
PersonName	Object	[1..1]	Name			The family name and given name of a Person. At least one of the two must exist.
Identifier	Object	[0..*]	Identifier	cva:Cvidentifier		The identifier relation is used to link a Person to any formally issued Identifier for that Person.
PlaceOfBirth	Object	[0..1]	LocationAddress			The Location where the Person was born.

DE4A name	Property type	Cardinality	Data type	Related vocabulary	Controlled vocabulary	Definitions
Gender	Datatype	[1..1]	Code	udt:Code	Human Sex	The gender of an individual should be recorded using a controlled vocabulary that is appropriate for the specific context. In some cases the chromosomal or physical state of an individual will be more important than the gender that they express, in others the reverse will be true. What is always important is that the controlled vocabulary used to describe an individual's gender is stated explicitly.
Citizenship	Object	[0..*]	Jurisdiction			The citizenship relationship links a Person to a Jurisdiction that has conferred citizenship rights on the individual such as the right to vote, to receive certain protection from the community or the issuance of a passport.
Jurisdiction	Class					The authority that an official organisation has, to make legal decisions about somebody/something.
Identifier	Object	[0..1]	Identifier	cvb:JurisdictionID		The value for the id property is a URI for that Jurisdiction.
Name	Datatype	[1..*]	Text	cbc:Name		The name is simply a string that identifies the Jurisdiction, typically a country, with or without a language tag.
ConstrainedLocationAddress	Class					The Address of a location based on the INSPIRE Address representation. It is subclass of the class Address.
AdminUnitL2	Datatype	[1..1]	Text	cvb:AdminunitSecondline		The region of the address, usually a county, state or other such area that typically encompasses several localities.
AdminUnitL1	Datatype	[1..1]	Text	cvb:AdminunitFirstline	Country	The uppermost administrative unit for the address, almost always a country. Best practice is to use the ISO 3166-1 code.
LocationAddress	Class					The Address of the place of birth based on the INSPIRE Address representation. It is subclass of the class Address.

DE4A name	Property type	Cardinality	Data type	Related vocabulary	Controlled vocabulary	Definitions
AdminUnitL2	Datatype	[0..1]	Text	cvb:AdminunitSecondline		The region of the address, usually a county, state or other such area that typically encompasses several localities.
AdminUnitL1	Datatype	[0..1]	Text	cvb:AdminunitFirstline	Country	The uppermost administrative unit for the address, almost always a country. Best practice is to use the ISO 3166-1 code.
Address	Class					Representation of address based on the INSPIRE Address Representation.
PoBox	Datatype	[0..1]	Text	cvb:PoBox		The Post Office Box number. INSPIRE's name for this is "postalDeliveryIdentifier" for which it uses the locator designator property with a type attribute of that name. This vocabulary separates out the Post Office Box for greater independence of technology.
Thoroughfare	Datatype	[0..1]	Text	cvb:Thoroughfare		Quoting from the INSPIRE guidelines, a thoroughfare is: "an address component that represents the name of a passage or way through from one location to another. A thoroughfare is not necessarily a road, it might be a waterway or some other feature.
LocatorDesignator	Datatype	[0..1]	Text	cvb:LocatorDesignator		The locator designator is defined by the INSPIRE guidelines as "a number or a sequence of characters that uniquely identifies the locator within the relevant scope(s). The full identification of the locator could include one or more locator designators." In simpler terms, this is the building number, apartment number, etc. For an address such as "Flat 3, 17 Bridge Street", the locator is "flat 3, 17."

DE4A name	Property type	Cardinality	Data type	Related vocabulary	Controlled vocabulary	Definitions
LocatorName	Datatype	[0..1]	Text	cvb:LocatorName		Based on the INSPIRE guidelines, locator name is defined as: "Proper noun(s) applied to the real world entity identified by the locator. The locator name could be the name of the property or complex, of the building or part of the building, or it could be the name of a room inside a building. The key difference between a locator and a locator name is that the latter is a proper name and is unlikely to include digits. For example, "Shumann, Berlaymont" is a meeting room within the European Commission headquarters for which locator name is more appropriate than locator.
AddressArea	Datatype	[0..1]	Text	cvb:CvaddressArea		Taking the definition from INSPIRE, the address area is: the name or names of a geographic area or locality that groups a number of addressable objects for addressing purposes, without being an administrative unit." This would typically be part of a city, a neighbourhood or village.
PostName	Datatype	[0..1]	Text	cvb:PostName		The key postal division of the address, usually the city. (INSPIRE's definition is "One or more names created and maintained for postal purposes to identify a subdivision of addresses and postal delivery points.)
PostCode	Datatype	[0..1]	Text	cvb:PostCode		The post code (a.k.a postal code, zip code etc.). Post codes are common elements in many countries' postal address systems.
EndOfMarriage	Class					Date and cause of end of marriage
DateOfEndOfMarriage	Datatype	[0..1]	Date	udt:Date		
Cause	Datatype	[0..1]	Text	udt:Text		

DE4A name	Property type	Cardinality	Data type	Related vocabulary	Controlled vocabulary	Definitions
DateObject	Class					Structured representation of date with year, month and day of the month.
Year	Datatype	[0..1]	Year	xsd:gYear		A gregorian calendar year. The value space of Year is the set of Gregorian calendar years as defined in § 5.2.1 of ISO 8601. Specifically, it is a set of one-year long, non-periodic instances e.g. lexical 1999 to represent the whole year 1999, independent of how many months and days this year has.
Month	Datatype	[0..1]	Month	xsd:gMonth		A gregorian month that recurs every year. The value space of Month is the space of a set of calendar months as defined in § 3 of ISO 8601. Specifically, it is a set of one-month long, yearly periodic instances.
Day	Datatype	[0..1]	Day	xsd:gDay		A gregorian day that recurs, specifically a day of the month such as the 5th of the month. The value space of Day is the space of a set of calendar dates as defined in § 3 of ISO 8601. Specifically, it is a set of one-day long, monthly periodic instances.
Name	Class					A name of a person that includes the family and given name.
FamilyName	Datatype	[0..*]	Text	cbc:FamilyName		A family name is usually shared by members of a family. This attribute also carries prefixes or suffixes which are part of the family name, e.g. "de Boer", "van de Putte", "von und zu Orlow". Multiple family names, such as are commonly found in Hispanic countries, are recorded in the single family name field so that, for example, Miguel de Cervantes Saavedra's Family Name would be recorded as "de Cervantes Saavedra".

DE4A name	Property type	Cardinality	Data type	Related vocabulary	Controlled vocabulary	Definitions
GivenName	Datatype	[0..*]	Text	cvb:GivenName		A given name, or multiple given names, are the denominator(s) that identify an individual within a family. These are given to a Person by his or her parents at birth or may be legally recognised as 'given names' through a formal process. All given names are ordered in one field so that, for example, the given name for Johann Sebastian Bach is 'Johann Sebastian'.

Table 33: Birth Evidencetype Information

DE4A name	Property type	Cardinality	Data type	Related vocabulary	Controlled Vocabulary	Definition
BirthEvidence	Class					Official document or data proving the Birth of a Child.
Identifier	Object	[0..1]	Identifier	cva:Cvidentifier		An unambiguous reference to the Birth Evidence.
IssueDate	Datatype	[1..1]	Date	udt:Date		The most recent date on which the Birth Evidence instance was issued.
IssuingAuthority	Object	[1..1]	PublicOrganisation			A Public Organisation with official authority in charge of issuing the Birth Evidence.
IssuingPlace	Object	[1..1]	ConstrainedLocationAddress			The Location where the Birth Evidence was issued.
CertifiesBirth	Object	[1..1]	Birth			Attesting in a formal way that the Birth is true.

DE4A name	Property type	Cardinality	Data type	Related vocabulary	Controlled Vocabulary	Definition
PublicOrganisation	Class					Any organisation that is defined as being part of the public sector by a legal framework at any level.
Identifier	Object	[0..*]	Identifier	cva:Cvidentifier		Many organisations are referred to by an acronym or some other identifier. For example, among the EU institutions, the ECB is the identifier for the European Central Bank, OLAF for the European AntiN/AFraud Office, and so on. These are formally recognised by the European Commission which provides a list of such acronyms. Analogous lists should be used in other contexts.
PrefLabel	Datatype	[1..*]	Text	udt:Text		As defined in the ORG Ontology, a preferred label is used to provide the primary, legally recognised name of the organisation. An organisation may only have one such name in any given language. Primary names may be provided in multiple languages with multiple instances of the preferred label property.
Birth	Class					The event indicating the moment a Child emerges from the body of another Person, i.e. start of life.
Child	Object	[1..1]	Child			The Person who is born at the Birth.
Parent	Object	[0..2]	Parent			The Parent of the Child.
Child	Class					A Person of any age, who is a son or daughter.
DateOfBirth	Object	[1..1]	DateObject			The day on which the Child was born.

DE4A name	Property type	Cardinality	Data type	Related vocabulary	Controlled Vocabulary	Definition
Gender	Datatype	[1..1]	Code	udt:Code	Human Sex	The chromosomal state, and reproductive organs and structures of a Person that allows them to be distinguished as female or male or undetermined.
PlaceOfBirth	Object	[1..1]	LocationAddress			The Location where the Child was born.
Parent	Class					One of the two Persons who are jointly the cause of the Child's Birth, i.e. natural parent.
DateOfBirth	Object	[0..1]	DateObject			The day on which the Parent was born.
Gender	Datatype	[0..1]	Code	udt:Code	Human Sex	The chromosomal state, and reproductive organs and structures of a Person that allows them to be distinguished as female or male or undetermined.
PlaceOfBirth	Object	[0..1]	LocationAddress			The Location where the Parent was born.
Person	Class					An individual natural person who may be dead or alive, but not imaginary.
PersonName	Object	[1..1]	Name			The family name and given name of a Person. At least one of the two must exist.
Identifier	Object	[0..*]	Identifier	cva:Cvidentifier		The identifier relation is used to link a Person to any formally issued Identifier for that Person.

DE4A name	Property type	Cardinality	Data type	Related vocabulary	Controlled Vocabulary	Definition
Citizenship	Object	[0..*]	Jurisdiction			The citizenship relationship links a Person to a Jurisdiction that has conferred citizenship rights on the individual such as the right to vote, to receive certain protection from the community or the issuance of a passport.
Jurisdiction	Class					The authority that an official organisation has, to make legal decisions about somebody/something.
Identifier	Object	[0..1]	Identifier	cvb:JurisdictionID	Country	The value for the id property is a URI for that Jurisdiction.
Name	Datatype	[1..*]	Text	cbc:Name	Country	The name is simply a string that identifies the Jurisdiction, typically a country, with or without a language tag.
ConstrainedLocationAddress	Class					The Address of a location based on the INSPIRE Address representation. It is subclass of the class Address.
AdminUnitL2	Datatype	[1..1]	Text	cvb:AdminunitSecondline		The region of the address, usually a county, state or other such area that typically encompasses several localities.
AdminUnitL1	Datatype	[1..1]	Text	cvb:AdminunitFirstline	Country	The uppermost administrative unit for the address, almost always a country. Best practice is to use the ISO 3166-1 code.
LocationAddress	Class					The Address of the place of birth based on the INSPIRE Address representation. It is subclass of the class Address.
AdminUnitL2	Datatype	[0..1]	Text	cvb:AdminunitSecondline		The region of the address, usually a county, state or other such area that typically encompasses several localities.

DE4A name	Property type	Cardinality	Data type	Related vocabulary	Controlled Vocabulary	Definition
AdminUnitL1	Datatype	[0..1]	Text	cvb:AdminunitFirstline	Country	The uppermost administrative unit for the address, almost always a country. Best practice is to use the ISO 3166-1 code.
Address	Class					Representation of address based on the INSPIRE Address Representation.
PoBox	Datatype	[0..1]	Text	cvb:PoBox		The Post Office Box number. INSPIRE's name for this is "postalDeliveryIdentifier" for which it uses the locator designator property with a type attribute of that name. This vocabulary separates out the Post Office Box for greater independence of technology.
Thoroughfare	Datatype	[0..1]	Text	cvb:Thoroughfare		Quoting from the INSPIRE guidelines, a thoroughfare is: "an address component that represents the name of a passage or way through from one location to another. A thoroughfare is not necessarily a road, it might be a waterway or some other feature.
LocatorDesignator	Datatype	[0..1]	Text	cvb:LocatorDesignator		The locator designator is defined by the INSPIRE guidelines as "a number or a sequence of characters that uniquely identifies the locator within the relevant scope(s). The full identification of the locator could include one or more locator designators." In simpler terms, this is the building number, apartment number, etc. For an address such as "Flat 3, 17 Bridge Street", the locator is "flat 3, 17."

DE4A name	Property type	Cardinality	Data type	Related vocabulary	Controlled Vocabulary	Definition
LocatorName	Datatype	[0..1]	Text	cvb:LocatorName		Based on the INSPIRE guidelines, locator name is defined as: "Proper noun(s) applied to the real world entity identified by the locator. The locator name could be the name of the property or complex, of the building or part of the building, or it could be the name of a room inside a building. The key difference between a locator and a locator name is that the latter is a proper name and is unlikely to include digits. For example, "Shumann, Berlaymont" is a meeting room within the European Commission headquarters for which locator name is more appropriate than locator.
AddressArea	Datatype	[0..1]	Text	cvb:CvaddressArea		Taking the definition from INSPIRE, the address area is: the name or names of a geographic area or locality that groups a number of addressable objects for addressing purposes, without being an administrative unit." This would typically be part of a city, a neighbourhood or village.
PostName	Datatype	[0..1]	Text	cvb:PostName		The key postal division of the address, usually the city. (INSPIRE's definition is "One or more names created and maintained for postal purposes to identify a subdivision of addresses and postal delivery points.)
PostCode	Datatype	[0..1]	Text	cvb:PostCode		The post code (a.k.a postal code, zip code etc.). Post codes are common elements in many countries' postal address systems.
DateObject	Class					Structured representation of date with year, month and day of the month.

DE4A name	Property type	Cardinality	Data type	Related vocabulary	Controlled Vocabulary	Definition
Year	Datatype	[0..1]	Year	xsd:gYear		A gregorian calendar year. The value space of Year is the set of Gregorian calendar years as defined in § 5.2.1 of ISO 8601. Specifically, it is a set of one-year long, non-periodic instances e.g. lexical 1999 to represent the whole year 1999, independent of how many months and days this year has.
Month	Datatype	[0..1]	Month	xsd:gMonth		A gregorian month that recurs every year. The value space of Month is the space of a set of calendar months as defined in § 3 of ISO 8601. Specifically, it is a set of one-month long, yearly periodic instances.
Day	Datatype	[0..1]	Day	xsd:gDay		A gregorian day that recurs, specifically a day of the month such as the 5th of the month. The value space of Day is the space of a set of calendar dates as defined in § 3 of ISO 8601. Specifically, it is a set of one-day long, monthly periodic instances.
Name	Class					A name of a person that includes the family and given name.
FamilyName	Datatype	[0..*]	Text	cbc:FamilyName		A family name is usually shared by members of a family. This attribute also carries prefixes or suffixes which are part of the family name, e.g. "de Boer", "van de Putte", "von und zu Orlow". Multiple family names, such as are commonly found in Hispanic countries, are recorded in the single family name field so that, for example, Miguel de Cervantes Saavedra's Family Name would be recorded as "de Cervantes Saavedra".

DE4A name	Property type	Cardinality	Data type	Related vocabulary	Controlled Vocabulary	Definition
GivenName	Datatype	[0..*]	Text	cvb:GivenName		A given name, or multiple given names, are the denominator(s) that identify an individual within a family. These are given to a Person by his or her parents at birth or may be legally recognised as 'given names' through a formal process. All given names are ordered in one field so that, for example, the given name for Johann Sebastian Bach is 'Johann Sebastian'.

3.6 Common components

Both the dedicated eIDAS network and the OOP technical system are made up of common components that need to be deployed, configured and connected. Furthermore, the trust infrastructure needs to be in place to allow for secure connections.

3.6.1 Common roles

The four-corner model describes the common roles. In this model, the data consumer has the roles of data evaluator and data requestor, and the data provider takes the roles of data owner and data transferor.

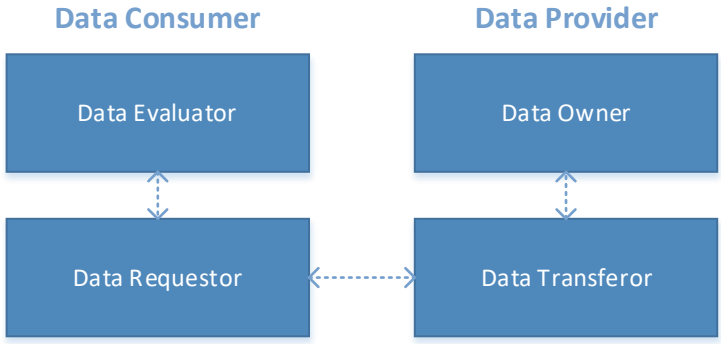


Figure 4: The Four-Corner Model

The picture below shows the relationship between actors, roles and components in the four-corner model.

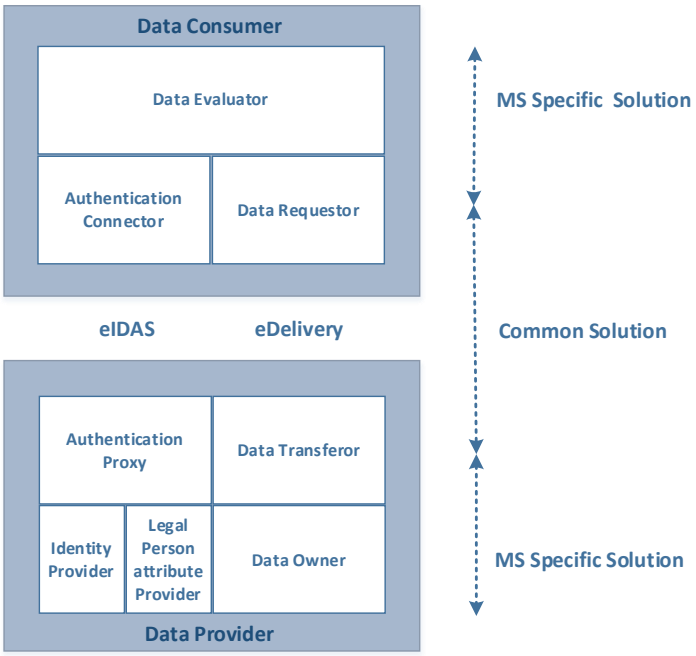


Figure 5: Solution Overview

eIDAS roles:

Authentication connector: The actor that – typically at a Member State level – connects to the eIDAS network as a relying party. Via the authentication connector, the data evaluator can request user authentication.

Authentication proxy: The actor that connects the national (notified and non-notified) eID(s) and attribute provider(s) to the eIDAS network. The authentication proxy role coordinates the authentication process. In the moving abroad scenario, eIDAS user authentication takes place in the eProcedure of the DC and in data service of the DP either eIDAS or eID may be used when to authenticate the user.

OOP Technical system roles :

The data requestor: The actor in the data consuming Member State responsible for parsing evidence requests to the data providing Member State and receiving the evidences from that data providing Member State.

The data transferor: The actor in the data providing Member State responsible for receiving the evidence requests from the data consuming Member state and returning the evidence to that data consuming Member State.

Table 34: partners responsible for common component implementation

MS	*eIDAS*		*OOP TS*	
	Authentication connector	**Authentication proxy**	**Data requestor**	**Data transferor**
ES	MPTFP-SGAD	MPTFP-SGAD	MPTFP-SGAD	MPTFP-SGAD
LU	CTIE	CTIE	CTIE	CTIE
PT	AMA	AMA	AMA	AMA
RO	MoAI	MoAI	MoAI	MoAI
SE	DIGG	SKV	SKV	SKV
SI	TBC	TBC	TBC	TBC

3.6.2 MS eIDAS components

Table 35: eIDAS components

Component	Role	Short description of its use
eIDAS connector	eIDAS connector	The component Member States implement to connect to the eIDAS network as a relying party. The connector accepts authentication requests from the service providers of the Member State and forwards the requests to the Member States that needs to authenticate the user. After authentication, the eIDAS connector receives the authentication results and sends them to the requesting service provider (relying party). The eIDAS connector can be implemented using CEF's reference software or a custom implementation compliant to the eIDAS interoperability specifications. The CEF reference software implements – besides the eIDAS SAML profile – also the JSON/REST eIDAS Light protocol to connect to national infrastructure.

Component	Role	Short description of its use
eIDAS proxy	eIDAS proxy	The component Member States implement to allow authentication with their (notified) eID for services provided in other Member States. The eIDAS proxy receives authentication requests from relying Member States, coordinates authentication and retrieval of legal person attributes. The eIDAS proxy then sends the result to the requesting eIDAS connector. Just like the eIDAS connector, the eIDAS proxy can be implemented using CEF's reference software or a custom implementation compliant to the eIDAS interoperability specifications. The CEF reference software implements – besides the eIDAS SAML profile – also the JSON/REST eIDAS Light protocol to connect to national infrastructure.

Table 36: eIDAS components Actions

MS Role*	eIDAS component	Preparatory action
Data Consumer could be Data Owner if eIDAS supported in USI pattern (Service Provider)	Authentication Connector	MA-AC-1 Connect to eIDAS proxies of piloting partners' Member States and confirm interoperability status
Data Provider	Authentication Proxy	MA-AP-1 Connect to eIDAS connectors of piloting partners' Member States

Table 37: eIDAS Gap Analysis

Member State	Specification of Gap (e.g. integration with DE Portal, configuration with other piloting MS…)
PT	eIDAS node is already integrated with FA- Fornecedor de Autenticação, the eGovernment Authentication Provider. FA is also integrated with ePortugal\Change of Address System. SEF system will integrate with the Autenticacao.Gov, the Authentication System which supports eIDAS authentication. However, some procedure or mechanism may be needed to enable non-PT European citizens to access SEF's legacy data using eIDAS eID. Also, the evidence broker exchange mechanism must be upgraded to support non-PT citizens' transfer of evidences. The Previewer also needs to be upgraded to support non-PT citizens.
RO	Romania (non.-not.) will not be an early adopter. In the second iteration, MoAI need to integrate eIDAS with the new digital civil state portal- -eProcedure
SE	Skatteverket/folkbokföringen need to integrate eIDAS with the eProcedure Invandringasanmälan
ES	eIDAS node is already integrated with MPTFP-SGAD
LU	Everything is already available, no gap exists. National eID card is notified in the context of eIDAS, the eIDAS node is up and running, eIDAS notified eIDs can already be used for

Member State	Specification of Gap (e.g. integration with DE Portal, configuration with other piloting MS…)
	authentication for any of the services offered by the MyGuichet platform of guichet.lu. The existing infrastructure and services will be reused as such.
SI	Under analysis

3.6.3 Common OOP TS components

The data requestor and the data transferor need to integrate the common OOP TS components, including the DE4A connector. Each member state may decide on which national level to implement these components. E.g. the data requestor may be data evaluator as well, but can also be a separate organisation, depending on national choices (see section 3.6.1). The components of the OOP TS that have been implemented nationally, need to be configured for use with the other pilot Member States. This requires exchange and configuration of certificates and meta-data. Furthermore, as the pilot member states use the Data Service Locator configuration file, this file needs to be populated with national DP-entries at the connector level.

Table 38: OOP technical system common components

Component	role	Short description of its use
Information Desk configuration file	Data requestor and data transferor	As the MA pilot's MVP uses just several type of evidence, with just one data provider per Member State (on NUTS0 level), there is no need for dynamic discovery of the data provider and its data services. For the pilot it is sufficient to use a simple configuration file with the required elements (Member State and participant id).
SMP	Data requestor and data transferor / central	For each evidence request and response, information on the receivers Access Point (URL) and its certificates are needed. Each Member State hosts an SMP for this purpose. Before sending a request or response, the sending party queries the SMP of the receiver to get this info. For initial testing purposes the SMP may be hosted centrally to ease implementation (to be decided by WP5).
DNS & SML	Data requestor and data transferor	As there are multiple SMP's, the sending party needs to know where to find the SMP of the receiver to get the actual metadata. This location can be found in the centrally CEF-hosted DNS, that will be queried by the access point of the sending Member State. DNS entries will be created from the registration of SMP's: the SML, which is also centrally hosted by CEF.
eDelivery AS4 gateway	Data requestor and data transferor	This component – also referred to as eDelivery access point – handles the secure transfer of the data, including encryption and decryption as well as signing/sealing and validating signatures/seals.
DE4A Connector	Data requestor and data transferor	The DE4A connector is the reference software that data requestors and data transferors can use to connect to the OOP TS. This eases the work by abstracting the communication with the components.

Table 39: eDelivery infrastructure components choices

Member state	AS4 Gateway (Default-Phase4 or Other – indicate product name and version)	SMP product name and version
ES	Phase4	Phoss SMP. Centrally hosted SMP for testing.
LU	For 1st iteration and as long as the online procedures are not used in production: Central eDelivery infrastructure and services provided in the context of DE4A WP5 For online procedures in production: a national, central eDelivery access point. Probably Domibus will be used.	For 1st iteration and as long as the online procedures are not used in production: Phoss SMP For online procedures in production: A national SMP solution
PT	Will use an existing Domibus installation already in place.	Centrally hosted SMP for testing. For second iteration, a product will be selected.
RO	Default gateway included with DE4A connector – for second iteration	Phoss SMP. Centrally hosted SMP for testing. – for second iteration
SE	Default gateway included with DE4A connector – for second iteration	Yet to be decided, may use the same SMP as Bolagsverket.
SI	TBD	TBD

Table 40: eDelivery infrastructure components Actions

Role	AS4 Gateway (Default-Phase4 or Other – indicate product name and version)	Preparatory Action
Data Consumer	Data requestor	MA-DR-1: Deploy and configure OOP TS common components: DE4A connector, eDelivery AS4 gateway and SMP. Configure DNS & SML. Populate ESL configuration file.
		MA-DR-2: Connect to eDelivery AS4 gateways of data transferors.
Data Provider	Data transferor	MA-DT-1: Deploy and configure OOP TS common components: DE4A connector, eDelivery AS4 gateway and SMP. Configure DNS & SML. Populate ESL configuration file.
		MA-DT-1:Connect to eDelivery AS4 gateways of data requestors.

Table 41: eDelivery infrastructure Gap Analysis

Member State	Specification of Gap (e.g. integration with DE Portal, configuration with other piloting MS…)
RO	The future implementation of eDelivery node will be configured to use the DE4A connector
SE	Tax agency will likely be acting as both DE and DR.

Member State	Specification of Gap (e.g. integration with DE Portal, configuration with other piloting MS…)
PT	The current implementation of eDelivery (Domibus) needs to be configured to have a domain for the DE4A connector to use. Connectivity tests with other MS also piloting.
ES	Implementation/configuration of DE4A connector, integration with DE Portal, and connectivity tests with other MS in the pilot.
LU	The eDelivery access point has to be connected to the MyGuichet platform in both directions, i. e. for the request of evidences (MyGuichet>eDelivery access point) as well as for the reception of evidences via the access point (Delivery access point>MyGuichet).
SI	TBD

3.7 National specific components

The data consuming Member States need to adapt their eProcedure portal to adapt their eService for online registration of foreign citizens data and to connect to the OOP technical system of their data requestor. The data providing MS should adapt the data service (in case it does not fulfil the data requirements of the MA pilot) and connect to the OOP technical system of their data requestors.

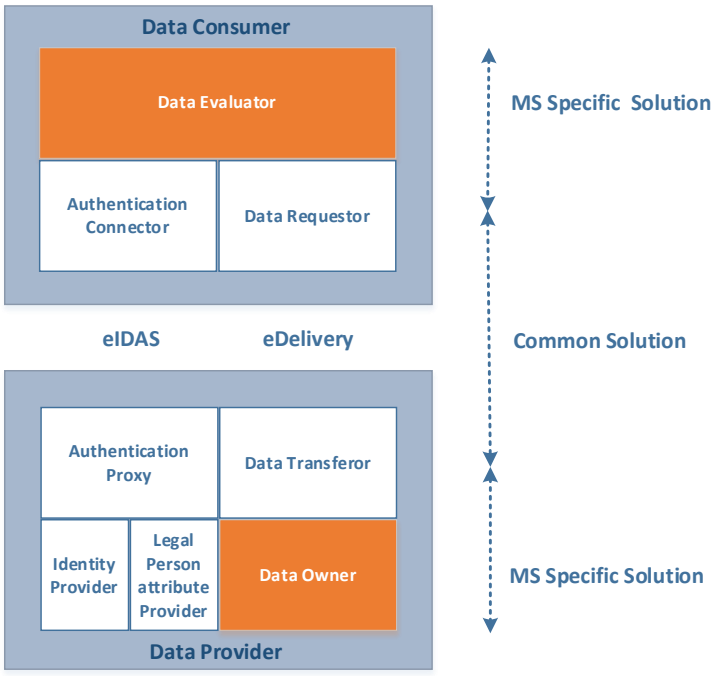


Figure 6 National End Point

OOP Technical system roles:

The data evaluator: The actor providing the eProcedure to the user. The data evaluator is the central role in coordinating the complete pilot procedure, interacting with the user and providing means to request and eventually complete the public service in the eProcedure portal.

The data owner: The actor owning and maintaining the personal data and evidences required by the public service and the eProcedure. The data owner hosts the data service.

Table 42: OOP National End-points

Component	Role	Short description of its use
eProcedure portal	Data evaluator	The eProcedure portal should be adapted to support the use of the cross-border evidence in the process. For that purpose it should facilitate the user in the OOP-process and connect to the OOP TS. Connection to the OOP TS is typically implemented via a Portal-to-OOP TS-interface that may utilise national OOP-protocols and infrastructure.
eProcedure backend	Data evaluator	The eProcedure backend handles all eProcedure specific logic. For the MA pilot this backend functionality remains unchanged. One addition to the backend may be a mapping between eIDAS and the id in the record.
Data service	Data owner	The data service of the data provider that will output the evidence requested.
Portal to OOP TS interface	Data owner	Member States may (but do not need to) implement an interface from national OOP protocols to the DE4A data model (DE4A connector).

Table 43: Partners Responsible for Specific Components Implementation

MS	Data evaluator	Data owner
LU	CTIE	CTIE
PT	AMA (DE+DR) is responsible for the Authorization System + Previewer + Evidence Broker SEF (DE)– for non-PT European citizens	AMA (DT) is responsible for the Authorization System + Previewer + Evidence Broker IRN (DO) - for PT citizens only (not participating in DE4A) SEF (DO)– for non-PT European citizens
RO	MoAI	MoAI
SE	N/A as only consumer	N/A
ES	MPTFP-SGAD	MPTFP-SGAD
SI	TBD	TBD

3.7.1 Sweden national applications

Table 44: National application details in Sweden

Component	National application(s)	Implementation	Description (MS-specific details/constraints)
eProcedure Portal frontend	Skatteverket.se/ folkbokforing	In development	Estimated in production 2022-01-04
eProcedure Portal backend	Folkbokforing		
Portal to OOP TS interface	Folkbokforing/Skatteverket/SSBTGU	To be developed	Parts of the infrastructure is in place.
Data service	N/A		Only DC

Data service to OOP TS interface	N/A		Only DC

DC design decisions

Next to the common assumptions as described in chapter 4, the following assumptions apply for the development of the National Infrastructure and integration with the OOP TS:

Table 45: National application design decisions Sweden

Application component	Change description	Change owner	Precondition	Release
Portal to OOP TS	Integration with the OOP TS will be implemented upon existing national infrastructure, SSBTGU.		Planning and scheduling TBD.	Final
	Final release to be added			

3.7.2 Romania national applications

In second iteration, Romania will implement the specific components, using the following applications:

Table 46: National application details in Romania

Component	National application(s)	Implementation	Description
eProcedure Portal frontend	The new digital civil state system. A dedicated portal will be set up for piloting, as there is currently no digital civil state system.	New	The national portal of the new digital civil state system. For the purpose of this pilot, a dedicated version of portal will be used.
eProcedure Portal backend	The new digital civil state system.	New	Same new digital civil state system as previous row. It will provide REST API.
	eIDAS connector	New	The interface between the new dedicated version of portal and the RO eIDAS-node.
Portal to OOP TS interface		New	The interface between the new MoAI-Portal and the OOP TS.
Data service		New	See information in previous rows.
Data service to OOP TS interface		New	The interface between the new digital civil state system and the OOP TS.

3.7.3 Spain national applications

Spain will implement the specific components, using the following applications:

Table 47: National application details in Spain

Component	National application(s)	Implementation	Description
eProcedure Portal frontend	Citizen Portal	New	An ad hoc implementation of a centralized point or 'Citizen Folder' will be required.
eProcedure Portal backend	Citizen Portal	New	An ad hoc implementation of a centralized point or 'Citizen Folder' will be required.
Portal to OOP TS interface	-	New	Will require access to interactions with DE4A through the MPTFP-Data Intermediation Platform.
Data Service	MPTFP-SGAD (DIP) Data Intermediation Platform	Existing	A secure API to retrieve average grades for a student with a degree will be deployed. Will require access to interactions with DE4A through the centralised Spanish intermediation platform to be developed.
Data service to OOP TS interface	MPTFP-SGAD	New	Evidence Broker (DIP) Data Intermediation Platform will connect to OOP TS interface.

3.7.4 Portugal national applications

AMA is responsible for the national evidence broker, as well as for the previewer portal and the Authorization System. So, AMA plays the roles of Data Evaluator and Data Requestor on the Data Consumer side. Also, AMA plays the role of Data Transferor on Data Provider side.

For the PT citizens, AMA is also responsible for the Change of Address system, playing the role of DE when consuming the cross-border evidences. IRN, who is not participating in the project, is the DO of PT citizens' data.

For non-PT European citizens, SEF plays both the roles of DO and DE (in what refers to consuming evidences) in coordination with AMA playing the roles of DE (authorization, previewing and brokering), DR and DT.

Table 48: National application details in Portugal

Component	National application(s)	Implementation	Description (MS-specific details/constraints)
eProcedure Portal frontend and backend	SAM – Change of Address System (only PT citizens)	Existing but to be updated	Will not use cross-border evidences. But will notify cross-border coming from system on eProcedure end.
eProcedure Portal frontend and backend	SEF system (non-PT citizens)	Existing but to be updated	Authorization System will integrate with eProcedure portal.

			SEF eProcedure Portal will connect to Evidence Broker. Will notify cross-border coming from system on eProcedure end.
Portal to OOP TS interface	Evidence Broker + Authorization System (IM) + Previewer (IM)	Existing but to be updated	Evidence Broker will connect to OOP TS interface. Authorization System will integrate with eProcedure portal.
Data service	Evidence Broker + Authorization System + Previewer	Existing Evidence Broker and Authorization System to be updated. New Previewer.	Data Services will connect to Evidence Broker. New asynchronous previewer will be implemented. Authorization System will integrate with new asynchronous Previewer.
Data service to OOP TS interface		Existing but to be updated	Evidence Broker will connect to OOP TS interface. SEF Data Services will connect to Evidence Broker.

DC design decisions

The following assumptions apply for the development of the National Infrastructure and integration with the OOP TS:

Table 49: National application design decisions Portugal as DC

Application component	Change description	Change owner	Precondition	Release
eProcedure Portal frontend and backend - SAM	Will not use cross-border evidences. But will notify cross-border coming from system on eProcedure end.	AMA		Final
eProcedure Portal frontend and backend – SEF System	Authorization System will integrate with eProcedure portal. SEF eProcedure Portal will connect to Evidence Broker. Will notify cross-border coming from system on eProcedure end.	SEF	Planning and scheduling TBD.	Final
Portal to OOP TS interface	Evidence Broker will connect to OOP TS interface. Authorization System will integrate with eProcedure portal.	AMA SEF	Planning and scheduling TBD.	Final
Evidence Broker (iAP)	Setup the Broker to act as Data Requestor, providing central point for requesting evidence cross-border.	AMA	Planning and scheduling TBD.	Final

Application component	Change description	Change owner	Precondition	Release
	Allow the Broker to deliver evidence obtained cross-border to the Data Evaluators.			

DP design decisions

Next to the common assumptions as described in Chapter 4, the following assumptions apply for the development of the National Infrastructure and integration with the OOP TS:

Table 50: National application design decisions Portugal as DP

Application component	Change description	Change owner	Precondition	Release
Data service	IRN's Data Service will connect to Evidence Broker.	AMA		First
Authorization System	The Authorization System will be updated with trace capabilities and will be integrated with the new asynchronous previewer. This will have a web interface to allow for preview and consent on a browser portal.	AMA		First
Data service	SEF's Data Services will connect to Evidence Broker.	AMA SEF		Final
Data service to OOP TS interface	Evidence Broker will connect to OOP TS interface.	AMA		First
Evidence Broker (iAP)	Allow for messages received by DE4A Connector to be sent to Authorization System Allow for reply messages to be sent to DE4A Connector after user consent.	AMA		First

3.7.5 Luxembourg national applications

Table 51: National applications Luxembourg

Component	National application(s)	Implementation	Description (MS-specific details/constraints)
eProcedure Portal frontend	MyGuichet platform of guichet.lu	Existing	
eProcedure Portal backend	MyGuichet platform of guichet.lu	Existing	
Portal to OOP TS interface	MyGuichet platform of guichet.lu	Has to be implemented	

Data service	Register of physical persons	Existing	
Data service to OOP TS interface	MyGuichet platform of guichet.lu	Existing	No direct connection will exist between any data service (evidence provider) and the OOP TS interface. All communication will pass through the intermediate layer of the MyGuichet platform which can already nowadays access the authentic sources, i.e. the data services.

4 Pilot implementation activities

To implement the pilot as designed in chapter 3, pilot partners need to develop, customize, adapt, deploy, configure and connect software. Furthermore, they need to test the components deployed and test the integration of components nationally and cross-border. Finally, pilot partners need to involve real users to the pilot – requiring a user involvement strategy as well as carefully selecting and reaching out to users.

This chapter specifies all activities needed to do so in a pilot-generic way. Chapter 5 specifies the milestones that collectively need to be reached in order to pilot cross-border successfully, including the time-lines to follow. Chapter 6 includes the tasks by which that Member State performs the activities specified in this chapter within the timeliness dictated in chapter 5.

4.1 Common components customization and integration

4.1.1 eIDAS

The authentication connector role (in the Member State of the data consumer) needs to deploy the dedicated eIDAS node and needs to be configured to connect to the eIDAS proxies of the other member states. Furthermore, the authentication proxy role (in the Member State of the data provider) needs to deploy the eIDAS proxy service and connect a national (preferable notified) eID. The eIDAS proxy service needs to be configured as well.

Table 52: eIDAS customization and integration activities

Member state	Role	Activity id	Activity	Description
Data consumer	Authentication connector	MA-AC-1	Deploy and configure eIDAS connector	Connect to eIDAS proxies of piloting partners' Member States and confirm interoperability status
		MA -AC-2	Connect to eIDAS proxies of piloting partners' Member States	The eIDAS connector that is deployed under task MA-AC-1 is set up to connect to the proxies of the pilot eIDAS nodes from the other Member States that participate in the MA pilot. This activity includes confirming with other Member States that eIDAS interoperability works.
Data provider	Authentication proxy	MA-AP-1	Deploy and configure dedicated eIDAS proxy	Member states connect to the regular eIDAS network for piloting purposes
		MA-AP-2	Connect to eIDAS connectors of piloting partners' Member States	The eIDAS proxy that is deployed under task MA-AP-1 is set up to connect to the connectors of the eIDAS nodes from the other Member States that participate in the MA pilot. This activity includes confirming with other Member States that eIDAS interoperability works.

4.1.2 OOP Technical system

The data requestor and the data transferor need to implement the common OOP TS components, including the DE4A connector. Each member state may decide on which national level to implement these components. E.g. the data requestor may be data evaluator as well, but can also be a separate organisation, depending on national choices. The components of the OOP TS that have been implemented nationally, need to be configured for use with the other pilot member states. This requires exchange and configuration of certificates and meta-data. Furthermore, as the pilot member states use the Evidence Service Locator configuration file, this file needs to be populated with national DP-entries.

Table 53: OOP technical system customization and integration activities

Member state	Role	Activity id	Activity	Description
Data consumer	Data requestor	MA-DR-1	Deploy and configure OOP TS common components: DE4A connector (including the eDelivery AS4 gateway) and SMP. Configure DNS & SML. Populate ESL configuration file.	For requesting and receiving the evidence, data requestors need to implement the DE4A connector as provided by WP5. The DE4A connector includes a default AS4 gateway, but Member States may choose to use a separate AS4 gateway and connect this gateway to the DE4A Connector. This activity also deploys the SMP (Member States may choose to use a central SMP for testing) as well as configuration activities.
		MA-DR-2	Connect to eDelivery AS4 gateways of data transferors.	The AS4 gateways of the data requestors need to be connected to the AS4 gateways of the data evaluators. This requires exchange and configuration of meta data and certificates. This task also includes testing whether cross-border connectivity works.
Data provider	Data transferor	MA-DT-1	Deploy and configure OOP TS common components: DE4A connector, eDelivery AS4 gateway and SMP. Configure DNS & SML. Populate ESL configuration file.	See MA-DR-1. The data transferors need to deploy and configure the same common components as the data requestor to receive evidence requests and send the evidence requested.
		MA-DT-2	Connect to eDelivery AS4 gateways of data requestors.	See MA-DR-2 This requires exchange and configuration of meta data and certificates. This task also includes testing whether cross-border connectivity works.

4.1.3 Trust infrastructure (certificates)

Since the ground of each pilot with regards to trust certificates is the same, this section in each pilot planning deliverable will be identical. While this creates this duplication in the content of the deliverables, it also ensures that the documents can be read and understood as stand-alone file.

In order to protect the data whenever the entities in DE4A send or receive information, it is necessary to use mechanisms that guarantee the secure communication. Transport Layer Security (TLS) will be use as the main protocol, which establishes an encrypted session between two endpoints in data transmission and uses digital certificates to help verify the identity of the servers.

Depending on the type of deployment chosen by the MS regarding the eDelivery AS4 gateway, external to the DR/DT or integrated provided within the DE4A connector, it is possible to have the different options. As it is shown in the following Figure 7, the internal communication between the entities of each DC (DR and DE) or each DP (DT and DO) could be securely protected by TLS or another existing way depending on the MS infrastructure available.

It is worth to mention, AS4 messages are encrypted and signed on the protocol level (using the possibilities of the WS-Security 1.1.1 specification) and by governance the usage of TLS 1.2 or later on the transport layer (with strong cipher suites only) is required , based on the CEF eDelivery AS4 profile. In case of the SMP component, each SMP must have certificate from the same SMP root certificate (CEF PKI for testing) configured as a client certificate for the communication with the SML, as client certificate for the communication with the DE4A connector and as an XML signing certificate for its REST responses.

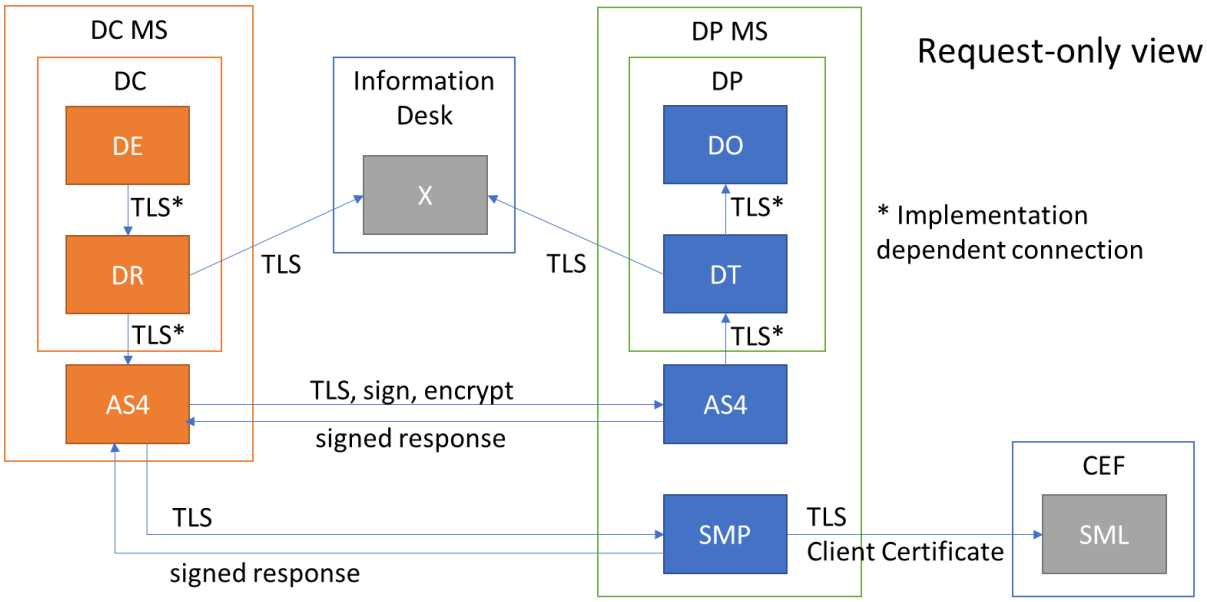


Figure 7: Secured data transmission with AS4 gateway

As a summary of these two figures, the information of the certificates needed can be found in the following table:

Table 54: Trust Infrastructure to set up

Purpose/Server	Responsibility	Certificate usage	Certificate source
DC: DE	MS/DC	TLS	Up to MS (guided by DE4A)
DC: DR	MS/DC	TLS	Up to MS (guided by DE4A)
DP: DT	MS/DP	TLS	Up to MS (guided by DE4A)
DP: DO	MS/DP	TLS	Up to MS (guided by DE4A)
eDelivery/AS4	MS/DC, MS/DP	TLS	Up to MS (guided by DE4A)
eDelivery/AS4	DE4A (test & production)	Sign/Encrypt	Test: DE4A PKI Production: Commercial PKI
eDelivery/SMP	MS/DC/DP	TLS	Up to MS (guided by DE4A)
eDelivery/SMP	DE4A (production), CEF (test)	Sign	Test: CEF PKI Production: Commercial PKI
eDelivery/SML	CEF	TLS	Outside of DE4A scope

Based on the different stages of the pilot, two different PKIs will be used: test, prior to the pilot launch, and production, during the pilot running phase. For each of these stages a separate PKI will be used, separated in AS4 and SMP certificates, as shown in Figure 8.

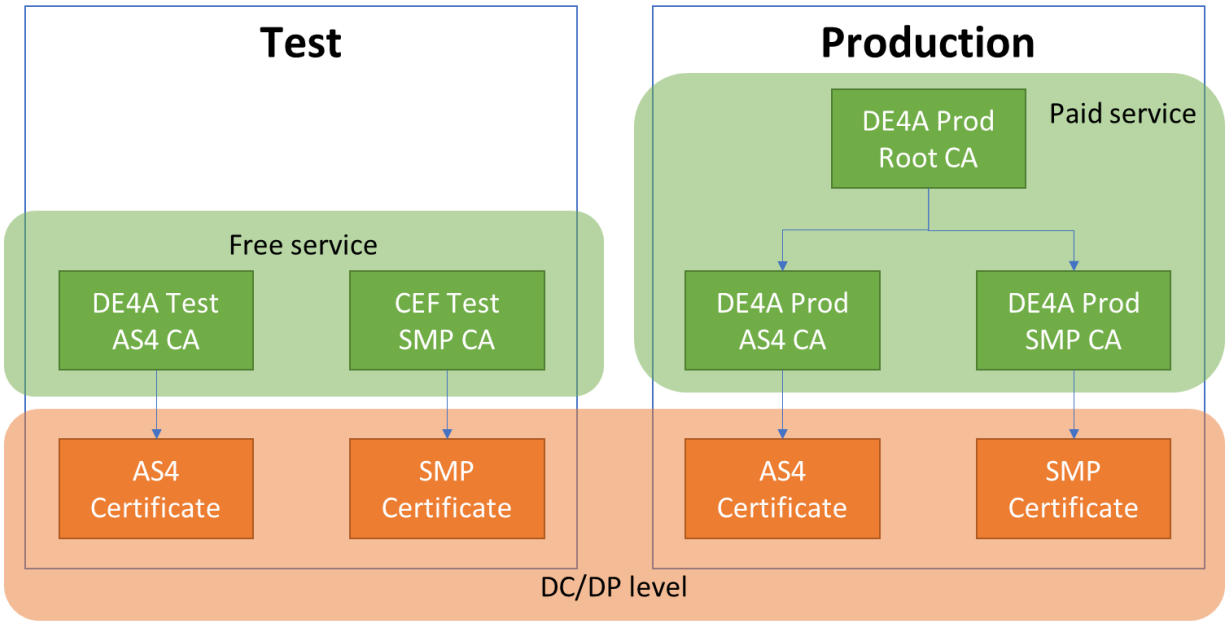


Figure 8: DE4A PKI Layout proposal

The setup for DE4A Test PKI for AS4 exchanges will be provided and maintained by one of participant of the consortium (eGovlab) and new certificates can be retrieved free of charge. In case of the SMP, CEF provided DE4A with ten test certificates based on an internal CEF PKI, with the strict requirement that DE4A will use an external CA.

For the setup of production environment, the PKI will be based on a globally trusted PKI and cannot be self-signed, but it will be discussed during the preparation activities. The production CA for the SMP must be aligned with the requirements of CEF for usage in the SML

Table 55: OOP Trust Infrastructure Configuration Activities

Member state	Role	Activity id	Activity	Description
Data consumer and data provider	Data requestor and data transferor	MA-TR-1	Acquire required (PKI) certificates	The data requestor and transferor need to have all certificates needed to integrate to other Member States in a safe way.

The data requestor and transferor need to receive the (public parts of) the certificates of the other Member States to connect. Furthermore, as it was stated, each MS needs to configure the national AS4 gateway.

4.2 Specific component customization and integration

In the authentication domain, data consuming Member States should adapt their eProcedure portals to invoke the dedicated eIDAS connector (instead of the regular eIDAS connectors). In the data providing role, Member States must integrate their national eIDs.
Furthermore, the data consuming Member States need to adapt their eProcedure portal to adapt their eService to the OOP technical system of their data requestor. The data providing member state should adapt the data service and connect to the OOP technical system of their data requestors.

4.2.1 eProcedure portal (Data Evaluators)

The eProcedure portal is the main component in piloting. The eProcedure portal needs to be extended to allow request of evidences from the OOP technical system and implement explicit request and preview redirect.

Table 56: eProcedure Portal Adaptations

Member state	Role	Activity id	Activity	Description
Data consumer	Data evaluator	MA-DE-1	Adapt the eProcedure portal for piloting	Optionally set up a pilot portal (real data, real users) Add eIDAS login option for users Show the user that he/she has successfully logged authenticated Suggest the user to apply for a service If not, ask the user to explicit request to use the Technical system for direct retrieval of the data Inform user of evidence to be retrieved, ask DP country to user [Internal business: launch evidence request, redirect use, get evidence response => MA-DE-3] After approval of the evidence, start pre-filling the registration form (optional)

Member state	Role	Activity id	Activity	Description
				Allow the user to add missing values needed Ask the user to confirm public service request
		MA-DE-2	Connect the eProcedure portal to the dedicated eIDAS pilot connector to send authentication requests and receive the authentication results.	This activity includes: Invoke pilot eIDAS connector Receive authentication result Receive authentication failed message and allow for re-authentication
		MA-DE-3	Connect the eProcedure portal to national OOP TS implementation (DE4A connector) to request an evidence and to receive the evidence.	The pilot eProcedure Portal must request the National DE4A Connector for information (evidence) on a citizen in another country. The request must be formatted and addresses according to the specifications of the DE4A connector and uses the eIDAS attributes to identify the user (that was received from the eIDAS node after having successfully authenticated and authorized the user). The eProcedure Portal must be able to receive and process the reply of the National DE4A Connector, being either an error message (unsuccessful) or the requested evidence, formatted according to the MA data model. The evidence could after received be displayed to the user where the user can allow the Data Evaluator to use the received information for the online procedure. This activity includes: Send an evidence request to the DE4A connector Receive and validate the evidence from the DE4A connector (Receive an error message and inform the user. Allow for re-requesting the evidence).

4.2.2 Evidence services (Data Owners)

The data owners in the pilot have to provide the canonical evidence that the data evaluators need to complete the public service requests included in the MA pilot. All data providers are able to provide at least the mandatory data elements of the evidence type. In all cases they need to transform national data definitions to the harmonized canonical evidence type as defined in this pilot. Furthermore, they need to connect their data service to the OOP technical system.

Table 57: Data Service Adaptations

Member state	Role	Activity id	Activity	Description
Data provider	Data owner	MA-DO-1	Adapt the data service for providing the canonical evidence.	This activity includes: Authenticate user Retrieve domestic evidence (record matching) Provide preview Ask if user agree to transfer evidence to requestor Transform domestic evidence to canonical evidence definition Construct evidence response message
		MA-DO-2	Connect the data service to the national OOP TS implementation (DE4A connector) to receive an evidence request and send the evidence.	This activity includes: Receive and validate evidence request Send evidence (send error message)

4.3 Testing

MA pilot testing will take a staged approach, to ensure that the functionality of individual components and the integration with the other components are also validated and not only the full use case functionality. MA pilot testing will be organised by:

- Pilot iteration: starting with the first pilot iteration in 2021 and the second in 2022.
- Milestone: each eIDAS / OOP TS milestones defines a coherent set of functions to deliver. For achieving each of the planned milestone (see chapter 5), the components required will be tested (Agile approach).
- Type of testing: there are many pieces to the puzzle that need to fit before the whole can be validated and viewed, therefore, MA will test individual component first, then test the integration of components on a national level followed by cross-border integrating testing and full use case testing to conclude.

Successfully finalising the testing activities is one of the important go-live criteria for starting the pilot running phase. This does not mean that all the issues have been solved. As a minimum at least all the blocking issues must have been solved prior to going live. Failures discovered by testing will be classified to severity categories, which will be the basis for assignment of the priority for fixing the issue. It will be agreed what is the acceptable threshold in order to accept batch of tests (if the

threshold is not passed the testing will need to be repeated once the issues have been fixed). Some test cases can be specific for the pilot use cases (designed by the pilot) while others will be for common functionalities (e.g. connectivity tests).

Table 58: Type of Testing

Phase	Type of testing	Actor
Customization & integration	Component testing	1 Member State
	National integration testing	1 Member State
	Cross-border integration testing	2 Member States
	Functional use case testing	2 Member States
Running phase	Validating pilot use case[2]	2 Member States
	Applying for the eServices	Companies

Within the D4.10 MA Pilot Planning, the following is assumed regarding the testing activities:

All common components have been adequately tested by the partner responsible. Meaning that WP3/WP5 has tested the common components of the OOP technical System. Connectivity will be demonstrated on DE4A project level in the playground first. After successful connecting in the playground, MA pilot Member States will deploy the components and perform national and cross-border integration testing.

Member States responsible for their specific components take care of adequately testing their components and national integration without interference of the other Member States. Member States do not need to provide formal proof of national testing to the other Member States.

In national integration testing Member States will use a mock of the DE4A connector to simulate a cross-border request/answer.

Cross-border testing requires national testing to be completed successfully.

4.3.1 Objectives

The goal of testing the MA pilot is to ensure the use cases have been implemented as specified in the test cases. The functioning of the use cases will be demonstrated by:

1. Logs with the intermediate result of each step and used component, to demonstrate that information is handled and transported adequately by the individual components. Or to demonstrate the errors are invoked as designed (negative testing is important as well).
2. Screen shots showing successful change of address and certificates registration and visual proof of the information provided to the user in case of non-happy flows.
3. Recorded witness sessions, making a screen recording of a successful execution of the use case.

The testing results will be reported in the MA testing report (internal deliverable), distinguishing between the Member State combinations that will be tested, e.g. a user from The Portugal can use an eProcedure in Romania and Sweden and a user from Romania can access an eProcedure in the Portugal and Sweden, etc.

The MA solution consists of two relatively independent flows: eIDAS for authentication and OOP for exchange of data evidence. Both converge at the data evaluator that coordinates the eProcedure. Implementation of the eIDAS and the OOP components both follow their own timelines, as will be described in Chapter 5. Therefore, testing of both solutions will be organized separately to prevent unnecessary dependencies.

[2] The goal of this type of testing is to ensure the pilot use case is up and running before inviting representatives of companies to apply for the eProcedures.

- eIDAS testing: these test activities focus on testing the eIDAS authentication flow, starting from the eProcedure portal with an authentication request and ending back at the eProcedure portal with a successful authentication from the data providing Member State.
- OOP testing: these test activities focus on testing the data retrieval via the OOP technical system. The test flow starts with the eProcedure portal requesting a moving data evidence and ends with the portal registering the moving data in the eProcedure portal database.

Functional use case testing and cross-border production testing will test both eIDAS and OOP TS combined. See the next section.
Testing will use fictitious data and fictitious persons. Pilot running will be using real data and real persons as appropriate.

4.3.2 Types of testing

This section elaborates on component testing, national integration testing, cross-border integration testing and functional use-case testing.

Component testing

Component testing is validating correct operation of an individual component. This test focusses on the processing within a component, validating the outputs of the component, given the inputs provided. Component testing in principle involves only the entity (organisation/work package) responsible for providing the component.

Components involved:

1. The individual component to test, e.g. the eProcedure portal.

National integration testing

Integration testing is validating the correct interaction between two or more components. This type of testing does not focus on the inner workings of a component, but on the cooperation of components in as defined in Chapter 3 This requires involvement of two or more components that have been linked together. Integration testing starts with a 'smoke test' to check whether the connectivity of the components has been configured properly. It ends with testing all functions that the components together should provide.

National integration testing checks whether the components integrate adequately on a national level, e.g. whether the eProcedure portal can successfully request an evidence and process the result. This is a national responsibility. For this purpose the Member State uses WP5-stubs to simulate cross-border interaction.

Components involved:

1. DC Member State national integration testing components:
   a. eIDAS flow:
      - simulated eProcedure portal
      - eProcedure portal to eIDAS interface
      - eIDAS connector
      - stub of foreign eIDAS proxy
   b. OOP TS flow:
      - simulated eProcedure portal
      - eProcedure portal to OOP TS interface
      - DE4A connector
      - stub of foreign DP DE4A connector

2. DP Member State national integration testing components:
   a. eIDAS flow:
      - Simulated IdP/AP
      - eIDAS proxy
      - stub of cross-border eIDAS connector
   b. OOP TS flow:
      - data service
      - data service to OOP TS interface
      - DE4A connector
      - stub of foreign DC DE4A connector

Cross-border integration testing

Cross-border integration testing focusses on communication between two or more Member States. Ideally, national and cross-border integration testing will be executed sequentially: national testing first and then cross-border testing. In practise, this will not be feasibly and not strictly necessary. There will be overlap in testing both types. Therefore, it is crucial to quickly assess the origin of issues encountered in testing. Issues in national integration should be solved by Member States individually. Cross-border issues require cooperation of at least two Member States. For this purpose, the MA pilot will set up an arrangement for proper issue tracking in JIRA. Issues will be categorised in "national" and "cross-border".
Testing eIDs that correspond to fictitious companies are being exchanged between Member States to enable cross-border integration testing of the eIDAS network and the OOP technical System. The eIDs should be configured to represent companies of which data can be retrieved from the data owner.
Components involved:

1. eIDAS flow cross-border integration testing components:
   - simulated eProcedure portal (DC)
   - eIDAS connector (DC)
   - eIDAS proxy (DP)
   - simulated IdP/AP (DP)
2. OOP TS flow cross-border integration testing components:
   - simulated eProcedure portal (DC)
   - eProcedure portal to OOP TS interface (DC)
   - DE4A connector (DC)
   - DE4A connector (DP)
   - data service to OOP TS interface (DP)
   - data service with real or fictitious data (DP)

Functional use case testing

After successful cross-border integration testing, Member States will test the use case functionally. In a functional use case test, two Member States (one DC and one DP) will test the use case scenarios from the perspective of the citizen applying for the service. This type of testing addresses the happy as well as the non-happy flows. By successfully functional testing, the two Member States have ensured they can go-live.

Components involved:

1. DC components:
   - *simulated* eProcedure portal
   - eIDAS connector
   - eProcedure portal to OOP TS interface
   - DE4A connector

2. DP components
    - data service with real or fictitious data
    - data service to OOP TS interface
    - DE4A connector
    - eIDAS proxy
    - *simulated* IdP/AP (DP)

Cross-border production testing

Please note that after Go-live, the production deployment needs to be validated to check whether all connections are up and running and deployment is successful. This is the last testing activity before running the pilot. As this is "production" a real citizen needs to be involved with a real eID.

Components involved:

1. DC components:
    - *real* eProcedure portal
    - eIDAS connector
    - eProcedure portal to OOP TS interface
    - DE4A connector
2. DP components
    - data service with real data
    - data service to OOP TS interface
    - DE4A connector
    - eIDAS proxy
    - real IdP/AP (DP)

Section 4.3.7 specifies the test cases for testing MA.

4.3.3 Testing responsibilities

The responsibilities for component testing are as follows:

Table 59: Component Testing Responsibilities

Domain	Component	Role responsible for testing
eIDAS	eProcedure portal (eIDAS functions)	Data evaluator
	eIDAS connector	Authentication connector: deployment and configuration
	eIDAS proxy	Authentication proxy: deployment & configuration
OOP TS	eProcedure portal (OOP functions)	Data evaluator
	Data service	Data owner
	OOP TS common components	WP5: software components Data requestor and data transferor: deployment & configuration (support by WP5)

The responsibilities for national integration testing are as follows:

Table 60: National integration testing responsibilities

Domain	Aspect of Integration	Role responsible for testing
eIDAS	eProcedure portal to eIDAS integration	Data evaluator
	IdP to eIDAS integration	Authentication proxy
	AP to eIDAS integration	Authentication proxy
OOP TS	eProcedure portal to OOP TS integration	Data evaluator (support by WP5)
	Data service to OOP TS integration	Data owner (support by WP5)

The responsibilities for cross-border integration testing are as follows:

Table 61: Cross-border Integration Testing Responsibilities

Domain	Role responsible for testing
eIDAS	National test coordinators with support of MA pilot lead.
OOP TS	National test coordinators (support of WP5).

National integration testing requires national coordination by the partner leading the DE4A MA participation in that Member State. The national coordinator is responsible for aligning with the other Member States in cross-border testing as well. The national test coordinator is responsible for the functional use case testing as well.

Table 62: National Test Responsible

Member State	National test coordinator
RO	MoAI
SE	SKV
ES	MPTFP-SGAD
SI	TBD
LU	CTIE
PT	AMA

4.3.4 Use of mocks and stubs

For testing purposes the MA pilot expects testing facilities to be provided by WP3/WP5:

- Mock of the DE4A connector to test DE and DO connections to the OOP TS. The mock should simulate the common OOP TS components, to be able to process/send evidence requests and issue/process evidence responses.
- Mock of the DE and DO to allow the Member State to validate its deployment and configuration of the DE4A connector.
- Hosted DE and DO to validate national setup including real connections.
- JAVA Client libraries for (un)marshalling the XML messages.

Furthermore, MA expects WP5 to:

- support for deployment of the OOP TS common components, especially with regards to installation and configuration of meta-data and certificates.
- organise Connectathons to validate OOP TS connectivity between the pilot Member States.
- operate and support the playground as testing environment including centrally hosted SMP and eDelivery gateway.

4.3.5 Bug tracking

Bugs will be discovered throughout the testing phase. The project will maintain two environments for tracking bugs:

1. The DE and DO existing tracking tool. This will be used for recording all bugs that are found within the service that are not related to DE4A common components.
2. The JIRA environment. This will be used for tracking all bugs that are discovered and that relate to the DE4A common environment. Recording of these bugs will require the Pilot number and the severity recorded against them.

The following table lists the severity definitions used to classify defects.

Table 63: Defect Severity Definitions

Severity	Description of Severity
P1	**Critical** – the system is broken and cannot be used, major functionality is impaired, or there is data loss. There are no workarounds
P2	**Major** – the fault renders several system elements unusable, or affects one or more system elements. Workarounds exist which may be unacceptable to the customer.
P3	**Minor** – the fault affects system elements that are not key to the overall functionality of the system or operation of the Departments day-to-day business. The system continues to produce correct results and data is not affected. Acceptable workarounds for the end customer may exist.
P4	**Trivial** – this fault barely affects the quality of a system and will only be fixed if time permits.

JIRA issues will be discussed in regular bug tracking meetings to be organized by the MA test coordinator.

4.3.6 Testing activities

This section defines by which testing activities MA testing will be done and what meetings (‘events’) will be organised at pilot level. Components testing and national integration testing have been left out, as these are considered to be specific for the Member State and do not require cross-border involvement.

Table 64: Test Activities

Activity id	Activity name	Description
MA-TE-1	Cross-border integration testing of eIDAS nodes, including IdP	This testing activity focusses on validating eIDAS node connectivity between the MA Member States. It will use mocks of the eProcedure portal ('DE mocks') to initiate authentication and use the connected Identity Providers for natural person authentication.
MA-TE-4	Cross-border integration testing OOP TS components	In this testing activity two MS will validate the connectivity of the OOP TS components deployed. They will use the DE and DO mocks for testing.
MA-TE-5	Cross-border integration testing OOP TS components, including eProcedure portal and data service.	In this testing activity the connectivity tests are extended to more MS. Furthermore, the eProcedure portals and data services are included in integration testing.
MA-TE-6	Functional use case testing	This testing activity checks whether all functionality required by the MA pilot works as specified.
MA-TE-7	Cross-border production testing	This activity checks whether the functionality has been deployed, connected and configured as intended in the pilot running environments of the pilot partners. This is a requirement to go-live.

Some of the events below will be organised on a per-milestone basis.

Table 65: Meeting Frequency

Event id	Event	Description	Frequency
1	Kick-off testing meeting	Initial Testing meeting to introduce all the testing coordinators from the Pilot Member States and plan the subsequent meetings.	Once
2	Cross border bug/findings tracking meetings	Regular "stand-up" meeting, involving testing coordinators of the Pilots and WP5 representative, to discuss the status of issues found and the steps to resolve (WP5 representative is not required for the eIDAS milestones)	weekly
3	National bug/findings tracking meetings	Regular meetings within the Pilot Member State to track issues found and their resolution. WP5 representative only when required.	Weekly (national meetings)
4	Bi-weekly Readiness meetings (Country reporting on national integration testing)	Test coordinators come together to report on their progress of the national implementation and testing results of component and national integration testing. Goal is to be able to be aligned and be able to plan the connectathon meetings.	Bi-weekly

Event id	Event	Description	Frequency
5	Cross-border connectathons with Pilot Participants (eIDAS)	Scheduled meetings to validate connectivity for eIDAS and hands-on resolve potential issues in configuration(s). Test Coordinators and actual eIDAS Node Operators that can correct configuration issues during the connectathons. Goals is to ensure all eIDAS Node connections between the various Member States work properly. Evidence of the proper functioning of the eIDAS system is also gathered during these meetings.	Once or twice per milestone
6	Cross-border Connectathons with Pilot Participants (OOP TS)	Scheduled meetings to validate connectivity for OOP TS and hands-on resolve potential issues in configuration(s). Test Coordinators and actual OOP TS Operator resources that can correct configuration issues during the Connectathons. Goals is to ensure all OOP TS connections between the various member-states work properly. Evidence of the proper functionality of the workings of the OOP TS system is also gathered during these meetings.	Once or twice per milestone
7	Joined functional Use Case Testing workshops (Running all scenarios, together with all participating Pilot members)	After successful completion of the cross-border integration tests, these meetings are used to execute all the Use Case scenarios with the whole active eIDAS/ OOP TS system. Test Coordinators form at least two pilot Member States, perform this together. During the meeting the evidence of correct functioning of the use case is captured and secured. The goal is to deliver all the evidence as input for the Test Report	At least once per DC-DP combination.
8	Testing Results review meetings	Review the Test Report and results and if possible retest if in the first meeting some scenarios had finding/bugs.	At least once per DC-DP combination.
9	Construct Test Report	Write and provide the final version of the Test Report	Once

4.3.7 Test cases

This section provides a draft of the test cases that need to be performed for each of the milestones, including the components involved, the use of mocks, the types of testing involved and any pre-conditions that may apply.

Table 66: Test eIDAS Milestone 1

eIDAS milestone 1: eIDAS for natural persons up and running	
Components involved	▸ eIDAS connector ▸ eIDAS proxy ▸ IdP
Mocks to use	▸ DE mock for requesting a natural person authentication and receiving the results. ▸ Please note: this DE-mock will not be provided by WP5. It needs to be developed by the Member State itself if not already available.
Type(s) of testing	Cross- border integration testing
Pre-conditions	▸ Component testing without blocking issues (eIDAS connector, eIDAS proxy, IdP). ▸ National integration testing without blocking issues: DE mock integration to eIDAS connector and IdP integration to eIDAS proxy.
Test cases	▸ Authentication successful ▸ Authentication failed ▸ Authentication cancelled by user

Table 67: Test Cases OOP Milestone 1

OOP TS milestone 1: “Hello Europe” in lab	
Components involved	OOP TS components: ▸ DE4A connector ▸ Optional external eDelivery AS4 gateway ▸ SMP ▸ DNS & SML ▸ ESL configuration file
Mocks to use	▸ DE-mock ▸ DO-mock
Type(s) of testing	Component and integration testing by WP5.
Pre-conditions	This milestone is WP3/WP5 internal. No direct MA involvement.
Test cases	This milestone is WP3/WP5 internal. No direct MA involvement.

Table 68: Test Cases OOP TS Milestone 2

OOP TS milestone 2: "Hello Europe" between two connected Member States	
Components involved	OOP TS components: ▸ DE4A connector ▸ Optional external eDelivery AS4 gateway ▸ SMP ▸ DNS & SML ▸ ESL configuration file
Mocks to use	▸ DE4A connector mock (as step-up for deployment of the real DE4A connector) ▸ DE-mock ▸ DO-mock
Type(s) of testing	Cross-border integration testing (2 Member States)
Pre-conditions	▸ No blocking issues in OOP TS milestone 1 testing. ▸ Component testing on the OOP TS common components has been successful in both Member States. ▸ National integration testing on the deployment of the common components has been successful (DE mock – DE4A connector, DO-mock – DE4A connector) in both Member States.
Test cases	Connection test

Table 69: Test Cases OOP TS Milestone 3

OOP TS milestone 3: full scale cross-border communication for all Member States	
Components involved	Specific components: ▸ eProcedure portal front-end and back-end ▸ Portal-to-OOP-interface ▸ Data service ▸ Data service to OOP TS interface OOP TS components: ▸ DE4A connector ▸ Optional external eDelivery AS4 gateway ▸ SMP ▸ DNS & SML ▸ ESL configuration file
Mocks to use	▸ DE mock (to test connection of real DO) ▸ DO mock (to test connection of real DE) The final tests for this milestone should be performed without mocks.
Type(s) of testing	Cross-border integration testing (all Member States)
Pre-conditions	▸ OOP TS Milestone 2 testing without finished without blocking issues (cross-border testing with 2 Member States successful): common OOP TS components mature enough for use by all Member States ▸ National integration testing on the deployment of the common components has been successful (DE mock – DE4A connector, DO-mock – DE4A connector) in all Member States

	▸ Component testing of eProcedure portal and data service without blocking issues. ▸ National integration testing of eProcedure portal and data service without blocking issues integration testing of: ▸ eProcedure portal front-end, eProcedure portal back-end, portal-to-OOP-interface and DE4A connector ▸ data service, data service-to-OOP TS interface and DE4A connector
Test cases	Sending evidence request from eProcedure portal and receiving evidence in return.

Table 70: Test Cases OOP TS Milestone 4

OOP TS milestone 4: ready to start pilot	
Components involved	Specific components: ▸ eProcedure portal front-end and back-end ▸ Portal-to-OOP-interface ▸ Data service ▸ Data service to OOP TS interface OOP TS components: ▸ DE4A connector ▸ Optional external eDelivery AS4 gateway ▸ SMP ▸ DNS & SML ▸ ESL configuration file eIDAS components: ▸ Authentication connector ▸ Authentication Proxy ▸ IdP ▸ AP
Mocks to use	none
Type(s) of testing	Functional use case testing
Pre-conditions	▸ OOP TS milestone 3 successfully achieved (the Member States testing need to be fully connected to the OOP TS, eProcedure portal and data service need to be ready). ▸ eIDAS milestone 3 successfully achieved (eIDAS ready for piloting and eProcedure portal fully connected to eIDAS.
Test cases	▸ specific for each eProcedure portal. ▸ to be defined by the data evaluators.

4.4 User involvement activities

The available infrastructure and facilities in participating Member States dictate the possibility (and need) for categories of users to be involved. In short, three categories of users are distinguished:

1) Employees from the Data Evaluator
   a) Working in the process where service requests are being processed

b) Working in the process of service delivery
c) Working to maintain the eProcedure portal and connected applications

2) Employees from the Data Owner
   a) Working in the process where data requests are being processed
   b) Working to maintain the business register system and connected applications
3) EU Citizens
   Any person really moving to another Member State.

All categories of users need to be involved in order to determine the level of goal achievement (see Chapter 2).

Employees working with the Data Evaluator or the Data Owner will be invited to participate in the pilot. During the preparations for the pilot, the DE4A MA team collaborates with the DE and DO public authorities in their countries, providing easy access to employees of these public authorities.

The involvement of real persons aiming to move must be considered a best-effort approach, as the availability within the timeframe of the pilot iteration, is unpredictable. Alternatively, simulations could be added to the pilot in order to maximize the learning potential.

4.4.1 User involvement strategy: classification of pilot users and targeted actions

The following four user groups are considered for the Moving Abroad piloting:

Local users

Local users are citizens who will use the pilot during the testing phase. This user group will include a few users from the participating MS. Who are somehow connected to the project.

Focus group users

The focus group includes a small number of citizens who will use the pilot once the service has gone live. They provide the guarantee that there will be enough end-users to validate the pilots. These users will be asked to provide formal feedback through an online evaluation tool to help us understand their views on the pilot.

The formal selection of known users should be defined by each MS; however, the following is suggested:

1. Small number of users from the involved agencies and people in their networks.
2. The users should be information technology literate.

Unknown but reachable users

Professional networks from other departments and agencies of the involved entities will be invited to validate the pilot after the focus group.

Unknown users

All other eligible citizens.

4.4.2 Focus groups (cross-border testing)

Employees from the Data Evaluator and the Data Owner will be involved in all pilot situations, where their country establishes cross-border exchange of evidence with another Member State that participates in the MA pilot. Recruiting employees at the DE and the DO will be coordinated by:

Table 71: Focus Group Leaders

Member State	Coordinator
RO	RO will not be an early adopter
SE	Elisabeth Asplund
ES	Javier Ferrero
LU	Gérard SOISSON (Ministry for Digitalisation)
PT	Sofia Paredes
SI	Recruiting

The countries participating in the MA pilot, all have their individual infrastructure to accommodate the pilot, allowing for real life piloting to a different degree. Some Member States are able to facilitate real eProcedures, resulting in real live and legally valid registrations and service fulfilment. Other countries facilitate simulated eProcedures that allow for companies to participate, but not resulting in a legally valid registration or service fulfilment because of usage of simulated data and/or simulated portals.

4.4.3 User communication and feedback

For the pilot, a microsite will be set up, providing (in English):

- Information on the advantages of the DE4A approach
- More information on the objectives, uses cases, scope and planning of the MA pilot
- An invitation for persons to join the pilot (including an enrolment form, informed consent)
- Videos and images on the pilot steps
- A restricted area (after log in) will be considered (depending on available facilities, resources and participants), containing feedback forms (questionnaires) that can be used persons involved in the pilot. These forms contain questions corresponding to the metrics Chapter 2. This area is accessible for all users involved in the MA pilot (see section 4.4.1). Alternatively, a regular questionnaire will be distributed among the pilot participants.

The MA pilot leader will propose texts and structure, while the participating Member States translate and implement this microsite (using national or a shared infrastructure).

The MA partners will reach out to users that enrolled to the pilot, by providing short newsletters or e-mails, containing (only) relevant information on the status and actions that are requested. With this, the user's involvement will be secured and maintained prior to, and during the pilot. The MA pilot team will set up the communication in English, but participating Member States could also choose to translate this to their native language in order to ensure inclusion in their country.

Additionally, during the pilot the users will be invited for a short walkthrough of the questionnaire forms that they have filled out, in order to clarify some results or ask for more qualitative feedback on the DE4A solution.

At the end of the pilot, all users will be informed on the results and high-level lessons learned from each pilot run.

4.4.4 User involvement activities

Table 72: User Involvement Activities

Activity id	Activity	Owner
MA-UI-1	Prepare invitation for user categories	DE

Activity id	Activity	Owner
MA-UI-2	Invite users (all types)	DE
MA-UI-3	Set up user management (lists and control sheets)	DE
MA-UI-4	Organize eIDs for real users	DE
MA-UI-5	Set up microsite (templates)	Pilot Lead / DE
MA-UI-6	Implement microsites	MA MS
MA-UI-7	Finalize questionnaire forms	Pilot Lead / DE
MA-UI-8	Set up and share newsletters	Pilot Lead / DE
MA-UI-9	Design walkthroughs of filled in questionnaires	Pilot Lead / DE
MA-UI-10	Design fictitious cases with users	DE

5 Customization and integration pilot management plan

This chapter addresses the planning for the customization & integration, testing and user involvement activities to be taken by all pilot participants in order to launch the pilots. This chapter specifies the milestones that the pilot partners need to achieve as well as the activities (as specified in the previous chapter) that are needed for doing so (5.3). The sections 5.45.5 and 5.6 specify the prerequisites and dependencies for performing the activities as well as risks identified. Section 5.7 provides sketches of the second pilot iteration.

The activities need to be detailed into Member State specific tasks to perform. These tasks must be planned carefully by all pilot partners in order to launch as much as possible at the same time with the functionality agreed upon. The Member State specific planning of the tasks to perform by that Member State will be addressed in chapter 6

This chapter starts with an overview of the phasing of the two pilot iterations.

5.1 High level management plan

The pilot consists of two pilot iterations. Starting from the MA "use case definition and requirements"-phase both pilot iterations are organised in the following phases:

- Pilot planning, including pilot design and design of the solution architecture (D4.10).
- Customization and integration, including testing and pilot go-live (D4.11).
- Pilot running, including evaluating and reporting (D4.12).

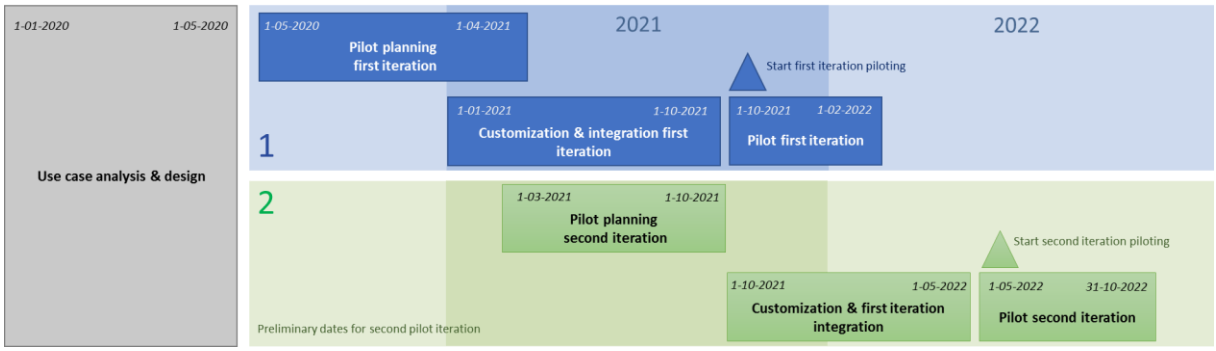


Figure 9: Pilot High-level planning

The exact scope and contents of the *first pilot iteration* has been specified in the pilot design (Chapter 3) and the solution architecture (Annex A). These focus on the Minimum Viable Product. In the customization & integration phase the common and national specific components needed for piloting the MVP will be customized, deployed, configured, connected and tested. Also, users will be involved for running the pilot. After meeting the go-live criteria the running phase for the first pilot iteration starts. The running phase ends after evaluating the results.

The exact scope and contents of *second iteration* will become clear gradually during the pilot planning phase for the second iteration. In pilot planning-phase for the second iteration the processes to pilot will be designed and a solution architecture for the additional two interaction patterns will be constructed. By this, functionality and components will be specified to include in the second pilot iteration. Furthermore, the results of the first iteration will be input for the second one.

Please note that the timeliness for both iterations overlap in order to respect deadlines on the DE4A project level. As a result, priorities need to be managed carefully.

5.2 First iteration milestones

Pilot partners all have their own pilot scenarios, national components, infrastructure, resources and test organization. That greatly dictates the (scheduling of the) effort of the partner to perform the activities defined in the Chapter 4 and by that launch the pilot. As all MA pilot scenarios are cross-border, there are milestones to be met by all participants (independently of their national effort to meet these). The milestones safeguard synchronous launching the pilot.

The first iteration milestones for eIDAS are:

Table 73: eIDAS Milestones

#	Milestone	Date
1	eIDAS for natural persons up and running	30-04-2021

The first iteration milestones for OOP TS are:

Table 74: OOPs Milestones

#	Milestone	Date
1	“Hello Europe” in lab	30-04-2021
2	“Hello Europe” between two connected Member States	30-05-2021
3	full scale cross-border communication for all Member States	30-06-2021
4	ready to start pilot	30-09-2021

These MA milestones require WP5 to meet their original release planning and come through with the OOP TS common components and the playground according to the requested delivery dates. Any changes in the availability of these common components and/or playground will unavoidably result in changes of the MA milestones as well.

5.3 First iteration planning

5.3.1 eIDAS milestone 1: eIDAS for natural persons up and running

Table 75: eIDAS Milestones 1 Definition

end date	30-04-2021
result	▸ eIDAS for natural persons implemented on pilot node ▸ national IdP connected to node ▸ eIDAS node connected to nodes of the other MA pilot Member States
required customization & integration activities	MA-AC-1: Deploy and configure eIDAS connector
	MA-AC-2: Connect to eIDAS proxies of piloting partners’ Member States
	MA-AP-1: Deploy and configure eIDAS proxy
	MA-AP-2: Deploy and configure eIDAS proxy
	MA-AP-3: Integrate national Identity Provider(s) to the national eIDAS proxy
Required cross-border testing activities	MA-TE-1: Cross-border integration testing of eIDAS nodes, including IdP

5.3.2 OOP TS milestone 2: "Hello Europe" between two connected Member States

Table 76: OOP TS Milestone 2 definition

end date	30-04-2021	
result	Simple message exchange between two pilot partners (PT and ES) to show the common components can be deployed and configured (easily) by the Member States.	
required customization & integration activities	MA-DR-1: Deploy and configure OOP TS common components	*Two Member States the least.*
	MA-DR-2: Connect to eDelivery AS4 gateways of data transferors.	*Two Member States the least.*
	MA-DT-1: Deploy and configure OOP TS common components	*Two Member States the least.*
	MA-DT-2: Connect to eDelivery AS4 gateways of data requestors.	*Two Member States the least.*
Required cross-border testing activities	MA-TE-4: Cross-border integration testing OOP TS components	*Two Member States the least.*

5.3.3 OOP TS milestone 3: full scale cross-border communication for all Member States

Table 77: OOP TS Milestone 3 Definition

end date	30-06-2021	
result	▸ all pilot DC's and DP's have been connected to OOP TS and can exchange evidence. ▸ Data services ready for piloting.	
required customization & integration activities	MA-DR-1: Deploy and configure OOP TS common components	*Early Adopters*
	MA-DR-2: Connect to eDelivery AS4 gateways of data transferors.	*Early Adopters*
	MA-DT-1: Deploy and configure OOP TS common components	*Early Adopters*
	MA-DT-2: Connect to eDelivery AS4 gateways of data requestors.	*Early Adopters*
	MA-DE-3: Connect the eProcedure portal to national OOP TS implementation (DE4A connector) to request an evidence and to receive the evidence	*Early Adopters*
	MA-DO-1: Adapt the data service for providing the canonical evidence	*Early Adopters*
	MA-DO-2: Connect the data service to the national OOP TS implementation (DE4A connector) to receive an evidence request and send the evidence	*Early Adopters*
Required cross-border testing activities	MA-TE-5: Cross-border integration testing OOP TS components, including eProcedure portal and data service.	*Early Adopters*
	MA-UI-1: Prepare invitation for user categories	

User involvement activities	MA-UI-5: Set up microsite (templates)	
	MA-UI-6: Implement microsites	

5.3.4 OOP TS milestone 4: ready to start pilot

Table 78: OOP TS Milestone 4 Definition

end date	30-09-2021
result	eProcedure portal full pilot functionality ready, including preview & explicit request.
required customization & integration activities	MA-DE-4: Implement SDG functionality in eProcedure portal
Required cross-border testing activities	MA-TE-6: Functional use case testing
	MA-TE-7: Cross-border production testing
User involvement activities	MA-UI-2: Invite users (all types)
	MA-UI-3: Set up user management (lists and control sheets)
	MA-UI-7: Finalize questionnaire forms
	MA-UI-8: Set up and share newsletters
	MA-UI-9: Design walkthroughs of filled in questionnaires

5.4 First iteration prerequisites

The milestone definitions, activities and timelines are based on four major assumptions that must proof stable and valid in order to maintain the pace and results that is described in this chapter.

- The assumption that the decisions described in section 3.3 will hold during the customization & integration phase of the first pilot iteration, as they provide the foundation for the pilot scope and solution that will facilitate the first pilot iteration.
- The assumption that the (external) deliverables of other work packages that this pilot is depending on (see section 5.5) are timely available and usable.
- The assumption that all MA partner Member States can resolve individual challenges (like getting approvals and allocating resources) and set up their national solutions according to the milestone to achieve. If one or more Member States cannot keep the pace that is needed, this means that integration and testing efforts will take longer for all other participating Member States as well. This not only complicates the organization of activities for each Member State, but also requires more effort and is therefore putting additional stress on the available budgets.
- The assumption that the available budget in participating Member States suffices for developing the facilities needed to prepare and run the first pilot iteration.

5.5 First iteration dependencies

The activities to perform are dependent on deliverables and activities from other work packages in the DE4A project as well. Possible additional dependencies that exist in individual Member States are described in Chapter 6.

Table 79: Customization & Integration dependencies on other work packages

ID	Activity	Externally dependent on	To be provided by
MA-AC-1	Deploy and configure eIDAS connector	CEF reference software and CEF eIDAS specifications	CEF (available)
MA-AC-2	Connect to eIDAS proxies of piloting partners' Member States	Trust certificate providers	National CA's
MA-AP-1	Deploy and configure dedicated eIDAS proxy	CEF reference software and CEF eIDAS specifications	CEF (available)
MA-AP-2	Connect to eIDAS connectors of piloting partners' Member States	Trust certificate providers	National CA's
MA-DR-1	Deploy and configure OOP TS common components:	▸ DE4A connector, first version for milestone 1 and updated versions for milestone 2 and 3 ▸ IDK configuration file ▸ DNS & SML ▸ DE and DO stubs	WP5 WP3 CEF WP5
MA-DR-2	Connect to eDelivery AS4 gateways of data transferors.		
MA-DT-1	Deploy and configure OOP TS common components	▸ DE4A connector, first version for milestone 1 and updated versions for milestone 2 and 3 ▸ IDK configuration file ▸ DNS & SML ▸ DE and DO stubs	WP5 WP3 CEF via WP5 WP5
MA-TR-1	Acquire required (PKI) certificates	Trust certificate providers	National CA's WP5 test-CA
MA-DE-3	Connect the eProcedure portal to national OOP TS implementation (DE4A connector)	DE4A connector stub	WP5
MA-DE-4	Implement SDG functionality in eProcedure portal	GUI guidelines and wireframes for explicit request	WP5
MA-DO-2	Connect the data service to the national OOP TS implementation (DE4A connector)	DE4A connector stub	WP5

ID	Activity	Externally dependent on	To be provided by
MA-DO-3	Implement SDG functionality in data service	GUI guidelines and wireframes for preview	WP5

5.6 First iteration risks

Common risks (not Member State Specific) for the first pilot iteration are addressed in this table. These risks will be actively monitored during the bi-weekly MA stand-ups by the pilot partners. The pilot lead will facilitate this process and escalate risks as soon as they require mitigation actions that are beyond the pilot itself. The risk table will be updated accordingly during the customization & integration phase.

Table 80: First Iteration Risks

ID	Risk description	Measures	Impact	Chance	Risk
1	Not all participating Member States will move at the same pace in customization and integration. Delays in one Member State may impact the pace of others in their cross-border activities.	Bi-weekly progress meetings (stand-ups) to monitor progress. Escalation by the pilot lead to pilot management if needed.	Medium	High	High
2	The common OOP TS components initially may have issues, bugs or lacking documentation preventing the piloting partners to achieve the milestones in time.	Provide feedback to WP5 on implementation efforts. Agree with WP5 on timeliness for fixes and updates of the common components. Have WP5 test the components first in the WP5 lab before releasing to the pilot partners. Escalate to pilot management if needed.	High	Medium	High
3	Exchange and configuration of certificates and metadata may take a long-time preventing piloting partners to achieve the milestones in time.	Request for a clear exchange procedure. Organise Connectathons.	Medium	Medium	Medium
4	From October the first, iteration 1 and 2 run in parallel (pilot planning for iteration 2 starts then). The efforts on iteration 2 may prevent full focus on running the first pilot iteration.	Continue preparation for iteration 2 with the most actively involved / most interested partners only in order to allow the other partners to fully focus on iteration1. Escalate to pilot management for priorities of needed.	Medium	High	High

ID	Risk description	Measures	Impact	Chance	Risk
5	The DE4A project pilots some of the concepts that have been defined in the SDGR, but also explores topics beyond the SDGR. With the commission continues preparation for implementing the SDGR in parallel, Member States might prioritise SDGR preparatory actions above DE4A actions. This risks Member State involvement and progress.	Keep explaining the DE4A project philosophy (provide real life input for implementing SDGR and exploring beyond SDGR). Allow for piloting Member States to go live at different points in time. Allow for front-running Member States (the first Member States to run the pilot) and follow-up Member States.	Medium	Medium	Medium
6	Member States may reconsider major design decisions at pilot level in the customization & integration phase. This risk is re-doing work, redesigning the pilot process and the components required. Deviating from design decisions might lead to lack of interoperability and not reaching pilot goals.	Pilot lead will limit discussion on topics already agreed upon by all Member States. If needed, bilateral meetings between the pilot partner and pilot lead will be organised to discuss possible solutions.	Medium	Medium	Medium

5.7 Second iteration

The preliminary scope of the second iteration is described in section 3.2.2. The second iteration will implement functionality of the user supported intermediation pattern that goes beyond the minimum viable product of the first iteration. On a detailed level, the improvements to the user supported intermediation pattern stemming from running the first pilot iteration may be included in the second iteration. The MA pilot will hold back on adding to many features identified in running the first iteration, as this complicated the preparation for the second pilot iteration: the customization & integrating of the second iteration runs in parallel to running the first pilot iteration.
Although the scope of the second pilot iteration has been defined clearly on a high-level, the second iteration lacks the architecture for the additional add-ons and need the pilot processes still to be designed and the software architecture to be constructed. This is included in the customization & integration phase that starts October,1st of 2021. These results are starting point for defining activities to perform, the milestones to achieve and identifying impact and gaps on a Member State level. Hence, the second iteration has been planned at a high-level only at this point in time.

5.7.1 Milestones

The table below presents the milestones for the second pilot iteration.

Table 81: Second Iteration Milestones

Phase	Exp. date	Milestone
	1-06-2021	Project start architecture for USI pattern ready (WP2).
Pilot planning	1-08-2021	Pilot design second iteration finished

	1-09-2021	Solution architecture for the second iteration finished
	1-10-2021	Pilot planning for the second iteration detailed
Customization & integration	1-12-2021	Additional features to the user supported intermediation pattern available (WP3 and WP5).
	1-02-2022	Additional features to the user supported intermediation pattern integrated by pilot partners and ready to pilot.
	1-02-2022	Components for the second iteration available for pilot patterns (WP3 and WP5).
Pilot running phase	1-05-2022	Go-live with second iteration pilot.
	31-10-2022	Second iteration pilot finished.
	31-10-2022	Reporting on second iteration pilot finished.

Milestones for the customization & integration phase will be detailed once the pilot design and solution architecture have been finalised.

5.7.2 Prerequisites

General prerequisites for piloting the second iteration:

- Continued support from the MA pilot partners for piloting the second iteration.
- Absence of delays in piloting the first iteration that may endanger the start of the second iteration.

5.7.3 Dependencies

At this point in time the following general dependencies exist:

- For creating the solution architecture for a possible second pattern, the Project Start Architecture [3] should be constructed for those patterns (WP2).
- For customization & integration of the second pilot iteration, the required software components need to be available (WP3 and WP5).
- A legal justification needs to be formulated for piloting the second iteration as the second iteration pilots functionality beyond the SDGR (WP7).

6 Member State management plan

This chapter includes the Member State specific plan for execution of the "customizations and integration" tasks. Each Member State specific section includes national design decisions that impact the pilot, the gaps that have been identified (defining the amount of work to be done for customization and integration), the planning of the tasks to perform and the identification of Member State specific risks to be mitigated.

6.1 Luxembourg

Next to the common assumptions as described in Chapter 4 the following assumptions apply for the development of the National Infrastructure and integration with the OOP TS:

6.1.1 Specific customizations and integrations

Table 82: LU Integrations

Application component	Change description	Change owner
eDelivery	Deploy and configure eDelivery AS4 gateway (2nd iteration)	CTIE
	Implement internal API for evidence exchange	CTIE
	Deploy and configure: SMP, DNS & SML (2nd iteration)	CTIE
eProcedure	Connect MyGuichet platform to eDelivery access point for all use cases via internal API for evidence exchange	CTIE
	Connect MyGuichet platform to OOP TS for all use cases	CTIE
	Adapt user dialogue and support of the online procedure for requesting and receiving evidence via OOP TS	CTIE
	Adapt user dialogue of the MyGuichet platform for allowing confirmation by the user of request to transfer evidence	CTIE
Data service	Extend functionalities to generate evidences from the register of physical persons to allow, in addition to the already on the fly generated PDF, also for generation on the fly of canonical evidences and of multilingual versions of the evidences	CTIE

6.2 Portugal

6.2.1 Specific customizations and integrations

Table 83: PT Integrations

Application component	Change description	Change owner
eDelivery and OOP TS system	Deploy and configure eDelivery AS4 gateway	AMA
	PT as Data Provider: Implement DO-USI-RequestExtractOfEvidence on evidence broker	AMA
	PT as Data Provider: Implement DT-USI-RequestTransferOfEvidence on DE4A connector	AMA
	Deploy and configure: SMP, DNS & SML	AMA
	Configuration of connections: iAP-->cross-border	AMA

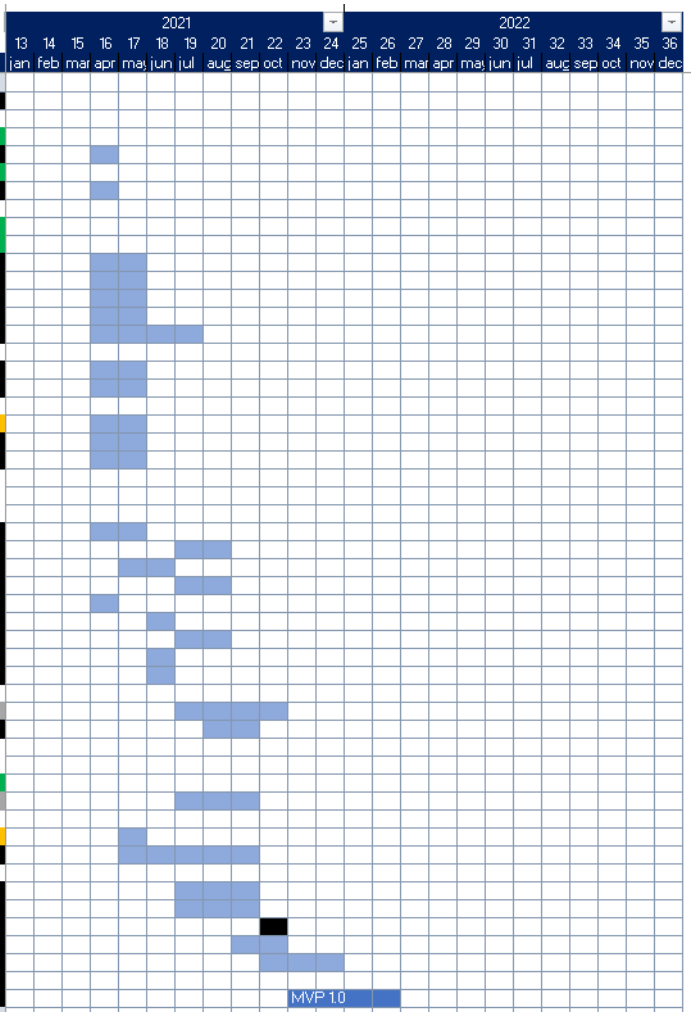
Application component	Change description	Change owner
National evidence broker upgrade	Configuration of connections: cross-border-->iAP	AMA
	Configuration of connections: IRN-->iAP	AMA
	Configuration of connections: iAP-->MyData	AMA
	Translation from domestic to canonical evidences: Residence of Domicile	AMA
Authorization System upgrade	Implement MyData portal with multilingual (PT, EN, SP) and eIDAS authentication support.	AMA
	Upgrade authorization management system	AMA
	Implement MyTrace, upgrading and adding user interface to trace capabilities, with multilingual (PT, EN, SP) and eIDAS authentication support.	AMA
	Implement MyPreview portal with multilingual (PT, EN, SP) and eIDAS authentication support.	AMA
Authentication System upgrade	Revise multilingual (PT, EN, SP) support.	AMA
	Enable mobile key (CMD) activation using eIDAS authentication.	AMA
eProcedure portal upgrade	Revise multilingual (PT, EN, SP) support.	AMA

6.2.2 National Planning PT

The Customization & Integration towards the Fist Release will be organized conform the tables below:

Table 84: PT Planning

id	Description	team	Status
Iteration1	**First Iteration - Design, Build and System Test Solution**		
PT-Imp	**PT Implementation**		
PT-eIDAS	**eIDAS**		
MA-AC-1	Deploy and configure eIDAS connector	AMA-iAP	Concluded
MA-AC-2	Test eIDAS interoperability on DC	AMA-iAP	Planned
MA-AP-1	Deploy and configure dedicated eIDAS proxy	AMA-iAP	Concluded
MA-AP-2	Test eIDAS interoperability on DP	AMA-iAP	Planned
PT-Imp-eDeli	**eDelivery connection**		
MA-DR-1.1	eDelivery AS4 gateway deployed and configured	AMA-iAP	Concluded
MA-DT-1.1	eDelivery AS4 gateway deployed and configured	AMA-iAP	Concluded
MA-DT-2.1	PT as DP: Implement DO-USI-RequestExtractOfEvidence on evidence broker	AMA-iAP	Planned
MA-DT-2.2	PT as DP: Implement DT-USI-RequestTransferOfEvidence on DE4A conector	AMA-iAP	Planned
MA-DR-1.2	SMP, DNS & SML deployed and configured	AMA-iAP	Planned
MA-DT-1.2	SMP, DNS & SML deployed and configured	AMA-iAP	Planned
MA-TR-1	Acquire required (PKI) certificates	AMA-iAP	Planned
PT-Imp-iAP	**National evidence broker configuration**		
MA-DO-2	iAP - Configuration of connections: iAP-->cross-border	AMA-iAP	Planned
MA-DT-2.3	iAP - Configuration of connections: cross-border-->iAP	AMA-iAP	Planned
	USI - MA - Moving Abroad Pilot		
MA-DO-1.1	iAP - Configuration of connections: IRN-->iAP	AMA-iAP	in progress
MA-DO-1.2	iAP - Configuration of connections: iAP-->MyData	AMA-iAP	Planned
MA-DO-1.3	iAP - translation from domestic to canonical evidences: Residence of Domicile	AMA-iAP	Planned
MA-DE-3.4.1	~~iAP - translation from canonical to domestic evidences: Residence of Domicile~~	AMA-iAP	out of scope
MA-DE-3.4.2	~~iAP - Configuration of connections: iAP-->Change of Address System~~	AMA-iAP	out of scope
PT-Imp-AutZ	**Authorization System upgrade**		
MA-DO-3.1	MyData Portal	AMA-eID	Planned
MA-DO-3.2	MyData multilingual (PT, EN, SP) implementation	AMA-eID	Planned
MA-DO-3.3	Authorization Management + MyTrace	AMA-eID	Planned
MA-DO-3.4	MyTrace multilingual (PT, EN, SP) implementation	AMA-eID	Planned
MA-DO-3.5	iAP - configuration of trace messages	AMA-iAP	Planned
MA-DO-3.6	MyPreview portal	AMA-eID	Planned
MA-DO-3.7	MyPreview multilingual (PT, EN, SP) revision	AMA-eID	Planned
MA-DO-3.8	Allow for eIDAS authentication in MyData and MyPreview portal	AMA-eID	Planned
MA-DO-3.9	MyPreview portal connected to national eIDAS connector	AMA-eID	Planned
PT-Imp-Auth	**Authentication System upgrade**		
MA-DE-2	Multilingual (PT, EN, SP) revision	AMA-eID	To Be Planned
MA-DE-2	Activate mobile key (CMD) using eIDAS	AMA-eID	Planned
PT-Imp-SAM	**PT - Change of Address System upgrade (PT citizens only)**		
MA-DE-1.1	~~Redirect to other MS preview portal + receive cross-border evidences + use cross-~~		out of scope
MA-DE-2.1	Allow for eIDAS authentication in Change of Address System portal	AMA-eID	Concluded
MA-DE-1.2	Multilingual (PT, EN, SP) revision	AMA-eID	To Be Planned
MA-TE	**SIT - System Integration Testing**		
MA-TE-2-6	Develop common Test Strategy and Plan for SIT and UAT	AMA-eID	in progress
MA-TE-1,7-9	**Execute System Integration Testing**	AMA-eID	Planned
Live1	**Go-Live**		
	Define Service Level Agreement	AMA,DE4A	Planned
	Prepare go-live	AMA,DE4A	Planned
	Go-live	AMA,DE4A	Planned
	Execute Regression Testing	AMA,DE4A	Planned
	Monitor go-live processes + Pilot support	AMA,DE4A	Planned
	Collect metrics to measure system performance according to planned KPIs	AMA,DE4A	Planned
	Moving Abroad - Evaluate pilot - first iteration	AMA,DE4A	Planned



id	Description	team	Status
Iteration2	**Second Iteration - Design, Build and System Test Solution**		
	eDelivery connection		
MA-DR-2.1	PT as DC Implement DE-USI-RequestTransferOfEvidence on evidence broker	AMA-iAP	To Be Planned
MA-DR-2.2	PT as DC: Implement DR-USI-RequestExtractOfEvidence on DE4A conector	AMA-iAP	To Be Planned
MA-DR-2.3	PT as DC: Implement ...-IM	AMA-iAP	Scope TBD
	National evidence broker configuration		
	iAP - Implement flexible and scalable configuration structure	AMA-iAP	To Be Planned
	iAP - Implement backoffice for configuration of Evidences, E.Providers and E.Requestors	AMA-iAP	To Be Planned
	USI - MA - Moving Abroad Pilot		
MA-DO-1.4	iAP - Configuration of conections: SEF-->iAP	AMA-iAP	To Be Planned
MA-DE-3.5.1	iAP - translation from domestic to canonical evidences of national end of process notification	AMA-iAP	To Be Planned
MA-DE-3.4.1	iAP - translation from canonical to domestic evidences: Residence of Domicile	AMA-iAP	To Be Planned
MA-DE-3.6.1	iAP - translation from canonical to domestic evidences of cross-border end of process notification	AMA-iAP	To Be Planned
MA-DE-3.4.2	iAP - Configuration of conections: iAP-->SEF	AMA-iAP	To Be Planned
	IM - MA - Moving Abroad Pilot		
MA-DE-3.4.3	iAP - translation from canonical to domestic evidences: UC2 - Birth and Marriage Certifica	AMA-iAP	To Be Planned
MA-DE-3.4.4	iAP - translation from canonical to domestic evidences: UC3 - Pension and Labour Inform	AMA-iAP	Scope TBD
	USI - SA - Studying Abroad Pilot		
MA-DO-1.5	iAP - Configuration of conections: UL-->iAP	AMA-iAP	To Be Planned
MA-DE-3.4.5	iAP - Configuration of conections: iAP-->UL	AMA-iAP	To Be Planned
MA-DE-3.4.6	iAP - translation from domestic to canonical evidences: UC1 - Application to HEI	AMA-iAP	To Be Planned
MA-DE-3.4.7	iAP - translation from canonical to domestic evidences: UC1 - Application to HEI	AMA-iAP	To Be Planned
MA-DE-3.4.8	iAP - translation from domestic to canonical evidences: UC3 - Diploma Verification	AMA-iAP	Scope TBD
MA-DE-3.4.9	iAP - translation from canonical to domestic evidences: UC3 - Diploma Verification	AMA-iAP	Scope TBD
	Authorization System upgrade		
	Generate domestic/canonical evidence in multilingual pdf signed format	AMA-eID	Scope TBD
	Allow for the request of evidence and eProcedure submission on behalf of all the family members	AMA-eID	Scope TBD
	Authentication System upgrade		
	Eventually allow for additional evidences transfer to enable record matching	AMA-eID	Scope TBD
	PT - Change of Address System upgrade (PT citizens only)		
MA-DE-1.2	Integrate the eProcedure Portal with the eGovernment portal ePortugal directory of services.	AMA-eID	Scope TBD
MA-DE-1.3	Integrate the eProcedure Portal with the eGovernment Authorization System with Evidence Previewer.	AMA-eID	Scope TBD
MA-DE-1.4	Notify cross-border coming from other MS System of successull end of eProcedure	AMA-eID	To Be Planned
MA-DE-1.5	Receive and acknowledge successull end of eProcedure cross-border notification.	AMA-eID	To Be Planned
PT-Imp-SAM	**SEF - Change of Address System upgrade (non-pt citizens)**		
MA-DE-1.6	Redirect to other MS preview portal	SEF	To Be Planned
MA-DE-1.7	Receive cross-border evidences	SEF	To Be Planned
MA-DE-1.8	Use cross-border evidences	SEF	To Be Planned
MA-DE-2.2	Integrate the eProcedure Portal with the Authentication System (enabling eIDAS authentication and eventually record matching)	SEF	To Be Planned
MA-DE-1.10	Integrate the eProcedure Portal with the eGovernment portal ePortugal and its directory of services.	AMA-eID	Scope TBD
MA-DE-1.11	Integrate the eProcedure Portal with the eGovernment Authorization System with Evidence Previewer.	AMA-eID	To Be Planned
MA-DE-3.3.2	Connect the eProcedure portal to national OOP TS implementation (DE4A connector) via national Evidence Broker.	SEF	To Be Planned
MA-DE-3.4.2	Connect the eProcedure portal to national OOP TS implementation (DE4A connector) via Authorization System	SEF	To Be Planned
MA-DE-1.12	Multilingual (PT, EN, SP) revision	SEF	To Be Planned
MA-TE2	**SIT - System Integration Testing**		
MA-TE2-2-6	Develop common Test Strategy and Plan for SIT and UAT	AMA-eID	To Be Planned
MA-TE2-1,7-9	**Execute System Integration Testing**	AMA-eID	To Be Planned
Live2	**Go-Live**		
	Define Service Level Agreement	AMA,DE4A	To Be Planned
	Prepare go-live	AMA,DE4A	To Be Planned
	Go-live	AMA,DE4A	To Be Planned
	Execute Regression Testing	AMA,DE4A	To Be Planned
	Monitor go-live processes + Pilot support	AMA,DE4A	To Be Planned
	Collect metrics to measure system performance according to planned KPIs	AMA,DE4A	To Be Planned
	Moving Abroad - Evaluate pilot - first iteration	AMA,DE4A	To Be Planned

6.3 Slovenia

6.3.1 Specific customizations and integrations

Slovenia is currently analysing the way of joining the use cases and how to accommodate resources. Therefore the known details of Slovenia is much lower than the other participants at this point in time.

6.4 Spain

6.4.1 Specific customizations and integrations

eProcedure portal (Data Evaluator)

Table 85: Changes to be implemented at DE in Spain

Application component	Change description	Change owner	Precondition	Release
DE	Separated authentication option for eIDAS	MPTFP-SGAD	-	First
	Integrate with Clave 2 system, gateway to eIDAS	MPTFP-SGAD	Have access to gateway	First
	Create an ad hoc Citizen folder DE interface to visualize data	MPTFP-SGAD		First

National (non-OOP) components

Table 33: Changes to be implemented related to eIDAS integration in Spain

Application component	Change description	Change owner	Precondition	Release
eIDAS-node	NA / Already available	MPTFP-SGAD	None	First

National OOP-components (Data Requestor, Data Transferor)

Table 86: Changes to be implemented at DR/DT in Spain

Application component	Change description	Change owner	Precondition	Release
eDelivery node	N/A	MPTFP-SGAD	Availability	First

Data owner

Table 87: Changes to be implemented at DO in Spain

Application component	Change description	Change owner	Precondition	Release
DO	Create an interface to offer the data from Spanish Intermediation platform	MPTFP-SGAD	-	First

6.4.1 National Planning ES

The Customization & Integration towards the first release will be organized according as below:

Table 88: Planning Spain

		2021 jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dic
	Data Owner Customizations												
MA-AP-1	**Integrate with eIDAS-Node Connector in case of USI pattern**												
MA-DO-2.1	**Integrate with eDelivery Access Point**												
MA-DO-2.2	**Record matching. Manage errors.**												
MA-DO-2.3	**Look-up/extract evidence**												
MA-DO-2.4	**UI internationalisation** (English translations)												
MA-DT-2.1	**Create & send Evidence(s) Response or Error message** (DE4A Info Exchange Model) through DT/Connector-eDelivery												
MA-DT-2.2	**Redirect user back to DC**												
	Data Evaluator Portal												
MA-DE-2	**Integrate with eIDAS-Node Connector**												
MA-DE-3.1	**Integrate with eDelivery Access Point**												
MA-DR-1	**Support orchestration logic** (redirections to DP in USI, invoke common components)												
MA-DE-3.2	**UI: internationalisation** (English translations)												
MA-DE-3.3	**Identity matching. Manage errors.**												
	Explicit Request Management												
MA-DR-1	**Create & send Evidence(s) Request** (DE4A Info Exchange Model) through DR/Connector-eDelivery. Redirect user to DP												
MA-DE-3.4	**Checking and possible completion by user** of fields in procedure online form(s)												
MA-DE-3.5	**Submission and validation of form**												
MA-DE-3.6	Return **acknowledgement of receipt** to user												
		jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dic 2021

6.5 Sweden

6.5.1 Specific customizations and Integrations

Table 89: SE Planning and Integrations

Application component	Change description	Change owner
eDelivery and OOP TS system	Deploy and configure eDelivery AS4 gateway	SKV
	Implement internal API for evidence exchange	SKV
	Deploy and configure: SMP, DNS & SML	SKV
eProcedure	Integrate public service (Moving to Sweden) to eDelivery via internal API for evidence exchange	SKV
	Implement eIDAS authentication with public service (Moving to Sweden)	SKV
	Implement option to use OOP TS with public service (Moving to Sweden)	SKV
	Implement save and resume support in public service (Moving to Sweden)	SKV
	Adapt user dialogue and support for requesting and receiving evidence via OOP TS	SKV

6.6 Romania

6.6.1 Specific customizations and integrations

Table 90: Changes to be Implemented at DE

Application component	Change description	Change owner	Precondition	Release
SITUE project- eIDAS node	Implementation of the national eIDAS node with components for service and identity providers- *on going*	ADR	Without delays in the implementation	Final
SNIEP/the new digital system related to eID	Implementation of the new functionalities of the digital system related to eID –*on going*	MoAI	Without delays in the implementation	Final
	Further developments and customizations of all functionalities required for DE4A (*it includes:* ▸ *Separated authentication option for DE4A-pilot needed,* ▸ *Explicit request citizens and forward them to DP (via info Desk)* ▸ *Evidence exchange with DC* ▸ *Adapt preview of evidence to DE4A-requirements: at least specific information on the role of the preview for the pilot will be added to the existing preview-screen and the user interface will also have to support the English language* ▸ *Use evidence in DC procedure* ▸ *Inform DP –procedure completed)*	MoAI	Completing the successful implementation of the new digital system related to eID ▸ References from WP5 ▸ References from WP5 ▸ Preview requirements and reference software available in WP5 -	Final
SIIEASC	Implementation of the new civil status digital system -*on going*	MoAI	Without delays in the implementation	Final
	Further developments and customizations of all functionalities required for DE4A (*it includes:* ▸ *Separated authentication option for DE4A-pilot needed,* ▸ *Explicit request citizens and forward them to DP (via info Desk)* ▸ *Evidence exchange with DC* ▸ *Support for presenting evidence status* ▸ *Adapt preview of evidence to DE4A-requirements: at least specific information on the role of the preview for the pilot will be added to the existing preview-screen and*	MoAI	Completing the successful implementation of SIIEASC ▸ References from WP5 ▸ References from WP5 ▸ Preview requirements and reference software available in WP5	Final

Application component	Change description	Change owner	Precondition	Release
	the user interface will also have to support the English language Inform DP –procedure completed)		-	
Integration Layer	For SIIEASC and SNIEP projects: determine architecture and implementation of request to OOP node, alongside 'regular' requests to RO registries.	MoAI		Final
MoAI HUB	Implementation of MoAI HUB -on going *(There is no portal available via which a citizen can request evidence or verify the personal data, but MoAI has a new ongoing project "MoAI Hub" which will give citizens the opportunity/ possibility to authenticate for electronic services (Deadline new functionality: iunie 2023).* Current alternative login and authenticate for citizens to electronic services. Role in this process *to be determined.*	MoAI	Conditioned by the implementation of the new digital system related to eID and MoAI HUB	Final

National (non-OOP) components

Table 91: Changes to be Implemented related to eIDAS Integration

Application component	Change description	Change owner	Precondition	Release
eIDAS-node	RO: not notified yet & no ID card Implementation of the national eIDAS node - *on going* Further: *meet requirements and connect DE/DO to other MS through national eIDAS Connector*	ADR MoAI	- Conditioned by the implementation of the eIDAS node (Completing the successful implementation of SITUE project)	Final

National OOP-components (Data Requestor, Data Transferor)

Table 92: Changes to be Implemented at DR/DT

Application component	Change description	Change owner	Precondition	Release
eDelivery node	The building block eDelivery for exchanging the evidence needs to be implemented on the new system	MoAI	**Using the Connector (DR/DT) available in WP5** *(The functionality to send and receive AS4 messages is*	Final

Application component	Change description	Change owner	Precondition	Release
	(SNIEP/ the new digital system related to eID or MoAI Hub)		*built into the DE4A Connector -Integrated AS4 Gateway)*	
	Implement metadata-files	MoAI	Structure for metadata-files needs to be available in WP5	Final

Data owner

Table 93: Changes to be Implemented at DO

Application component	Change description	Change owner	Precondition	Release
SNIEP/ the new digital system related to eID and MoAI HUB	Implementation of the new digital system related to eID and MoAI HUB- *on going* Further developments and customizations of all functionalities required for DE4A (*it includes:* ▸ *Citizens authentication via eIDAS or eID* ▸ *Citizen link to evidence (via NatId)* ▸ *Evidence in EU structure* ▸ *Citizen evidence preview* ▸ *Citizen consent* ▸ *Evidence exchange with DC)*	MoAI	Conditioned by the implementation of the eIDAS node, the new digital system related to eID and MoAI HUB	Final
SIIEASC/ MoAI HUB	Implementation of SIIEASC and MoAI HUB- *on going* Further developments and customizations of all functionalities required for DE4A (*it includes:* ▸ *Citizens authentication via eIDAS or eID* ▸ *Citizen link to evidence (via NatId)* ▸ *Evidence in EU structure* ▸ *Citizen evidence preview* ▸ *Citizen consent* ▸ *Evidence exchange with DC* *Inform citizen - evidence is available or not)*	MoAI	Conditioned by the implementation of the eIDAS node, SIIEASC and MoAI HUB	Final
SNIEP/ the new digital system related to eID, or MoAI HUB	New interface on the existing Integration between the DO and the DE4A-connector for receiving a request and sending the response.	MoAI	Availability of functional and technical specifications of DE4A-connector	Final

Application component	Change description	Change owner	Precondition	Release
– RO OOP interface				
SIIEASC/ MoAI HUB – RO OOP interface	New interface on the existing Integration between the DO and the DE4A-connector for receiving a request and sending the response.	MoAI	Availability of functional and technical specifications of DE4A-connector	Final
DE4A-connector	New connector. See MA Solution architecture for details	MoAI	Availability of functional and technical specifications of DE4A-connector	Final

6.6.2 National Planning RO

Table 94: RO Planning

National Planning RO-the Customization & Integration towards the Fist Release and Final Release for UC1 and UC2

UC1 UC2 {DE, DR, DO, DT}		Details	Effort size	Existing applications	New applications	Change owner	2021												2022											
							13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	31	33	34	35	36
							jan	feb	mrc	apr	may	jun	jul	aug	sep	oct	nov	dec	jan	feb	mrc	apr	may	jun	jul	aug	sep	oct	nov	dec
Increments 1 Deliverables																													
Pre-condition 1	**Completing the successful implementation of the new digital system related to eID**	Deadline for effective issuance of identity cards - august 2021 Deadline for new functionalities of the system: june 2022	L		The new digital system related to eID	MoAI																								
Pre-condition 1	**Completing the successful implementation of SIIEASC- on going project**	Deadline june 2022	L		SIIEASC-The new civil status digital system	MoAI																								
Pre-condition 2	**Completing the successful implementation of eIDAS node-SITUE on going project**	Deadline 2021	M		eIDAS node	ADR																								
Pre-condition 3	**Completing the successful implementation of MoAI HUB- on going project**	Deadline 2023	L		MoAI HUB	MoAI																								
Further developments and customizations of all functionalities required for DE4A-it includes:																														
MA -AC-1	**Deploy and configure dedicated eIDAS connector**		L			ADR																								
MA -AC-2	**Connect to eIDAS proxies of piloting partners' Member States**		L			ADR																								
MA -AP-1	**Deploy and configure dedicated eIDAS proxy**		L			ADR																								
MA -AP-2	**Connect to eIDAS connectors of piloting partners' Member States**		L			ADR																								
MA -AP-3	**Integrate national Identity Provider(s) to the national eIDAS proxy**		L			ADR																								
MA -DE-1	**Adapt the eProcedure portal for piloting: -MA-DE-1.1: Optionally set up a pilot portal (real data, real users) - MA-DE-1.2:Add eIDAS login option for users**		L		The new digital system related to eID / MoAI HUB & SIIEASC/ MoAI HUB	MoAI																								
Increments 2 Deliverables																														
MA-DR-1	**Deploy and configure OOP TS common components: DE4A connector, eDelivery AS4 gateway and SMP. Configure DNS & SML. Populate ESL configuration file.**		L		OOP TS node	MoAI																								
MA-DR-2	**Connect to eDelivery AS4 gateways of data transferors.**		L		OOP TS node	MoAI																								
MA -DT-1	**Deploy and configure OOP TS common components: DE4A connector, eDelivery AS4 gateway and SMP. Configure DNS & SML. Populate ESL configuration file.**		L		OOP TS node	MoAI																								
MA -DT-2	**Connect to eDelivery AS4 gateways of data requestors.**		L		OOP TS node	MoAI																								
MA -DE-2	**Connect the eProcedure portal to the eIDAS pilot to send authentication requests and receive the authentication results**		L		The new digital system related to eID / MoAI HUB & SIIEASC/ MoAI HUB	MoAI																								

Increments 3 Deliverables																													
MA-DR-1	**Deploy and configure OOP TS common components: DE4A connector, eDelivery AS4 gateway and SMP. Configure DNS & SML. Populate ESL configuration file.**		L		OOP TS node	MoAI																							
MA-DR-2	**Connect to eDelivery AS4 gateways of data transferors.**		L		OOP TS node	MoAI																							
MA -DT-1	**Deploy and configure OOP TS common components: DE4A connector, eDelivery AS4 gateway and SMP. Configure DNS & SML. Populate ESL configuration file.**		L		OOP TS node	MoAI																							
MA -DT-2	**Connect to eDelivery AS4 gateways of data requestors.**		L		OOP TS node	MoAI																							
MA -DE-2	**Connect the eProcedure portal to the eIDAS pilot to send authentication requests and receive the authentication results**		L		The new digital system related to eID / MoAI HUB & SIIEASC/ MoAI HUB	MoAI																							
MA -DE-1.3	**Show the user that he/she has successfully logged authenticated**		L		The new digital system related to eID / MoAI HUB & SIIEASC/ MoAI HUB	MoAI																							
MA -DE-1.4	**Ask the user to explicit request to use the Technical system for direct retrieval of the data**		L		The new digital system related to eID / MoAI HUB & SIIEASC/ MoAI HUB	MoAI																							
MA -DE-3	**Connect the eProcedure portal to national OOP TS implementation (DE4A connector) to request an evidence and to receive the evidence: -Send an evidence request to the DE4A connector -Receive and validate the evidence from the DE4A connector (Receive an error message and inform the user. Allow for re-requesting the evidence).**		L		The new digital system related to eID / MoAI HUB & SIIEASC/ MoAI HUB	MoAI																							
MA -DO-1	**Adapt the data service for providing the canonical company data evidence: - Retrieve company data - Transform company data to canonical evidence definition Construct evidence**		L		The new digital system related to eID / MoAI HUB & SIIEASC/ MoAI HUB	MoAI																							
MA- DO-2	**Connect the data service to the national OOP TS implementation (DE4A connector) to receive an evidence request and send the evidence: - Receive and validate evidence request - Send evidence**		L		The new digital system related to eID / MoAI HUB & SIIEASC/ MoAI HUB	MoAI																							

7 Running phase management plan

7.1 Go-live Launching Criteria

In the table below the pilot-scenarios that will be executed in first MA pilot iteration are listed, including the risk category of the scenario (High, Medium or Low, see section 7.6 for a detailed description of the categories).

Note that not all pilot-scenarios are fully executed in a production environment. This affects the go-live criteria for those scenarios.

The exact set of pilot-scenarios for the second MA pilot iteration (2022) has yet to be determined but in both iterations the same go-live criteria will apply.

The MA pilot does not require all pilot-scenarios to go-live at the same time. In order to run a specific pilot-scenario, e.g. ES-PT the data-evaluator and data-requestor from the data-consumer Member State and the data-owner and data-transferor of the data-provider Member State need to be live.

The criteria for go-live of a pilot-scenario are listed below. All criteria are mandatory unless stated otherwise:

1. The data-consumer Member State has concluded the functional tests of the national eIDAS and OOP TS components as described in section 4.3 and has solved all blocking issues.
2. The data-providing Member State has concluded the functional tests of the national eIDAS and OOP TS components as described in section 4.3 and has solved all blocking issues.
3. The data-consumer Member State and the data-provider Member State have concluded the joint integration test and end-to-end test as described in section 4.3 and have solved all blocking issues.
4. In case of a low-risk pilot scenario: the participating organisations have affirmed their mutual understanding that low-risk piloting implies no specific constraints or obligations on any side.
5. In case of a medium or high-risk pilot-scenario: the participating data-consumer Member State and data-provider Member State have legally agreed to run the pilot-scenario, by means of a memorandum of understanding or another form of agreement and have taken measures.
6. When piloting with real data: the users and companies (see section 4.4) that participate in the pilot, at least one real citizen per data provider Member State, are available and informed and they agreed upon participating in the pilot-scenario.
7. Should-have: Measurements to collect data on proving that the DE4A MA pilot objective and goals are met. Reference measurements (to compare the pilot results to) have been established.
8. Should-have: The micro-website for collecting the feedback of involved users, as described in section 4.4.3 is ready.

7.2 Running phase activities

7.2.1 Activities

In the pilot running phase (in the first as well as in the second pilot iteration) the following activities are carried out:

1. Prepare pilot-scenario:
   The member states that participate in the specific pilot scenario prepare all necessary measurements according to the risk classification of that pilot-scenario.

2. Plan pilot runs details:
   The pilot-leader plans the pilot runs in detail together with the pilot scenario participants, and the planned timeboxes for the pilot-runs are scheduled in the agendas of the participants.
3. Check go-live pilot scenarios:
   The pilot-leader checks if pilot-scenarios fulfil the go live criteria.
4. Execute pilot-runs:
   The member states execute the pilot runs according to the planning and the way-of-work as described in section 7.2.2.
5. Coordination and reporting:
   The pilot-leader documents the execution of the pilot-runs and reports to the product owner and program management.

7.2.2 Way-of-work of the pilot-runs

In the running phase the pilot scenarios are executed separately but the executions follow the same structure. The pilot scenarios will be executed during a joint 'pilot-run session': a timebox (approx. 4 hours) where the pilot run is performed by the Member States involved in the pilot-scenario, with their technical staff stand-by to resolve any issues, and in presence of the pilot-lead and WP5 (to assist in the troubleshooting).

The 'pilot-run sessions' consist of the following activities:

- Prepare:
  - Final check before pilot-run: all components are up and running, eID of user(s) in order
- Perform:
  - Controlled execution of the pilot-scenario
  - Collect evidence of pilot-run
    - Recording and screenshots
    - eIDAS-request and response from SAML-trace or logfiles (decrypted)
    - OOP TS request and response from logfiles (decrypted)
  - Collect user feedback (forms and interviews)
- Conclude:
  - If pilot-run was completed:
    - Document pilot-run and archive evidence
    - Evaluate goals (as described in chapter 2
  - If pilot-run was not completed:
    - Document actions to be taken to resolve issues
    - Plan date to repeat pilot-run

7.3 Running phase milestones

During the running phase each pilot scenario will have its own execution planning. To align these pilot runs, taking into account the realisation of the concluding running phase report, overall milestones are defined.

The main milestones for the first pilot iteration are:

Table 95: Milestones first pilot iteration (initial running phase)

#	Milestone	Date
1	All pilot scenarios live: all of the pilot-scenarios to run are live and ready to run.	01-10-2021
2	All pilot scenarios completely executed: all of the pilot-scenarios to run have been executed completely, all evidence is collected and the goals are evaluated.	01-01-2022
3	Running phase report (D4.11) delivered: the report of the results and conclusions to the first running phase of the pilot is ready for submission.	31-01-2022

The main milestones for the second pilot iteration are:

Table 96: Milestones second pilot iteration (final running phase)

#	Milestone	Date
1	All pilot scenarios live: all of the pilot-scenarios to run are live and ready to run.	01-05-2022
2	All pilot scenarios completely executed: all of the pilot-scenarios to run have been executed completely, all evidence is collected and the goals are evaluated.	01-08-2022
3	Running phase report (D4.12) delivered: the report of the results and conclusions to the second running phase of the pilot is ready for submission.	31-09-2022

7.4 Running phase planning

Though the execution is performed in an Agile manner the following base planning is used as a guideline for activities of the first pilot iteration:

Table 97: Planning first pilot iteration (initial running phase)

Activity	Sept '21	Oct '21	Nov '21	Dec '21	Jan '22
1. Prepare pilot-scenarios					
2. Plan pilot runs details					
3. Check go-live pilot scenarios					
4. Execute pilot-runs					
5. Coordination and reporting					
6. Deliver report of running phase (D4.11)					

Though the execution is performed in an Agile manner and therefore not all details of the second pilot iteration are known, the following base planning is used as a guideline for activities of the second pilot iteration:

Table 98: Planning second pilot iteration (final running phase)

Activity	Apr '22	May '22	June '22	July '22	Aug '22	Sept '22
1. Prepare pilot-scenarios						
2. Plan pilot runs details						
3. Check go-live pilot scenarios						
4. Execute pilot-runs						
5. Coordination and reporting						

Activity	Apr '22	May '22	June '22	July '22	Aug '22	Sept '22
6. Deliver report of running phase (D4.12)						

7.5 Governance structure

This subsection outlines the scope of DE4A pilots' governance, providing an overview on its objectives, involved parties, responsibilities, and mechanisms to manage different situations that may arise during piloting.

Since the governance of all pilots during the execution will be under the common entities mentioned below, this section in each pilot planning deliverable will be the same. While this creates duplication in the content of the deliverables, it also ensures that the documents can be read and understood as stand-alone deliverable.

The Governance of the DE4A Pilots in production environment aims to fulfil the following main objectives:

- Continuous supervision of pilot activities to ensure the execution of the pilots is aligned with project target outcomes and expected impacts. To achieve this the prompt reaction to any issue is necessary and advisory support to the follow-up of preventive measures. This monitoring will facilitate the fulfilment of the Executive Board duties which have to be periodically reported to the decision bodies of the project (i.e. MS-Council).
- Adequate and timely management of either those situations common to the three pilots requiring a common direction across them and/or situations which require escalation to higher management levels and/or coordination from Technical Working Group i.e. they could have a project-wide impact.
- Integrated reporting to the management workpackage (WP9) and DE4A management and decision bodies including the Project Coordinator and the Member State Council.

In addition to existing governance bodies in the project, a new one will be designated, called **Pilot Supervisory Team (PST)**, as an operational entity that aims to provide effective coordination within the existing pilot management level. The scope and responsibilities of the PST are is limited to the duration of the pilots.

This Pilot Supervisory Team, will include the Pilot Leader and one Representative from each of the MS partners involved in the pilot (when there are multiple partners representing the different eProcedure portals and data services). This representative will be an appointed leader from the MS that can act as main contact point for coordinating different responsibilities of the participant in the pilot when different agencies are involved. The Pilot leader will also ensure that other partners in the pilot who do not belong to the PST are informed of any major decisions which affect them and MS representative will ensure national internal coordination for needed activities at MS level in the pilot.

It is recommended also to have special internal groups on each pilot where experts are identified with support from all partners by the Pilot Leader to focus on and support to help resolve specific matters/challenges as they arise. Such groups can be agreed upon by the Pilot Supervisory Team and convened on demand during the different phases of the pilot. It is worth to mention these specialized teams are generally of a technical nature and supportive to the overall governance.

This proposed DE4A Pilots Governance structure is shown in the following figure:

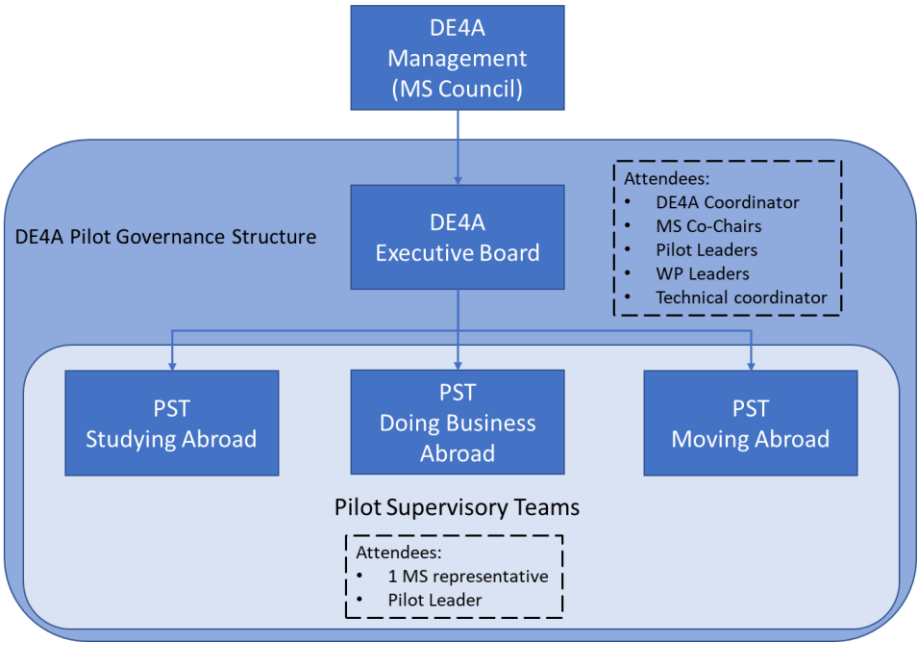


Figure 10: DE4A Pilots Governance structure

The goal of this governance entity (PST) is to discuss situations that are related to the online cross-border services and the execution activities performed within the pilot. The PST meetings can be the current regular pilot meetings where all pilot partners are participating. The PST will be chaired by the Pilot Leader and it will have periodic conference calls with high frequency in the first weeks after pilot launch. The PST can decide to modify this frequency later as it is confirmed that the pilot runs in a sufficiently stable way.

In such meetings, internal decisions can be taken on the pilot, continuously assessing the running of the pilot online services and on-going activities of the running phase and agree the problems that need to be raised to the DE4A Executive Board. When needed, important stakeholders for the pilot such as other WP leaders or Technical Coordinator, can be invited to participate actively on PST meetings.

Any significant operational issue will be duly reported to the Executive Board without significant delay.

Hierarchical management of issues determines that at pilot level it is possible to manage the following types of problems:

1. Technical and non-technical internal pilot running problems of non-critical nature,
2. Technical internal pilot problems unique to one MS,
3. Problems related to support to pilot users
4. Pilot marketing and awareness activities.

When necessary, the Pilot Leader can take advantage of General Assemblies for discussing any situation that can affect the pilot running phase and it could be replicated in other pilots, to share the lessons learned during the execution.

The Pilot Leader can submit to the Executive Board, any requests or issues for guidance on pilot management-related issues during the running phase of the pilot.

Unexpected urgent matters related to the pilot execution can be escalated offline to the Executive Board, upon prior consultation with the DE4A Pilots Coordinator. Conversely, the PST will provide feedback to the Executive Board when this is requested by such body and this response will be coordinated by the Pilot Leader attending to its urgency and ensuring its clarity.

In terms of pilot governance, the Executive Board, as one of the supervisory body for execution of the Project, will support the management of the operational activities during the live running of the pilot as a decision making body guided by the information provided by the PST (represented by the Pilot Leader).

The Executive Board will share with the PST the responsibility of governing the running phase of the pilots (including an effective implementation of decisions by the MS Council). It will provide advice supporting issue resolution based on feedback provided by the Pilot Leader on behalf of the PST. It can indicate to the PST what would need to be done, although operational decisions on how to achieve these objectives or actions will be made at PST level (and if and when necessary, discussed with the Executive Board of which Pilot Leaders are also members).

The Executive Board will focus on those problems that are common to all the pilots or any relevant issues related to running phase activities that require support beyond pilot level management. Where appropriate, the Board could include in their recommendations advice on how the required actions could be carried out, but the final decisions on how they should be implemented remain the responsibility of the PST.

Examples of problems that would be managed at the level of the Executive Board can include:

1. Technical and non-technical problems which, affecting one particular pilot, cannot be solved at PST level,
2. Technical problems common to more than one pilot which have external causes,
3. Problems unique to one MS which have an external cause and non-technical pilot problems common to more than one MS which have external causes,
4. Major security incidents which have cross-border impact (crisis management procedures would apply).

The Executive Board is chaired by Project Coordinator (ATOS) and the conference call is every two weeks. Minutes are being produced after every teleconference and the MS-Council can be informed or asked for support for especially critical issues as well based Executive Board conclusions when needed.

7.6 Identified risks during running phase

7.6.1 Low risk pilot-runs

A pilot run with a simulated eProcedure and fictitious data is a pilot run with low risk. Before the start of these pilot-runs the participating Member States need to have affirmed their mutual understanding that low risk piloting implies no specific constraints or obligations on any side. This is one of the go-live criteria and will be checked before starting the pilot-runs.

7.6.2 Medium risk pilot-runs

A pilot run with a simulated eProcedure but with real person data is a pilot run with a medium risk. Note that pilots with real eProcedures but with fictitious data are not part of the MA pilot. A medium risk pilot requires the following measures:

- Inform the users involved, as acting natural persons representing the participating legal persons, of the fact that they are involved in piloting activities, including the identification of any risks and countermeasures taken, and the (lack of) legal effects and consequences of participation. The communication should be done in their own language, in an accessible manner, and providing usable contact information. If the GDPR applies, such information provision should satisfy the requirements of the GDPR. Appropriate documentation should be retained to demonstrate that this information has been provided.
- If the piloting involves real-life persons, piloting should be organised under the supervision of a DPO.
- All pilot partners should notify any operators of production components in their respective countries in advance, and appropriate measures should be taken that piloting activities do not result in negative legal or practical consequences for any real-life persons, real life data, or production environments.
- The production environments should be cleaned afterwards as needed to ensure that no long term negative legal or practical consequences can occur for any real-life persons, real life data, or production environments, even after project termination.
- All piloting activities should be monitored by pilot partners (each solely in relation to such components of the piloting activities which are under their responsibility) in a manner that allows any incidents to be detected and remedied (including by contacting any affected real-life persons where needed).

Before the start of these pilot-runs the participating Member States need to have affirmed their mutual understanding that medium risk piloting implies these constraints and obligations on any side and that they have taken measures accordingly. This is one of the go-live criteria and will be checked before starting the runs.

7.6.3 High risk pilot-runs

A pilot run with a real eProcedure and with real person data is a pilot run with a high risk. A high-risk pilot requires the following measures:

- All measures that apply to medium risk piloting as set out in section 7.6.2. Except for requirement ‘d) cleaning of the production components’; this is not applicable if the intention of the pilot run is to really apply for a service.
- The DE4A project DPO should be informed prior to initiating piloting activity, and of any incidents that are reasonably likely to create legal effects or practical impacts on any real-life persons.
- The implementation of a pilot monitoring and remediation strategy covering all participating countries, to assess whether exchanged evidences are reasonably capable of satisfying the legal, technical and operational requirements for high risk piloting, including in terms of data quality, and to ensure that any errors in the piloting activity can be detected and remediated in a manner that eliminates any negative legal or practical consequences for any real-life persons, real life data, or production environments.

Before the start of these pilot-runs the participating Member States need to have affirmed their mutual understanding that high risk piloting implies these constraints and obligations on any side and that they have taken measures accordingly. This is one of the go-live criteria and will be checked before starting the pilot-runs.

8 Conclusions

The previous MA deliverable (D4.9) proved to be a very good foundation for further pilot preparatory activities. Based on that deliverable and the identified fundamental topics included, important working assumptions were formulated, and decisions were made after thorough analysis. Also, the MA Solution Architecture (Annex A) and more detailed pilot processes were defined, providing detailed information on how each partner will involve (and adapt) their national infrastructure to support the pilot iterations.

MA partners collaborated with work package 3 to establish Evidence models, defining the data to be exchanged by the OOP TS. This data model is supported by all partners and by WP3, after detailed examination of the requirements of all Data Evaluators as well as the availability of data in population registers of participating MA Member States.

MA partners will develop solutions in four domains: eIDAS, OOP TS Common Components, eProcedure and Data Service. To secure a managed development and testing process towards the start of the pilot, the main activities (Chapter 4) and major milestones (Chapter 5) have been identified, as have the dependencies to other work packages in the DE4A project. These milestones are the foundation for the pilot planning (Chapter 6) of each Member State participating in the Moving Abroad pilot and provide a solid basis for managing local development activities.

Last but not least, D4.10 provides a detailed view on each pilot execution phase itself (Running phase management plan). Not only on the way the pilot will be organized in activities, risk management and governance, but also on which user groups will be involved and how they will be invited to join the pilot. Also, D4.10 provides much more detail on the way the pilot will result in the data needed to evaluate the extent to which pilot goals have been met (Chapter 2).

All of the above required professional and intensive collaboration of the MA partners as well as the other work packages (2, 3, 5, 6, 7) and the project management in the DE4A project. The results are well substantiated, extensive and detailed, making deliverable D4.10 to be a significant next step towards the start of the first pilot iteration. Nevertheless, it is worth mentioning the challenge on the piloting phase in DE4A where all MS must accommodate both a policy agenda as well as a technical agenda (based on an agile approach). Each MS have very different needs in actions and customization activities to be performed in relation to their national side requirements and system updates and this implies some risks.

References

[1] DE4A D4.9 Moving Abroad - Use Case Definition & Requirements v1.0, https://www.de4a.eu/project-deliverables, retrieved on February 6th, 2021

[2] Doran, G. T. (1981). There's a S.M.A.R.T. Way to Write Management's Goals and Objectives. Management Review, 70, 35-36.

[3] DE4A D2.4 Project Start Architecture (PSA) – First iteration v2.0, https://www.de4a.eu/project-deliverables, retrieved on February 6th, 2021

A. Annex A: Solution Architecture

A.1 Solution Architecture OOP System

A.1.1 Solution Building Blocks

Below is a description of the major solution building blocks for the Moving Abroad pilot MVP 1.0.

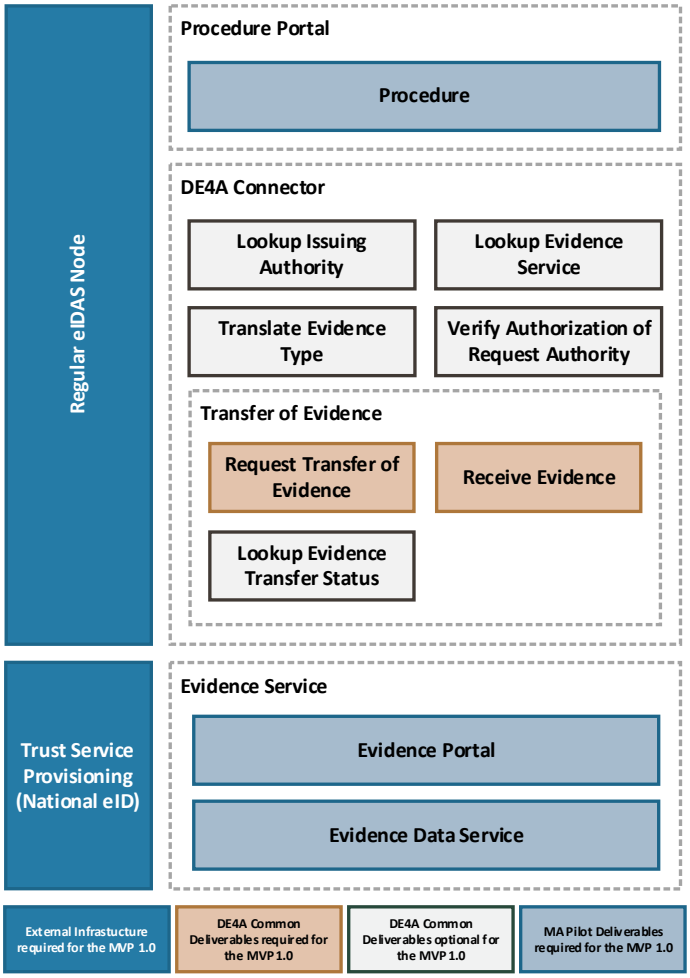


Figure 11: Solution building blocks

A.1.2 Implementation

The picture below gives an overview of how each part of the solution relates to each other.

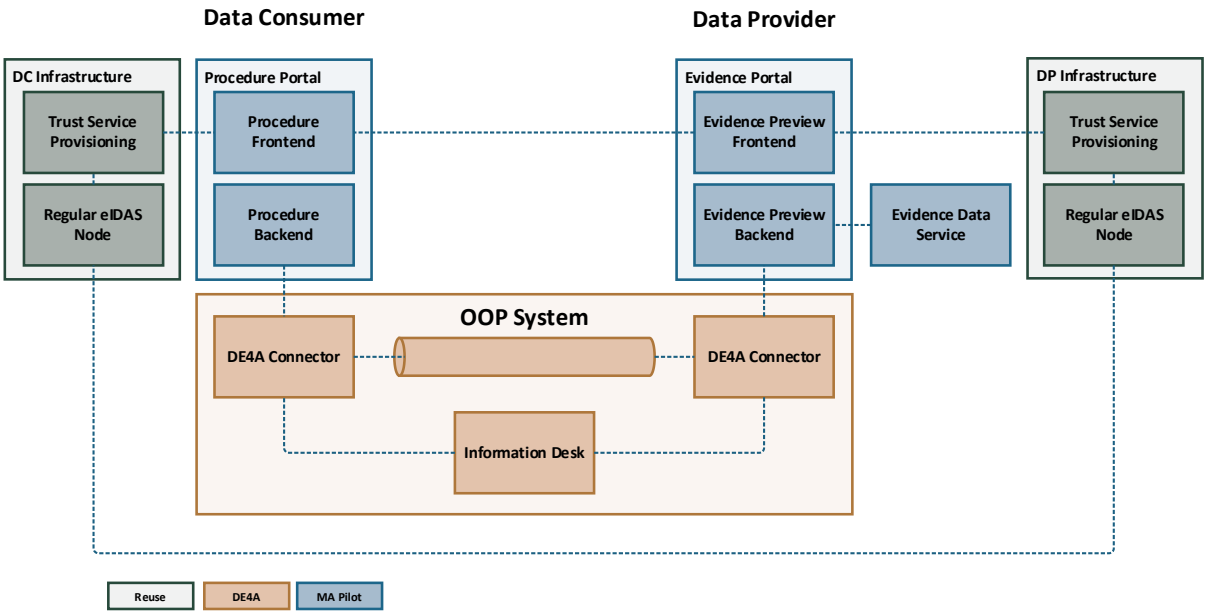


Figure 12: Relation between each component

A.1.3 Sequence Diagrams

Some details regarding authentication and extraction from evidence data service have been omitted for sake of simplicity.

A.1.3.1 User Authentication and Explicit Request

The main parts of this sequence are to start the procedure and authenticate the user using eIDAS before determining what evidence type is required, who the issuing authority is, and to determine if the user want to use the OOP system to retrieve the required evidence.

This sequence is concluded by assuming the user wants to use the Explicit Request and the OOP System to request transfer of required evidence via OOP System (including Preview by the DP).

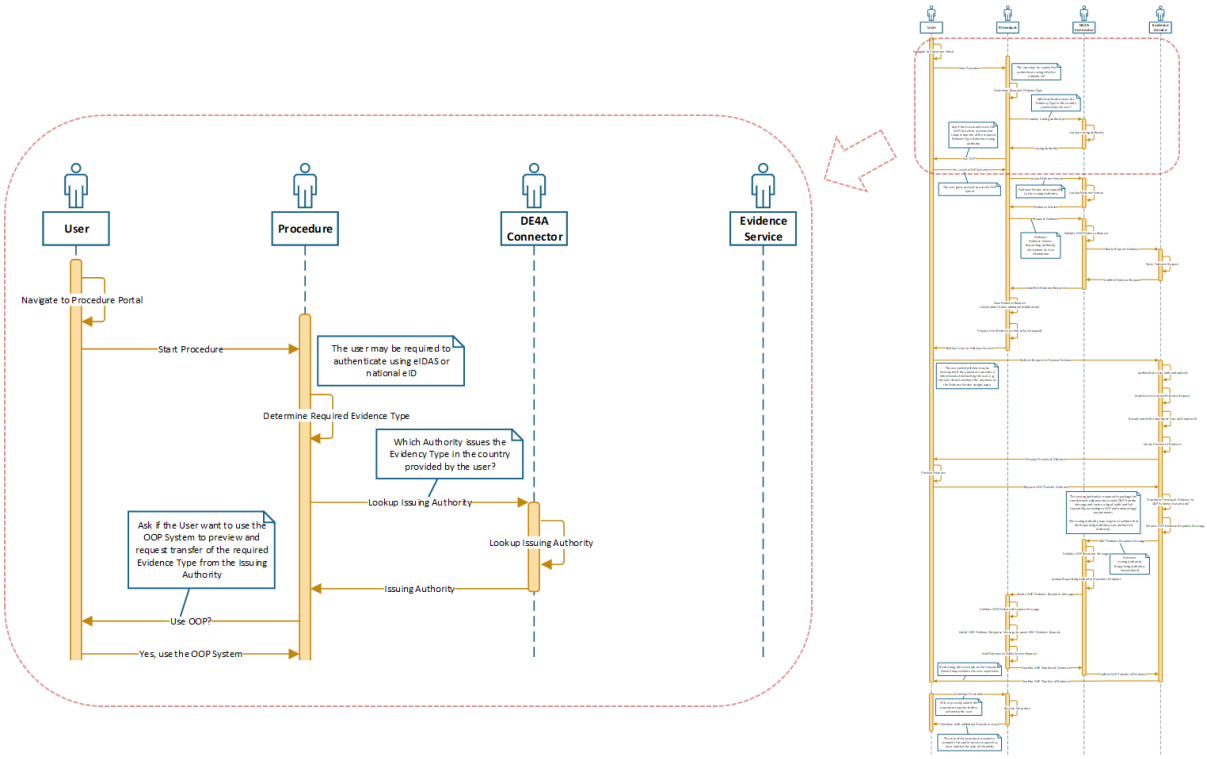


Figure 13: Process flow: starting procedure

A.1.3.1 Evidence Request, User Redirection and Preview of Evidence

If the user agrees to use the OOP System, then the procedure can continue to look up the address to evidence service of the issuing authority. The procedure is required to save the user request to use the OOP System to be able to restore the procedure when the evidence has finally been received. For this purpose some reference to the procedure instance is required, in this document the term correlation identifier is used. However, member state variations in the implementation is to be expected. Some member state may support the user with a case id while other provide the user with some sort of receipt or one-time-ticket when requesting a public service.

The procedure sends an evidence request to the evidence service of the issuing authority and then prepares to redirect the user, or alternatively preparing a navigable link, to the evidence service of the issuing authority. Besides the address to the evidence service, the procedure also adds additional information, including the requested evidence type, requesting authority and a correlation identifier to the procedure instance.

The user is presented with a navigable link or is redirected to the evidence service. The activity lifeline of the procedure is broken after the link is presented, or alternatively after redirecting the user. If the user is presented with a link instead of a redirect to the evidence service, there is a chance that the user will not continue at once. In this case the activity lifeline of the user is also considered to be interrupted.

The sequence continues with the evidence service requiring the user to authenticate. In most cases, authentication with a national eID is expected. When the user has been authenticated, the identity of the user is matched to the national id used in the authentic source (direct matching or eIDAS record matching). The evidence service matches the user with the evidence request from the requesting authority. A preview of the requested evidence is created and displayed to the user.

The sequence ends with the user previewing the displayed evidence.

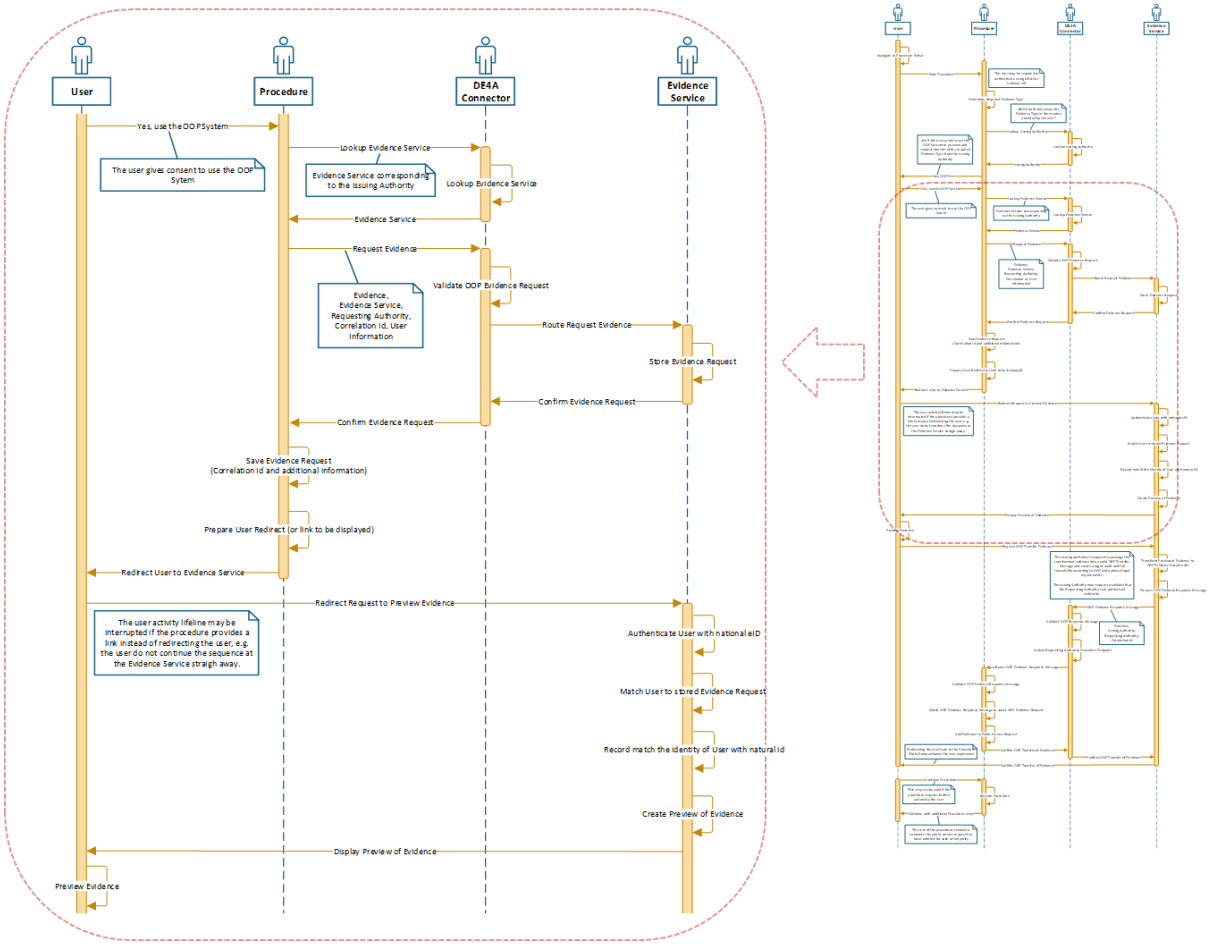


Figure 14: Process flow: evidence request

A.1.3.2 Transfer of Evidence

This part of the sequence starts with assuming the user requests OOP transfer of the previewed evidence. Before proceeding, the evidence service may be required to verify that the requesting authority is an authorized authority. If everything checks out successfully, the evidence service is must transform the evidence into the canonical evidence data exchange format and package the evidence in a response message required for evidence for transfer via the OOP system.

The evidence service sends the response message using the DE4A connector. However, it is likely that implementation details will vary between member states and authorities depending on available infrastructure and integration mechanisms. The evidence is sent via the DE4A connector and routed via the OOP system to the requesting authority.

When the transfer is completed, the requesting authority validates the message and its contents. If everything is ok, a success message is sent back to the issuing authority. The transferred evidence is linked to the correct procedure instance using the correlation identifier from the OOP response message. Depending on specific procedural requirements, the procedure instance can be restored and

continue independently of the user, or alternatively, send a message to require further user interaction.[3]

All actors' lifelines, except for the user, are expected to be terminated at the end of this sequence.

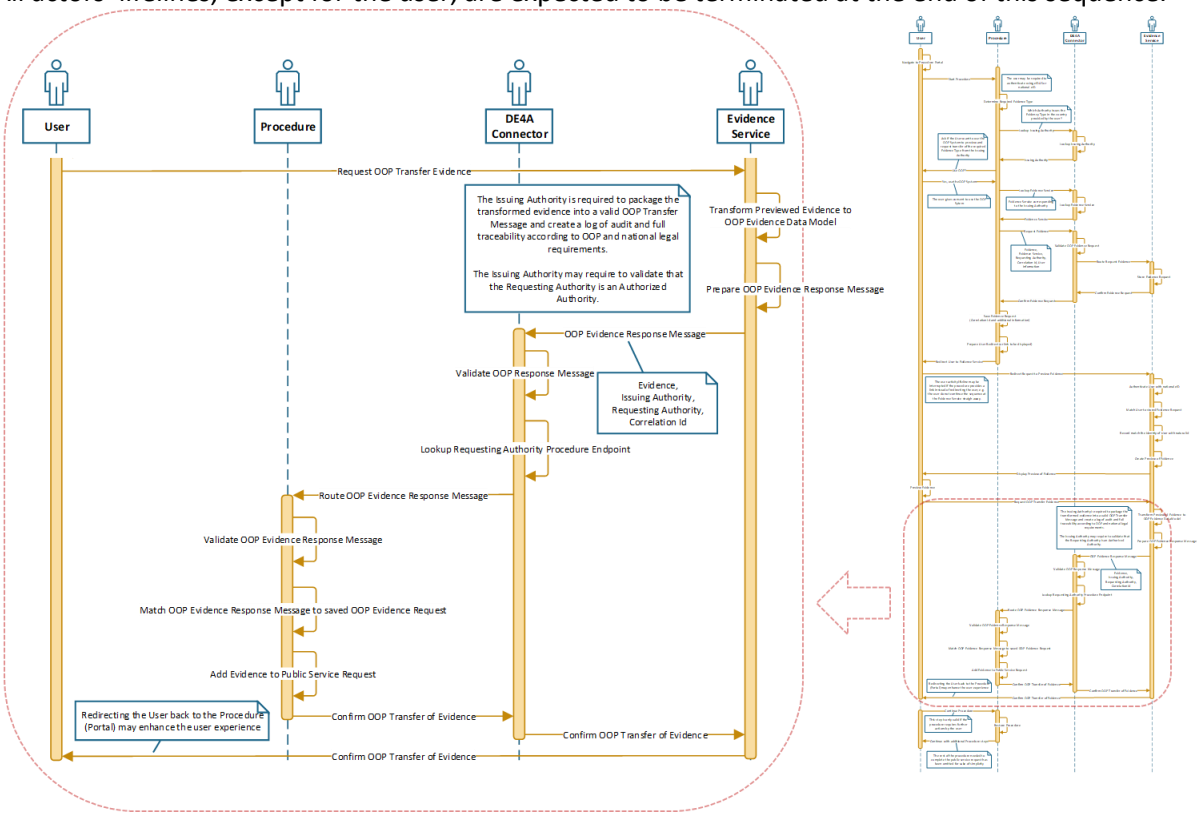


Figure 15: Process flow: transfer evidence

A.1.3.3 Use Evidence (Continue Public Service Request)

If the user is redirected back to the procedure and there are more steps to be completed in the procedure, the user may be required to re-authenticate to continue the procedure. However, member state specific variations in the implementation are to be expected. In some cases the public service is presented to the user after re-authentication, either by automation or by selecting the public service request including the evidence. In other cases the user may have to visit a service office and provide personal identification to complete the procedure.

The sequence presented below assumes that further user interaction is required by the procedure.

[3] A complicating factor is that confirmation to the user may come from both the procedure as well as from the evidence service.

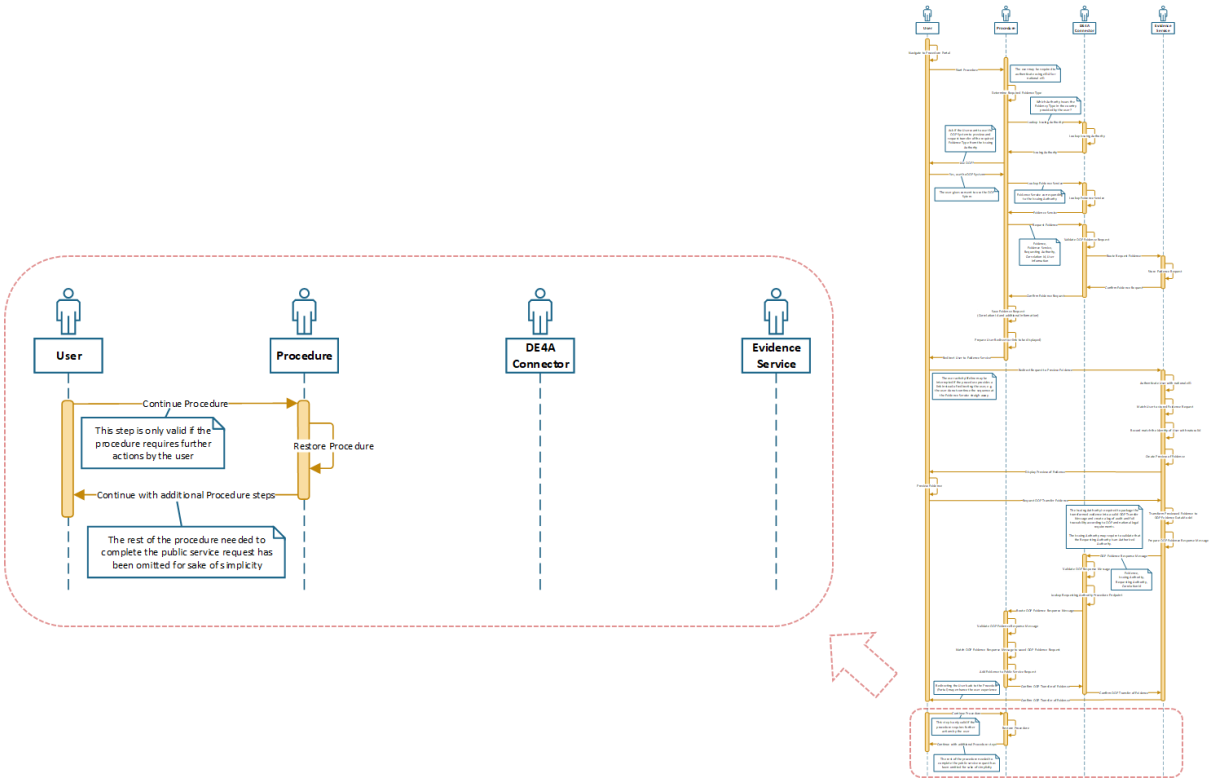


Figure 16: Process flow: use evidence

A.2 eIDAS Solution

The actors in the sequence diagrams described in the previous chapter refers to actors involvement in the evidence exchange flow. As eIDAS does not deal with evidence exchange as such, but with information on identities, an extended set of roles has been defined.

The additional roles for eIDAS are:

- **Authentication connector:** the actor that – typically at a member state level – connects to the eIDAS network as a relying party. Via the authentication connector, the data consumer or data provider can request authentication.
- **Authentication proxy:** the actor that connects the national (notified and non-notified) eID(s) to the eIDAS network. The authentication proxy role coordinates the authentication process. In the two-country scenario, authentication takes place in the data providing member state as the user and its eID are expected to be from the DP member state. In the multiple-country scenario, which will not be validated in the first iteration, the authentication proxy can be in third member state (different from the data consumer and data provider member states).

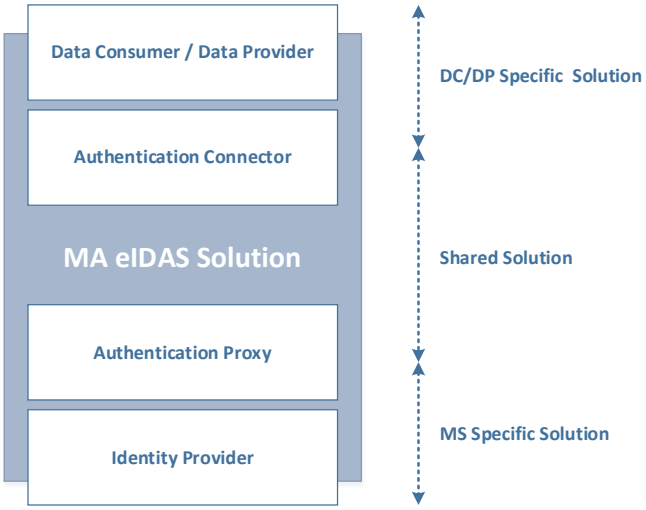


Figure 17: eIDAS solution

In the eIDAS domain the roles “authentication connector” and “authentication proxy” handle cross-border requests for authentication. In the case of two-country scenario the authentication connector of the DC-member state sends an authentication request to the DP-member state. The authentication proxy coordinates all national activities (IdP) and returns the authentication result to the authentication connector. If the DP wants to use eIDAS to authenticate users’ additional attributes may be required to do the record matching. However, it is not clear if attributes provided by the user will be sufficient from a legal perspective to do the record matching. This should be investigated by the member state before such a solution is developed.

A.2.1 Shared solution

The shared solution consists of common functionality that is part of the core eIDAS network.

A.2.1.1 Process realisation

The table below presents the components that implement the common application services for the MA pilot.

Table 99: Components implemented by application services

Role	Process	Application service	Components
Authentication connector	Request authentication	Authentication initiation	eIDAS connector
Authentication proxy	Provide authentication details (user)	User authentication	eIDAS proxy

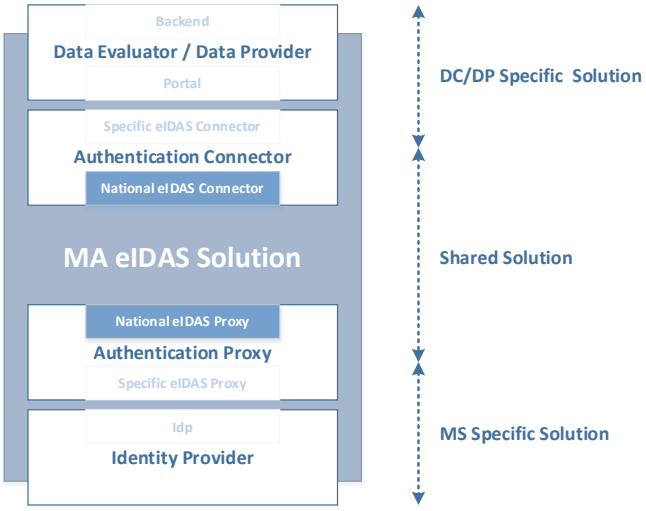


Figure 18: Solution Architecture: Common application services

A.2.1.2 Component description

Table 100: eIDAS solution: Component description

Component	Short description of its use
eIDAS connector	The component member states implement to connect to the eIDAS network as a relying party. The connector accepts authentication requests from the service providers of the member state and forwards the requests to the member states that needs to authenticate the user. After authentication, the eIDAS connector receives the authentication results and sends them to the requesting service provider (relying party). The eIDAS connector can be implemented using CEF's reference software or a custom implementation compliant to the eIDAS interoperability specifications. The CEF reference software implements – besides the eIDAS SAML profile – also the JSON/REST eIDAS Light protocol to connect to national infrastructure.
eIDAS proxy	The component member states implement to allow authentication with their (notified) eID for services provided in other member states. The eIDAS proxy receives authentication requests from relying member states and coordinates authentication. The eIDAS proxy then sends the result to the requesting eIDAS connector. Just like the eIDAS connector, the eIDAS proxy can be implemented using CEF's reference software or a custom implementation compliant to the eIDAS interoperability specifications. The CEF reference software implements – besides the eIDAS SAML profile – also the JSON/REST eIDAS Light protocol to connect to national infrastructure.

A.2.1.3 Requirements

The MA pilot did not define any additional requirements for the common eIDAS components (connector, proxy). The CEF reference software fulfils the needs of the MA pilot. However, there is a need to support non-notified Slovenian eIDs in order for Slovenian citizens to be able to participate in the pilot of MVP 1.0.

Table 101: eIDAS solution: requirements

Requirement	Iteration 1 MVP 1.0	Iteration 2 Final version
MS support for non-notified eIDs in the eIDAS nodes.	Y	Y

A.2.1.4 Component Implementation

The national eIDAS production systems are planned to be used.

A.2.2 DC specific solution

The DC specific eIDAS architecture consists of the data consumer specific services and the authentication connector specific services. The DC specific solution is different for every DC. Its solution architecture will be specified in the design documents of the DC pilot processes (one for each data consumer). Nonetheless the DC-specific solution at a higher level of abstraction shows similarities. These will be addressed in this section.

A.2.2.1 Process realisation

The table below presents the components that implement the application services for the MA pilot.

Table 102: DC: Components implemented by application services

Role	Process	Application service	Components
Data consumer	Request authentication	Authentication initiation (collaboration: eProcedure portal)	eProcedure portal and backend (different for each DC participant)
Authentication connector	Request authentication	Authentication initiation (collaboration: eProcedure portal)	Specific eIDAS connector (different for each Member state).

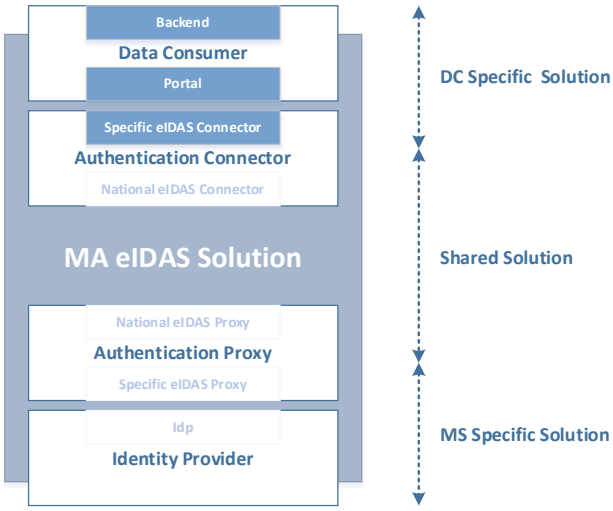


Figure 19: Solution architecture: Data consumer

A.2.2.2 Component description

Table 103: DC Components description

Component	Short description of its use
Portal	The eProcedure portal should connect to the national specific eIDAS connector. This requires the eProcedure portal to add the eIDAS login option to the login-webpage and the interface to the specific eIDAS connector (see below). Of relevance here is the type of eIDAS authentication request that the portal should implement: ▸ authentication at LoA substantial or high ▸ requesting the natural person attributes (at least the mandatory ones) After receiving the authentication response, the MS specific portal should: ▸ deny the user access to the procedure in case of an "authentication failed". ▸ grant the user access to the procedure in case of an "authentication successful".
Backend	The eProcedure back-end handles all eProcedure specific functions.

A.2.2.3 Requirements

The table below presents the requirements that the data evaluator and the authentication connector must implement. These concern the DC specific implementation only.

Table 104: DC requirements

Role	Requirement	Iteration 1 MVP 1.0	Iteration 2 Final version
Data Consumer	The eProcedure portal adds an eIDAS login option for piloting.	Y	Y
	The eProcedure portal connects to a *national* eIDAS node.	Y	Y

A.2.3 DP specific solution

The DP specific eIDAS architecture is similar to the DC specific architecture and consists of the data providers specific services and the authentication connector specific services. The DP specific solution is different for every DP. Its solution architecture will be specified in the design documents of the DP pilot processes (one for each data provider). Nonetheless the DP-specific solution at a higher level of abstraction shows similarities. These will be addressed in this section.

A.2.3.1 Process realisation

The table below presents the components that implement the application services for the MA pilot.

Table 105: DP Components implemented by application services

Role	Process	Application service	Components
Authentication proxy	Provide authentication details	User authentication	Specific eIDAS proxy (different for each Member state).
Authentication connector	Request authentication	Authentication initiation	Specific eIDAS connector (different for each Member state).

Role	Process	Application service	Components
		(collaboration: Evidence portal)	

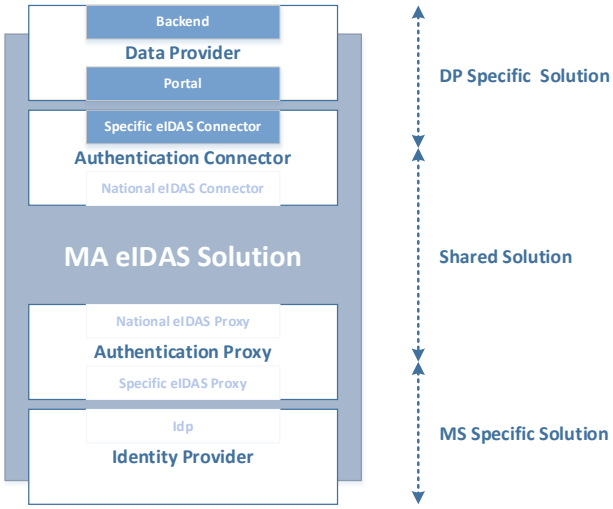


Figure 20: Solution architecture: Data provider

A.2.3.2 Component description

Table 106: DP Components description

Component	Short description of its use
Portal	The Evidence portal (like Skatteverket.se in Sweden) should connect to the national specific eIDAS connector. This requires the Evidence portal to add the eIDAS login option to the login-webpage and the interface to the specific eIDAS connector (see below). Of relevance here is the type of eIDAS authentication request that the portal should implement: ▸ authentication at LoA substantial or high ▸ requesting the natural person attributes (at least the mandatory ones) After receiving the authentication response, the MS specific portal should perform the user identity/record matching.
Backend	The webservice of the data provider that will output the evidence requested.

A.2.3.3 Requirements

The table below presents the requirements that the data provider must implement if using eIDAS to authenticate users.

Table 107: DP requirements

Role	requirement	Iteration 1 MVP 1.0	Iteration 2 Final version
Data provider	The Evidence portal adds an eIDAS login option for piloting.	Y	Y

Role	requirement	Iteration 1 MVP 1.0	Iteration 2 Final version
	The Evidence portal connects to a *national* eIDAS node.	Y	Y
	The Evidence portal asks the user to provide additional attributes for identity/record matching.	N	Y

A.3 Components requirements

A.3.1 DE4A Connector (D4C)

Table 108: DE4A requirements

Id	Description	MVP 1.0	Comments
1	The D4C provides a technical interface to a service capable of looking up the issuing authority of a specific evidence type in a given country.	Optional	This will be configured in the D4C for the first iteration of the pilot.
2	The D4C provides a technical interface to a service capable of looking up the address of the evidence service given the issuing authority.	Optional	This will be configured in the D4C for the first iteration of the pilot.
3	The D4C provides a technical interface to a service capable of verifying the authorization of a given authority requesting access to a given evidence type and member state.	Optional	This will be configured in the D4C for the first iteration of the pilot.
4	The D4C provides a technical interface to a service capable of requesting evidence from an authentic source to an authorized authority between DE4A MS.		
5	The D4C provides a technical interface to a service capable of transporting a given evidence from an authentic source to an authorized authority between DE4A MS.	Mandatory	
6	The DC4 supports additional information to be included in request and response message, including: issuing authority, requesting authority, evidence type, correlation id, user information.	Mandatory	

A.3.2 eIDAS

Table 109: eIDAS component requirements

Id	Description	Type	
1	Regular eIDAS node can be used to authenticate users using the Procedure Portal or Evidence Portal.	Mandatory	

A.3.3 Trust Service Provisioning

Table 110: Trust services requirements

Id	Description	Type	
1	National trust service can be used to authenticate users of the Evidence Portal.	Mandatory	

A.3.4 Procedure Portal

Table 111 : Procedure portal requirements

Id	Description	Type	
1	The Procedure Portal provides the user with the capability to give consent to the Explicit Request use the OOP System to transfer required evidences from issuing authorities.	Mandatory	
2	The Procedure Portal provides the user with functionality to be redirected to issuing authorities to which transfer of evidences will be requested after giving consent to use the OOP System.	Mandatory	
3	The Procedure Portal has capability to request evidence from issuing authorities and their corresponding evidence services	Mandatory	
4	The Procedure Portal has capability to inform the user when requested evidences have been received via the DE4A Connector.	Mandatory	
5	The Procedure Portal provides the user with capability to complete any unfinished procedure steps left after receiving requested evidences via the DE4A Connector.	Mandatory	
6	The Procedure Portal has capability to provide the user with information about the issuing authority of required evidences.	Mandatory	
7	The Procedure Portal has capability to provide the user with information about required evidence types.	Mandatory	
8	The Procedure Portal has capability to look up the issuing authority for a specific evidence type in a given member state using the DE4A Connector.	Optional	
9	The Procedure Portal has capability to look up the type evidence type corresponding to the information required in the procedure using the DE4A Connector.	Optional	Direct mapping to evidence types may be used in the pilot.
10	The Procedure Portal has capability to match requested evidences to received evidences.	Mandatory	
11	The Procedure Portal has the capability to receive evidence, sent from the issuing authority, using the DE4A Connector.	Mandatory	

Id	Description	Type	
12	The Procedure Portal has the capability to authenticate user with eIDAS.	Mandatory	

A.3.5 Evidence Portal

Table 112: Evidence portal requirements

Id	Description	Type	
1	The Evidence Portal has the capability to match authenticated users to received evidence requests from authorized authorities.	Mandatory	
2	The Evidence Portal provides users with the capability to preview required evidences from issuing authorities.	Mandatory	
3	The Evidence Portal provides users with the capability to approve transfer (after preview) of evidences using the OOP System	Mandatory	
4	The Evidence Portal has capability to inform users when requested evidences have been transferred via the DE4A Connector.	Mandatory	
5	The Evidence Portal has the capability send evidences to the requesting authority using the DE4A Connector.	Mandatory	Additional information to be included in the request to transfer evidences include: issuing authority, requesting authority, evidence type, and request id.
6	The Evidence Portal has the capability to transform evidences to the canonical Evidence Data Model.	Mandatory	
7	The Evidence Portal has the capability to receive confirmation of completed transfer messages using the DE4A Connector.	Mandatory	
8	The Evidence Portal has the functionality to redirect or link users back to the Procedure Portal.	Optional	
9	The Evidence Portal has the capability to authenticate users with national eIDs.	Mandatory	

A.4 Dependencies

The dependencies between different outcomes on the DE4A project for the Moving Abroad pilot is visualized in the table below.

Table 113: Outcomes dependencies

Outcomes	Description	Solution Ideas
MA MVP 1.0	Solution running in production with real user.	*A/B-Testing, Canary Release, Feature Toggling*

Outcomes	Description	Solution Ideas
Member State Acceptance Test	The solution works correctly from a user's perspective, not just from a technical perspective and is accepted by all partners participating in the planned pilot.	
Procedure Portal Implementation	Procedure is fully implemented with required functionality, interfaces, and integration required to run the pilot.	*Client-side UI-Composition Pattern, Saga Pattern*
Evidence Portal Implementation	Evidence Portal is fully implemented with required functionality, interfaces, and integration required to run the pilot.	*Client-side UI-Composition Pattern*
Transfer of Evidence End-To-End Test	OOP Request Messages can be sent from one DE4A Connector, in member state A, via the OOP System, to another DE4A Connector, in member state B. For testing purposes, messages can be prepared manually. Messages be sent and received using some suitable testing tool like Postman or Jmeter.	*Consumer-side Contract Test*
Receive Evidence	Initially a stub service to be integrated with a DE4A Connector to receive messages. To be integrated with the Procedure Portal and possible some member state specific case management system.	*Messaging Pattern, Choreography Pattern, Outbox Table Pattern*
Request Transfer of Evidence	Initially a stub service to be integrated with a DE4A Connector to send transfer request messages. To be called by the Evidence Portal.	*Messaging Pattern, Choreography Pattern, Outbox Table Pattern*
Extract Evidence	Extracts evidences from registry service. To be called by the Evidence Portal.	*API Composition Pattern, CQRS*
User Interface Mock-Up	In addition to described deliverables, it would be useful to provide examples and of the procedure and evidence user interfaces for each participating member state as early as possible. This could be done independent of the other deliverables.	*Storybook, GUI-Mock-up*

B. Annex B: Feedback Forms

Questionnaire for Data Evaluators (USI pattern)

A1.1	Please rate your appreciation of the quality of moving data when using the DE4A OOP TS compared to the traditional situation where the DE4A OOP TS is not used, focusing on the following aspects:	Very low	Low	Neutral	High	Very high
	Availability in electronic format					
	If the value is “Very low” or “Low”, please explain briefly what were the issues with availability in electronic format					
	Availability in structured format					
	If the value is “Very low” or “Low”, please explain briefly what were the issues with availability in structured format					
	Completeness of available data					
	If the value is “Very low” or “Low”, please explain briefly what were the issues with completeness of available data					
	Correctness of available data					
	If the value is “Very low” or “Low”, please explain briefly what were the issues with correctness of available data					
	Reliability of available data					
	If the value is “Very low” or “Low”, please explain briefly what were the issues with reliability of available data					
	Meaningfulness of available data					
	If the value is “Very low” or “Low”, please explain briefly what were the issues with meaningfulness of available data					

C2.1	Please estimate the benefits compared to the costs and effort required to customize the eProcedure portal and integrate it with the DE4A Connector, focusing on the following aspects	Considerably less than cost and effort	Less than cost and effort	On par with cost and effort	Exceeding cost and effort	Considerably exceeding cost and effort
	Lower manual effort for processing					
	Lower communications cost					
	Lower risk of errors that result from manual					

	processing and language challenges					
	Shorter duration of application processing					
	Please estimate the change of duration of application processing in minutes per application					
	More complete, valuable, consistent and correct data available					
	Trustworthiness of the data					
	If the benefits are estimated as smaller than the cost and effort for any of the aspects, please explain briefly why					
C2.2	Please estimate the effort required for completing the following activities when customizing and integrating the eProcedure portal to the DE4A Connector in person days (enter N/A if the activity was not needed):					
	Integration of the portal with an eIDAS node					
	Implementation of explicit request					
	Integration of the portal with the DE4A Connector					
	Transformation from canonical format and use of the received evidence					
	UI internationalization					
	Overall effort					

Questionnaire for Data Owners (USI pattern)

C1.1	Please estimate the benefits compared to the costs and effort required to customize the Evidence portal and integrate it with the DE4A Connector, focusing on the following aspects	Considerably less than cost and effort	Less than cost and effort	On par with cost and effort	Exceeding cost and effort	Considerably exceeding cost and effort
	Lower manual effort for processing					
	Lower communications cost					
	Lower risk of errors that result from manual processing and language challenges					

	Shorter duration of application processing					
	Please estimate the change of duration of application processing in minutes per application					
	If the benefits are estimated as smaller than the cost and effort for any of the aspects, please explain briefly why					

C1.2	Please estimate the effort required to complete the following activities when customizing the Evidence portal and the data service and integrating them with the DE4A Connector in person days (enter N/A if the activity was not needed):	
	Integration with an eIDAS node	
	Implementation of Preview	
	Integration with the DE4A Connector	
	Transformation to canonical format and provision of the requested evidence	
	UI internationalization	
	Overall effort	

Questionnaire for Member States

C3.1	Please estimate the benefits compared to the costs, effort and time required to setting up and deploying the AS4 gateway, the SMP and the DE4A Connector focusing on the following aspects	Considerably less than cost, effort and time	Less than cost, effort and time	On par with cost, effort and time	Exceeding cost, effort and time	Considerably exceeding cost, effort and time
	Effort and cost of implementation					
	Effort and cost of maintenance					
	Effort and cost of training					
	Shorter duration of application processing					
	Please estimate the change of duration of application processing in minutes per application					
	If the benefits are estimated as smaller than the cost, effort and time for any of					

	the aspects, please explain briefly why					
C3.2	Please estimate the effort required to set up and deploy (in person days):					
	AS4 gateway (if not integrated with the DE4A Connector)					
	SMP					
	DE4A Connector					

Questionnaire for Citizens

B1.1	Please rate your satisfaction with the completed e-procedure focusing on the following aspects:	Very dissatisfied	Dissatisfied	Neutral	Satisfied	Very satisfied
	Required effort					
	Clarity of the procedure					
	Simplicity					
	Number of errors and interruptions					
	Language					
	Communication					
	Overall user experience					
	Duration of the procedure					
	Security and protection of your privacy					
	Control when managing my moving data					
	In case of the “Very dissatisfied” or “Dissatisfied” values, please provide your comments with respect to the above aspects, any problems you might have experienced during the procedure, and suggestions for improving user experience					

C. Annex C: XSD of Pilot Evidence Type

XSD for Birth Evidence

```
<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema targetNamespace="urn:eu-de4a:xsd:CanonicalEvidenceType::BirthEvidence:v1.3"
elementFormDefault="qualified" attributeFormDefault="unqualified" version="1.0" xmlns="urn:eu-
de4a:xsd:CanonicalEvidenceType::BirthEvidence:v1.3"
xmlns:udt="urn:oasis:names:specification:bdndr:schema:xsd:UnqualifiedDataTypes-1"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:person="http://www.w3.org/ns/corevocabulary/person"
xmlns:location="http://www.w3.org/ns/corevocabulary/location"
xmlns:cvb="http://www.w3.org/ns/corevocabulary/BasicComponents"
xmlns:cva="http://www.w3.org/ns/corevocabulary/AggregateComponents"
xmlns:cbc="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-2">
        <!-- ===== Imports======================================== -->
        <xsd:import namespace="http://www.w3.org/XML/1998/namespace" schemaLocation="xml.xsd"/>
        <xsd:import namespace="http://www.w3.org/ns/corevocabulary/person"
schemaLocation="../_external/Core_Vocabularies_XML_Schema_v1.00/xsd/CorePerson-v1.00.xsd"/>
        <xsd:import namespace="http://www.w3.org/ns/corevocabulary/location"
schemaLocation="../_external/Core_Vocabularies_XML_Schema_v1.00/xsd/CoreLocation-v1.00.xsd"/>
        <xsd:import namespace="http://www.w3.org/ns/corevocabulary/BasicComponents"
schemaLocation="../_external/Core_Vocabularies_XML_Schema_v1.00/xsd/CoreVocabularyBasicComponen
ts-v1.00.xsd"/>
        <xsd:import namespace="http://www.w3.org/ns/corevocabulary/AggregateComponents"
schemaLocation="../_external/Core_Vocabularies_XML_Schema_v1.00/xsd/CoreVocabularyAggregateComp
onents-v1.00.xsd"/>
        <xsd:import namespace="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-
2" schemaLocation="../_external/UBL-2.3/xsd/common/UBL-CommonBasicComponents-2.3.xsd"/>
        <xsd:import namespace="urn:oasis:names:specification:bdndr:schema:xsd:UnqualifiedDataTypes-1"
schemaLocation="../_external/UBL-2.3/xsd/common/BDNDR-UnqualifiedDataTypes-1.1.xsd"/>
        <!-- ====================================================== -->
        <xsd:element name="BirthEvidence" type="BirthEvidenceType"/>
        <xsd:complexType name="BirthEvidenceType">
                <xsd:annotation>
                        <xsd:documentation xml:lang="en">
                                Official document or data proving the Birth of a Child.
                        </xsd:documentation>
                </xsd:annotation>
                <xsd:sequence>
                        <xsd:element name="Identifier" type="cva:CvidentifierType" minOccurs="0"
maxOccurs="1">
                                <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                                An unambiguous reference to the Birth Evidence.
                                        </xsd:documentation>
                                </xsd:annotation>
                        </xsd:element>
                        <xsd:element name="IssueDate" type="udt:DateType" minOccurs="1"
maxOccurs="1">
                                <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                                The most recent date on which the Birth Evidence
```

```
instance was issued.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="IssuingAuthority" type="PublicOrganisationType"
minOccurs="1" maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            A Public Organisation with official authority in charge of
issuing the Birth Evidence.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="IssuingPlace" type="ConstrainedLocationAddressType"
minOccurs="1" maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            The Location where the Birth Evidence was issued.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="CertifiesBirth" type="BirthType" minOccurs="1"
maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            Attesting in a formal way that the Birth is true.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                            </xsd:sequence>
                        </xsd:complexType>
                        <!--
================================================================================-->
                        <xsd:complexType name="PublicOrganisationType">
                            <xsd:annotation>
                                <xsd:documentation xml:lang="en">
                                    Any organisation that is defined as being part of the public sector by a
legal framework at any level.
                                </xsd:documentation>
                            </xsd:annotation>
                            <xsd:sequence>
                                <xsd:element name="Identifier" type="cva:CvidentifierType" minOccurs="0"
maxOccurs="unbounded">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            Many organisations are referred to by an acronym or
some other identifier. For example, among the EU institutions, the ECB is the identifier for the European
Central Bank, OLAF for the European AntiN/AFraud Office, and so on. These are formally recognised by the
European Commission which provides a list of such acronyms. Analogous lists should be used in other
contexts.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="PrefLabel" type="udt:TextType" minOccurs="1"
maxOccurs="unbounded">
```

```
                        <xsd:annotation>
                                <xsd:documentation xml:lang="en">
                                        As defined in the ORG Ontology, a preferred label is used to provide the primary, legally recognised name of the organisation. An organisation may only have one such name in any given language. Primary names may be provided in multiple languages with multiple instances of the preferred label property.
                                </xsd:documentation>
                        </xsd:annotation>
                </xsd:element>
        </xsd:sequence>
</xsd:complexType>
<!--
=========================================================================================-->
<xsd:complexType name="BirthType">
        <xsd:annotation>
                <xsd:documentation xml:lang="en">
                        The event indicating the moment a Child emerges from the body of another Person, i.e. start of life.
                </xsd:documentation>
        </xsd:annotation>
        <xsd:sequence>
                <xsd:element name="Child" type="ChildType" minOccurs="1" maxOccurs="1">
                        <xsd:annotation>
                                <xsd:documentation xml:lang="en">
                                        The Person who is born at the Birth.
                                </xsd:documentation>
                        </xsd:annotation>
                </xsd:element>
                <xsd:element name="Parent" type="ParentType" minOccurs="0" maxOccurs="2">
                        <xsd:annotation>
                                <xsd:documentation xml:lang="en">
                                        The Parent of the Child.
                                </xsd:documentation>
                        </xsd:annotation>
                </xsd:element>
        </xsd:sequence>
</xsd:complexType>
<!--
=========================================================================================-->
<xsd:complexType name="ChildType">
        <xsd:annotation>
                <xsd:documentation xml:lang="en">
                        A Person of any age, who is a son or daughter.
                </xsd:documentation>
        </xsd:annotation>
        <xsd:complexContent>
                <xsd:extension base="PersonType">
                        <xsd:sequence>
                                <xsd:element name="DateOfBirth" type="DateObjectType" minOccurs="1" maxOccurs="1">
                                        <xsd:annotation>
                                                <xsd:documentation xml:lang="en">
                                                        The day on which the Child was born.
                                                </xsd:documentation>
                                        </xsd:annotation>
```

```
                                    </xsd:element>
                                    <xsd:element name="Gender" type="udt:CodeType"
minOccurs="1" maxOccurs="1">
                                        <xsd:annotation>
                                            <xsd:documentation xml:lang="en">
                                                The chromosomal state, and
reproductive organs and structures of a Person that allows them to be distinguished as female or male or not
applicable, not known or not stated.
                                            </xsd:documentation>
                                        </xsd:annotation>
                                    </xsd:element>
                                    <xsd:element name="PlaceOfBirth" type="LocationAddressType"
minOccurs="1" maxOccurs="1">
                                        <xsd:annotation>
                                            <xsd:documentation xml:lang="en">
                                                The Location where the Child was born.
                                            </xsd:documentation>
                                        </xsd:annotation>
                                    </xsd:element>
                                </xsd:sequence>
                            </xsd:extension>
                        </xsd:complexContent>
                    </xsd:complexType>
                    <!--
=======================================================================================-->
                    <xsd:complexType name="ParentType">
                        <xsd:annotation>
                            <xsd:documentation xml:lang="en">
                                One of the two Persons who are jointly the cause of the Child's Birth, i.e.
natural parent.
                            </xsd:documentation>
                        </xsd:annotation>
                        <xsd:complexContent>
                            <xsd:extension base="PersonType">
                             <xsd:sequence>
                                <xsd:element name="DateOfBirth" type="DateObjectType"
minOccurs="0" maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            The day on which the Parent was born.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="Gender" type="udt:CodeType" minOccurs="0"
maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            The chromosomal state, and
reproductive organs and structures of a Person that allows them to be distinguished as female or male.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="PlaceOfBirth" type="LocationAddressType"
minOccurs="0" maxOccurs="1">
                                    <xsd:annotation>
```

```
                                        <xsd:documentation xml:lang="en">
                                            The Location where the Parent was
born.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                            </xsd:sequence>
                        </xsd:extension>
                    </xsd:complexContent>
                </xsd:complexType>
                <!--
=========================================================================================-->
                <xsd:complexType name="PersonType">
                    <xsd:annotation>
                        <xsd:documentation xml:lang="en">
                            An individual natural person who may be dead or alive, but not imaginary.
                        </xsd:documentation>
                    </xsd:annotation>
                    <xsd:complexContent>
                        <xsd:extension base="person:CvpersonType">
                            <xsd:sequence>
                                <xsd:element name="PersonName" type="NameType"
minOccurs="1" maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            A family name is usually shared by
members of a family. This attribute also carries prefixes or suffixes which are part of the family name, e.g.
“de Boer”, “van de Putte”, “von und zu Orlow”. Multiple family names, such as are commonly found in
Hispanic countries, are recorded in the single family name field so that, for example, Miguel de Cervantes
Saavedra's family name would be recorded as "de Cervantes Saavedra".
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="Identifier" type="cva:CvidentifierType"
minOccurs="0" maxOccurs="unbounded">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            The identifier relation is used to link a
Person to any formally issued Identifier for that Person.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="Citizenship" type="JurisdictionType" minOccurs="0"
maxOccurs="unbounded">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            The citizenship relationship links a
Person to a Jurisdiction that has conferred citizenship rights on the individual such as the right to vote, to
receive certain protection from the community or the issuance of a passport. Multiple citizenships are
recorded as multiple instances of the citizenship relationship.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                            </xsd:sequence>
                        </xsd:extension>
```

```
            </xsd:complexContent>
        </xsd:complexType>
        <!--
========================================================================================-->
        <xsd:complexType name="JurisdictionType">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">
                    The authority that an official organisation has, to make legal
decisions about somebody/something.
                </xsd:documentation>
            </xsd:annotation>
            <xsd:complexContent>
                <xsd:extension base="cva:JurisdictionType">
                    <xsd:sequence>
                        <xsd:element name="Identifier" type="cvb:JurisdictionIDType"
minOccurs="0" maxOccurs="1">
                            <xsd:annotation>
                                <xsd:documentation xml:lang="en">
                                    The value for the id property is a URI for
that Jurisdiction.
                                </xsd:documentation>
                            </xsd:annotation>
                        </xsd:element>
                        <xsd:element name="Name" type="cbc:NameType"
minOccurs="1" maxOccurs="unbounded">
                            <xsd:annotation>
                                <xsd:documentation xml:lang="en">
                                    The name is simply a string that
identifies the Jurisdiction, typically a country, with or without a language tag.
                                </xsd:documentation>
                            </xsd:annotation>
                        </xsd:element>
                    </xsd:sequence>
                </xsd:extension>
            </xsd:complexContent>
        </xsd:complexType>
        <!--
========================================================================================-->
        <xsd:complexType name="ConstrainedLocationAddressType">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">
                    The Address of a location based on the INSPIRE Address
representation. It is subclass of the class Address.
                </xsd:documentation>
            </xsd:annotation>
            <xsd:complexContent>
                <xsd:extension base="AddressType">
                    <xsd:sequence>
                        <xsd:element name="AdminUnitL2"
type="cvb:AdminunitSecondlineType" minOccurs="1" maxOccurs="1">
                            <xsd:annotation>
                                <xsd:documentation xml:lang="en">
                                    The region of the address, usually a
county, state or other such area that typically encompasses several localities.
                                </xsd:documentation>
```

```
                                        </xsd:annotation>
                                    </xsd:element>
                                    <xsd:element name="AdminUnitL1"
type="cvb:AdminunitFirstlineType" minOccurs="1" maxOccurs="1">
                                        <xsd:annotation>
                                            <xsd:documentation xml:lang="en">
                                                The uppermost administrative unit for
the address, almost always a country. Best practice is to use the ISO 3166-1 code.
                                            </xsd:documentation>
                                        </xsd:annotation>
                                    </xsd:element>
                                </xsd:sequence>
                            </xsd:extension>
                        </xsd:complexContent>
                    </xsd:complexType>
                    <!--
================================================================================-->
                    <xsd:complexType name="LocationAddressType">
                        <xsd:annotation>
                            <xsd:documentation xml:lang="en">
                                The Address of a location based on the INSPIRE Address
representation. It is subclass of the class Address.
                            </xsd:documentation>
                        </xsd:annotation>
                        <xsd:complexContent>
                            <xsd:extension base="AddressType">
                                <xsd:sequence>
                                    <xsd:element name="AdminUnitL2"
type="cvb:AdminunitSecondlineType" minOccurs="0" maxOccurs="1">
                                        <xsd:annotation>
                                            <xsd:documentation xml:lang="en">
                                                The region of the address, usually a
county, state or other such area that typically encompasses several localities.
                                            </xsd:documentation>
                                        </xsd:annotation>
                                    </xsd:element>
                                    <xsd:element name="AdminUnitL1"
type="cvb:AdminunitFirstlineType" minOccurs="0" maxOccurs="1">
                                        <xsd:annotation>
                                            <xsd:documentation xml:lang="en">
                                                The uppermost administrative unit for
the address, almost always a country. Best practice is to use the ISO 3166-1 code.
                                            </xsd:documentation>
                                        </xsd:annotation>
                                    </xsd:element>
                                </xsd:sequence>
                            </xsd:extension>
                        </xsd:complexContent>
                    </xsd:complexType>
                    <!--
================================================================================-->
                    <xsd:complexType name="AddressType">
                        <xsd:annotation>
                            <xsd:documentation xml:lang="en">
                                Representation of address based on the INSPIRE Address
```

Representation.

```
                                    </xsd:documentation>
                            </xsd:annotation>
                            <xsd:complexContent>
                                    <xsd:extension base="cva:CvaddressType">
                                            <xsd:sequence>
                                                    <xsd:element name="PoBox" type="cvb:PoBoxType"
minOccurs="0" maxOccurs="1">
                                                            <xsd:annotation>
                                                                    <xsd:documentation xml:lang="en">
```

The Post Office Box number. INSPIRE's name for this is "postalDeliveryIdentifier" for which it uses the locator designator property with a type attribute of that name. This vocabulary separates out the Post Office Box for greater independence of technology.

```
                                                                    </xsd:documentation>
                                                            </xsd:annotation>
                                                    </xsd:element>
                                                    <xsd:element name="Thoroughfare"
type="cvb:ThoroughfareType" minOccurs="0" maxOccurs="1">
                                                            <xsd:annotation>
                                                                    <xsd:documentation xml:lang="en">
```

The uppermost administrative unit for the address, almost always a country. Best practice is to use the ISO 3166-1 code.

```
                                                                    </xsd:documentation>
                                                            </xsd:annotation>
                                                    </xsd:element>
                                                    <xsd:element name="LocatorDesignator"
type="cvb:LocatorDesignatorType" minOccurs="0" maxOccurs="1">
                                                            <xsd:annotation>
                                                                    <xsd:documentation xml:lang="en">
```

The locator designator is defined by the INSPIRE guidelines as "a number or a sequence of characters that uniquely identifies the locator within the relevant scope(s). The full identification of the locator could include one or more locator designators." In simpler terms, this is the building number, apartment number, etc. For an address such as "Flat 3, 17 Bridge Street", the locator is "flat 3, 17."

```
                                                                    </xsd:documentation>
                                                            </xsd:annotation>
                                                    </xsd:element>
                                                    <xsd:element name="LocatorName"
type="cvb:LocatorNameType" minOccurs="0" maxOccurs="1">
                                                            <xsd:annotation>
                                                                    <xsd:documentation xml:lang="en">
```

Based on the INSPIRE guidelines, locator name is defined as: "Proper noun(s) applied to the real world entity identified by the locator. The locator name could be the name of the property or complex, of the building or part of the building, or it could be the name of a room inside a building. The key difference between a locator and a locator name is that the latter is a proper name and is unlikely to include digits. For example, "Shumann, Berlaymont" is a meeting room within the European Commission headquarters for which locator name is more appropriate than locator.

```
                                                                    </xsd:documentation>
                                                            </xsd:annotation>
                                                    </xsd:element>
                                                    <xsd:element name="AddressArea"
type="cvb:CvaddressAreaType" minOccurs="0" maxOccurs="1">
                                                            <xsd:annotation>
```

```
                                        <xsd:documentation xml:lang="en">
                                            Taking the definition from INSPIRE, the address area is: the name or names of a geographic area or locality that groups a number of addressable objects for addressing purposes, without being an administrative unit." This would typically be part of a city, a neighbourhood or village.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="PostName" type="cvb:PostNameType" minOccurs="0" maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            The key postal division of the address, usually the city. (INSPIRE's definition is "One or more names created and maintained for postal purposes to identify a subdivision of addresses and postal delivery points.)
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="PostCode" type="cvb:PostCodeType" minOccurs="0" maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            The post code (a.k.a postal code, zip code etc.). Post codes are common elements in many countries' postal address systems.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                            </xsd:sequence>
                        </xsd:extension>
                    </xsd:complexContent>
                </xsd:complexType>
                <!--
================================================================================-->
                <xsd:complexType name="DateObjectType">
                    <xsd:annotation>
                        <xsd:documentation xml:lang="en">
                            Structured representation of date with year, month and day of the month.
                        </xsd:documentation>
                    </xsd:annotation>
                    <xsd:sequence>
                        <xsd:element name="Year" type="xsd:gYear" minOccurs="0" maxOccurs="1">
                            <xsd:annotation>
                                <xsd:documentation xml:lang="en">
                                    A gregorian calendar year. The value space of Year is the set of Gregorian calendar years as defined in § 5.2.1 of ISO 8601. Specifically, it is a set of one-year long, non-periodic instances e.g. lexical 1999 to represent the whole year 1999, independent of how many months and days this year has.
                                </xsd:documentation>
                            </xsd:annotation>
                        </xsd:element>
                        <xsd:element name="Month" type="xsd:gMonth" minOccurs="0" maxOccurs="1">
                            <xsd:annotation>
                                <xsd:documentation xml:lang="en">
                                    A gregorian month that recurs every year. The value space of Month is the space of a set of calendar months as defined in § 3 of ISO 8601. Specifically, it is a set
```

```
of one-month long, yearly periodic instances.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="Day" type="xsd:gDay" minOccurs="0" maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            A gregorian day that recurs, specifically a day of the
month such as the 5th of the month. The value space of Day is the space of a set of calendar dates as defined
in § 3 of ISO 8601. Specifically, it is a set of one-day long, monthly periodic instances.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                            </xsd:sequence>
                        </xsd:complexType>
                        <!--
========================================================================================-->
                        <xsd:complexType name="NameType">
                            <xsd:annotation>
                                <xsd:documentation xml:lang="en">
                                    A name of a person that includes the family and given name.
                                </xsd:documentation>
                            </xsd:annotation>
                            <xsd:sequence>
                                <xsd:element name="FamilyName" type="cbc:FamilyNameType" minOccurs="0"
maxOccurs="unbounded">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            A family name is usually shared by members of a family.
This attribute also carries prefixes or suffixes which are part of the family name, e.g. “de Boer”, “van de
Putte”, “von und zu Orlow”. Multiple family names, such as are commonly found in Hispanic countries, are
recorded in the single family name field so that, for example, Miguel de Cervantes Saavedra's family name
would be recorded as "de Cervantes Saavedra".
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="GivenName" type="cvb:GivenNameType" minOccurs="0"
maxOccurs="unbounded">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            A given name, or multiple given names, are the
denominator(s) that identify an individual within a family. These are given to a Person by his or her parents
at birth or may be legally recognised as 'given names' through a formal process. All given names are ordered
in one field so that, for example, the given name for Johann Sebastian Bach is “Johann Sebastian”.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                            </xsd:sequence>
                        </xsd:complexType>
                        <!--
========================================================================================-->
</xsd:schema>
```

XSD for Marriage Evidence

```
<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema targetNamespace="urn:eu-de4a:xsd:CanonicalEvidenceType::MarriageEvidence:v1.3"
elementFormDefault="qualified" attributeFormDefault="unqualified" version="1.0" xmlns="urn:eu-
de4a:xsd:CanonicalEvidenceType::MarriageEvidence:v1.3"
xmlns:udt="urn:oasis:names:specification:bdndr:schema:xsd:UnqualifiedDataTypes-1"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:person="http://www.w3.org/ns/corevocabulary/person"
xmlns:location="http://www.w3.org/ns/corevocabulary/location"
xmlns:cvb="http://www.w3.org/ns/corevocabulary/BasicComponents"
xmlns:cva="http://www.w3.org/ns/corevocabulary/AggregateComponents"
xmlns:cbc="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-2">
        <!-- ===== Imports======================================== -->
        <xsd:import namespace="http://www.w3.org/XML/1998/namespace" schemaLocation="xml.xsd"/>
        <xsd:import namespace="urn:oasis:names:specification:bdndr:schema:xsd:UnqualifiedDataTypes-1"
schemaLocation="../_external/UBL-2.3/xsd/common/BDNDR-UnqualifiedDataTypes-1.1.xsd"/>
        <xsd:import namespace="http://www.w3.org/ns/corevocabulary/person"
schemaLocation="../_external/Core_Vocabularies_XML_Schema_v1.00/xsd/CorePerson-v1.00.xsd"/>
        <xsd:import namespace="http://www.w3.org/ns/corevocabulary/location"
schemaLocation="../_external/Core_Vocabularies_XML_Schema_v1.00/xsd/CoreLocation-v1.00.xsd"/>
        <xsd:import namespace="http://www.w3.org/ns/corevocabulary/BasicComponents"
schemaLocation="../_external/Core_Vocabularies_XML_Schema_v1.1/xsd/CoreVocabularies-
BasicComponents-1.1.xsd"/>
        <xsd:import namespace="http://www.w3.org/ns/corevocabulary/AggregateComponents"
schemaLocation="../_external/Core_Vocabularies_XML_Schema_v1.00/xsd/CoreVocabularyAggregateComp
onents-v1.00.xsd"/>
        <xsd:import namespace="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-
2" schemaLocation="../_external/UBL-2.3/xsd/common/UBL-CommonBasicComponents-2.3.xsd"/>
        <!-- ====================================================== -->
        <xsd:element name="MarriageEvidence" type="MarriageEvidenceType"/>
        <xsd:complexType name="MarriageEvidenceType">
                <xsd:annotation>
                        <xsd:documentation xml:lang="en">
                                Official document or data proving the Marriage of two Persons.
                        </xsd:documentation>
                </xsd:annotation>
                <xsd:sequence>
                        <xsd:element name="Identifier" type="cva:CvidentifierType" minOccurs="0"
maxOccurs="1">
                                <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                                An unambiguous reference to the Marriage Evidence.
                                        </xsd:documentation>
                                </xsd:annotation>
                        </xsd:element>
                        <xsd:element name="IssueDate" type="udt:DateType" minOccurs="1"
maxOccurs="1">
                                <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                                The most recent date on which the Marriage Evidence
instance was issued.
                                        </xsd:documentation>
                                </xsd:annotation>
                        </xsd:element>
```

```
                        <xsd:element name="IssuingAuthority" type="PublicOrganisationType"
minOccurs="1" maxOccurs="1">
                                <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                                A Public Organisation with official authority in charge of
issuing the Marriage Evidence.
                                        </xsd:documentation>
                                </xsd:annotation>
                        </xsd:element>
                        <xsd:element name="IssuingPlace" type="ConstrainedLocationAddressType"
minOccurs="1" maxOccurs="1">
                                <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                                The Location where the Marriage Evidence was issued.
                                        </xsd:documentation>
                                </xsd:annotation>
                        </xsd:element>
                        <xsd:element name="CertifiesMarriage" type="MarriageType" minOccurs="1"
maxOccurs="1">
                                <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                                Attesting in a formal way that the Marriage is true.
                                        </xsd:documentation>
                                </xsd:annotation>
                        </xsd:element>
                        <xsd:element name="CertifiesEndOfMarriage" type="EndOfMarriageType"
minOccurs="0" maxOccurs="1">
                                <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                                In case of divorce, this property includes information on
the end of marriage
                                        </xsd:documentation>
                                </xsd:annotation>
                        </xsd:element>
                </xsd:sequence>
        </xsd:complexType>
        <!--
================================================================================-->
        <xsd:complexType name="PublicOrganisationType">
                <xsd:annotation>
                        <xsd:documentation xml:lang="en">
                                Any organisation that is defined as being part of the public sector by a
legal framework at any level.
                        </xsd:documentation>
                </xsd:annotation>
                <xsd:sequence>
                        <xsd:element name="Identifier" type="cva:CvidentifierType" minOccurs="0"
maxOccurs="unbounded">
                                <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                                Attesting in a formal way that the Marriage is true.
                                        </xsd:documentation>
                                </xsd:annotation>
                        </xsd:element>
                        <xsd:element name="PrefLabel" type="udt:TextType" minOccurs="1"
```

```
maxOccurs="unbounded">
                        <xsd:annotation>
                            <xsd:documentation xml:lang="en">
                                Many organisations are referred to by an acronym or
some other identifier. For example, among the EU institutions, the ECB is the identifier for the European
Central Bank, OLAF for the European Anti-Fraud Office, and so on. These are formally recognised by the
European Commission which provides a list of such acronyms. Analogous lists should be used in other
contexts.
                            </xsd:documentation>
                        </xsd:annotation>
                    </xsd:element>
                </xsd:sequence>
            </xsd:complexType>
            <!--
=======================================================================================-->
            <xsd:complexType name="MarriageType">
                <xsd:annotation>
                    <xsd:documentation xml:lang="en">
                        A legally accepted relationship between two Persons in which
they live together.
                    </xsd:documentation>
                </xsd:annotation>
                <xsd:sequence>
                    <xsd:element name="DateOfMarriage" type="udt:DateType" minOccurs="1"
maxOccurs="1">
                        <xsd:annotation>
                            <xsd:documentation xml:lang="en">
                                The date on which the Marriage took place.
                            </xsd:documentation>
                        </xsd:annotation>
                    </xsd:element>
                    <xsd:element name="Spouse" type="MarriedPersonType" minOccurs="2"
maxOccurs="2">
                        <xsd:annotation>
                            <xsd:documentation xml:lang="en">
                                The Person who was married.
                            </xsd:documentation>
                        </xsd:annotation>
                    </xsd:element>
                    <xsd:element name="PlaceOfMarriage" type="LocationAddressType"
minOccurs="0" maxOccurs="1">
                        <xsd:annotation>
                            <xsd:documentation xml:lang="en">
                                The Location where the Marriage took place.
                            </xsd:documentation>
                        </xsd:annotation>
                    </xsd:element>
                </xsd:sequence>
            </xsd:complexType>
            <!--
=======================================================================================-->
            <xsd:complexType name="MarriedPersonType">
                <xsd:annotation>
                    <xsd:documentation xml:lang="en">
                        A Person who has entered into a Marriage.
```

```
                </xsd:documentation>
            </xsd:annotation>
            <xsd:complexContent>
                <xsd:extension base="PersonType">
                    <xsd:sequence>
                        <xsd:element name="FamilyNameAfterMarriage"
type="udt:TextType" minOccurs="0" maxOccurs="unbounded">
                            <xsd:annotation>
                                <xsd:documentation xml:lang="en">
                                    This property contains the family name
after the Marriage of the Person.
                                </xsd:documentation>
                            </xsd:annotation>
                        </xsd:element>
                        <xsd:element name="FamilyNameBeforeMarriage"
type="udt:TextType" minOccurs="0" maxOccurs="unbounded">
                            <xsd:annotation>
                                <xsd:documentation xml:lang="en">
                                    This property contains the family name
before the Marriage of the Person.
                                </xsd:documentation>
                            </xsd:annotation>
                        </xsd:element>
                        <xsd:element name="MaritalStatusBeforeMarriage"
type="udt:CodeType" minOccurs="0" maxOccurs="1">
                            <xsd:annotation>
                                <xsd:documentation xml:lang="en">
                                    Situation with regard to whether a
Person was single, married, separated, divorced or widowed.
                                    To be based on Eurovoc marital status as
a codelist: https://op.europa.eu/en/web/eu-vocabularies/concept/-
/resource?uri=http://eurovoc.europa.eu/4184&amp;lang=en
                                </xsd:documentation>
                            </xsd:annotation>
                        </xsd:element>

                    </xsd:sequence>
                </xsd:extension>
            </xsd:complexContent>
        </xsd:complexType>
        <!--
================================================================================-->
        <xsd:complexType name="PersonType">
            <xsd:annotation>
                <xsd:documentation xml:lang="en">
                    An individual natural person who may be dead or alive, but not imaginary.
                </xsd:documentation>
            </xsd:annotation>
            <xsd:complexContent>
                <xsd:extension base="person:CvpersonType">
                    <xsd:sequence>
                        <xsd:element name="DateOfBirth" type="DateObjectType"
minOccurs="0" maxOccurs="1">
                            <xsd:annotation>
                                <xsd:documentation xml:lang="en">
```

```
                                                The day on which the Person was born.
                                            </xsd:documentation>
                                        </xsd:annotation>
                                    </xsd:element>
                                    <xsd:element name="PersonName" type="NameType"
minOccurs="1" maxOccurs="1">
                                        <xsd:annotation>
                                            <xsd:documentation xml:lang="en">
                                                The family name and given name of a
Person. At least one of the two must exist.
                                            </xsd:documentation>
                                        </xsd:annotation>
                                    </xsd:element>
                                    <xsd:element name="Identifier" type="cva:CvidentifierType"
minOccurs="0" maxOccurs="unbounded">
                                        <xsd:annotation>
                                            <xsd:documentation xml:lang="en">
                                                The identifier relation is used to link a
Person to any formally issued Identifier for that Person.
                                            </xsd:documentation>
                                        </xsd:annotation>
                                    </xsd:element>
                                    <xsd:element name="PlaceOfBirth" type="LocationAddressType"
minOccurs="0" maxOccurs="1">
                                        <xsd:annotation>
                                            <xsd:documentation xml:lang="en">
                                                The Location where the Person was
born.
                                            </xsd:documentation>
                                        </xsd:annotation>
                                    </xsd:element>
                                    <xsd:element name="Gender" type="udt:CodeType"
minOccurs="1" maxOccurs="1">
                                        <xsd:annotation>
                                            <xsd:documentation xml:lang="en">
                                                The chromosomal state, and
reproductive organs and structures of a Person that allows them to be distinguished as female or male or not
applicable, not known or not stated.
                                            </xsd:documentation>
                                        </xsd:annotation>
                                    </xsd:element>
                                    <xsd:element name="Citizenship" type="JurisdictionType"
minOccurs="0" maxOccurs="unbounded">
                                        <xsd:annotation>
                                            <xsd:documentation xml:lang="en">
                                                The citizenship relationship links a
Person to a Jurisdiction that has conferred citizenship rights on the individual such as the right to vote, to
receive certain protection from the community or the issuance of a passport.
                                            </xsd:documentation>
                                        </xsd:annotation>
                                    </xsd:element>
                                </xsd:sequence>
                            </xsd:extension>
                        </xsd:complexContent>
                    </xsd:complexType>
```

```
        <!--
================================================================================-->
        <xsd:complexType name="JurisdictionType">
                <xsd:annotation>
                        <xsd:documentation xml:lang="en">
                                The authority that an official organisation has, to make legal
decisions about somebody/something.
                        </xsd:documentation>
                </xsd:annotation>
                <xsd:complexContent>
                        <xsd:extension base="cva:JurisdictionType">
                                <xsd:sequence>
                                        <xsd:element name="Identifier" type="cvb:JurisdictionIDType"
minOccurs="0" maxOccurs="1">
                                                <xsd:annotation>
                                                        <xsd:documentation xml:lang="en">
                                                                The value for the id property is a URI for
that Jurisdiction.
                                                        </xsd:documentation>
                                                </xsd:annotation>
                                        </xsd:element>
                                        <xsd:element name="Name" type="cbc:NameType"
minOccurs="1" maxOccurs="unbounded">
                                                <xsd:annotation>
                                                        <xsd:documentation xml:lang="en">
                                                                The name is simply a string that
identifies the Jurisdiction, typically a country, with or without a language tag.
                                                        </xsd:documentation>
                                                </xsd:annotation>
                                        </xsd:element>
                                </xsd:sequence>
                        </xsd:extension>
                </xsd:complexContent>
        </xsd:complexType>
        <!--
================================================================================-->
        <xsd:complexType name="ConstrainedLocationAddressType">
                <xsd:annotation>
                        <xsd:documentation xml:lang="en">
                                The Address of a location based on the INSPIRE Address
representation. It is subclass of the class Address.
                        </xsd:documentation>
                </xsd:annotation>
                <xsd:complexContent>
                        <xsd:extension base="AddressType">
                                <xsd:sequence>
                                        <xsd:element name="AdminUnitL2"
type="cvb:AdminunitSecondlineType" minOccurs="1" maxOccurs="1">
                                                <xsd:annotation>
                                                        <xsd:documentation xml:lang="en">
                                                                The region of the address, usually a
county, state or other such area that typically encompasses several localities.
                                                        </xsd:documentation>
                                                </xsd:annotation>
                                        </xsd:element>
```

```
                                        <xsd:element name="AdminUnitL1"
type="cvb:AdminunitFirstlineType" minOccurs="1" maxOccurs="1">
                                                <xsd:annotation>
                                                        <xsd:documentation xml:lang="en">
                                                                The uppermost administrative unit for
the address, almost always a country. Best practice is to use the ISO 3166-1 code.
                                                        </xsd:documentation>
                                                </xsd:annotation>
                                        </xsd:element>
                                </xsd:sequence>
                        </xsd:extension>
                </xsd:complexContent>
        </xsd:complexType>
        <!--
================================================================================-->
        <xsd:complexType name="LocationAddressType">
                <xsd:annotation>
                        <xsd:documentation xml:lang="en">
                                The Address of a location based on the INSPIRE Address
representation. It is subclass of the class Address.
                        </xsd:documentation>
                </xsd:annotation>
                <xsd:complexContent>
                        <xsd:extension base="AddressType">
                                <xsd:sequence>
                                        <xsd:element name="AdminUnitL2"
type="cvb:AdminunitSecondlineType" minOccurs="0" maxOccurs="1">
                                                <xsd:annotation>
                                                        <xsd:documentation xml:lang="en">
                                                                The region of the address, usually a
county, state or other such area that typically encompasses several localities.
                                                        </xsd:documentation>
                                                </xsd:annotation>
                                        </xsd:element>
                                        <xsd:element name="AdminUnitL1"
type="cvb:AdminunitFirstlineType" minOccurs="0" maxOccurs="1">
                                                <xsd:annotation>
                                                        <xsd:documentation xml:lang="en">
                                                                The uppermost administrative unit for
the address, almost always a country. Best practice is to use the ISO 3166-1 code.
                                                        </xsd:documentation>
                                                </xsd:annotation>
                                        </xsd:element>
                                </xsd:sequence>
                        </xsd:extension>
                </xsd:complexContent>
        </xsd:complexType>
        <!--
================================================================================-->
        <xsd:complexType name="AddressType">
                <xsd:annotation>
                        <xsd:documentation xml:lang="en">
                                Representation of address based on the INSPIRE Address
Representation.
                        </xsd:documentation>
```

```
                </xsd:annotation>
                <xsd:complexContent>
                        <xsd:extension base="cva:CvaddressType">
                                <xsd:sequence>
                                        <xsd:element name="PoBox" type="cvb:PoBoxType"
minOccurs="0" maxOccurs="1">
                                                <xsd:annotation>
                                                        <xsd:documentation xml:lang="en">
                                                                The Post Office Box number. INSPIRE's
name for this is "postalDeliveryIdentifier" for which it uses the locator designator property with a type
attribute of that name. This vocabulary separates out the Post Office Box for greater independence of
technology.
                                                        </xsd:documentation>
                                                </xsd:annotation>
                                        </xsd:element>
                                        <xsd:element name="Thoroughfare"
type="cvb:ThoroughfareType" minOccurs="0" maxOccurs="1">
                                                <xsd:annotation>
                                                        <xsd:documentation xml:lang="en">
                                                                The uppermost administrative unit for
the address, almost always a country. Best practice is to use the ISO 3166-1 code.
                                                        </xsd:documentation>
                                                </xsd:annotation>
                                        </xsd:element>
                                        <xsd:element name="LocatorDesignator"
type="cvb:LocatorDesignatorType" minOccurs="0" maxOccurs="1">
                                                <xsd:annotation>
                                                        <xsd:documentation xml:lang="en">
                                                                The locator designator is defined by the
INSPIRE guidelines as "a number or a sequence of characters that uniquely identifies the locator within the
relevant scope(s). The full identification of the locator could include one or more locator designators." In
simpler terms, this is the building number, apartment number, etc. For an address such as "Flat 3, 17 Bridge
Street", the locator is "flat 3, 17."
                                                        </xsd:documentation>
                                                </xsd:annotation>
                                        </xsd:element>
                                        <xsd:element name="LocatorName"
type="cvb:LocatorNameType" minOccurs="0" maxOccurs="1">
                                                <xsd:annotation>
                                                        <xsd:documentation xml:lang="en">
                                                                Based on the INSPIRE guidelines, locator
name is defined as: "Proper noun(s) applied to the real world entity identified by the locator. The locator
name could be the name of the property or complex, of the building or part of the building, or it could be the
name of a room inside a building. The key difference between a locator and a locator name is that the latter
is a proper name and is unlikely to include digits. For example, "Shumann, Berlaymont" is a meeting room
within the European Commission headquarters for which locator name is more appropriate than locator.

                                                        </xsd:documentation>
                                                </xsd:annotation>
                                        </xsd:element>
                                        <xsd:element name="AddressArea"
type="cvb:CvaddressAreaType" minOccurs="0" maxOccurs="1">
                                                <xsd:annotation>
                                                        <xsd:documentation xml:lang="en">
                                                                Taking the definition from INSPIRE, the
```

address area is: the name or names of a geographic area or locality that groups a number of addressable objects for addressing purposes, without being an administrative unit." This would typically be part of a city, a neighbourhood or village.

```
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="PostName" type="cvb:PostNameType"
minOccurs="0" maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            The key postal division of the address,
usually the city. (INSPIRE's definition is "One or more names created and maintained for postal purposes to
identify a subdivision of addresses and postal delivery points.)
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="PostCode" type="cvb:PostCodeType"
minOccurs="0" maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            The post code (a.k.a postal code, zip
code etc.). Post codes are common elements in many countries' postal address systems.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                            </xsd:sequence>
                        </xsd:extension>
                    </xsd:complexContent>
                </xsd:complexType>
                <!--
========================================================================================-->
                <xsd:complexType name="DateObjectType">
                    <xsd:annotation>
                        <xsd:documentation xml:lang="en">
                            Structured representation of date with year, month and day of the month.
                        </xsd:documentation>
                    </xsd:annotation>
                    <xsd:sequence>
                        <xsd:element name="Year" type="xsd:gYear" minOccurs="0" maxOccurs="1">
                            <xsd:annotation>
                                <xsd:documentation xml:lang="en">
                                    A gregorian calendar year. The value space of Year is the
set of Gregorian calendar years as defined in § 5.2.1 of ISO 8601. Specifically, it is a set of one-year long, non-
periodic instances e.g. lexical 1999 to represent the whole year 1999, independent of how many months and
days this year has.
                                </xsd:documentation>
                            </xsd:annotation>
                        </xsd:element>
                        <xsd:element name="Month" type="xsd:gMonth" minOccurs="0" maxOccurs="1">
                            <xsd:annotation>
                                <xsd:documentation xml:lang="en">
                                    A gregorian month that recurs every year. The value
space of Month is the space of a set of calendar months as defined in § 3 of ISO 8601. Specifically, it is a set
of one-month long, yearly periodic instances.
                                </xsd:documentation>
```

```
                        </xsd:annotation>
                    </xsd:element>
                    <xsd:element name="Day" type="xsd:gDay" minOccurs="0" maxOccurs="1">
                        <xsd:annotation>
                            <xsd:documentation xml:lang="en">
                                A gregorian day that recurs, specifically a day of the
month such as the 5th of the month. The value space of Day is the space of a set of calendar dates as defined
in § 3 of ISO 8601. Specifically, it is a set of one-day long, monthly periodic instances.
                            </xsd:documentation>
                        </xsd:annotation>
                    </xsd:element>
                </xsd:sequence>
            </xsd:complexType>
            <!--
=======================================================================================-->
            <xsd:complexType name="NameType">
                <xsd:annotation>
                    <xsd:documentation xml:lang="en">
                        A name of a person that includes the family and given name.
                    </xsd:documentation>
                </xsd:annotation>
                <xsd:sequence>
                    <xsd:element name="FamilyName" type="cbc:FamilyNameType" minOccurs="0"
maxOccurs="unbounded">
                        <xsd:annotation>
                            <xsd:documentation xml:lang="en">
                                A family name is usually shared by members of a family.
This attribute also carries prefixes or suffixes which are part of the family name, e.g. “de Boer”, “van de
Putte”, “von und zu Orlow”. Multiple family names, such as are commonly found in Hispanic countries, are
recorded in the single family name field so that, for example, Miguel de Cervantes Saavedra's family name
would be recorded as "de Cervantes Saavedra".
                            </xsd:documentation>
                        </xsd:annotation>
                    </xsd:element>
                    <xsd:element name="GivenName" type="cvb:GivenNameType" minOccurs="0"
maxOccurs="unbounded">
                        <xsd:annotation>
                            <xsd:documentation xml:lang="en">
                                A given name, or multiple given names, are the
denominator(s) that identify an individual within a family. These are given to a Person by his or her parents
at birth or may be legally recognised as 'given names' through a formal process. All given names are ordered
in one field so that, for example, the given name for Johann Sebastian Bach is “Johann Sebastian”.
                            </xsd:documentation>
                        </xsd:annotation>
                    </xsd:element>
                </xsd:sequence>
            </xsd:complexType>
            <!--
=======================================================================================-->
</xsd:schema>
```

XSD for Domicile Registration Evidence

```
<?xml version="1.0" encoding="UTF-8"?>
<!-- ===== Schema Header ================================= -->
<xsd:schema targetNamespace="urn:eu-
de4a:xsd:CanonicalEvidenceType::DomicileRegistrationEvidence:v1.4" elementFormDefault="qualified"
attributeFormDefault="unqualified" version="1.0" xmlns="urn:eu-
de4a:xsd:CanonicalEvidenceType::DomicileRegistrationEvidence:v1.4"
xmlns:udt="urn:oasis:names:specification:bdndr:schema:xsd:UnqualifiedDataTypes-1"
xmlns:xsd="http://www.w3.org/2001/XMLSchema"
xmlns:person="http://www.w3.org/ns/corevocabulary/person"
xmlns:location="http://www.w3.org/ns/corevocabulary/location"
xmlns:cvb="http://www.w3.org/ns/corevocabulary/BasicComponents"
xmlns:cva="http://www.w3.org/ns/corevocabulary/AggregateComponents"
xmlns:cbc="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-2">
        <!-- ===== Imports======================================== -->
        <xsd:import namespace="http://www.w3.org/XML/1998/namespace" schemaLocation="xml.xsd"/>
        <xsd:import namespace="urn:oasis:names:specification:bdndr:schema:xsd:UnqualifiedDataTypes-1"
schemaLocation="../_external/UBL-2.3/xsd/common/BDNDR-UnqualifiedDataTypes-1.1.xsd"/>
        <xsd:import namespace="http://www.w3.org/ns/corevocabulary/person"
schemaLocation="../_external/Core_Vocabularies_XML_Schema_v1.00/xsd/CorePerson-v1.00.xsd"/>
        <xsd:import namespace="http://www.w3.org/ns/corevocabulary/location"
schemaLocation="../_external/Core_Vocabularies_XML_Schema_v1.00/xsd/CoreLocation-v1.00.xsd"/>
        <xsd:import namespace="http://www.w3.org/ns/corevocabulary/BasicComponents"
schemaLocation="../_external/Core_Vocabularies_XML_Schema_v1.1/xsd/CoreVocabularies-
BasicComponents-1.1.xsd"/>
        <xsd:import namespace="http://www.w3.org/ns/corevocabulary/AggregateComponents"
schemaLocation="../_external/Core_Vocabularies_XML_Schema_v1.00/xsd/CoreVocabularyAggregateComp
onents-v1.00.xsd"/>
        <xsd:import namespace="urn:oasis:names:specification:ubl:schema:xsd:CommonBasicComponents-
2" schemaLocation="../_external/UBL-2.3/xsd/common/UBL-CommonBasicComponents-2.3.xsd"/>
        <!-- ======================================================= -->
        <xsd:element name="DomicileRegistrationEvidence" type="DomicileRegistrationEvidenceType"/>
        <xsd:complexType name="DomicileRegistrationEvidenceType">
                <xsd:annotation>
                        <xsd:documentation xml:lang="en">
                                This class contains elements related to the Domicile Registration Evidence.
                        </xsd:documentation>
                </xsd:annotation>
                <xsd:sequence>
                        <xsd:element name="Identifier" type="cva:CvidentifierType" minOccurs="0"
maxOccurs="1">
                                <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                                An unambiguous reference to the Domicile Registration
Evidence.
                                        </xsd:documentation>
                                </xsd:annotation>
                        </xsd:element>
                        <xsd:element name="IssueDate" type="udt:DateType" minOccurs="1"
maxOccurs="1">
                                <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                                The most recent date on which the  Domicile Registration
Evidence instance was issued.
```

```
                                    </xsd:documentation>
                                </xsd:annotation>
                            </xsd:element>
                            <xsd:element name="IssuingAuthority" type="PublicOrganisationType"
minOccurs="1" maxOccurs="1">
                                <xsd:annotation>
                                    <xsd:documentation xml:lang="en">
                                        A Public Organisation with official authority in charge of
issuing the Residence Proof.
                                    </xsd:documentation>
                                </xsd:annotation>
                            </xsd:element>
                            <xsd:element name="IssuingPlace" type="ConstrainedLocationAddressType"
minOccurs="1" maxOccurs="1">
                                <xsd:annotation>
                                    <xsd:documentation xml:lang="en">
                                        The Location where the Residence Proof was issued.
                                    </xsd:documentation>
                                </xsd:annotation>
                            </xsd:element>
                            <xsd:element name="CertifiesDomicile" type="DomicileType" minOccurs="1"
maxOccurs="1">
                                <xsd:annotation>
                                    <xsd:documentation xml:lang="en">
                                        Attesting in a formal way that the Domicile is true.
                                    </xsd:documentation>
                                </xsd:annotation>
                            </xsd:element>
                        </xsd:sequence>
                    </xsd:complexType>
                    <!--
================================================================================-->
                    <xsd:complexType name="PublicOrganisationType">
                        <xsd:annotation>
                            <xsd:documentation xml:lang="en">
                                Any organisation that is defined as being part of the public sector by a
legal framework at any level.
                            </xsd:documentation>
                        </xsd:annotation>
                        <xsd:sequence>
                            <xsd:element name="Identifier" type="cva:CvidentifierType" minOccurs="0"
maxOccurs="unbounded">
                                <xsd:annotation>
                                    <xsd:documentation xml:lang="en">
                                        Many organisations are referred to by an acronym or
some other identifier. For example, among the EU institutions, the ECB is the identifier for the European
Central Bank, OLAF for the European Anti-Fraud Office, and so on. These are formally recognised by the
European Commission which provides a list of such acronyms. Analogous lists should be used in other
contexts.
                                    </xsd:documentation>
                                </xsd:annotation>
                            </xsd:element>
                            <xsd:element name="PrefLabel" type="udt:TextType" minOccurs="1"
maxOccurs="unbounded">
                                <xsd:annotation>
```

```
                                        <xsd:documentation xml:lang="en">
                                                As defined in the ORG Ontology, a preferred label is used
to provide the primary, legally recognised name of the organisation. An organisation may only have one such
name in any given language. Primary names may be provided in multiple languages with multiple instances
of the preferred label property.
                                        </xsd:documentation>
                                </xsd:annotation>
                        </xsd:element>
                </xsd:sequence>
        </xsd:complexType>
        <!--
=========================================================================================-->
        <xsd:complexType name="DomicileType">
                <xsd:annotation>
                        <xsd:documentation xml:lang="en">
                                This class contains elements related to the domicile.
                        </xsd:documentation>
                </xsd:annotation>
                <xsd:sequence>
                        <xsd:element name="Inhabitant" type="PersonType" minOccurs="1"
maxOccurs="1">
                                <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                                Person, living in the domicile.
                                        </xsd:documentation>
                                </xsd:annotation>
                        </xsd:element>
                        <xsd:element name="Domicile" type="AddressType" minOccurs="1"
maxOccurs="1">
                                <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                                Current domicile inhabited by person.
                                        </xsd:documentation>
                                </xsd:annotation>
                        </xsd:element>
                </xsd:sequence>
        </xsd:complexType>
        <!--
=========================================================================================-->
        <xsd:complexType name="PersonType">
                <xsd:annotation>
                        <xsd:documentation xml:lang="en">
                                This class contains elements related to the person
                        </xsd:documentation>
                </xsd:annotation>
                <xsd:complexContent>
                        <xsd:extension base="person:CvpersonType">
                                <xsd:sequence>
                                        <xsd:element name="PersonName" type="NameType"
minOccurs="1" maxOccurs="1">
                                                <xsd:annotation>
                                                        <xsd:documentation xml:lang="en">
                                                                A family name is usually shared by
members of a family. This attribute also carries prefixes or suffixes which are part of the family name, e.g.
“de Boer”, “van de Putte”, “von und zu Orlow”. Multiple family names, such as are commonly found in
```

Hispanic countries, are recorded in the single family name field so that, for example, Miguel de Cervantes Saavedra's family name would be recorded as "de Cervantes Saavedra".

```
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="Identifier" type="cva:CvidentifierType"
minOccurs="0" maxOccurs="unbounded">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            The identifier relation is used to link a
Person to any formally issued Identifier for that Person.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="DateOfBirth" type="DateObjectType"
minOccurs="0" maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            The day on which the Person was born.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="Gender" type="udt:CodeType"
minOccurs="0" maxOccurs="1">
                                <xsd:annotation>
                                    <xsd:documentation xml:lang="en">
                                        The chromosomal state, and reproductive organs
and structures of a Person that allows them to be distinguished as female or male or not applicable, not
known or not stated.
                                    </xsd:documentation>
                                </xsd:annotation>
                            </xsd:element>
                                <xsd:element name="MaritalStatus" type="udt:CodeType"
minOccurs="0" maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            Situation with regard to whether a
Person was single, married, separated, divorced or widowed.
                                            To be based on Eurovoc marital status as
a codelist: https://op.europa.eu/en/web/eu-vocabularies/concept/-
/resource?uri=http://eurovoc.europa.eu/4184&amp;lang=en
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="PlaceOfBirth" type="LocationAddressType"
minOccurs="0" maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            The Location where the Person was
born.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="Citizenship" type="JurisdictionType"
minOccurs="0" maxOccurs="unbounded">
```

```
                                        <xsd:annotation>
                                            <xsd:documentation xml:lang="en">
                                                The citizenship relationship links a
Person to a Jurisdiction that has conferred citizenship rights on the individual such as the right to vote, to
receive certain protection from the community or the issuance of a passport.
                                            </xsd:documentation>
                                        </xsd:annotation>
                                    </xsd:element>
                                </xsd:sequence>
                            </xsd:extension>
                        </xsd:complexContent>
                    </xsd:complexType>
                    <!--
=======================================================================================-->
                    <xsd:complexType name="JurisdictionType">
                        <xsd:annotation>
                            <xsd:documentation xml:lang="en">
                                The authority that an official organisation has, to make legal
decisions about somebody/something.
                            </xsd:documentation>
                        </xsd:annotation>
                        <xsd:complexContent>
                            <xsd:extension base="cva:JurisdictionType">
                                <xsd:sequence>
                                    <xsd:element name="Identifier" type="cvb:JurisdictionIDType"
minOccurs="0" maxOccurs="1">
                                        <xsd:annotation>
                                            <xsd:documentation xml:lang="en">
                                                The value for the id property is a URI for
that Jurisdiction.
                                            </xsd:documentation>
                                        </xsd:annotation>
                                    </xsd:element>
                                    <xsd:element name="Name" type="cbc:NameType"
minOccurs="1" maxOccurs="unbounded">
                                        <xsd:annotation>
                                            <xsd:documentation xml:lang="en">
                                                The name is simply a string that
identifies the Jurisdiction, typically a country, with or without a language tag.
                                            </xsd:documentation>
                                        </xsd:annotation>
                                    </xsd:element>
                                </xsd:sequence>
                            </xsd:extension>
                        </xsd:complexContent>
                    </xsd:complexType>
                    <!--
=======================================================================================-->
                    <xsd:complexType name="ConstrainedLocationAddressType">
                        <xsd:annotation>
                            <xsd:documentation xml:lang="en">
                                The Address of a location based on the INSPIRE Address
representation. It is subclass of the class Address.
                            </xsd:documentation>
                        </xsd:annotation>
```

```
                <xsd:complexContent>
                        <xsd:extension base="AddressType">
                                <xsd:sequence>
                                        <xsd:element name="AdminUnitL2"
type="cvb:AdminunitSecondlineType" minOccurs="1" maxOccurs="1">
                                                <xsd:annotation>
                                                        <xsd:documentation xml:lang="en">
                                                                The region of the address, usually a
county, state or other such area that typically encompasses several localities.
                                                        </xsd:documentation>
                                                </xsd:annotation>
                                        </xsd:element>
                                        <xsd:element name="AdminUnitL1"
type="cvb:AdminunitFirstlineType" minOccurs="1" maxOccurs="1">
                                                <xsd:annotation>
                                                        <xsd:documentation xml:lang="en">
                                                                The uppermost administrative unit for
the address, almost always a country. Best practice is to use the ISO 3166-1 code.
                                                        </xsd:documentation>
                                                </xsd:annotation>
                                        </xsd:element>
                                </xsd:sequence>
                        </xsd:extension>
                </xsd:complexContent>
        </xsd:complexType>
        <!--
================================================================================-->
        <xsd:complexType name="LocationAddressType">
                <xsd:annotation>
                        <xsd:documentation xml:lang="en">
                                The Address of a location based on the INSPIRE Address
representation. It is subclass of the class Address.
                        </xsd:documentation>
                </xsd:annotation>
                <xsd:complexContent>
                        <xsd:extension base="AddressType">
                                <xsd:sequence>
                                        <xsd:element name="AdminUnitL2"
type="cvb:AdminunitSecondlineType" minOccurs="0" maxOccurs="1">
                                                <xsd:annotation>
                                                        <xsd:documentation xml:lang="en">
                                                                The region of the address, usually a
county, state or other such area that typically encompasses several localities.
                                                        </xsd:documentation>
                                                </xsd:annotation>
                                        </xsd:element>
                                        <xsd:element name="AdminUnitL1"
type="cvb:AdminunitFirstlineType" minOccurs="0" maxOccurs="1">
                                                <xsd:annotation>
                                                        <xsd:documentation xml:lang="en">
                                                                The uppermost administrative unit for
the address, almost always a country. Best practice is to use the ISO 3166-1 code.
                                                        </xsd:documentation>
                                                </xsd:annotation>
                                        </xsd:element>
```

```
                        </xsd:sequence>
                    </xsd:extension>
                </xsd:complexContent>
            </xsd:complexType>
            <!--
=======================================================================================-->
            <xsd:complexType name="AddressType">
                <xsd:annotation>
                    <xsd:documentation xml:lang="en">
                        Representation of address based on the INSPIRE Address
Representation.
                    </xsd:documentation>
                </xsd:annotation>
                <xsd:complexContent>
                    <xsd:extension base="cva:CvaddressType">
                        <xsd:sequence>
                            <xsd:element name="PoBox" type="cvb:PoBoxType"
minOccurs="0" maxOccurs="1">
                                <xsd:annotation>
                                    <xsd:documentation xml:lang="en">
                                        The Post Office Box number. INSPIRE's
name for this is "postalDeliveryIdentifier" for which it uses the locator designator property with a type
attribute of that name. This vocabulary separates out the Post Office Box for greater independence of
technology.
                                    </xsd:documentation>
                                </xsd:annotation>
                            </xsd:element>
                            <xsd:element name="Thoroughfare"
type="cvb:ThoroughfareType" minOccurs="0" maxOccurs="1">
                                <xsd:annotation>
                                    <xsd:documentation xml:lang="en">
                                        The uppermost administrative unit for
the address, almost always a country. Best practice is to use the ISO 3166-1 code.
                                    </xsd:documentation>
                                </xsd:annotation>
                            </xsd:element>
                            <xsd:element name="LocatorDesignator"
type="cvb:LocatorDesignatorType" minOccurs="0" maxOccurs="1">
                                <xsd:annotation>
                                    <xsd:documentation xml:lang="en">
                                        The locator designator is defined by the
INSPIRE guidelines as "a number or a sequence of characters that uniquely identifies the locator within the
relevant scope(s). The full identification of the locator could include one or more locator designators." In
simpler terms, this is the building number, apartment number, etc. For an address such as "Flat 3, 17 Bridge
Street", the locator is "flat 3, 17."
                                    </xsd:documentation>
                                </xsd:annotation>
                            </xsd:element>
                            <xsd:element name="LocatorName"
type="cvb:LocatorNameType" minOccurs="0" maxOccurs="1">
                                <xsd:annotation>
                                    <xsd:documentation xml:lang="en">
                                        Based on the INSPIRE guidelines, locator
name is defined as: "Proper noun(s) applied to the real world entity identified by the locator. The locator
name could be the name of the property or complex, of the building or part of the building, or it could be the
```

name of a room inside a building. The key difference between a locator and a locator name is that the latter is a proper name and is unlikely to include digits. For example, "Shumann, Berlaymont" is a meeting room within the European Commission headquarters for which locator name is more appropriate than locator.

```
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="AddressArea"
type="cvb:CvaddressAreaType" minOccurs="0" maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            Taking the definition from INSPIRE, the
address area is: the name or names of a geographic area or locality that groups a number of addressable
objects for addressing purposes, without being an administrative unit." This would typically be part of a city,
a neighbourhood or village.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="PostName" type="cvb:PostNameType"
minOccurs="0" maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            The key postal division of the address,
usually the city. (INSPIRE's definition is "One or more names created and maintained for postal purposes to
identify a subdivision of addresses and postal delivery points.)
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="PostCode" type="cvb:PostCodeType"
minOccurs="0" maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
                                            The post code (a.k.a postal code, zip
code etc.). Post codes are common elements in many countries' postal address systems.
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                            </xsd:sequence>
                        </xsd:extension>
                    </xsd:complexContent>
                </xsd:complexType>
                <!--
========================================================================================-->
                <xsd:complexType name="DateObjectType">
                    <xsd:annotation>
                        <xsd:documentation xml:lang="en">
                            Structured representation of date with year, month and day of the month.
                        </xsd:documentation>
                    </xsd:annotation>
                    <xsd:sequence>
                        <xsd:element name="Year" type="xsd:gYear" minOccurs="0" maxOccurs="1">
                            <xsd:annotation>
                                <xsd:documentation xml:lang="en">
                                    A gregorian calendar year. The value space of Year is the
set of Gregorian calendar years as defined in § 5.2.1 of ISO 8601. Specifically, it is a set of one-year long, non-
```

periodic instances e.g. lexical 1999 to represent the whole year 1999, independent of how many months and days this year has.

```
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="Month" type="xsd:gMonth" minOccurs="0" maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
```

A gregorian month that recurs every year. The value space of Month is the space of a set of calendar months as defined in § 3 of ISO 8601. Specifically, it is a set of one-month long, yearly periodic instances.

```
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="Day" type="xsd:gDay" minOccurs="0" maxOccurs="1">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
```

A gregorian day that recurs, specifically a day of the month such as the 5th of the month. The value space of Day is the space of a set of calendar dates as defined in § 3 of ISO 8601. Specifically, it is a set of one-day long, monthly periodic instances.

```
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                            </xsd:sequence>
                        </xsd:complexType>
                        <!--
================================================================================-->
                        <xsd:complexType name="NameType">
                            <xsd:annotation>
                                <xsd:documentation xml:lang="en">
```

A name of a person that includes the family and given name.

```
                                </xsd:documentation>
                            </xsd:annotation>
                            <xsd:sequence>
                                <xsd:element name="FamilyName" type="cbc:FamilyNameType" minOccurs="0"
maxOccurs="unbounded">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
```

A family name is usually shared by members of a family. This attribute also carries prefixes or suffixes which are part of the family name, e.g. “de Boer”, “van de Putte”, “von und zu Orlow”. Multiple family names, such as are commonly found in Hispanic countries, are recorded in the single family name field so that, for example, Miguel de Cervantes Saavedra's family name would be recorded as "de Cervantes Saavedra".

```
                                        </xsd:documentation>
                                    </xsd:annotation>
                                </xsd:element>
                                <xsd:element name="GivenName" type="cvb:GivenNameType" minOccurs="0"
maxOccurs="unbounded">
                                    <xsd:annotation>
                                        <xsd:documentation xml:lang="en">
```

A given name, or multiple given names, are the denominator(s) that identify an individual within a family. These are given to a Person by his or her parents at birth or may be legally recognised as 'given names' through a formal process. All given names are ordered in one field so that, for example, the given name for Johann Sebastian Bach is “Johann Sebastian”.

```
                                        </xsd:documentation>
```

```
                                    </xsd:annotation>
                                </xsd:element>
                            </xsd:sequence>
                        </xsd:complexType>
                        <!--
=======================================================================================-->
</xsd:schema>
```