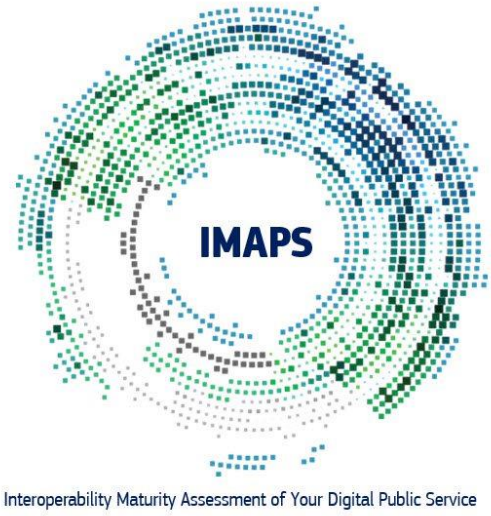
OIMAPS v1.0.0

Organisational Interoperability Maturity Assessment of a Public Service

User guide



LIMAPS Legal Interoperability

OIMAPS Organisational Interoperability

SIMAPS Semantic Interoperability

TIMAPS Technical Interoperability

Disclaimer

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Table of Abbreviations

Acronym	Description
ABB	Architectural Building Block
CAMSS	Common Assessment Method for Standards and Specifications
CarTool	Cartography Tool
DIGIT	Directorate-General for Informatics
EC	European Commission
EIF	European Interoperability Framework
EIRA© (EIRA)	European Interoperability Reference Architecture
EU	European Union
IQAT	Interoperability Quick Assessment Toolkit
ISA	Interoperability Services for Public Administrations
IMAPS	Interoperability Maturity Assessment of a Public Service
MS	Member State
OIMAPS	Organisational Interoperability Maturity Assessment of Public Services
PA	Public Administration
SIQAT	Structural Interoperability Quick Assessment Toolkit

Glossary of terms

Term	Description
Attribute	Structural part of each OIMAPS component. Each attribute assesses a specific aspect of the digital public service, e.g. the organisational interoperability specifications of data, information and knowledge delivered by the digital public service to its end users and/or other services
Component	Fundamental structural part of the OIMAPS model. Each component refers to a different pillar of digital public service lifecycle. OIMAPS has two components: Service Delivery and Service Consumption
Item	Structural part of each OIMAPS attribute. Items are the questions of the OIMAPS questionnaire (survey)
Option	Options are the possible replies to one OIMAPS item
Principles	Rules applied on digital public service to enable and ensure organisational interoperability
(*Overall*) Weight	Weight refers to the absolute numerical factor that each component/attribute/item contributes into the structural part it belongs. Overall weight refers to the overall numerical factor that each component/attribute/item contributes to the whole OIMAPS survey

EXECUTIVE SUMMARY

This document provides the guidelines and definitions for using the **Organisational Interoperability Maturity Assessment of a Public Service (OIMAPS)** tool in order to assess and improve the organisational interoperability maturity of a digital public service. It also includes the questions and the options of the OIMAPS questionnaire as well as the respective recommendations. OIMAPS is the **organisational specialisation** of IMAPS survey that assesses the behavioral aspects of a digital public service from the organisational interoperability viewpoint.

In the following chapters, we provide an introduction to the most important chapters in the context of OIMAPS and we present the objectives of OIMAPS, the defined maturity levels and the approach and attributes of organisational interoperability that are the subject of observation and assessment.

In addition, we present an explanation of the structure of the OIMAPS questionnaire, the methodology used to determine the maturity levels of organisational behavioral interoperability of a public service and the questions and options of the questionnaire.

Finally, we conclude with the recommendations that the end-user receives for each question. After filling in the online questionnaire, the respondent receives a PDF with advice on how to improve the organisational behavioral interoperability of his digital public service.

1 INTRODUCTION

1.1 Document Objectives

The main objective of the **Organisational Interoperability Maturity Assessment of a Public Services (OIMAPS)** is to provide insight into how digital public services can improve their organisational behavioral interoperability maturity. OIMAPS is the **organisational specialisation** of IMAPS survey that assesses the behavioral aspects of a digital public service from the organisational interoperability viewpoint. This document is based on the updates of OIMAPS beta v1.0.0 to version 1.0.0 by implementing the feedback collected during OIMAPS beta v1.0.0 deployment and review, as this has been recorded in the respective JIRA tickets as well as during the sessions with the experts. These updates include the description of OIMAPS version 1.0.0, its purpose and scope in relation to IMAPS, as well as its design and deployment on the EU Survey portal. The objectives of the present deliverable are the following:

- the description of the **key concepts** to understand the OIMAPS;
- the presentation of **model objectives**;
- the description of the OIMAPS **maturity levels**, as well as the **behavioral interoperability aspects** that it covers;
- the description of the OIMAPS **structure** including its **attributes and components**;
- the description of how the OIMAPS **questionnaire** is structured, its questions and their options;
- the description of how the OIMAPS **recommendations** are generated including the recommendations per question.

1.2 Document Structure

The document is organised in the following chapters:

- **Executive summary**, which provides an overview of the deliverable objectives, activities and conclusions;
- **Chapter 1:** Serves as introduction to the document;
- **Chapter 2**: Includes the description of the key concepts used in OIMAPS and their link to IMAPS;
- **Chapter 3**: Includes the maturity levels of OIMAPS;
- **Chapter 4**: Presents OIMAPS structure, in components, attributes and items, demonstrating how their design ensures alignment with IMAPS, EIF and EIRA;
- **Chapter 5:** Presents the OIMAPS questionnaire and how it is structured**;**
- **Chapter 6**: Presents the OIMAPS recommendations and how they are generated.

2 OIMAPS KEY CONCEPTS

The following concepts are key to understand the OIMAPS:

- *Digital public service* – the digital delivery of a public service via channels such as interactive digital collaborations (chat, messaging functionality), mobile application, web portal / website, email and machine-to-machine interface.
- *Interoperability* – the ability of disparate and diverse organisations to interact towards mutually beneficial and agreed common goals, involving the sharing of information and knowledge between the organisations, through the business processes they support, by means of the exchange of data between their respective IT systems.
- *Organisational Interoperability* - Organisational interoperability means documenting and integrating or aligning business processes and relevant information exchanged. In the context of the European Interoperability Framework (EIF), this refers to the way in which public administrations align their business processes, responsibilities and expectations to achieve commonly agreed and mutually beneficial goals.

2.1 Digital public service

The Organisational Interoperability Maturity Assessment of Public Services (OIMAPS) assesses the organisational behavioral interoperability of a digital public service. The following four design rules apply when defining a digital public service:

1. The digital public service has a **single outcome / public decision**. When multiple service outcomes are recognised, then multiple digital public services will need to be defined and assessed, each one through a separate OIMAPS assessment;
2. The digital public service has a **single service owner** i.e. the public administration responsible for the service. When the ownership of a service is distributed amongst multiple public administrations (e.g. multiple local administrations providing birth certificates), then each service owner needs to conduct a separate assessment for his respective service;
3. The digital public service has a **single primary end user group**. Public services can be delivered towards three of end users: citizens, businesses and other public administrations. In case the same digital public service is delivered to different types of end users, then these services should be assessed separately from one another through the OIMAPS;
4. The digital public service has a **virtual end user interface**. OIMAPS at the outset has been designed to evaluate services, which are delivered to end users. This is a corollary to the previous design rule.

Examples of digital public services that conform to the aforementioned design rules are the following:

- Regional citizens' register (1) needs to exchange data when a citizen (3) moves from one region to another in order to maintain up to date records.
- The federation of the Finnish and Estonian X-Road ecosystems (2) is formalised in a trust federation agreement between the X-Road Operators in each country.
- Citizens (3) are offered the national electronic service of citizens' identities (eID) (1) via the eID portal (4) provided by the Ministry of Interior (2).

2.2 Interoperability and IMAPS

Interoperability in a digital public service is an attribution defined as "the extent it enables peer-to-peer collaboration with public services towards mutually beneficial goals, involving the sharing of data, information and knowledge between them regardless their legal, organisational, semantic and technical environment". Figure 2 illustrates the digital public service in the context of interoperability.

Interoperability is of multidimensional nature involving structural interoperability, behavioral interoperability and governance interoperability:

1. The **structural interoperability** is "the extent its structure has been developed reusing and/or sharing components in support of a peer-to-peer collaboration"
2. The **behavioral interoperability** is "the extent its manifested behaviour exchanges data, information or knowledge with its environment in support of a peer-to-peer collaboration"
3. The **governance interoperability** is "the extent its agreed choreography rules support a peer-to-peer collaboration"

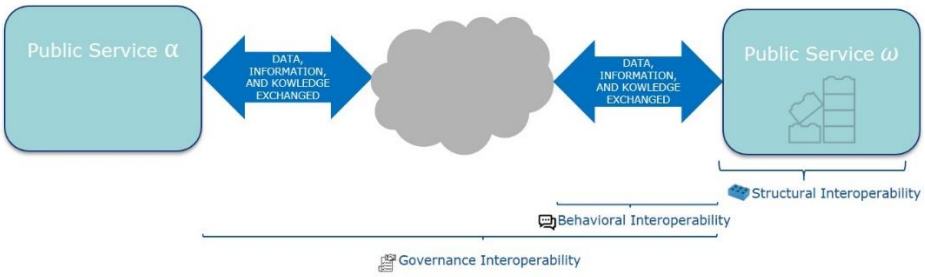


Figure 1: Interoperability dimensions

In addition, all relationships that interconnect the digital public service with the outside environment are considered relevant for assessing interoperability and thus, they are taken into account in the IMAPS. Interoperability and IMAPS are concerned with how the relationship between internal and external domains is defined and implemented.

In particular, IMAPS measures how well a public administration interacts with **external** entities to organise the efficient provisioning of its public services to other public administrations, businesses and citizens. IMAPS uses the term “behavioral” to refer to the fact that it assesses aspects that have to do with how the public services “behave” while interacting with each other or with their end users (citizens, business or other Public Administrations).

2.3 Organisational Interoperability and OIMAPS

OIMAPS assesses the behavioral aspects of a digital public service, via an approach similar to this of IMAPS, but from the **organisational behavioral interoperability viewpoint**.

Organisational interoperability focuses on business processes and the collaboration among public administrations of different internal structures and user community requirements, that wish to exchange data, information and knowledge. This aspect of interoperability is concerned with how different organisations such as different Member State Administrations collaborate in order to achieve their mutually beneficial and agreed e-Government service-related goals. Public Administrations need to reach detailed agreements on how their processes will interact (synchronize and cooperate) in order to deliver public services where needed. In scope for organisational interoperability are also the operational ways of service delivery and consumption (channels, one-stop shop services, user-focus, etc.), as well as the respective level of automation (automatically vs. manually).

In particular, OIMAPS assesses the behavioral aspects of a digital public service by limiting its focus on:

- the organisational behavioral interoperability **specifications** of data, information and knowledge delivered and consumed by the public service and its end-users or other client services;
- the organisational behavioral interoperability **capabilities** that **enable** either the delivery and consumption of data, information and knowledge by the digital public service and its end users or other client services or ii) the discoverability of the public service or other client services;
- the organisational behavioral interoperability **manifestations** of the public service delivering and consuming data, information and knowledge (manifestations can be performance, results, user experience).

OIMAPS Objectives

OIMAPS delivers insights into two important aspects of organisational interoperability maturity:

- Provide insight into the **current organisational interoperability maturity** of a digital public service based on a set of defined interoperability attributes and maturity stages;
- Provide guidelines for how the digital public service can **improve its organisational interoperability maturity.**

Improving interoperability and in particular, organisational interoperability is a continuous activity. Organisations are therefore encouraged to use the model and its improvement recommendations regularly.

2.4 IMAPS and OIMAPS User Journey

The figure below illustrates **a typical user journey** for the IMAPS end user and shows how IMAPS recommendations can trigger the need for an assessment with OIMAPS survey.

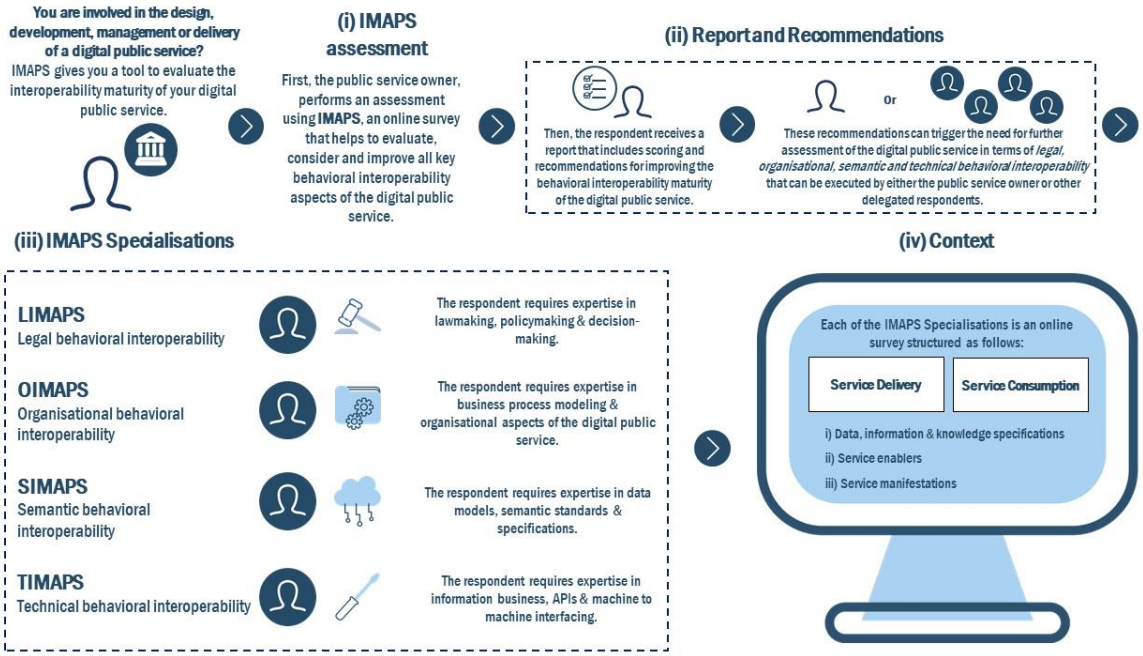


Figure 2: IMAPS to OIMAPS user journey

It is briefly mentioned that although OIMAPS can serve as a stand-alone survey that can provide an assessment of a digital public service from an organisational behavioral interoperability point of view, the recommended use case is to first perform an assessment with IMAPS, and following its recommendations, then to perform an assessment with OIMAPS.

2.5 OIMAPS Target users

OIMAPS can be used by the following end-users:

- Public service owners: to improve the overall organisational interoperability and conformance of their digital public services;
- Policymakers: to get insights on the interoperability maturity of digital public services and address gaps and challenges for a future-proof, evidence-based policy-making.

3 OIMAPS MATURITY LEVELS

OIMAPS uses a ***five-stage model*** to indicate the organisational interoperability maturity of the digital public service. Using maturity levels allows to:

- Measure the organisational interoperability maturity of the digital public service as a whole as well as underlying aspects;
- Indicate which capabilities and next steps are required to reach higher levels, and thus improve organisational interoperability maturity.

A five-stage approach is often seen in proven maturity models and is considered best practice for assessing and improving maturity. The five maturity levels for OIMAPS are summarised in the table below.

Table 1: Five maturity levels of OIMAPS

Maturity Level	Maturity Stage	Interpretation
1	**Ad Hoc**	Poor interoperability – the digital public service cannot be considered interoperable
2	**Opportunistic**	Fair interoperability – the digital public service implements some elements of interoperability best practices
3	**Essential**	Essential interoperability – the digital public service implements the essential best practices for interoperability
4	**Sustainable**	Good interoperability – all relevant interoperability best practices are implemented by the digital public service
5	**Seamless**	Interoperability leading practice – the digital public service is a leading interoperability practice example for others

The desired interoperability level for a digital public service is at least level 4: “Sustainable”. At this level, the digital public service is considered to have implemented all relevant best practices.

4 OIMAPS STRUCTURE

4.1 Approach

IMAPS uses the term "behavioral" to refer to the fact that it assesses aspects that have to do with how the public services "behave" while interacting with each other or with their end users (citizens, business or other Public Administrations). **OIMAPS** assesses the behavioral aspects of a digital public service, via an approach similar to this of IMAPS, but from the **organisational behavioral interoperability viewpoint**.

OIMAPS conceptual model describes all possible instances where **interoperability with the outside world may occur from the digital public service viewpoint**. It distinguishes between the **internal domain** (the internal service management) and the **external domain** (the digital public service uses/consumes existing services and exposes the produced service to thirds).

4.2 OIMAPS Components

Component	Fundamental structural part of the OIMAPS model that reflects how the respective questions (items) in the questionnaire (survey) are organised. Each component refers to a different pillar of the digital public service lifecycle. OIMAPS has two components: Service Delivery and Service Consumption, which means that the respective questions refer to these two specific categories.

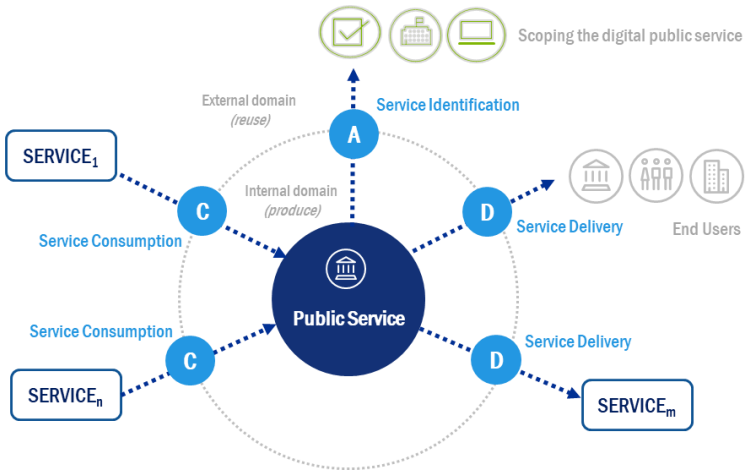


Figure 3: OIMAPS behavioral interoperability viewpoint

The behavioral interoperability aspects are described below:

- **Service Consumption (C)** – Consumption of reusable machine-to-machine services from other public administrations and businesses. This can include the consumption of functionalities, base registry information and security services;
- **Service Delivery (D)** – Delivery of the digital public service to its end users and/or other public administrations

The aspects (hereafter referred to as Behavioral Interoperability Aspects) indicated in the figure above are the object of measurement in OIMAPS, specifying where organisational behavioral interoperability plays a role from a service delivery and a service consumption viewpoint.

4.2.2 Service Delivery (D)

The public administration delivers the digital public service towards end users i.e. citizens, businesses or other administrations. We call this **Service Delivery**. The service that is being delivered represents the focal point of the OIMAPS in terms of correctly scoping and delimiting the digital public service under evaluation. If service delivery is scoped correctly, the scoping of the other areas becomes more straightforward. The Service Delivery area focuses on the delivery of the digital public service to its end users or other services.

4.2.3 Service Consumption (C)

For delivering the digital public service towards the end user, the digital public service may be required to consume services of other public administrations or businesses. This area is called **Service Consumption** and it focuses on the consumption of reusable machine-to-machine (client) services from other public administrations and businesses. This can, indicatively, include the consumption of functionalities, base registry information and security services.

Digital public services that consume (reuse) existing services where possible are considered more interoperable than organisations that produce (develop) their own proprietary services without reusing existing functionalities.

4.3 OIMAPS Attributes

Attribute	Structural part of each OIMAPS component. Each attribute includes questions (items) that assess a specific aspect of the digital public service. Each of the OIMAPS survey components has questions (items) that are organised under the following attributes: the organisational interoperability specifications of data, information and knowledge delivered by the digital public service to its end users and/or other services, the organisational interoperability enablers and the organisational interoperability manifestations.

It is reminded, as per the glossary in the introduction of this document, that OIMAPS questionnaire is structured into two components: Service Delivery and Service consumption. The attributes that compose these OIMAPS components, are presented in the table below.

Table 2: Service delivery and service consumption attributes

Service Delivery	
Attribute	**Rationale**
Data, Information, Knowledge Delivered	Assesses the organisational behavioral interoperability **specifications** of data, information and knowledge delivered by the public service to its end users and/or other client services.
Service Delivery Enablers	Assesses the organisational behavioral interoperability **capabilities** that enable either i) the delivery of data, information and knowledge by the digital public service to its end users **and/or other** client **services** or ii) the discoverability of the public service.
Service Delivery Manifestations	Assesses the organisational behavioral interoperability] **manifestations** of the public service delivering data, information and knowledge (manifestations can be performance, results, user experience).

Service Consumption	
Attribute	**Rationale**
Data, Information, Knowledge Consumed	Assesses the organisational behavioral interoperability **specifications** of data, information and knowledge **consumed** by the public service **from** other server services
Service Consumption Enablers	Assesses the organisational behavioral interoperability **capabilities that enable the** public service **to either i) discover other [server] services and/or ii) consume their** data, information and knowledge
Service Consumption Manifestations	Assesses the organisational behavioral interoperability manifestations of the public service **consuming** data, information and knowledge (manifestations can be performance, results, user experience).

It is briefly noted that there is a symmetry in the way the Service Delivery and Service Consumption attributes have been defined, from the delivery viewpoint to the consumption viewpoint. This means that there is no attribute in Service Delivery that is not also examined in the Service Consumption component from the service consumption viewpoint and vice versa.

4.4 Sources of Input

Various related programmes and initiatives inside and outside ISA[2] have been leveraged to build the current set of OIMAPS Attributes. The most important ones are:

- ***European Interoperability Framework (EIF)***[1] – The European Interoperability Framework (EIF) serves as an important framework for organisations to promote and improve interoperability and therefore is considered as a paramount starting point for defining OIMAPS attributes. The respective items per attribute have been specifically formed to assess the level of conformance with the elements of EIF structure (principles/layers/conceptual model). The basis to define OIMAPS items have been the EIF recommendations;
- ***European Interoperability Reference Architecture (EIRA)***[2] – EIRA compliance is ensured at the level of OIMAPS attributes. In this context, the respective items per attribute have been specifically formed to assess the level of conformance with the EIRA Architecture Building Blocks (ABBs). The basis to define OIMAPS items has been the context of each one of the EIRA ABBs.
- ***Digital Single Market*** - the Digital Single Market strategy aimed to open up digital opportunities for people and business and enhance Europe's position as a world leader in the digital economy. Selected attributes were defined to align with this ambition; the terminology of OIMAPS overall embraces the key concepts of "digitalisation" in its various aspects;
- **Structural Interoperability *Quick Assessment Toolkit (SIQAT©)***[3] – SIQAT© has been developed in the context of Action 2016.36 Assessment of trans-European systems supporting EU policies of the Interoperability solutions and common frameworks for European public administrations,

[1] https://ec.europa.eu/isa2/eif_en
[2] https://joinup.ec.europa.eu/collection/european-interoperability-reference-architecture-eira/solution/eira
[3] https://joinup.ec.europa.eu/collection/european-interoperability-reference-architecture-eira/solution/siqat/release/v100

businesses and citizens. The objective of the SIQAT© is to allows public service owners to evaluate the structural interoperability maturity level of their digital public service.

- ***Organisational interoperability experts*** – The IMAPS project team conducted some rounds of interviews with the identified experts to improve the OIMAPS questionnaire.
- ***Recommendations for organising and governing integrated public services*** [4] – This study aims to provide guidance and recommendations to public administrations developing and operating integrated public services on how to approach organisational and governance issues related to the development of these services. In order to support this objective, the study presents a theoretical understanding of organisational interoperability and integrated public service governance. It provides concrete examples of how issues related to these concepts can be addressed through the presentation of five case studies describing the development and delivery of five different integrated public services.
- ***A multi-dimensional framework to evaluate the innovation potential of digital public services*** [5] – This report presents the main findings of a study conducted as part of the "Innovative Public Services" (IPS) Action of the ISA² Programme. The main outcome of the research is an original multi-dimensional framework for evaluating the interoperability readiness of digital public services. The framework was conceptualised and tested in the context of desk and field research on available evidence to support European Public Administrations willing to embrace new digital technologies and deliver innovative public services according to the four layers of the European Interoperability Framework (EIF) and in alignment with the user centricity principles defined in the Tallinn Declaration (2017).
- ***Common Assessment Method for Standards and Specifications (CAMSS)*** [6] - CAMSS is the European guide for assessing and selecting standards and specifications for an eGovernment project, a reference when building an architecture and an enabler for justifying the choice of standards and specifications in terms of interoperability needs and requirements. It is fully aligned with the European Standardisation Regulation 1025/2012.
- ***EIRA Library of Interoperability Specifications (ELIS)*** [7] - The EIRA Library of Interoperability Specifications is a library containing the standards and specifications defining the interoperability requirements of the architectural building blocks (ABBs) contained in the European Interoperability Reference Architecture (EIRA). The aim of this library is supporting solutions architects when modelling using EIRA.
- ***EIRA Library of Architecture Principles (ELAP)*** [8] - The EIRA library of architecture principles (ELAP) is intended to direct government organizations in initiating changes and implementing IT projects. Particularly when designing new or modified services, it is necessary to make visible how the principles are implemented and which considerations are made in this regard. The apply-or-explain principle applies here, whereby deviations are permitted provided that they are

[4] https://op.europa.eu/en/publication-detail/-/publication/717f26a7-722b-11ea-a07e-01aa75ed71a1/language-en
[5] https://publications.jrc.ec.europa.eu/repository/handle/JRC121672
[6] https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/about
[7] https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/solution/elis/release/v110
[8] https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/solution/elap/release/v100

substantiated and recorded with good arguments so that they can be revisited at a later stage. This prevents important matters from being overlooked. The principles are described in relation to relevant policy frameworks, established standards, building blocks and examples that are already available, so that they are as recognisable as possible in practice.

- In the context of OIMAPS, the CAMSS terminology, ELIS requirements and ELAP principles have been used as basis and guidance to design the items and options of the questionnaire, as well as the respective interoperability aspects, linked to each item. These interoperability aspects will serve as the basis to design the High Level Solution Architecture Template (HL SAT) of OIMAPS, a specification that extends EIRA and provides high level requirements on how to design an organisationally interoperable digital public service.

5 OIMAPS QUESTIONNAIRE

OIMAPS uses a questionnaire structure for assessing the organisational behavioral interoperability maturity of a digital public service. This section details the questionnaire type, question types and assessment structure in more detail.

OIMAPS questionnaire is a compact and highly user-friendly tool available online. Designed as a self-assessment tool, OIMAPS assessment criteria have been condensed into targeted question sets in order to evaluate key organisational behavioral interoperability aspects of a digital public service. Such insight results in personalised, confidential feedback and recommendations on how a service can improve.

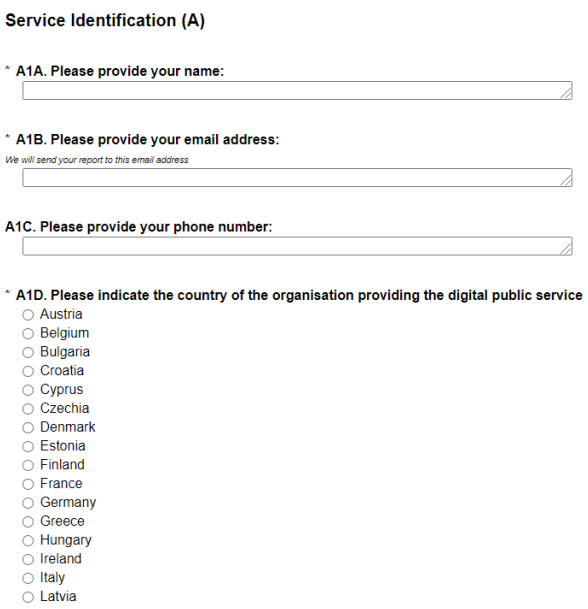
OIMAPS Questionnaire is designed to take approximately 20 minutes to complete. Once the questionnaire is completed, a report is generated with the organisational behavioral interoperability scores plus recommendations on how to further improve the digital public service's organisational behavioral interoperability.

5.1 Questionnaire Structure

This section outlines the structure of the questionnaire. The four main sections of the questionnaire are in line with the earlier presented overview of behavioral interoperability aspects (section 5):

- Service Identifications (A): This section assesses the scope of the digital public service (the object of measurement, i.e. the digital public service to examine), service landscaping, the digital public service's outcome, the service owner, the administrative level, etc.;
- Service Delivery (D): The section assesses how the digital public service delivers its service;
- Service Consumption (C): This section assesses if and how services are consumed from other administrations and businesses.

The following figures illustrate the sections A, D and C of OIMAPS questionnaire as described above.


Service Identification (A)

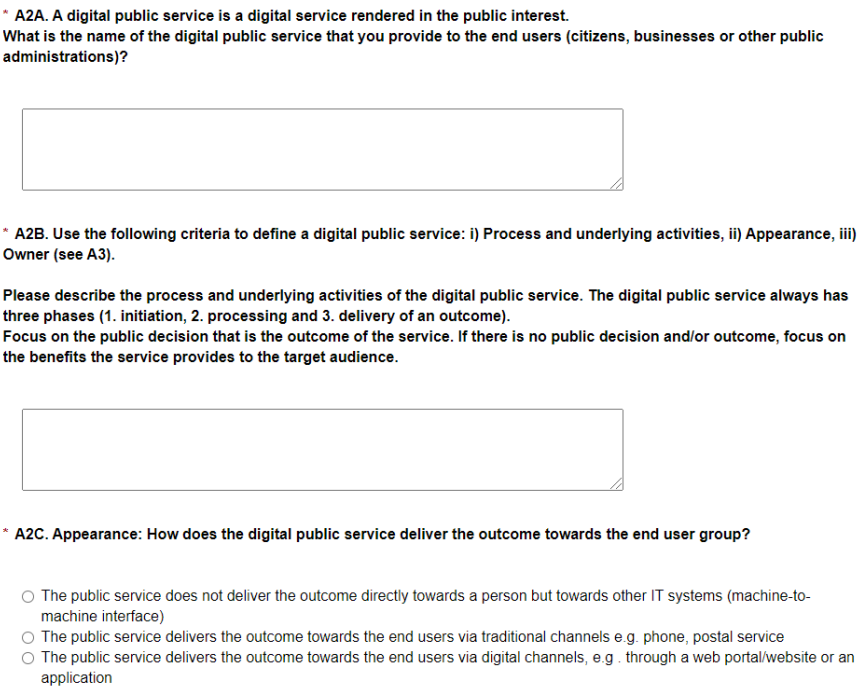
* A1A. Please provide your name:

* A1B. Please provide your email address:
We will send your report to this email address

A1C. Please provide your phone number:

* A1D. Please indicate the country of the organisation providing the digital public service
- Austria
- Belgium
- Bulgaria
- Croatia
- Cyprus
- Czechia
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Italy
- Latvia

Figure 4: OIMAPS questionnaire Section A


* A2A. A digital public service is a digital service rendered in the public interest.
What is the name of the digital public service that you provide to the end users (citizens, businesses or other public administrations)?

* A2B. Use the following criteria to define a digital public service: i) Process and underlying activities, ii) Appearance, iii) Owner (see A3).

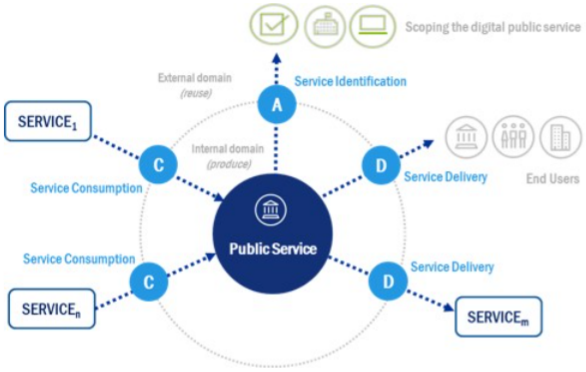
Please describe the process and underlying activities of the digital public service. The digital public service always has three phases (1. initiation, 2. processing and 3. delivery of an outcome).
Focus on the public decision that is the outcome of the service. If there is no public decision and/or outcome, focus on the benefits the service provides to the target audience.

* A2C. Appearance: How does the digital public service deliver the outcome towards the end user group?

- The public service does not deliver the outcome directly towards a person but towards other IT systems (machine-to-machine interface)
- The public service delivers the outcome towards the end users via traditional channels e.g. phone, postal service
- The public service delivers the outcome towards the end users via digital channels, e.g . through a web portal/website or an application

Figure 5: OIMAPS questionnaire Section A

Service Delivery (D)



The public administration delivers the digital public service data towards other end users like administrations, businesses and citizens. We call this the **Public Service Delivery.**

The service being delivered represents the focal point of the OIMAPS in terms of correctly scoping and delimiting the digital public service data under evaluation.

The Service Delivery area focuses on the data, information and knowledge delivered by the digital public service, the Service Delivery Enablers and the Service Delivery Manifestations.
Please answer the following questions regarding how your digital public service is delivered to its end users and/or other public services.

Figure 6: OIMAPS questionnaire Section D

Service Delivery Enablers

**Assesses the organisational behavioural interoperability capabilities that enable either i) the delivery of data, information and knowledge by the digital public service to its end users and/or other client services or ii) the discoverability of the digital public service*

* **D3. To what extent is the digital public service flexible to introduce changes in the delivery mode of data, information and knowledge? (e.g. maintenance and updates to address business needs, changes, etc.)**
More Info

***Enabler** / Manifestation*

- ○ The digital public service is not flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. in a hard coded service delivery mode)
- ○ The digital public service has limited flexibility to introduce ad-hoc changes in the delivery mode of data, information and knowledge (e.g. via ad-hoc changes to specific files, without any global change management to business processes)
- ○ The digital public service is partially flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. via changes to the relevant business processes)
- ○ The digital public service is mostly flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. global changes across any part of the delivery mode)
- ○ The digital public service is fully flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. global changes at regular intervals, based on bilateral contacts between software developers and the business to get their view on the changes).

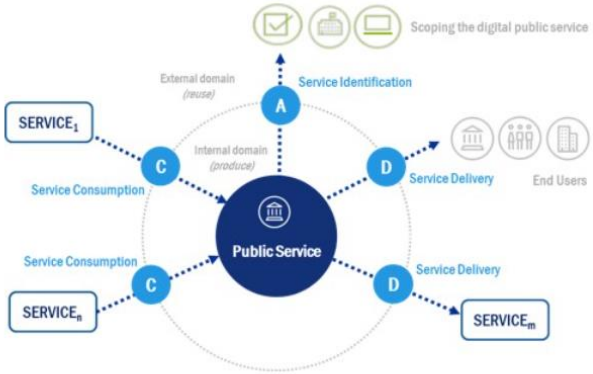
* **D4. To what extent is the digital public service made discoverable by its end users via organisational means (service catalogues, etc.)?**
More Info

***Enabler** / Manifestation*

- ○ The digital public service is not discoverable by its end users via any organisational means
- ○ The digital public service is discoverable by its end users via ad-hoc means (e.g. e-mail)
- ○ The digital public service is discoverable by its end users via relevant online means (e.g. websites that point to the digital public service)
- ○ The digital public service is discoverable by its end users via a national and/or EU public service catalogue following a formal data model to describe its fundamental characteristics like name, description, competent public organisation, output, etc. (to the Core Public Service Vocabulary Application Profile 2.2 (CPSV-AP))
- ○ The digital public service is discoverable by its end users via a national and/or EU public service catalogue following and extending a formal data model to describe its fundamental characteristics like name, description, competent public organisation, output, etc. (to the Core Public Service Vocabulary

Figure 7: OIMAPS questionnaire Section D

Service Consumption (C)



For delivering the digital public service data towards other administrations, businesses and citizens, the digital public service may be required to consume service of other public administrations or businesses. This area is called **Service Consumption.**

This section comprises the "Data, information and knowledge consumed", the "Service Consumption Enablers" and the "Service Consumption Manifestations".

Please answer the following questions regarding the service consumption of your digital public service.

Figure 8: OIMAPS questionnaire Section C

Service Consumption Manifestations

**Assesses the organisational behavioural interoperability manifestations of the digital public service consuming data, information and knowledge. * (manifestations can be performance, results, user experience)*

* **C4. To what extent is the digital public service compliant with the once-only principle for the data, information and knowledge it consumes?**
More Info

*Enabler / **Manifestation***

- ○ The digital public service is not compliant with the once-only principle for the data, information and knowledge it consumes
- ○ The digital public service is ad-hoc compliant with the once-only principle for the data, information and knowledge it consumes (i.e. it reuses some of them, but it has to consume most of them each time)
- ○ The digital public service is essentially compliant with the once-only principle for the data, information and knowledge it consumes (i.e. it reuses most of them, but it has to consume some of them each time)
- ○ The digital public service is mostly compliant with the once-only principle for the data, information and knowledge it consumes (i.e. it reuses any of them and it requests for consent each time, in compliance with data privacy regulations)
- ○ The digital public service is fully compliant with the once-only principle for the data, information and knowledge it consumes (i.e. it reuses any of them and it requests for consent only-once, in compliance with data privacy regulations).

* **C5. To what extent is the digital public service flexible to introduce changes in the consumption of data, information and knowledge? (e.g. maintenance and updates to address business needs, changes, etc.)**
More Info

*Enabler / **Manifestation***

- ○ The digital public service is not flexible to introduce changes in the consumption of data, information and knowledge (e.g. in a hard coded service consumption mode)
- ○ The digital public service has limited flexibility to introduce ad-hoc changes in the consumption of data, information and knowledge (e.g. via ad-hoc changes to specific files, without any global change management to business processes)
- ○ The digital public service is partially flexible to introduce changes in the consumption of data, information and knowledge (e.g. via changes to the relevant business processes)
- ○ The digital public service is mostly flexible to introduce changes in the consumption of data, information and knowledge (e.g. global changes across any part of the delivery mode)
- ○ The digital public service is fully flexible to introduce changes in the consumption of data, information and knowledge (e.g. global changes at regular

Figure 9: OIMAPS questionnaire Section C

5.2 OIMAPS Questionnaire

5.2.1 Service Identification (A) - Questions

A1A.	
Name	Contact details
Question type	Free text
Rationale	Gather contact information for eventual follow-up.
Question	Please provide your name.
Question logic	Next question

A2A.	
Name	Contact details
Question type	Free text
Rationale	Gather contact information for eventual follow-up.
Question	Please provide your email address.
Question logic	Next question

A1C.	
Name	Contact details
Question type	Free text - format check on phone number
Rationale	Gather contact information for eventual follow-up.
Question	Please provide your phone number.
Question logic	Next question

A1D.	
Name	Contact details
Question type	Multiple choice (1 answer possible)
Rationale	Gather contact information for eventual follow-up.
Question	Please indicate the country of the organisation providing the digital public service.
Question logic	Next question

A2A.	
Name	Digital public service description
Question type	Open
Rationale	Gain insight into the digital public service the administration provides.
Question	A digital public service is a digital service rendered in the public interest. What is the name of the digital public service that you provide to the end users (citizens, businesses or other public administrations)?
Examples	Submission of yearly income tax declaration for citizens (administration-to-citizen); change of residence of a citizen (administration-to-citizen); online information provisioning on relevant jobs to citizens (administration-to-citizen);
Question logic	Next question

A2B.	
Name	Digital public service description
Question type	Open
Rationale	Gain insight into the digital public service the administration provides.
Question	Use the following criteria to define a digital public service: i) Process and underlying activities, ii) Appearance, iii) Owner (see A3). Please describe the process and underlying activities of the digital public service. The digital public service always has three phases (1. initiation, 2. processing and 3. delivery of an outcome). Focus on the public decision that is the outcome of the service. If there is no public decision and/or outcome, focus on the benefits the service provides to the target audience.
Examples	Providing classification services towards other administrations for ensuring international standardisation of patent data via a machine-to-machine interface (administration-to-administration).
Question logic	Next question

A2C.	
Name	Digital public service description
Question type	Multiple choice (1 answer possible)
Rationale	Gain insight into the digital public service the administration provides.
Question	Appearance: How does the digital public service deliver the outcome towards the end user group? • The public service does not deliver the outcome directly towards a person but towards other IT systems (machine-to-machine interface) • The public service delivers the outcome towards the end users via traditional channels e.g. phone, postal service • The public service delivers the outcome towards the end users via digital channels, e.g. through a web portal/website or an application
Question logic	Next question

A3.	
Name	Service owner
Question type	Multiple choice (1 answer possible)
Rationale	This question determines the scope / boundaries of the public administration providing the digital public service.
Question	Owner: Which public administration is primarily responsible for providing the digital public service? • Ministry e.g. Ministry of Public Administration, Ministry of Justice • Public Administration e.g. Tax Administration • Directorate-General of the European Commission e.g. DG COMM, DG JUST, DGIT • Government institution/agency/office e.g. National Agency for Information Society, National Centre for Public Administration and Local Government (EKDDA) • EU institution/agency/office e.g. EU Publications Office • Other Legal Entity
Question logic	Next question

A4.	
Name	Sector of the service
Question type	Multiple choice (1 answer possible)
Rationale	This question determines the scope / boundaries of the public administration providing the digital public service.
Question	Please indicate in which sector is the digital public service provided. • Education • Public Health • Public Safety • Environmental Protection • Justice • Transportation • Infrastructure • Social Services • Economy/Financial • Other
Question logic	Next question

A5.	
Name	End user group(s) to which the service is delivered
Question type	Multiple choice (>1 possible answer)
Rationale	Determine the end user group(s) to which the digital public service is delivered.
Question	What is the end user group to whom the digital public service is delivered? • Public Administrations (A2A) • Citizens (A2C) • Businesses (A2B)
Examples	A specific group of businesses; A specific group of citizens; A specific group of public administrations.
Question logic	Next question

A6.	
Name	Administrative level
Question type	Multiple choice (>1 possible answer)
Rationale	Gain insight into the government providing the digital public service.
Question	At what administrative level is the digital public service provided (multiple answers are possible)? • Local (e.g. city, municipality) • Regional • National • European • International
Question logic	Next question

Maturity scoring: This section is not scored.

5.2.2 Service Delivery (D) - Questions

D1.	
Name	Formalisation by organisational interoperability agreements in data delivery
Category	Enabler
Weight	50%
Question type	Multiple choice (1 answer possible)
Rationale	This item assesses the existence and type of organisational interoperability agreement(s) that the digital public service provides to define the details and specifications for the data, information and knowledge delivery towards its end users. The use of organisational interoperability agreements facilitates the formalisation of organisational relationships between the entities involved in providing the service. This item examines the organisational behavioural interoperability specifications of the data, information and knowledge delivered by the digital public service to its end users. This item is compliant with the EIRA ABB Organisational Interoperability Specification
Question	To what extent is the digital public service formalised by organisational interoperability agreements that enable data, information and knowledge delivery? • The digital public service is not formalised by any organisational agreements that enable data, information and knowledge delivery. • The digital public service is formalised by ad-hoc organisational agreements that enable data, information and knowledge delivery (e.g. with some of the stakeholders involved or for some parts of the service). • The digital public service is formalised by multilateral, high-level organisational agreements that enable data, information and knowledge delivery (e.g. with all involved stakeholders, but only high-level cooperation agreements or high-level data processing agreements) • The digital public service is formalised by multilateral, detailed organisational agreements, that enable data, information and knowledge delivery (e.g. with all involved stakeholders, including detailed cooperation agreements, data processing agreements, management agreements, pilot agreements, etc.) • The digital public service is formalised by multilateral, detailed organisational agreements, accompanied by individual SLAs (e.g. additional bilateral agreements, for some specific stakeholders involved) that enable data, information and knowledge delivery.
Examples	• Organisational agreements are in place to serve to formalise the arrangements between the different stakeholders involved in the business register data exchange project, and explicitly state the responsibilities of each organisation. • Interoperability agreement enabling the data transfer is the Contract between the Estonian Centre of Registers and Information Systems, and the Finnish Patent and Registration Office
Question logic	Next question

D2.	
Name	Formalisation by templates of organisational interoperability agreements in data delivery
Category	Enabler
Weight	50%
Question type	Multiple choice (1 answer possible)
Rationale	This item assesses the existence and type of organisational interoperability agreement templates that the digital public service provides to describe the organisational agreement provision and details, with the aim to introduce a level of standardisation and administrative simplification, via pre-defined, standardised clauses and terms to choose from. The agreement templates facilitate the formalisation of organisational agreements and provide clear principles on data ownership, processing and storage. This item examines the organisational behavioural interoperability specifications of the data, information and knowledge delivered by the digital public service to its end users. This item is compliant with the EIRA ABB Organisational Interoperability Specification.
Question	To what extent is the digital public service formalised by templates of organisational interoperability agreements that enable data, information and knowledge delivery? • The digital public service is not formalised by any organisational agreements that enable data, information and knowledge delivery. • The digital public service is formalised by ad-hoc organisational interoperability agreements that enable data, information and knowledge delivery (i.e. it is formalised in an ad-hoc way, without template provisions, clauses, etc.). • The digital public service is formalised by non-customisable templates of organisational interoperability agreements that enable data, information and knowledge delivery (e.g. based on a specific vocabulary and encoding mechanisms for representing statements about the usage of content and services). • The digital public service is formalised by customisable templates of organisational interoperability agreements that enable data, information and knowledge delivery (i.e. it allows the extension and adaptation of the existing templates of standard provisions and clauses). • The digital public service is formalised by customisable templates of organisational interoperability agreements that enable data, information and knowledge delivery, using a formal vocabulary (e.g. shaping the clauses based on the Open Digital Rights Language (ODRL) Vocabulary and Expression).
Examples	• The federation of the Finnish and Estonian X-Road ecosystems is formalised in a trust federation agreement between the X-Road Operators in each country • The bilateral relationship between the Tax and Customs Administration and Logius is formalised in several documents such as SLAs
Question logic	Next question

D3.	
Name	Delivery mode in data delivery
Category	Enabler
Weight	25%
Question type	Multiple choice (1 answer possible)
Rationale	This item assesses the digital public service capability, means and resources to address changes in the data, information and knowledge delivery that are likely to be required. A degree of flexibility is necessary to allow for updates to and changes in the standards in order to meet the new user needs (or other changes mandated by legislation, technology, etc.). This item examines an organisational behavioural interoperability capability that enables and facilitates the digital public service to deliver data information and knowledge towards its end users. This item is compliant with the EIRA ABB Service Delivery Mode.
Question	To what extent is the digital public service flexible to introduce changes in the delivery mode of data, information and knowledge? (e.g. maintenance and updates to address business needs, changes, etc.) • The digital public service is not flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. in a hard coded service delivery mode) • The digital public service has limited flexibility to introduce ad-hoc changes in the delivery mode of data, information and knowledge (e.g. via ad-hoc changes to specific files, without any global change management to business processes) • The digital public service is partially flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. via changes to the relevant business processes) • The digital public service is mostly flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. global changes across any part of the delivery mode). • The digital public service is fully flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. global changes at regular intervals, based on bilateral contacts between software developers and the business to get their view on the changes).
Examples	• Taking the Tax and Customs Administration as an example, it updates the content of its SBR reports (corporate tax filing, VAT filing etc.) according to updates in the law. In addition, it makes updates to them in consultation with the end users (i.e. private companies, tax consultants, etc.) of these reporting chains. The Tax and Customs Administration maintains a bilateral contact with software developers and with trade associations representing tax consultants in order to get their views on any changes. • The SBR programme maintains and updates a set of technical, semantic and process standards.
Question logic	Next question

D4.	
Name	Discoverability
Category	Enabler
Weight	35%
Question type	Multiple choice (1 answer possible)
Rationale	This item assesses the organisational behavioural interoperability capabilities than enable the digital public service to be available, easily identifiable and discoverable by its end users or other services. Catalogues help administrations find reusable resources (e.g. services, data, software, data models). Commonly agreed descriptions of the services, data, registries and interoperable solutions published in catalogues are needed to enable interoperability between catalogues. This item examines an organisational behavioural interoperability capability that enables and facilitates the digital public service to deliver data information and knowledge towards its end users. This item is compliant with the EIRA ABB Interoperable Digital Public Service.
Question	To what extent is the digital public service made discoverable by its end users via organisational means (service catalogues, etc.)? • The digital public service is not discoverable by its end users via any organisational means. • The digital public service is discoverable by its end users via ad-hoc means (e.g. e-mail). • The digital public service is discoverable by its end users via relevant online means (e.g. websites that point to the digital public service). • The digital public service is discoverable by its end users via a national and/or EU public service catalogue following a formal data model to describe its fundamental characteristics like name, description, competent public organisation, output, etc. (to the Core Public Service Vocabulary Application Profile 2.2 (CPSV-AP)) • The digital public service is discoverable by its end users via a national and/or EU public service catalogue following and extending a formal data model to describe its fundamental characteristics like name, description, competent public organisation, output, etc. (to the Core Public Service Vocabulary Application Profile 2.2 (CPSV-AP))
Examples	• Various types of catalogues exist, e.g. directories of services, open data portals, registries of base registries, metadata catalogues, catalogues of standards, specifications and guidelines • In the context of the Catalogue of Services Action, the European Commission developed the Core Public Service Vocabulary Application Profile (CPSV-AP), a standard data model to describe public services across Europe. • Catalogue of services in Estonia: All transactional services currently described in a central Catalogue of Services using a machine-readable description language based on the CPSV-AP. It provides a holistic overview of public sector services and makes these services comparable to one another.
Question logic	Next question

D5.	
Name	Proactiveness
Category	Enabler
Weight	40%
Question type	Multiple choice (1 answer possible)
Rationale	This item assesses if and to what extent the digital public service triggers parts of its delivery, in order to proactively deliver data, information and knowledge (i.e. proactively provide digital outcome(s)) to its end users, based on their profile and prior interactions with this or other digital public services. This item examines an organisational behavioural interoperability capability that enables and facilitates the digital public service to deliver data information and knowledge towards its end users. This item is compliant with the EIRA ABB Service Delivery Mode.
Question	To what extent is the digital public service proactive in delivering data, information and knowledge? • The digital public service is not proactive in delivering data, information and knowledge (i.e. the end user has to act upon any of its steps). • The digital public service is ad-hoc proactive in delivering data, information and knowledge (i.e. it can assess citizen eligibility criteria partially, e.g. based on the data it holds), but it does not deliver any data, information and knowledge. • The digital public service is partially proactive in delivering data, information and knowledge (i.e. it can assess citizen eligibility criteria partially) and requires end user interaction to deliver (e.g. like in the case of a medical/vaccination appointment). • The digital public service is mostly proactive in delivering data, information and knowledge. (i.e. it can assess citizen eligibility criteria fully) and requires end user interaction to deliver (e.g. in the case of a social security package). • The digital public service is fully proactive in delivering data, information and knowledge (i.e. it can assess citizen eligibility criteria fully) and no interaction is required from the end user (like in the case of the automatic newborn registration).
Examples	• Digisos (Digital application for social security) in Norway makes the application for financial social assistance available digitally to users. It involves different levels of operation that are not visible to the user and it requires from citizen or business to apply or trigger the service in some way. • Automated Social Energy Tariff in Portugal (ASET) is designed to be proactive, meaning that the citizen does not need to initiate an application for the reduced tariff, but instead this responsibility is allocated to the State (DGEG).
Question logic	Next question

D6.	
Name	Once-only principle compatibility
Category	Manifestation
Weight	20%
Question type	Multiple choice (1 answer possible)
Rationale	This item aims to assess if and to what extent the digital public service is organised based on the Once-Only Principle (OOP) i.e. users should not have to submit to authorities documents or data already held by other authorities). This item examines the organisational behavioural interoperability specifications of data, information and knowledge consumed by the digital public service from other services. This item is compliant with the EIRA ABB Service Delivery Mode
Question	To what extent is the digital public service compliant with the once-only principle for the data, information and knowledge it requires for its delivery? • The digital public service is not compliant with the once-only principle for the data, information and knowledge it requires for its delivery. • The digital public service is ad-hoc compliant with the once-only principle for the data, information and knowledge it requires for its delivery (i.e. the end user enters each time most of the required data). • The digital public service is mostly compliant with the once-only principle for the data, information and knowledge it requires for its delivery (i.e. the end user enters each time some of the required data). • The digital public service is mostly compliant with the once-only principle for the data, information and knowledge it requires for its delivery and it pre-fills them, following data privacy regulations (by requesting each time the end user consent). • The digital public service is fully compliant with the once-only principle for the data, information and knowledge it requires for its delivery and it pre-fills them, following data privacy regulations (having prior, once-only, end user consent).
Examples	• The Company dossier in Netherlands provides a central electronic record on which a business can place certain information about its operations just once and have this information re-used to fulfill reporting requirements to different government bodies. • Tell us Once in United Kingdom is a cross-government service that ensures people need to inform government of a birth or death only once. The relevant information is distributed to all concerned services in other departments.
Question logic	Next question

D7.	
Name	Common user experience in data consumption
Category	Manifestation
Weight	20%
Question type	Multiple choice (1 answer possible)
Rationale	This item aims assesses if and to what extent the digital public service provides a unified user experience to its end users, seamless and similar in look and feel, across all parts of service delivery. This item examines the organisational behavioural interoperability specifications of the data, information and knowledge delivered by the digital public service to its end users. This item is compliant with the EIRA ABB Service Delivery Mode.
Question	To what extent does the digital public service provide a common user experience to deliver data, information and knowledge to its end users? • The digital public service does not provide any common user experience to deliver data, information and knowledge to its end users • The digital public service provides an ad-hoc common user experience to deliver data, information and knowledge (e.g. user experience can be common for some parts of the service delivery). • The digital public service provides a partially common user experience to deliver data, information and knowledge to its end users (e.g. for a group of end users or across major parts of service delivery). • The digital public service provides a mostly common user experience to deliver data, information and knowledge to its end users (i.e. a common interface for all users and all parts of delivery, however not identical across all applicable channels (incl. desktop, tablet, mobile)). • The digital public service provides a fully common user experience to deliver data, information and knowledge to its end users (i.e. identical across all applicable devices (incl. desktop, tablets, and phones).
Examples	• The Business Process Management Office (BPMO) of the Luxemburg State IT Center defines and implements BPM standards and governance and it also maintains a standard framework for IT/BPM projects and public administration modernisation. • The Austrian Federal Government installed a common interface to operate the common data exchange standard X-Meld, based on OSCI-Transport, a standard acknowledged by the national IT-board
Question logic	Next question

D8.	
Name	Means for monitoring the status in a file
Category	Manifestation
Weight	20%
Question type	Multiple choice (1 answer possible)
Rationale	This item assesses if and to what extent the public service delivery is user centered and streamlined, allowing the end users to get information, via digital means, about the progress of the public service delivery. This item examines the organisational behavioural interoperability specifications of data, information and knowledge consumed by the digital public service from other services. This item is compliant with the EIRA ABB Service Delivery Mode.
Question	To what extent does the digital public service provide to its end users the means to monitor the status in a file? • The digital public service does not provide its end users with any means to monitor the status in a file. • The digital public service provides its end users only non-digital means to monitor the status in a file (i.e. a land-line to perform a phone call) • The digital public service provides its end users with non-interactive digital means to monitor the status in a file (i.e. notifications via email or sms). • The digital public service provides its end users with interactive digital means to monitor the status in a file (i.e. an online platform / website, updated periodically, e.g. every 24h). • The digital public service provides its end users with interactive digital means for real-time monitoring the status in a file (i.e. a live-tracking online platform / website)
Examples	• myGuichet platform in Luxemburg allows citizens to upload and store personal details and documentation and there is an obligatory order of the stages involved. • • The registration for child benefits in Ireland (e-Enabled Child Benefit Service): The process starts with the notification of the birth of a child at the registrar, followed by registration in the citizens register, generating a personal ID. If the parents wish to, they can apply for child benefit and the child´s data will be sent automatically to the revenue agency.
Question logic	Next question

D9.	
Name	Feedback on the quality of the digital public service
Category	Manifestation
Weight	20%
Question type	Multiple choice (1 answer possible)
Rationale	This item assesses if and to what extent the public service delivery is user centered and streamlined, allowing the end users to provide feedback on the quality of the digital public service. This item examines the organisational behavioural interoperability specifications of data, information and knowledge consumed by the digital public service from other services. This item is compliant with the EIRA ABB Service Delivery Mode.
Question	To what extent does the digital public service provide digital capabilities to capture end-user feedback on its quality in delivering data, information and knowledge? • The digital public service does not provide any capabilities to capture end-user feedback on its quality in delivering data, information and knowledge. • The digital public service provides only physical channels (e.g. phone, mail) to capture end-user feedback on its quality in delivering data, information and knowledge. • The digital public service provides digital channels (e.g. email, contact form, chat, webpage) to capture end-user feedback on its quality in delivering data, information and knowledge. • The digital public service provides digital channels (e.g. email, contact form, chat, webpage) along with a standardised reviewing system, to capture end-user feedback on its quality in delivering data, information and knowledge. • The digital public service provides digital channels (e.g. email, contact form, chat, webpage) along with a standardised reviewing system to capture end-user feedback on its quality in delivering data, information and knowledge, while it makes publicly available insights from other end user feedback and reviews.
Examples	• The digital public service aggregates user feedback across digital and physical channels per government department and regularly publishes the results; departments that lag behind in user satisfaction are required to devise improvement plans. • Digisos solution in Norway providing a digital channel by which citizens can apply for a municipal-level benefit via a national-level portal enabled feedback to be gathered from a limited set of users (municipalities) as the service was being developed.
Question logic	Next question

D10.	
Name	Support of the end users
Category	Manifestation
Weight	20%
Question type	Multiple choice (1 answer possible)
Rationale	This item assesses if and to what extent the public service delivery is user centered and streamlined, allowing the end users to communicate directly with the service providers as deemed necessary. This item examines the organisational behavioural interoperability specifications of data, information and knowledge consumed by the digital public service from other services. This item is compliant with the EIRA ABB Service Delivery Mode.
Question	To what extent does the digital public service provide means to support the end users with regards to the delivery of data, information and knowledge? • The digital public service does not provide any means to support the end users with regards to the delivery of data, information and knowledge. (e.g. it is not possible for the end user to communicate directly and on-site visit to the public administration's premises is required). • The digital public service provides non-interactive means to support the end users with regards to the delivery of data, information and knowledge. (e.g. a FAQ section or equivalent). • The digital public service provides interactive means to support the end users with regards to the delivery of data, information and knowledge (e.g. a phone line or equivalent). • The digital public service provides interactive digital means to support the end users with regards to the delivery of data, information and knowledge (e.g. an electronic contact form). • The digital public service provides interactive, digital and synchronous means to support the end users with regards to the delivery of data, information and knowledge (e.g. a chatbox).
Examples	• The national public procurement platform provides a telephone support and an email to the economic operators • PROMETA in Luxemburg creates intelligent forms for service desk ticketing. Complex and structured decision tree models generate an online questionnaire when executed in the portal (NextGen Portal) developed by the BPMO. The service desk agent is then able to manage and record incident calls, providing issue resolution extracted from a knowledge base (BPM-based) and pushing the ticket creation to a separate ticketing system.
Question logic	Next question

Maturity scoring: The overall weight of this area in the total maturity score is 70%. For more information, please see section 7.3.

5.2.3 Service Consumption (C) - Questions

C1.	
Name	Formalisation by organisational interoperability agreements in data consumption
Category	Enabler
Weight	50%
Question type	Multiple choice (1 answer possible)
Rationale	This item aims assesses if and to what extent the digital public service follows standard, pre-defined provisions of certain organisational interoperability agreements that are in place to consume data, information and knowledge, or if this process happens ad-hoc and/or in a different way and under different conditions each time. This item examines an organisational behavioural interoperability capability that enables the digital public service to consume data, information and knowledge that are already reusable, preferably in an automated manner. This item is compliant with the EIRA ABB Organisational Interoperability Specification.
Question	To what extent is the digital public service formalised by organisational interoperability agreements that enable data, information and knowledge consumption? • The digital public service is not formalised by any organisational agreements that enable data, information and knowledge consumption. • The digital public service is formalised by ad-hoc organisational agreements that enable data, information and knowledge consumption (e.g. with some of the stakeholders involved or for some parts of the service). • The digital public service is formalised by multilateral, high-level organisational agreements that enable data, information and knowledge consumption (e.g. with all involved stakeholders, but only high-level cooperation agreements or high-level data processing agreements). • The digital public service is formalised by multilateral, detailed organisational agreements, that enable data, information and knowledge consumption (e.g. with all involved stakeholders, including detailed cooperation agreements, data processing agreements, management agreements, pilot agreements, etc.). • The digital public service is formalised by multilateral, detailed organisational agreements, accompanied by individual SLAs (e.g. additional bilateral agreements, for some specific stakeholders involved) that enable data, information and knowledge consumption.
Examples	• Organisational agreements are in place to serve to formalise the arrangements between the different stakeholders involved in the business register data exchange project, and explicitly state the responsibilities of each organisation. • Interoperability agreement enabling the data transfer is the Contract between the Estonian Centre of Registers and Information Systems, and the Finnish Patent and Registration Office

	• The federation of the Finnish and Estonian X-Road ecosystems is formalised in a trust federation agreement between the X-Road Operators in each country • The bilateral relationship between the Tax and Customs Administration and Logius is formalised in several documents such as SLAs
Question logic	Next question

C2.	
Name	Service consumption mode
Category	Enabler
Weight	50%
Question type	Multiple choice (1 answer possible)
Rationale	This item aims assesses if and to what extent the digital public service has an integrated and seamless service delivery mode to consume data, information and knowledge from the consumed (upstream) services. This item examines an organisational behavioural interoperability capability that enables the digital public service to consume data, information and knowledge that are already reusable, preferably in an automated manner. This item is compliant with the EIRA ABB Service Delivery Mode
Question	To what extent does the digital public service follow a unified service consumption mode to consume data, information and knowledge from other services? • The digital public service does not follow any unified service consumption mode to consume data, information and knowledge to its end users • The digital public service follows a limited unified service consumption mode to consume data, information and knowledge from other services (e.g. for one stage of the consumption or for some services). • The digital public service follows a partially unified service consumption mode to consume data, information and knowledge from other services (e.g. consistent for major stages of data consumption or across most consumed services). • The digital public service follows a fully unified service consumption mode to consume data, information and knowledge from other services (e.g. based on standard business processes across all stages of the consumption) • The digital public service follows a fully unified service consumption mode to consume data, information and knowledge from other services which is being reused by other digital public services as well.
Examples	• The Central municipality ASP in Hungary is a centrally provided, modern, integrated shared service provided in SaaS model for specific domains of local administrative management, ensuring standardised internal operation and a common platform for e-government service provision that integrates all necessary building blocks.

	• The X-Road in Estonia is a distributed information exchange platform that makes it possible for different systems across the public sector to communicate and a request for data is sent from the consumer's (the business register) information system to its X-Road security server. • In the X-Road system in Estonia, data is exchanged directly between the security server of the consumer (i.e. the X-road member requesting the data) and the security server of the provider (i.e. the X-road member providing the data).
Question logic	Next question

C3.	
Name	Discoverability
Category	Enabler
Weight	100%
Question type	Multiple choice (1 answer possible)
Rationale	This item assesses the digital public service capability to discover other services e.g. by using catalogues. Catalogues help administrations find reusable resources (e.g. services, data, software, data models). Commonly agreed descriptions of the services, data, registries and interoperable solutions published in catalogues are needed to enable interoperability between catalogues. This item examines an organisational behavioural interoperability capability that enables the digital public service to consume data, information and knowledge that are already reusable, preferably in an automated manner. This item is compliant with the EIRA ABB Interoperable Digital Public Service.
Question	To what extent is the digital public service able to discover the services to consume data, information and knowledge (service catalogues, etc.)? • The digital public service is not able to discover any services to consume data, information and knowledge. (e.g. it receives the information for the services to consume via ad-hoc means, email, etc.) • The digital public service is able to discover the services to consume data, information and knowledge from specific online sources (e.g. relevant websites). • The digital public service is able to discover the services to consume data, information and knowledge from specific service catalogues. • The digital public service is able to discover the services to consume data, information and knowledge from any national public service catalogue. • The digital public service is able to discover the services to consume data, information and knowledge from any European public service catalogue.
Examples	• The Public Service Description Harvester from the CPSV-AP, offers the possibility to users to automatically collect public service descriptions from various portals.

	• Estonian public service catalogue is a simple web-based tool to generate overview of public services and also statistics about public services is collected via service catalogue. All data is publicly available via API.
Question logic	Next question
C4.	
Name	Once-only principle compatibility
Category	Manifestation
Weight	50%
Question type	Multiple choice (1 answer possible)
Rationale	This item aims assesses if and to what extent the public service consumption is organised based on the Once-Only Principle (OOP) to the data, information and knowledge that it requests by its consuming services i.e. users should not have to submit to authorities documents or data already held by other authorities. This item examines an organisation behavioural interoperability manifestation of the digital public service consuming data, information and knowledge (in terms of performance). This item is compliant with the EIRA ABB Service Delivery Mode.
Question	To what extent is the digital public service compliant with the once-only principle for the data, information and knowledge it consumes? • The digital public service is not compliant with the once-only principle for the data, information and knowledge it consumes. • The digital public service is ad-hoc compliant with the once-only principle for the data, information and knowledge it consumes (i.e. it reuses some of them, but it has to consume most of them each time). • The digital public service is essentially compliant with the once-only principle for the data, information and knowledge it consumes (i.e. it reuses most of them, but it has to consume some of them each time). • The digital public service is mostly compliant with the once-only principle for the data, information and knowledge it consumes (i.e. it reuses any of them and it requests for consent each time, in compliance with data privacy regulations). • The digital public service is fully compliant with the once-only principle for the data, information and knowledge it consumes (i.e. it reuses any of them and it requests for consent only-once, in compliance with data privacy regulations).
Examples	• Public administration bodies re-use the data that was provided by the citizen in a previous query internally, while respecting data protection regulation. • The end users can access the digital public services through a local government eAdministration portal with their national eID via the Central Authentication service of the municipality or via eIDAS Authentication. This helps implement the once-only principle since citizens only have to provide information once.
Question logic	Next question

C5.	
Name	Flexibility in change
Category	Manifestation
Weight	50%
Question type	Multiple choice (1 answer possible)
Rationale	This item assesses the digital public service capability, means and resources to address changes in the data, information and knowledge consumption, that are likely to be required. A degree of flexibility is necessary to allow for updates to and changes in the standards in order to meet the new user needs (or other changes mandated by legislation, technology, etc.). This item examines an organisation behavioural interoperability manifestation of the digital public service consuming data, information and knowledge (in terms of performance). This item is compliant with the EIRA ABB Service Delivery Mode.
Question	To what extent is the digital public service flexible to introduce changes in the consumption of data, information and knowledge? (e.g. maintenance and updates to address business needs, changes, etc.) • The digital public service is not flexible to introduce changes in the consumption of data, information and knowledge (e.g. in a hard coded service consumption mode). • The digital public service has limited flexibility to introduce ad-hoc changes in the consumption of data, information and knowledge (e.g. via ad-hoc changes to specific files, without any global change management to business processes) • The digital public service is partially flexible to introduce changes in the consumption of data, information and knowledge (e.g. via changes to the relevant business processes). • The digital public service is mostly flexible to introduce changes in the consumption of data, information and knowledge (e.g. global changes across any part of the delivery mode). • The digital public service is fully flexible to introduce changes in the consumption of data, information and knowledge (e.g. global changes at regular intervals, based on bilateral contacts between software developers and the business to get their view on the changes).
Examples	• Taking the Tax and Customs Administration as an example, it updates the content of its SBR reports (corporate tax filing, VAT filing etc.) according to updates in the law. In addition, it makes updates to them in consultation with the end users (i.e. private companies, tax consultants, etc.) of these reporting chains. The Tax and Customs Administration maintains a bilateral contact with software developers and with trade associations representing tax consultants in order to get their views on any changes. • The SBR programme maintains and updates a set of technical, semantic and process standards.
Question logic	Next question

Maturity scoring: The overall weight of this area in the total maturity score is 30%. For more information, please see section 7.3.

6 OIMAPS RECOMMENDATIONS

The main objective of the **Organisational Interoperability Maturity Assessment of a Public Service (OIMAPS)** is to provide insight into how digital public services can improve their organisational behavioral interoperability maturity. After filling in the online questionnaire, the respondent receives a PDF with advice on how to improve the organisational l behavioral interoperability of his digital public service. This section presents how these recommendations are generated.

6.1 Principles

The following five principles are applied to generate recommendations:

- **Principle 1:** Each organisational interoperability attribute differentiates between at least two maturity levels;
- **Principle 2:** The improvement tables provide recommendations on how to improve maturity gradually for a specific organisational interoperability attribute;
- **Principle 3:** When a digital public service does not yet reach the maximum level for a specific organisational interoperability attribute, a recommendation is given to make the step towards the next organisational interoperability level;
- **Principle 4:** When a digital public service successfully attains the maximum maturity level for an organisational interoperability attribute, no recommendation is given[9];
- **Principle 5**: When the maturity improvement is not based on specific organisational interoperability characteristics per level, a sliding scale (e.g. from less to more) is used. In this scenario, a generic recommendation (not maturity level specific) is given to improve the maturity further along the sliding scale.

6.2 Recommendations overview

For each improvement step, the recommendation tables in the following chapters show:

- The question the recommendation relates to;
- The assessed maturity level;
- The next maturity level to be reached through improvement[10;]
- The recommendation as to how to reach the next maturity level.

[9] The reason for this is that in this case- according to the model- the service is already implementing an organisational interoperability attribute in a way that it corresponds to best practice. There are no direct recommendations to improve further

[10] With the exception when this is considered a sliding scale

6.3 Recommendations

6.3.1 Service Delivery (D) – Scoring table

Table 3: Service Delivery scoring model

Item	Ad hoc (1)	Opportunistic (2)	Essential (3)	Sustainable (4)	Seamless (5)
D1	The digital public service is not formalised by any organisational agreements that enable data, information and knowledge delivery.	The digital public service is formalised by ad-hoc organisational agreements that enable data, information and knowledge delivery (e.g. with some of the stakeholders involved or for some parts of the service).	The digital public service is formalised by multilateral, high-level organisational agreements that enable data, information and knowledge delivery (e.g. with all involved stakeholders, but only high-level cooperation agreements or high-level data processing agreements)	The digital public service is formalised by multilateral, detailed organisational agreements, that enable data, information and knowledge delivery (e.g. with all involved stakeholders, including detailed cooperation agreements, data processing agreements, management agreements, pilot agreements, etc.)	The digital public service is formalised by multilateral, detailed organisational agreements, accompanied by individual SLAs (e.g. additional bilateral agreements, for some specific stakeholders involved) that enable data, information and knowledge delivery.
D2	The digital public service is not formalised by any organisational agreements that enable data, information and knowledge delivery.	The digital public service is formalised by ad-hoc organisational interoperability agreements that enable data, information and knowledge delivery (i.e. it is formalised in an ad-hoc way, without template provisions, clauses, etc.).	The digital public service is formalised by non-customisable templates of organisational interoperability agreements that enable data, information and knowledge delivery (e.g. based on a specific vocabulary and encoding mechanisms for representing statements about the usage of content and services).	The digital public service is formalised by customisable templates of organisational interoperability agreements that enable data, information and knowledge delivery (i.e. it allows the extension and adaptation of the existing templates of standard provisions and clauses).	The digital public service is formalised by customisable templates of organisational interoperability agreements that enable data, information and knowledge delivery, using a formal vocabulary (e.g. shaping the clauses based on the Open Digital Rights Language (ODRL) Vocabulary and Expression).

D3	The digital public service is not flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. in a hard coded service delivery mode)	The digital public service has limited flexibility to introduce ad-hoc changes in the delivery mode of data, information and knowledge (e.g. via ad-hoc changes to specific files, without any global change management to business processes)	The digital public service is partially flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. via changes to the relevant business processes)	The digital public service is mostly flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. global changes across any part of the delivery mode).	The digital public service is fully flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. global changes at regular intervals, based on bilateral contacts between software developers and the business to get their view on the changes).
D4	The digital public service is not discoverable by its end users via any organisational means.	The digital public service is discoverable by its end users via ad-hoc means (e.g. e-mail).	The digital public service is discoverable by its end users via relevant online means (e.g. websites that point to the digital public service).	The digital public service is discoverable by its end users via a national and/or EU public service catalogue following a formal data model to describe its fundamental characteristics like name, description, competent public organisation, output, etc. (to the Core Public Service Vocabulary Application Profile 2.2 (CPSV-AP))	The digital public service is discoverable by its end users via a national and/or EU public service catalogue following and extending a formal data model to describe its fundamental characteristics like name, description, competent public organisation, output, etc. (to the Core Public Service Vocabulary Application Profile 2.2 (CPSV-AP))
D5	The digital public service is not proactive in	The digital public service is ad-hoc	The digital public service is partially proactive in	The digital public service is mostly proactive in	The digital public service is fully proactive

	delivering data, information and knowledge (i.e. the end user has to act upon any of its steps).	proactive in delivering data, information and knowledge (i.e. it can assess citizen eligibility criteria partially, e.g. based on the data it holds), but it does not deliver any data, information and knowledge.	delivering data, information and knowledge (i.e. it can assess citizen eligibility criteria partially) and requires end user interaction to deliver (e.g. like in the case of a medical/vaccination appointment).	delivering data, information and knowledge. (i.e. it can assess citizen eligibility criteria fully) and requires end user interaction to deliver (e.g. in the case of a social security package).	in delivering data, information and knowledge (i.e. it can assess citizen eligibility criteria fully) and no interaction is required from the end user (like in the case of the automatic newborn registration).
D6	The digital public service is not compliant with the once-only principle for the data, information and knowledge it requires for its delivery.	The digital public service is ad-hoc compliant with the once-only principle for the data, information and knowledge it requires for its delivery (i.e. the end user enters each time most of the required data).	The digital public service is mostly compliant with the once-only principle for the data, information and knowledge it requires for its delivery (i.e. the end user enters each time some of the required data).	The digital public service is mostly compliant with the once-only principle for the data, information and knowledge it requires for its delivery and it pre-fills them, following data privacy regulations (by requesting each time the end user consent).	The digital public service is fully compliant with the once-only principle for the data, information and knowledge it requires for its delivery and it pre-fills them, following data privacy regulations (having prior, once-only, end user consent).
D7	The digital public service does not provide any common user experience to deliver data, information and knowledge to its end users	The digital public service provides an ad-hoc common user experience to deliver data, information and knowledge (e.g. user experience can be common for some parts of the service delivery).	The digital public service provides a partially common user experience to deliver data, information and knowledge to its end users (e.g. for a group of end users or across major parts of service delivery).	The digital public service provides a mostly common user experience to deliver data, information and knowledge to its end users (i.e. a common interface for all users and all parts of delivery, however not identical across all applicable channels (incl. desktop, tablet, mobile)).	The digital public service provides a fully common user experience to deliver data, information and knowledge to its end users (i.e. identical across all applicable devices (incl. desktop, tablets, and phones).

D8	The digital public service does not provide its end users with any means to monitor the status in a file.	The digital public service provides its end users only non-digital means to monitor the status in a file (i.e. a land-line to perform a phone call)	The digital public service provides its end users with non-interactive digital means to monitor the status in a file (i.e. notifications via email or sms).	The digital public service provides its end users with interactive digital means to monitor the status in a file (i.e. an online platform / website, updated periodically, e.g. every 24h).	The digital public service provides its end users with interactive digital means for real-time monitoring the status in a file (i.e. a live-tracking online platform / website)
D9	The digital public service does not provide any capabilities to capture end-user feedback on its quality in delivering data, information and knowledge.	The digital public service provides only physical channels (e.g. phone, mail) to capture end-user feedback on its quality in delivering data, information and knowledge.	The digital public service provides digital channels (e.g. email, contact form, chat, webpage) to capture end-user feedback on its quality in delivering data, information and knowledge.	The digital public service provides digital channels (e.g. email, contact form, chat, webpage) along with a standardised reviewing system, to capture end-user feedback on its quality in delivering data, information and knowledge.	The digital public service provides digital channels (e.g. email, contact form, chat, webpage) along with a standardised reviewing system to capture end-user feedback on its quality in delivering data, information and knowledge, while it makes publicly available insights from other end user feedback and reviews.
D10	The digital public service does not provide any means to support the end users with regards to the delivery of data, information and knowledge. (e.g. it is not possible for the	The digital public service provides non-interactive means to support the end users with regards to the delivery of data, information and knowledge. (e.g. a FAQ	The digital public service provides interactive means to support the end users with regards to the delivery of data, information and knowledge (e.g. a phone line or equivalent).	The digital public service provides interactive digital means to support the end users with regards to the delivery of data, information and knowledge (e.g. an electronic contact form).	The digital public service provides interactive, digital and synchronous means to support the end users with regards to the delivery of data, information and knowledge (e.g. a chatbox).

	end user to communicate directly and on-site visit to the public administration's premises is required).	section or equivalent).			

6.3.2 Service Delivery (D) – Recommendations

The table below presents the respective recommendation to each option in OIMAPS questionnaire. As mentioned above, the purpose of the recommendations is to propose the needed actions to be taken by the digital public service owners in order to **achieve a higher level of organisational interoperability maturity**.

In case the selected option is associated to "Seamless level (5)", then no action is required from the public service owners and the recommendation is by default "Congratulations, you are at the Seamless level".

Table 4: Service Delivery Recommendations

Question	Addressed Level	Next Level	Recommendation
D1.	Ad hoc (1)	Opportunistic (2)	Currently, the digital public service is not formalised by any organisational agreements that enable data, information and knowledge delivery. Consider performing the necessary actions so as to enable the digital public service to be formalised at least by ad-hoc organisational agreements that enable data, information and knowledge delivery (e.g. with some of the stakeholders involved or for some parts of the service).
	Opportunistic (2)	Essential (3)	Currently, the digital public service is formalised by ad-hoc organisational agreements that enable data, information and knowledge delivery (e.g. with some of the stakeholders involved or for some parts of the service). Consider performing the necessary actions so as to enable the digital public service to be formalised by multilateral, at least high-level organisational agreements that enable data, information and knowledge delivery (e.g. with all involved stakeholders, but only high-level

			cooperation agreements or high-level data processing agreements)
	Essential (3)	Sustainable (4)	Currently, the digital public service is formalised by multilateral, high-level organisational agreements that enable data, information and knowledge delivery (e.g. with all involved stakeholders, but only high-level cooperation agreements or high-level data processing agreements) Consider performing the necessary actions so as to enable the digital public service to be formalised by multilateral, detailed organisational agreements, that enable data, information and knowledge delivery (e.g. with all involved stakeholders, including detailed cooperation agreements, data processing agreements, management agreements, pilot agreements, etc.)
	Sustainable (4)	Seamless (5)	Currently, the digital public service…is formalised by multilateral, detailed organisational agreements, that enable data, information and knowledge delivery (e.g. with all involved stakeholders, including detailed cooperation agreements, data processing agreements, management agreements, pilot agreements, etc.) Consider performing the necessary actions so as to enable the digital public service to be formalised by multilateral, detailed organisational agreements, possibly accompanied by individual SLAs (e.g. additional bilateral agreements, for some specific stakeholders involved) that enable data, information and knowledge delivery.
D2.	Ad hoc (1)	Opportunistic (2)	Currently, the digital public service is not formalised by any organisational agreements that enable data, information and knowledge delivery. Consider performing the necessary actions so as to enable the digital public service to be formalised at least by ad-hoc organisational interoperability agreements that enable data, information and knowledge delivery (i.e. it is formalised in an ad-hoc way, without template provisions, clauses, etc.).
	Opportunistic (2)	Essential (3)	Currently, the digital public service is formalised by ad-hoc organisational interoperability agreements that enable data, information and knowledge delivery (i.e. it is formalised in an ad-hoc way, without template provisions, clauses, etc.). Consider performing the necessary actions so

			as to enable the digital public service to be formalised by non-customisable templates of organisational interoperability agreements that enable data, information and knowledge delivery (e.g. based on a specific vocabulary and encoding mechanisms for representing statements about the usage of content and services).
	Essential (3)	Sustainable (4)	Currently, the digital public service is formalised by non-customisable templates of organisational interoperability agreements that enable data, information and knowledge delivery (e.g. based on a specific vocabulary and encoding mechanisms for representing statements about the usage of content and services). Consider performing the necessary actions so as to enable the digital public service to be formalised by customisable templates of organisational interoperability agreements that enable data, information and knowledge delivery (i.e. it allows the extension and adaptation of the existing templates of standard provisions and clauses).
	Sustainable (4)	Seamless (5)	Currently, the digital public service is formalised by customisable templates of organisational interoperability agreements that enable data, information and knowledge delivery (i.e. it allows the extension and adaptation of the existing templates of standard provisions and clauses). Consider performing the necessary actions so as to enable the digital public service to be formalised by customisable templates of organisational interoperability agreements that enable data, information and knowledge delivery, using also a formal vocabulary (e.g. shaping the clauses based on the Open Digital Rights Language (ODRL) Vocabulary and Expression).
D3.	Ad hoc (1)	Opportunistic (2)	Currently, the digital public service is not flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. in a hard coded service delivery mode). Consider performing the necessary actions so as to enable the digital public service to have at least some limited flexibility to introduce ad-hoc changes in the delivery mode of data, information and knowledge (e.g. via ad-hoc changes to specific files, without any global change management to business processes)

	Opportunistic (2)	Essential (3)	Currently, the digital public service has limited flexibility to introduce ad-hoc changes in the delivery mode of data, information and knowledge (e.g. via ad-hoc changes to specific files, without any global change management to business processes). Consider performing the necessary actions so as to enable the digital public service to be partially flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. via changes to the relevant business processes).
	Essential (3)	Sustainable (4)	Currently, the digital public service is partially flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. via changes to the relevant business processes) Consider performing the necessary actions so as to enable the digital public service to be mostly flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. global changes across any part of the delivery mode).
	Sustainable (4)	Seamless (5)	Currently, the digital public service is mostly flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. global changes across any part of the delivery mode). Consider performing the necessary actions so as to enable the digital public service to be fully flexible to introduce changes in the delivery mode of data, information and knowledge (e.g. global changes at regular intervals, based on bilateral contacts between software developers and the business to get their view on the changes).
D4.	Ad hoc (1)	Opportunistic (2)	Currently, the digital public service is not discoverable by its end users via any organisational means. Consider performing the necessary actions so as to enable the digital public service to be discoverable by its end users via ad-hoc means (e.g. e-mail).
	Opportunistic (2)	Essential (3)	Currently, the digital public service is discoverable by its end users via ad-hoc means (e.g. e-mail). Consider performing the necessary actions so as to enable the digital public service to be discoverable by its end users via relevant online means (e.g. websites that point to the digital public service).

	Essential (3)	Sustainable (4)	Currently, the digital public service is discoverable by its end users via relevant online means (e.g. websites that point to the digital public service)Consider performing the necessary actions so as to enable the digital public service to be discoverable by its end users via a national and/or EU public service catalogue following a formal data model to describe its fundamental characteristics like name, description, competent public organisation, output, etc. (to the Core Public Service Vocabulary Application Profile 2.2 (CPSV-AP)).
	Sustainable (4)	Seamless (5)	Currently, the digital public service is discoverable by its end users via a national and/or EU public service catalogue following a formal data model to describe its fundamental characteristics like name, description, competent public organisation, output, etc. (to the Core Public Service Vocabulary Application Profile 2.2 (CPSV-AP)). Consider performing the necessary actions so as to enable the digital public service to be discoverable by its end users via a national and/or EU public service catalogue following and extending a formal data model to describe its fundamental characteristics like name, description, competent public organisation, output, etc. (to the Core Public Service Vocabulary Application Profile 2.2 (CPSV-AP))
D5.	Ad hoc (1)	Opportunistic (2)	Currently, the digital public service is not proactive in delivering data, information and knowledge (i.e. the end user has to act upon any of its steps). Consider performing the necessary actions so as to enable the digital public service to be ad-hoc proactive in delivering data, information and knowledge (i.e. it can assess citizen eligibility criteria partially, e.g. based on the data it holds), but it does not deliver any data, information and knowledge.
	Opportunistic (2)	Essential (3)	Currently, the digital public service is ad-hoc proactive in delivering data, information and knowledge (i.e. it can assess citizen eligibility criteria partially, e.g. based on the data it holds), but it does not deliver any data, information and knowledge. Consider performing the necessary actions so as to enable the digital public service to be partially proactive in delivering data, information and knowledge (i.e. it can assess citizen eligibility criteria partially) and requires

			end user interaction to deliver (e.g. like in the case of a medical/vaccination appointment).
	Essential (3)	Sustainable (4)	Currently, the digital public service is partially proactive in delivering data, information and knowledge (i.e. it can assess citizen eligibility criteria partially) and requires end user interaction to deliver (e.g. like in the case of a medical/vaccination appointment). Consider performing the necessary actions so as to enable the digital public service to be mostly proactive in delivering data, information and knowledge. (i.e. it can assess citizen eligibility criteria fully) and requires end user interaction to deliver (e.g. in the case of a social security package).
	Sustainable (4)	Seamless (5)	Currently, the digital public service is mostly proactive in delivering data, information and knowledge. (i.e. it can assess citizen eligibility criteria fully) and requires end user interaction to deliver (e.g. in the case of a social security package). Consider performing the necessary actions so as to enable the digital public service to be fully proactive in delivering data, information and knowledge (i.e. it can assess citizen eligibility criteria fully) and no interaction is required from the end user (like in the case of the automatic newborn registration).
D6.	Ad hoc (1)	Opportunistic (2)	Currently, the digital public service is not compliant with the once-only principle for the data, information and knowledge it requires for its delivery. Consider performing the necessary actions so as to enable the digital public service to be at least ad-hoc compliant with the once-only principle for the the data, information and knowledge it requires for its delivery (i.e. the end user enters each time most of the required data).
	Opportunistic (2)	Essential (3)	Currently, the digital public service is ad-hoc compliant with the once-only principle for the data, information and knowledge it requires for its delivery (i.e. the end user enters each time most of the required data) Consider performing the necessary actions so as to enable the digital public service to be mostly compliant with the once-only principle for the the data, information and knowledge it requires for its delivery (i.e. the end user enters each time some of the required data).

	Essential (3)	Sustainable (4)	Currently, the digital public service is mostly compliant with the once-only principle for the data, information and knowledge it requires for its delivery (i.e. the end user enters each time some of the required data) Consider performing the necessary actions so as to enable the digital public service to be mostly compliant with the once-only principle for the the data, information and knowledge it requires for its delivery and it pre-fills them, following data privacy regulations (by requesting each time the end user consent).
	Sustainable (4)	Seamless (5)	Currently, the digital public service is mostly compliant with the once-only principle for the data, information and knowledge it requires for its delivery and it pre-fills them, following data privacy regulations (by requesting each time the end user consent). Consider performing the necessary actions so as to enable the digital public service to be fully compliant with the once-only principle for the the data, information and knowledge it requires for its delivery and it pre-fills them, following data privacy regulations (having prior, once-only, end user consent).
D7.	Ad hoc (1)	Opportunistic (2)	Currently, the digital public service does not provide any common user experience to deliver data, information and knowledge to its end users. Consider performing the necessary actions so as to enable the digital public service to provide an ad-hoc common user experience to deliver data, information and knowledge (e.g. user experience can be common for some parts of the service delivery).
	Opportunistic (2)	Essential (3)	Currently, the digital public service provides an ad-hoc common user experience to deliver data, information and knowledge (e.g. user experience can be common for some parts of the service delivery). Consider performing the necessary actions so as to enable the digital public service to provide a partially common user experience to deliver data, information and knowledge to its end users (e.g. for a group of end users or across major parts of service delivery).
	Essential (3)	Sustainable (4)	Currently, the digital public service provides a partially common user experience to deliver data, information and knowledge to its end users (e.g. for a group of end users or across major parts of service delivery). Consider performing the necessary actions so as to enable the digital public service to

			provide a mostly common user experience to deliver data, information and knowledge to its end users (i.e. a common interface for all users and all parts of delivery, however not identical across all applicable channels (incl. desktop, tablet, mobile)).
	Sustainable (4)	Seamless (5)	Currently, the digital public service provides a mostly common user experience to deliver data, information and knowledge to its end users (i.e. a common interface for all users and all parts of delivery, however not identical across all applicable channels (incl. desktop, tablet, mobile)). Consider performing the necessary actions so as to enable the digital public service to provide a fully common user experience to deliver data, information and knowledge to its end users (i.e. identical across all applicable devices (incl. desktop, tablets, and phones)).
D8.	Ad hoc (1)	Opportunistic (2)	Currently, the digital public service does not provide its end users with any means to monitor monitor the status in a file. Consider performing the necessary actions so as to enable the digital public service to provide its end users only non-digital means to monitor the status in a file (i.e. a land-line to perform a phone call).
	Opportunistic (2)	Essential (3)	Currently, the digital public service provides its end users only non-digital means to monitor the status in a file (i.e. a land-line to perform a phone call) Consider performing the necessary actions so as to enable the digital public service to provide its end users with non-interactive digital means to monitor the status in a file (i.e. notifications via email or sms).
	Essential (3)	Sustainable (4)	Currently, the digital public service provides its end users with non-interactive digital means to monitor the status in a file (i.e. notifications via email or sms) Consider performing the necessary actions so as to enable the digital public service to provide its end users with interactive digital means to monitor the status in a file (i.e. an online platform / website, updated periodically, e.g. every 24h).
	Sustainable (4)	Seamless (5)	Currently, the digital public service provides its end users with interactive digital means to monitor the status in a file (i.e. an online platform / website, updated periodically, e.g. every 24h). Consider performing the necessary actions so as to enable the digital public service to

			provide its end users with interactive digital means for real-time monitoring the status in a file (i.e. a live-tracking online platform / website).
D9.	Ad hoc (1)	Opportunistic (2)	Currently, the digital public service does not provide any capabilities to capture end-user feedback on its quality in delivering data, information and knowledge. Consider performing the necessary actions so as to enable the digital public service to provide only physical channels (e.g. phone, mail) to capture end-user feedback on its quality in delivering data, information and knowledge.
	Opportunistic (2)	Essential (3)	Currently, the digital public service provides only physical channels (e.g. phone, mail) to capture end-user feedback on its quality in delivering data, information and knowledge. Consider performing the necessary actions so as to enable the digital public service to provide digital channels (e.g. email, contact form, chat, webpage) to capture end-user feedback on its quality in delivering data, information and knowledge.
	Essential (3)	Sustainable (4)	Currently, the digital public service provides digital channels (e.g. email, contact form, chat, webpage) to capture end-user feedback on its quality in delivering data, information and knowledge. Consider performing the necessary actions so as to enable the digital public service to provide digital channels (e.g. email, contact form, chat, webpage) along with a standardised reviewing system, to capture end-user feedback on its quality in delivering data, information and knowledge.
	Sustainable (4)	Seamless (5)	Currently, the digital public service provides digital channels (e.g. email, contact form, chat, webpage) along with a standardised reviewing system, to capture end-user feedback on its quality in delivering data, information and knowledge. Consider performing the necessary actions so as to enable the digital public service to provide digital channels (e.g. email, contact form, chat, webpage) along with a standardised reviewing system to capture end-user feedback on its quality in delivering data, information and knowledge, while it makes publicly available insights from other end user feedback and reviews.

D10.	Ad hoc (1)	Opportunistic (2)	Currently, the digital public service does not provide any means to support the end users with regards to the delivery of data, information and knowledge. (e.g. it is not possible for the end user to communicate directly and on-site visit to the public administration's premises is required). Consider performing the necessary actions so as to enable the digital public service to provide, at least, non-interactive means to support the end users with regards to the delivery of data, information and knowledge. (e.g. a FAQ section or equivalent).
	Opportunistic (2)	Essential (3)	Currently, the digital public service provides non-interactive means to support the end users with regards to the delivery of data, information and knowledge. (e.g. a FAQ section or equivalent). Consider performing the necessary actions so as to enable the digital public service to provide interactive means to support the end users with regards to the delivery of data, information and knowledge (e.g. a phone line or equivalent).
	Essential (3)	Sustainable (4)	Currently, the digital public service provides interactive means to support the end users with regards to the delivery of data, information and knowledge (e.g. a phone line or equivalent). Consider performing the necessary actions so as to enable the digital public service to provide interactive digital means to support the end users with regards to the delivery of data, information and knowledge (e.g. an electronic contact form).
	Sustainable (4)	Seamless (5)	Currently, the digital public service provides interactive digital means to support the end users with regards to the delivery of data, information and knowledge (e.g. an electronic contact form). Consider performing the necessary actions so as to enable the digital public service to provide interactive, digital and synchronous means to support the end users with regards to the delivery of data, information and knowledge (e.g. a chatbox).

6.3.3 Service Consumption (C) – Scoring table

Table 5: Service Consumption scoring model

Item	Ad hoc (1)	Opportunistic (2)	Essential (3)	Sustainable (4)	Seamless (5)
C1	The digital public service is not formalised by any organisational agreements that enable data, information and knowledge consumption.	The digital public service is formalised by ad-hoc organisational agreements that enable data, information and knowledge consumption (e.g. with some of the stakeholders involved or for some parts of the service).	The digital public service is formalised by multilateral, high-level organisational agreements that enable data, information and knowledge consumption (e.g. with all involved stakeholders, but only high-level cooperation agreements or high-level data processing agreements).	The digital public service is formalised by multilateral, detailed organisational agreements, that enable data, information and knowledge consumption (e.g. with all involved stakeholders, including detailed cooperation agreements, data processing agreements, management agreements, pilot agreements, etc.).	The digital public service is formalised by multilateral, detailed organisational agreements, accompanied by individual SLAs (e.g. additional bilateral agreements, for some specific stakeholders involved) that enable data, information and knowledge consumption.
C2	The digital public service does not follow	The digital public service follows a	The digital public service follows a	The digital public service follows a fully unified service consumption	The digital public service follows a fully unified

	any unified service consumption mode to consume data, information and knowledge to its end users	limited unified service consumption mode to consume data, information and knowledge from other services (e.g. for one stage of the consumption or for some services).	partially unified service consumption mode to consume data, information and knowledge from other services (e.g. consistent for major stages of data consumption or across most consumed services).	mode to consume data, information and knowledge from other services (e.g. based on standard business processes across all stages of the consumption)	service consumption mode to consume data, information and knowledge from other services which is being reused by other digital public services as well.
C3	The digital public service is not able to discover any services to consume data, information and knowledge. (e.g. it receives the information for the services to consume via ad-hoc means, email, etc.)	The digital public service is able to discover the services to consume data, information and knowledge from specific online sources (e.g. relevant websites).	The digital public service is able to discover the services to consume data, information and knowledge from specific service catalogues.	The digital public service is able to discover the services to consume data, information and knowledge from any national public service catalogue.	The digital public service is able to discover the services to consume data, information and knowledge from any European public service catalogue.
C4	The digital public service is not compliant with the once-only principle for the data, information and knowledge it consumes.	The digital public service is ad-hoc compliant with the once-only principle for the data, information and knowledge it consumes (i.e. it reuses some of them, but it has to consume most of them each time).	The digital public service is essentially compliant with the once-only principle for the data, information and knowledge it consumes (i.e. it reuses most of them, but it has to consume some of them each time).	The digital public service is mostly compliant with the once-only principle for the data, information and knowledge it consumes (i.e. it reuses any of them and it requests for consent each time, in compliance with data privacy regulations).	The digital public service is fully compliant with the once-only principle for the data, information and knowledge it consumes (i.e. it reuses any of them and it requests for consent only-once, in compliance with data privacy regulations).
C5	The digital public service is not flexible to introduce changes in the	The digital public service has limited flexibility to introduce ad-	The digital public service is partially flexible to introduce changes in the	The digital public service is mostly flexible to introduce changes in the consumption of data, information and	The digital public service is fully flexible to introduce changes in the

	consumption of data, information and knowledge (e.g. in a hard coded service consumption mode).	hoc changes in the consumption of data, information and knowledge (e.g. via ad-hoc changes to specific files, without any global change management to business processes)	consumption of data, information and knowledge (e.g. via changes to the relevant business processes).	knowledge (e.g. global changes across any part of the delivery mode).	consumption of data, information and knowledge (e.g. global changes at regular intervals, based on bilateral contacts between software developers and the business to get their view on the changes).

6.3.4 Service Consumption (C) – Recommendations

Table 6: Service Consumption Recommendations

Question	Addressed Level	Next Level	Recommendation
C1.	Ad hoc (1)	Opportunistic (2)	Currently, the digital public service is not formalised by any organisational agreements that enable data, information and knowledge consumption. Consider performing the necessary actions so as to enable the digital public service to be formalised at least by some ad-hoc organisational agreements that enable data, information and knowledge consumption (e.g. with some of the stakeholders involved or for some parts of the service).
	Opportunistic (2)	Essential (3)	Currently, the digital public service is formalised by ad-hoc organisational agreements that enable data, information and knowledge consumption (e.g. with some of the stakeholders involved or for some parts of the service). Consider performing the necessary actions so as to enable the digital public service to be formalised by multilateral, high-level organisational agreements that enable data, information and knowledge consumption (e.g. with all involved stakeholders, but only high-level cooperation agreements or high-level data processing agreements).
	Essential (3)	Sustainable (4)	Currently, the digital public service is formalised by multilateral, high-level organisational agreements that enable data, information and knowledge consumption (e.g. with all involved stakeholders, but only high-level cooperation agreements or high-level data processing agreements). Consider performing the necessary actions so as to enable the digital public service to be formalised by multilateral, detailed organisational agreements, that enable data, information and knowledge consumption (e.g. with all involved stakeholders, including detailed cooperation agreements, data processing agreements, management agreements, pilot agreements, etc.).

	Sustainable (4)	Seamless (5)	Currently, the digital public service is formalised by multilateral, detailed organisational agreements, that enable data, information and knowledge consumption (e.g. with all involved stakeholders, including detailed cooperation agreements, data processing agreements, management agreements, pilot agreements, etc.). Consider performing the necessary actions so as to enable the digital public service to be formalised by multilateral, detailed organisational agreements, additionally accompanied by individual SLAs (e.g. additional bilateral agreements, for some specific stakeholders involved) that enable data, information and knowledge consumption.
C2.	Ad hoc (1)	Opportunistic (2)	Currently, the digital public service does not follow any unified service consumption mode to consume data, information and knowledge to its end users Consider performing the necessary actions so as to enable the digital public service to follow a limited unified service consumption mode to consume data, information and knowledge from other services (e.g. for one stage of the consumption or for some services).
	Opportunistic (2)	Essential (3)	Currently, the digital public service follows a limited unified service consumption mode to consume data, information and knowledge from other services (e.g. for one stage of the consumption or for some services). Consider performing the necessary actions so as to enable the digital public service to follow a partially unified service consumption mode to consume data, information and knowledge from other services (e.g. consistent for major stages of data consumption or across most consumed services).
	Essential (3)	Sustainable (4)	Currently, the digital public service follows a partially unified service consumption mode to consume data, information and knowledge from other services (e.g. consistent for major stages of data consumption or across most consumed services). Consider performing the necessary actions so as to enable the digital public service to follow a fully unified service consumption mode to consume data, information and knowledge from other services (e.g. based on standard business processes across all stages of the consumption)
	Sustainable (4)	Seamless (5)	Currently, the digital public service follows a fully unified service consumption mode to consume data, information and knowledge from other services (e.g. based on standard business processes across all stages of the consumption). Consider performing the necessary actions so as to enable the digital public service to follow a fully unified service consumption mode to consume data, information and knowledge from other services which is being reused by other digital public services as well.
C3.	Ad hoc (1)	Opportunistic (2)	Currently, the digital public service is not able to discover any services to consume data, information and knowledge. (e.g. it receives the information for the services to consume via ad-hoc means, email, etc.).

			Consider performing the necessary actions so as to enable the digital public service to be able to discover the services to consume data, information and knowledge from specific online sources (e.g. relevant websites).
	Opportunistic (2)	Essential (3)	Currently, the digital public service is able to discover the services to consume data, information and knowledge from specific online sources (e.g. relevant websites). Consider performing the necessary actions so as to enable the digital public service to be able to discover the services to consume data, information and knowledge from specific service catalogues.
	Essential (3)	Sustainable (4)	Currently, the digital public service is able to discover the services to consume data, information and knowledge from specific service catalogues. Consider performing the necessary actions so as to enable the digital public service to be able to discover the services to consume data, information and knowledge from any national public service catalogue.
	Sustainable (4)	Seamless (5)	Currently, the digital public service is able to discover the services to consume data, information and knowledge from any national public service catalogue. Consider performing the necessary actions so as to enable the digital public service to be able to discover the services to consume data, information and knowledge from any European public service catalogue.
C4.	Ad hoc (1)	Opportunistic (2)	Currently, the digital public service is not compliant with the once-only principle for the data, information and knowledge it consumes. Consider performing the necessary actions so as to enable the digital public service to be at least ad-hoc compliant with the once-only principle for the the data, information and knowledge it consumes (i.e. to reuse some of them, although having to consume most of them each time).
	Opportunistic (2)	Essential (3)	Currently, the digital public service is ad-hoc compliant with the once-only principle for the the data, information and knowledge it consumes (i.e. it reuses some of them, but it has to consume most of them each time). Consider performing the necessary actions so as to enable the digital public service to be essentially compliant with the once-only principle for the the data, information and knowledge it consumes (i.e. it reuses most of them, but it has to consume some of them each time).
	Essential (3)	Sustainable (4)	Currently, the digital public service is mostly compliant with the once-only principle for the the data, information and knowledge it consumes (i.e. it reuses most of them, but it has to consume some of them each time). Consider performing the necessary actions so as to enable the digital public service to be mostly compliant with the once-only principle for the the data, information and knowledge it consumes (i.e. it reuses any of them and it requests for consent each time, in compliance with data privacy regulations).

	Sustainable (4)	Seamless (5)	Currently, the digital public service is mostly compliant with the once-only principle for the the data, information and knowledge it consumes (i.e. it reuses any of them and it requests for consent each time, in compliance with data privacy regulations). Consider performing the necessary actions so as to enable the digital public service be fully compliant with the once-only principle for the the data, information and knowledge it consumes (i.e. it reuses any of them and it requests for consent only-once, in compliance with data privacy regulations).
C5.	Ad hoc (1)	Opportunistic (2)	Currently, the digital public service is not flexible to introduce changes in the consumption of data, information and knowledge (e.g. in a hard coded service consumption mode). Consider performing the necessary actions so as to enable the digital public service to have some limited flexibility to introduce ad-hoc changes in some stages of the data, information and knowledge consumption mode (e.g. via ad-hoc changes to specific files, without, at this stage, global change management to business processes).
	Opportunistic (2)	Essential (3)	Currently, the digital public service has limited flexibility to introduce ad-hoc changes in the consumption of data, information and knowledge (e.g. via ad-hoc changes to specific files, without any global change management to business processes). Consider performing the necessary actions so as to enable the digital public service to be partially flexible to introduce changes in the consumption of data, information and knowledge (e.g. via changes to the relevant business processes).
	Essential (3)	Sustainable (4)	Currently, the digital public service is partially flexible to introduce changes in the consumption of data, information and knowledge (e.g. via changes to the relevant business processes). Consider performing the necessary actions so as to enable the digital public service to be mostly flexible to introduce changes in the consumption of data, information and knowledge (e.g. global changes across any part of the delivery mode).
	Sustainable (4)	Seamless (5)	Currently, the digital public service is mostly flexible to introduce changes in the consumption of data, information and knowledge (e.g. global changes across any part of the delivery mode). Consider performing the necessary actions so as to enable the digital public service to be fully flexible in introducing changes in the consumption of data, information and knowledge (e.g. global changes at regular intervals, based on bilateral contacts between software developers and the business to get their view on the changes).