

# IMAPS v2.0.0

**Interoperability Maturity Assessment of a Public Service**

**User guide**



Interoperability Maturity Assessment of Your Digital Public Service

## Disclaimer

The information and views set out in this publication are those of the author(s) and do not necessarily reflect the official opinion of the Commission. The Commission does not guarantee the accuracy of the data included in this document. Neither the Commission nor any person acting on the Commission's behalf may be held responsible for the use, which may be made of the information contained therein.

© European Union, 2021

## TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>6</b>
<b>1 INTRODUCTION.....</b>	<b>7</b>
1.1 DOCUMENT OBJECTIVES.....	7
1.2 DOCUMENT STRUCTURE.....	7
<b>2 IMAPS KEY CONCEPTS .....</b>	<b>8</b>
2.1 PUBLIC SERVICE .....	8
2.2 DIGITAL PUBLIC SERVICE .....	9
2.3 INTEROPERABILITY AND IMAPS .....	9
2.4 IMAPS USER JOURNEY.....	11
2.5 IMAPS TARGET USERS .....	11
<b>3 IMAPS MATURITY LEVELS.....</b>	<b>12</b>
<b>4 BEHAVIORAL INTEROPERABILITY ASPECTS .....</b>	<b>13</b>
4.1 APPROACH .....	13
4.2 SERVICE DELIVERY (D) .....	14
4.3 SERVICE CONSUMPTION (C) .....	14
4.4 SERVICE MANAGEMENT (B) .....	15
4.5 CASE EXAMPLES .....	15
4.6 IMAPS ATTRIBUTES .....	17
4.6.1 IMAPS Components' attributes .....	17
4.6.2 Sources of Input.....	18
<b>5 IMAPS QUESTIONNAIRE .....</b>	<b>20</b>
5.1 QUESTIONNAIRE STRUCTURE .....	20
5.2 IMAPS QUESTIONNAIRE.....	25
5.2.1 Service Identification (A) - Questions.....	25
5.2.2 Service Delivery (D) - Questions.....	30
5.2.3 Service Consumption (C) - Questions .....	40
5.2.4 Service Management (B) - Questions.....	47
<b>6 IMAPS RECOMMENDATIONS.....</b>	<b>56</b>
6.1 PRINCIPLES .....	56
6.2 RECOMMENDATIONS OVERVIEW .....	56
6.3 RECOMMENDATIONS.....	57
6.3.1 Service Delivery (D) – Scoring table .....	57
6.3.2 Service Delivery (D) – Recommendations.....	60
6.3.3 Service Consumption (C) – Scoring table.....	68
6.3.4 Service Consumption (C) – Recommendations .....	70
6.3.5 Service Management (B) – Scoring table .....	75
6.3.6 Service Management (B) – Recommendations.....	78

**TABLE OF FIGURES**

Figure 1: Conceptual model of a public service.....	8
Figure 2: Interoperability dimensions.....	10
Figure 2: IMAPS user journey.....	11
Figure 4: IMAPS perspective .....	13
Figure 4: IMAPS behavioral interoperability viewpoint .....	14
Figure 6: Section A of IMAPS questionnaire .....	21
Figure 7: Section A of IMAPS questionnaire .....	21
Figure 8: Section D of IMAPS questionnaire .....	22
Figure 9: Section D of IMAPS questionnaire .....	22
Figure 10: Section C of IMAPS questionnaire.....	23
Figure 11: Section C of IMAPS questionnaire.....	23
Figure 12: Section B of IMAPS questionnaire.....	24
Figure 13: Section B of IMAPS questionnaire.....	24

## 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
ELAP	EIRA Library of Architecture Principles (ELAP)
ELIS	EIRA Library of Interoperability Specifications
EU	European Union
IMAPS	Interoperability Maturity Assessment of a Public Service
IMM	Interoperability Maturity Model
ISA	Interoperability Services for Public Administrations
LIMAPS	Legal Interoperability Maturity Assessment of a Public Service
MS	Member State
OIMAPS	Organisational Interoperability Maturity Assessment of a Public Service
PA	Public Administration
SIMAPS	Semantic Interoperability Maturity Assessment of a Public Service
SIQAT	Structural Interoperability Quick Assessment Toolkit
TIMAPS	Technical Interoperability Maturity Assessment of a Public Service

## Glossary of terms

Term	Description
Attribute	Structural part of each IMAPS component. Each attribute includes questions (items) that assess a specific aspect of the digital public service. Each of the IMAPS survey components has questions (items) that are organised under the following attributes: the interoperability specifications of data, information and knowledge delivered by the digital public service to its end users and/or other services, the interoperability enablers and the interoperability manifestations.
Component	Fundamental structural part of the IMAPS 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. IMAPS has three components: Service Delivery, Service Consumption and Service Management, which means that the respective questions refer to these three specific categories.
Item	Structural part of each IMAPS attribute. Items are the questions of the IMAPS questionnaire (survey)
Option	Options are the possible replies to one IMAPS item
Principles	Rules applied on digital public service to enable and ensure 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 survey

### EXECUTIVE SUMMARY

This document provides the guidelines and definitions for using the **Interoperability Maturity Assessment of Public Services (IMAPS)** tool in order to assess and improve the behavioral interoperability maturity of a digital public service. IMAPS survey assesses the behavioral aspects of a digital public service from the legal, organisational, semantic and technical interoperability viewpoint (L, O, S, T). IMAPS allows public service owners to evaluate the interoperability maturity level of their digital public service. It uses the Interoperability Maturity Assessment of Public Services (IMAPS) model, which provides public administrations insight into two key aspects of their interoperability performance:

- The current interoperability maturity level of a Public Service
- Improvement priorities to reach the next level of interoperability maturity

IMAPS measures how well a public administration interacts with external entities in order to organise the efficient provisioning of its public services to other public administrations, businesses and/or citizens. The IMAPS survey helps public service owners of to enhance the quality of the service delivery, reduce costs and overcome integration issues by reusing available services in an effective manner in order to maximize the service outcome and benefits for citizens and public administrations.

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

In addition, we provide an explanation of the structure of the IMAPS questionnaire and the methodology used to determine the maturity levels of behavioral interoperability of a digital public service.

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 behavioral interoperability of his digital public service.

## 1 INTRODUCTION

### 1.1 Document Objectives

The present deliverable documents the guidelines and definitions for using the **Interoperability Maturity Assessment of Public Services (IMAPS)** tool in order to assess and improve the behavioral interoperability maturity of a digital public service. IMAPS survey assesses the behavioral aspects of a digital public service from the legal, organisational, semantic and technical interoperability viewpoints (L, O, S, T). This document is also based on the updates of IMAPS to version 2.0.0 by implementing the feedback collected during IMAPS version 1.2.0 deployment and review and IMAPS specialisations' deployment and review, as this has been recorded in the respective JIRA tickets. These updates include the description of IMAPS version 2.0.0, its purpose and scope, 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 IMAPS survey;
- the presentation of the IMAPS **model objectives**;
- the description of the IMAPS **maturity levels**, as well as the **behavioral interoperability aspects** that it covers;
- the description of the IMAPS **structure** including its **attributes and components**;
- the description of how the IMAPS **questionnaire** is structured its questions and their options;
- the description of how the IMAPS **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 IMAPS;
- **Chapter 3**: Includes the maturity levels of IMAPS, as well as the behavioral interoperability aspects that it covers;
- **Chapter 4**: Presents IMAPS structure, in components, attributes and items, demonstrating how their design ensures alignment with EIF and EIRA;
- **Chapter 5**: Presents the IMAPS questionnaire and how it is structured;
- **Chapter 6**: Presents the IMAPS recommendations and how they are generated.

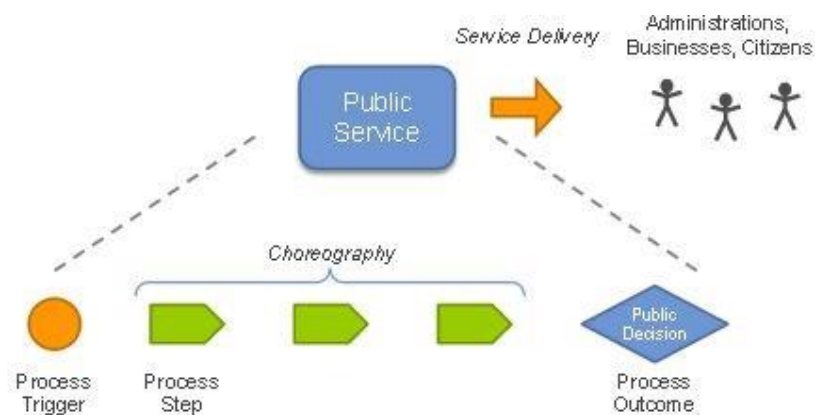
## 2 IMAPS KEY CONCEPTS

The following concepts are key to understand the IMAPS:

- *Public service* – services that public authorities identify as being of particular importance to citizens (A2C), businesses (A2B) and public administrations (A2A) and that would not be supplied (or would be supplied under different conditions) if there were no public intervention. Examples are transport networks, postal services and social services.
- *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.

### 2.1 Public Service

From a conceptual point of view, a public service starts with a trigger, goes through a number of steps and delivers an outcome towards an end user. The outcome may be, but not necessarily, a public decision (e.g. issuing of a license involves a decision, issuing of an electronic fee involves a decision, etc.). The aforementioned conceptual model of a public service is illustrated in the below figure.



**Figure 1: Conceptual model of a public service**

For illustration purposes, the conceptual model is applied to the digital public service “Income tax declaration”. In simple terms:

- The service’s trigger is the new fiscal year.
- The main process steps it comprises are the following:
  - Collect information;
  - Let citizen validate information;
  - Check declaration
- The outcome is the public decision on the amount of income tax, which is due.



## 2.2 Digital public service

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

- The digital public service has a service outcome / public decision. When multiple service outcomes are recognised, multiple digital public services will need to be defined and assessed, each through a separate IMAPS assessment (only if the answers to the questions are not identical and consequently generate different results and recommendations);
- The digital public service has a single service owner (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), each service owner needs to conduct a separate assessment for his respective service (only if the answers to the questions are not identical and consequently generate different results and recommendations);
- The digital public service has a single primary end user group. The digital public service has a single primary end user group. Services can be delivered towards three types of end users (front office): citizens, business and other public administrations, or they can be consumed by another service (back-office). The IMAPS has been designed to evaluate services which are delivered and consumed by end users (i.e. front-office services), as well as by other IT systems (i.e. back-office services). In case the same digital public service is delivered to different types of end users, these services should be assessed separately from one another through the IMAPS (only if the answers to the questions are not identical and consequently generate different results and recommendations);
- The digital public service has a visual end user interface (e.g. web portal or app) or is taking form of machine-to-machine interaction.

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

- Citizens (3) are offered the service to access their Electronic Health Record (1) via the eHealth portal (4) of the [Danish Sundhed](#) portal (2);
- Citizens (3) are offered the service to issue an e-administrative fee (1) via the GSIS portal (4) provided by the Ministry of Digital Government (2);
- Administrations (3) are offered the service to obtain European vehicle information (1) via the web service (4) of the EUCARIS (2).

## 2.3 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"

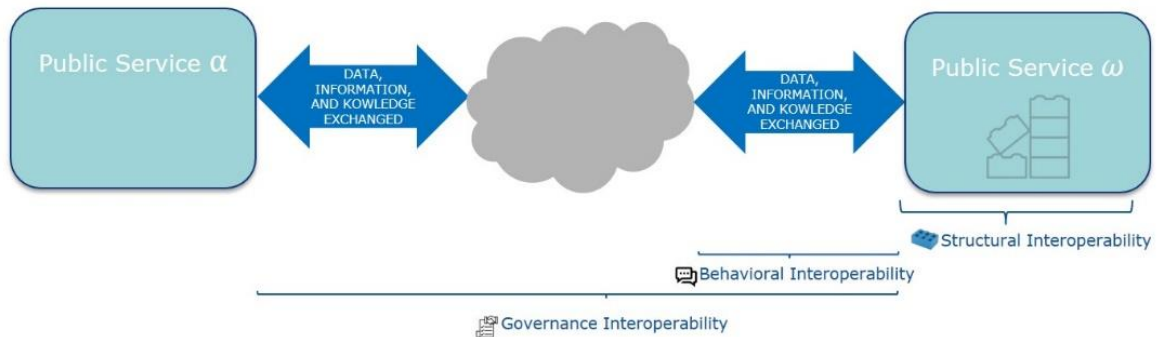


Figure 2: Interoperability dimensions

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 digital public services “behave” while interacting with each other or with their end users (citizens, business or other Public Administrations).

### IMAPS Model Objectives

IMAPS delivers insights into two important aspects of the interoperability maturity:

- Provides insight into the **current interoperability maturity** of a digital public service based on a set of defined interoperability attributes and maturity stages;
  - Provides guidelines for how the digital public service can **improve its interoperability maturity**.
- Although the IMAPS is publicly available for any organisation and citizens interested, the main target audience is the digital public service owners of digital public services that operate in an environment where interoperability is required to deliver a public service to end users.

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

## 2.4 IMAPS 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 each of the specialised surveys.

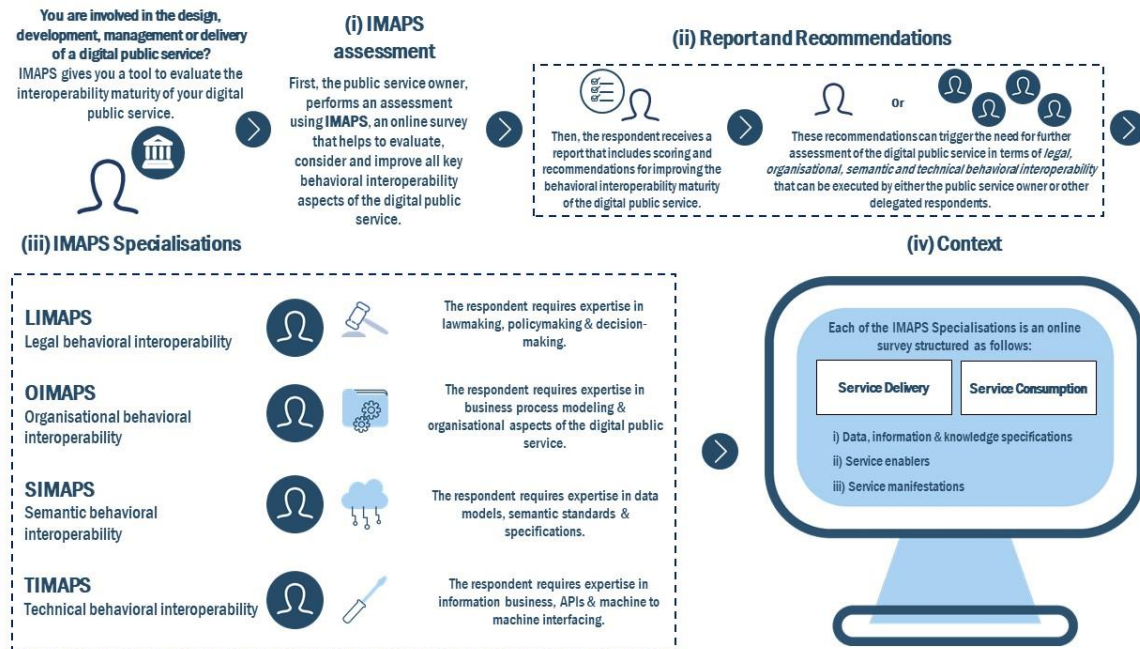


Figure 3: IMAPS user journey

## 2.5 IMAPS Target users

IMAPS can be used by the following end-users:

- Public service owners: to improve the overall behavioral interoperability and conformance of their digital public services;
- Policy-makers: to get insights on the interoperability maturity of digital public service;
- Public Procurement Officers: to identify standards and specifications for an interoperable digital public service.

### 3 IMAPS MATURITY LEVELS

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

- Measure the 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 interoperability maturity.

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

**Table 1: Five maturity levels of IMAPS**

<b>Maturity Level</b>	<b>Maturity Stage</b>	<b>Interpretation</b>
<b>1</b>	<b>Ad Hoc</b>	Poor interoperability – the digital public service cannot be considered interoperable
<b>2</b>	<b>Opportunistic</b>	Fair interoperability – the digital public service implements some elements of interoperability best practices
<b>3</b>	<b>Essential</b>	Essential interoperability – the digital public service implements the essential best practices for interoperability
<b>4</b>	<b>Sustainable</b>	Good interoperability – all relevant interoperability best practices are implemented by the digital public service
<b>5</b>	<b>Seamless</b>	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 BEHAVIORAL INTEROPERABILITY ASPECTS

### 4.1 Approach

The approach to develop IMAPS questionnaire builds upon the fact that IMAPS measures how well a public administration interacts with the **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 digital public services “behave” while interacting with each other or with their end users (citizens, business or other Public Administrations). Figure 4 below illustrates the IMAPS perspective from the **behavioral** interoperability viewpoint, which enables the business information exchange among different public services.

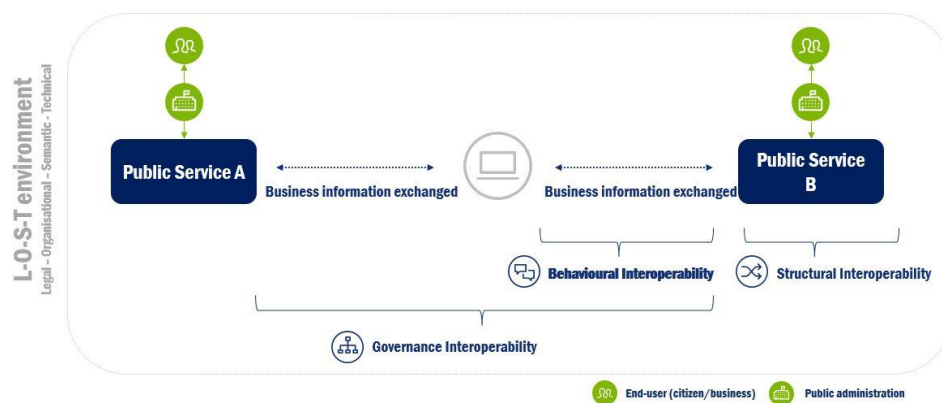


Figure 4: IMAPS perspective

The behavioral interoperability aspects are described below:

- **Service Delivery (D)** – Delivery of the digital public service to its end users;
- **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 Management (B)** - Controlling and monitoring the process flow related to service interactions with the external domain from trigger to outcome. This area includes Service Management aspects such as enterprise architecture, procurement, and service level management.

The figure below 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).

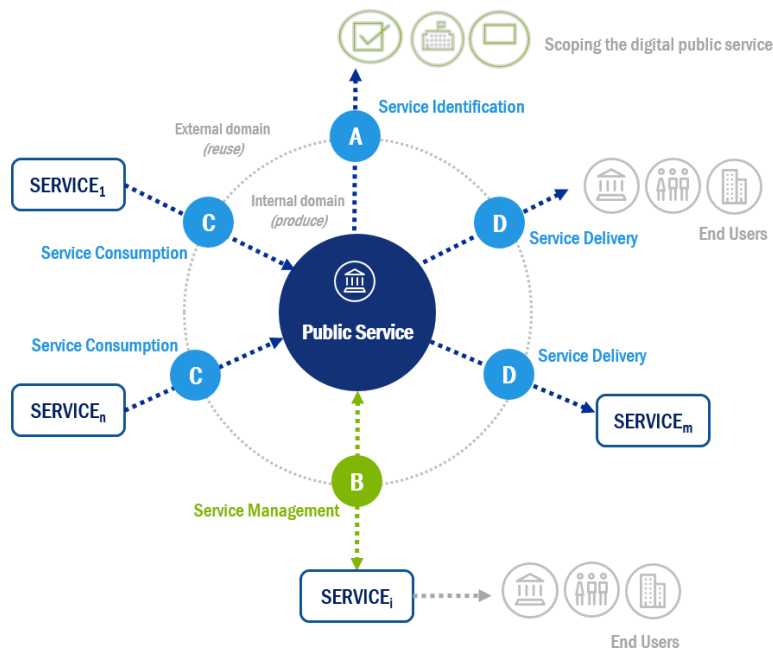


Figure 5: IMAPS behavioral interoperability viewpoint

The areas (hereafter referred to as Interoperability Areas) indicated in the figure above are the object of measurement in the IMAPS, specifying where interoperability plays a role from a service management, service delivery and service consumption viewpoint.

## 4.2 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 IMAPS 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.

## 4.3 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.

## 4.4 Service Management (B)

This area focuses on important **Service Management** aspects on the area of sharing and reuse and design of the digital public service. Digital public services are considered more interoperable if documentation, source code, services and support is provided towards other administrations and business for reuse. In addition, this area covers important design aspects that ensure future-proof interoperability such as architecture, orchestration, procurement and interfaces.

## 4.5 Case examples

The following case examples (see Table 2) illustrate the interoperability areas of delivery, and service consumption. They are taken from real-life examples based on which the Interoperability Maturity Model has been developed. Such case examples are outlined to guide users of the model in defining and delimiting their public service's interconnections correctly.

**Table 2: Examples of interoperability areas of digital public services**

Digital Public Service	Service Delivery	Service Consumption
<b>Electronic Health Record Access</b>	<p>Citizens are offered the service to access their Electronic Health Record via eHealth portal.</p> <p>Case example: <i>The service called "my Health summary" is available through the Danish eHealth portal 'Sundhed.dk' for citizens and allows authenticated users to obtain an overview of their own patient data.</i></p>	<p>Payment services</p> <p>Identify and access management services</p> <p>eSignature services</p> <p>Personal medicine data</p> <p>Donor registration</p> <p>Living will registration</p> <p>Laboratory data</p>
<b>Online Patent Filing</b>	<p>Businesses are offered the service to register and pay for the filling of patents.</p> <p>Case example: <i>The EPO Online Filing client application provides applicants with a standard form for filing patent applications online with the European Patent Office. Once the request is filed, the applicant receives an electronic notification of receipt. If the applicant has set up an online Mailbox, he will receive all further communication from the EPO via this Mailbox,</i></p>	<p>Payment services</p> <p>Identify and access management services</p> <p>eSignature services</p>

	<i>including requests for rectifying the application and the invitation to pay claims fees.</i>	
<b>Government e-invoicing</b>	<p>Businesses are offered the service to send online invoices to the various government administrations.</p> <p>Case example: <i>Businesses can send all their invoices in electronic format to the Dutch government. In total, more than 78 government bodies have implemented the electronic invoicing solution. The sending and receipt of e-Invoices can take place through two channels: Digipoort (direct access or via an intermediary) or the e-Invoicing portal</i></p> <p><a href="http://www.facturerenaandeoverheid.nl">www.facturerenaandeoverheid.nl</a></p>	<p>Payment services</p> <p>Identify and access management services</p> <p>eSignature services</p>



## 4.6 IMAPS Attributes

### 4.6.1 IMAPS Components' attributes

IMAPS components' attributes are presented in the table below.

**Table 3: Service delivery, service consumption and service management attributes**

Service Delivery	
Attribute	Rationale
Data, information and knowledge delivered	Assesses the <b>behavioral</b> interoperability <b>specifications</b> of data, information and knowledge delivered by the digital public service to its end users and/or other client services.
Service Delivery Enablers	Assesses the <b>behavioral</b> interoperability <b>capabilities</b> that enable either i) the delivery of data, information and knowledge by the digital public service to its end users <b>and/or other</b> client <b>services</b> or ii) the discoverability of the digital public service.
Service Delivery Manifestations	Assesses the <b>behavioral</b> interoperability <b>manifestations</b> of the digital public service <b>delivering</b> data, information and knowledge (manifestations can be performance, results, user experience).
Service Consumption	
Attribute	Rationale
Data, information and knowledge consumed	Assesses the <b>behavioral</b> interoperability <b>specifications</b> of data, information and knowledge <b>consumed</b> by the digital public service <b>from</b> other server services
Service Consumption Enablers	Assesses the <b>behavioral</b> interoperability <b>capabilities that enable the digital public service to either i) discover other server services and/or ii) consume their</b> data, information and knowledge
Service Consumption Manifestations	Assesses the <b>behavioral</b> interoperability <b>manifestations</b> of the digital public service <b>consuming</b> data, information and knowledge (manifestations can be performance, results, user experience).
Service Management	
Attribute	Rationale
Data, information and knowledge management	Assesses the behavioral interoperability <b>specifications</b> of data, information and knowledge <b>consumed</b> by the digital public service <b>from</b> other server services
Service Management Enablers	Assesses the <b>behavioral</b> interoperability <b>capabilities</b> that enable the digital public service to manage data, information and knowledge
Service Management Manifestations	Assesses the <b>behavioral</b> interoperability <b>manifestations</b> of the digital public service <b>managing</b> data, information and knowledge (manifestations can be performance, results, user experience).

#### 4.6.2 Sources of Input

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

- [European Interoperability Framework<sup>1</sup>](#) – 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 IMAPS 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)<sup>2</sup>. The basis to define IMAPS items have been the EIF recommendations;
- [European Interoperability Reference Architecture \(EIRA\)<sup>3</sup>](#) – EIRA version 3.0.0 compliance is ensured at the level of IMAPS 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 IMAPS items has been the context of each one of the EIRA version 3.0.0 ABBs.
- [Digital Single Market](#) - the Digital Single Market strategy aims to open up digital opportunities for people and business and enhance Europe's position as a world leader in the digital economy. Select attributes were defined to align with this ambition; the terminology of IMAPS overall embraces the key concepts of “digitalisation” in its various aspects;
- [Structural Interoperability Quick Assessment Toolkit \(SIQAT®\)<sup>4</sup>](#) – 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, businesses and citizens. The objective of the SIQAT® is to allow public service owners to evaluate the structural interoperability maturity level of their digital public service
- [A multi-dimensional framework to evaluate the innovation potential of digital public services<sup>5</sup>](#) – This report presents the main findings of a study conducted as part of the “Innovative Public Services” (IPS) Action of the ISA<sup>2</sup> 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 \(CAMSS\)<sup>6</sup>](#) - CAMSS is the European guide for assessing and selecting standards and specifications for an eGovernment

<sup>1</sup> [https://ec.europa.eu/isa2/eif\\_en](https://ec.europa.eu/isa2/eif_en)

<sup>2</sup> Compliance of IMAPS with EIF at the level of principles, layers and conceptual model has been also validated following the paradigm of CAMSS approach to demonstrate their scenarios' conformance with EIF.

<sup>3</sup> <https://joinup.ec.europa.eu/collection/imaps-interoperability-maturity-assessment-public-service/about>

<sup>4</sup> <https://joinup.ec.europa.eu/solution/interoperability-quick-assessment-toolkit>

<sup>5</sup> <https://joinup.ec.europa.eu/collection/european-interoperability-reference-architecture-eira/solution/eira>

<sup>6</sup> <https://joinup.ec.europa.eu/collection/european-interoperability-reference-architecture-eira/solution/siqat/release/v100>

<sup>5</sup> <https://ec.europa.eu/jrc/en/publication/multi-dimensional-framework-evaluate-innovation-potential-digital-public-services>

<sup>6</sup> <https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/about>

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 \(ELIS\)](#) <sup>7</sup> - 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.

---

<sup>7</sup> <https://joinup.ec.europa.eu/collection/common-assessment-method-standards-and-specifications-camss/solution/elis/release/v110>

## 5 IMAPS QUESTIONNAIRE

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

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

IMAPS Questionnaire is designed to take approximately 30 minutes to complete. Once the questionnaire is completed, a report is generated with the behavioral interoperability scores plus recommendations on how to further improve the digital public service's 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 2.4](#)):

- **Service Identification (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 and gathers important information for follow-up (contact details, 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.
- **Service Management (B):** This section assesses how the digital public service arranges the consumption and provisioning of external services and includes Service Management aspects such as architecture, orchestration, procurement and interfaces.

The questionnaire routing is sequential at the level of the main areas (A, B, C, D). The questions within areas A, B, C and D are also defined sequentially and need to be filled in one after the other.

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

## IMAPS version 2.0.0 user guide

### Service Identification (A)

In this section, please answer the following questions regarding the context of your public service.

\* **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

**Figure 6: Section A of IMAPS questionnaire**

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

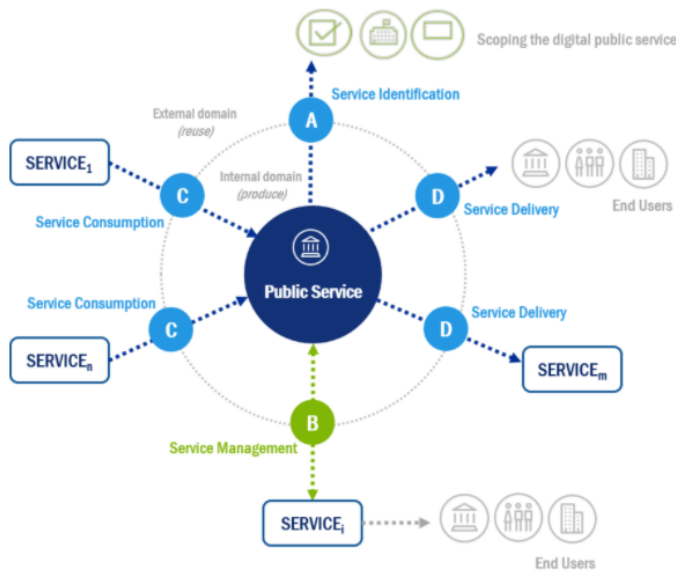
- ☐ The public service does not deliver the outcome directly towards a person but towards other IT systems (machine-to-machine interface)
- ☐ The public service delivers the outcome towards the end users via traditional channels e.g. phone, postal service
- ☐ The public service delivers the outcome towards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

\* **A3. 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

**Figure 7: Section A of IMAPS questionnaire**

## 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 IMAPS 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.

**Figure 8: Section D of IMAPS questionnaire**

### Service Delivery Manifestations

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

**\* D9. Through which delivery channels is the digital public service made available to the user(s)?**

[More Info](#)

Enabler / **Manifestation**

EIF Interoperability View: L. O. S. **T**

- ☐ One digital channel
- ☐ One digital and one traditional channel
- ☐ Multiple digital and traditional channels
- ☐ Multiple digital (including interactive digital collaboration M2M) and traditional channels

**\* D10. Does the digital public service use pre-filling for the data and information requested?**

[More Info](#)

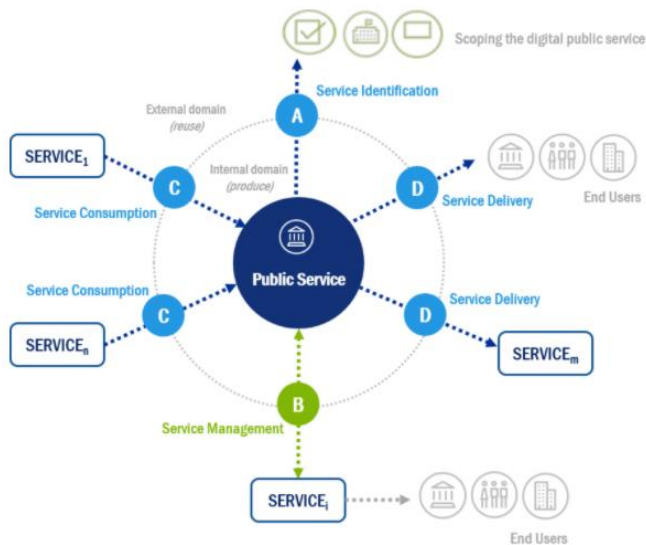
Enabler / **Manifestation**

EIF Interoperability View: L. **O**. S. **T**

- ☐ Not applicable, the digital public service does not require data entries
- ☐ No. It could be applicable but there are no provisions in place yet
- ☐ Partly, pre-filling is used but only for some data fields that are digitally available
- ☐ Fully, pre-filling is used for all data fields that are digitally available

**Figure 9: Section D of IMAPS questionnaire**

## 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**.

**Figure 10: Section C of IMAPS questionnaire**

### Service Consumption Enablers

*\*Assesses the behavioural interoperability capabilities that enable either i) the consumption 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 consumed public services*

**\* C3. Does the digital public service have in place any legal means (e.g. tracing and logging mechanisms, legal agreements, legal rules, etc.) to handle service consumption?**

*More Info*

**Enabler / Manifestation**      *EIF Interoperability View: L. O. S. T*

- ☐ There are no applicable legal means or legal rules for the specific digital public service
- ☐ The digital public service does not have in place any legal means or rules to handle the service consumption
- ☐ Partially, the digital public service has in place some of the applicable legal means and rules to handle the service consumption
- ☐ Yes, the digital public service has in place all the applicable legal means and rules to handle the service consumption

**\* C4. Please indicate how you handle the data that your digital public service consumes.**

*More Info*

**Enabler / Manifestation**      *EIF Interoperability View: L. O. S. T.*

- ☐ Data is only collected
- ☐ More than half of the total data handled is accessed (and consequently collected)
- ☐ More than half of the total data handled is reported (and consequently collected and accessed)
- ☐ More than half of the total data handled is analysed (and consequently collected, accessed and reported)

**Figure 11: Section C of IMAPS questionnaire**

## Service Management (B)



This area focuses on important **Service Management** aspects on the area of sharing and reuse and design of the digital public service. Digital public services are considered more interoperable if documentation, source code, services and support is provided towards other administrations and business for reuse. In addition this area covers important design aspects that ensure future-proof interoperability such as architecture, processes, orchestration, procurement and service level management.

**Figure 12: Section B of IMAPS questionnaire**

### Data, information and knowledge management

*\*Assesses the behavioural interoperability specifications of data, information and knowledge management by the digital public service*

#### \* B1. To what extent the integrated public service has been modelled based on a reference architecture framework?

[More Info](#)

**Enabler / Manifestation**

EIF Interoperability View: L. O. S. T

- ☐ The integrated public service is not compliant to any reference model
- ☐ The integrated public service is compliant to a custom national model
- ☐ Yes, to a formalised, common, trans-European model (e.g. SEMIC model for e-payments)
- ☐ Yes, both the integrated public service and the consumed services are compliant to a reference model (custom and/or formalised)

#### \* B2. Do you have processes in place to implement data and metadata management?

[More Info](#)

**Enabler / Manifestation**

EIF Interoperability View: L. O. S. T

- ☐ No methodologies are used for implementing data management nor metadata management
- ☐ A methodology is used for implementing data management or metadata management, but it is not compliant to a common standard
- ☐ A common methodology is used for implementing data management and is compliant to a common standard
- ☐ A methodology is used for implementing data and metadata management and at least one of them is compliant to common standards

**Figure 13: Section B of IMAPS questionnaire**



## 5.2 IMAPS Questionnaire

### 5.2.1 Service Identification (A) - Questions

#### A1A.

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

#### A2A.

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

#### A1C.

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

#### A1D.

<i>Name</i>	Contact details
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Gather contact information for eventual follow-up.
<i>Question</i>	Please indicate the country of the organisation providing the digital public service. Please indicate the country if not in the list above.
<i>Question logic</i>	Next question

**A2A.**

<i>Name</i>	Digital public service description
<i>Question type</i>	Open
<i>Rationale</i>	Gain insight into the digital public service the administration provides.
<i>Question</i>	<p>A digital public service is a digital service rendered in the public interest.</p> <p>What is the name of the digital public service that you provide to the end users (citizens, businesses or other public administrations)?</p>
<i>Examples</i>	<p>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);</p>
<i>Question logic</i>	Next question

**A2B.**

<i>Name</i>	Digital public service description
<i>Question type</i>	Open
<i>Rationale</i>	Gain insight into the digital public service the administration provides.
<i>Question</i>	<p>Use the following criteria to define a digital public service: i) Process and underlying activities, ii) Appearance, iii) Owner (see A3).</p> <p>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.</p>
<i>Examples</i>	Providing classification services towards other administrations for ensuring international standardisation of patent data via a machine-to-machine interface (administration-to-administration).
<i>Question logic</i>	Next question

**A2C.**

<i>Name</i>	Digital public service description
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Gain insight into the digital public service the administration provides.
<i>Question</i>	<p>Appearance: How does the digital public service deliver the outcome towards the end user group?</p> <ul style="list-style-type: none"> <li>• The digital public service does not deliver the outcome directly towards a person but towards other IT systems (machine-to-machine interface)</li> <li>• The digital public service delivers the outcome towards the end users via traditional channels e.g. phone, postal service</li> <li>• The digital public service delivers the outcome towards the end users via digital channels, e.g. through a web portal/website or an application</li> </ul>
<i>Question logic</i>	Next question

**A3.**

<i>Name</i>	Service owner
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	This question determines the scope / boundaries of the public administration providing the digital public service.
<i>Question</i>	<p>Owner: Which public administration is primarily responsible for providing the digital public service?</p> <ul style="list-style-type: none"> <li>• Ministry e.g. Ministry of Public Administration, Ministry of Justice</li> <li>• Public Administration e.g. Tax Administration</li> <li>• Directorate-General of the European Commission e.g. DG COMM, DG JUST, DGIT</li> <li>• Government institution/agency/office e.g. National Agency for Information Society, National Centre for Public Administration and Local Government (EKDDA)</li> <li>• EU institution/agency/office e.g. EU Publications Office</li> <li>• Other Legal Entity</li> </ul>
<i>Question logic</i>	Next question

**A4.**

<i>Name</i>	Sector of the service
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	This question determines the scope / boundaries of the public administration providing the digital public service.
<i>Question</i>	<p>Please indicate in which sector is the digital public service provided.</p> <ul style="list-style-type: none"> <li>• Education</li> <li>• Public Health</li> <li>• Public Safety</li> <li>• Environmental Protection</li> <li>• Justice</li> <li>• Transportation</li> <li>• Infrastructure</li> <li>• Social Services</li> <li>• Economy/Financial</li> <li>• Other</li> </ul>
<i>Question logic</i>	Next question

**A5.**

<i>Name</i>	End user group(s) to which the service is delivered
<i>Question type</i>	Multiple choice (>1 possible answer)
<i>Rationale</i>	Determine the end user group(s) to which the digital public service is delivered.
<i>Question</i>	What is the end user group to whom the digital public service is delivered? <ul style="list-style-type: none"> <li>• Public Administrations (A2A)</li> <li>• Citizens (A2C)</li> <li>• Businesses (A2B)</li> </ul>
<i>Examples</i>	A specific group of businesses; A specific group of citizens; A specific group of public administrations.
<i>Question logic</i>	Next question

**A6.**

<i>Name</i>	Administrative level
<i>Question type</i>	Multiple choice (>1 possible answer)
<i>Rationale</i>	Gain insight into the government providing the digital public service.
<i>Question</i>	At what administrative level is the digital public service provided (multiple answers are possible)? <ul style="list-style-type: none"> <li>• Local (e.g. city, municipality)</li> <li>• Regional</li> <li>• National</li> <li>• European</li> <li>• International</li> </ul>
<i>Question logic</i>	Next question

**Maturity scoring:** This section is not scored.

## 5.2.2 Service Delivery (D) - Questions

**D1.**

<i>Name</i>	Open data publication
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Semantic</b>
<i>Weight</i>	N/A
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Open data refers to the idea that all public data should be freely available for use and reuse by others, unless restrictions apply e.g. for protection of personal data, confidentiality, or intellectual property rights. To ensure a level playing field, the opening and reuse of data must be non-discriminatory, meaning that data must be interoperable so that can be found, discovered and processed.
<i>Question</i>	<b>To what extent does the digital public service publish open data?</b> <ul style="list-style-type: none"> <li>• Not applicable, open data are not relevant for the solution</li> <li>• The digital public service does not publish open data</li> <li>• The digital public service publishes open data</li> </ul>
<i>Examples</i>	-
<i>Question logic</i>	Next question

**D2.**

<i>Name</i>	Structure of open data
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Semantic</b>
<i>Weight</i>	70%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Open data refers to the idea that all public data should be freely available for use and reuse by others, unless restrictions apply e.g. for protection of personal data, confidentiality, or intellectual property rights. To ensure a level playing field, the opening and reuse of data must be non-discriminatory, meaning that data must be interoperable so that can be found, discovered and processed.
<i>Question</i>	<b>In which format does the digital public service publish open data?</b> <ul style="list-style-type: none"> <li>• Not applicable, open data is not relevant for the solution</li> <li>• Open data is published in non-structured formats (e.g. pdf, jpeg)</li> <li>• Open data is published in structured formats (e.g. MS Excel)</li> <li>• Open data is published in structured formats with semantic metadata / ontologies (e.g. rdf, linked open data)</li> </ul>

<i>Examples</i>	<ul style="list-style-type: none"> <li>• opendata.paris.fr: Open Data of the city of Paris, where you can find all the published data from the services of the city and their partners under license ODbL.</li> <li>• The European Data Portal: a pan-European repository of public sector information open for reuse in the EU presenting metadata references in a common format (Data Catalog Vocabulary application profile for data portals in Europe), using Resource Description Framework (RDF) technology</li> </ul>
<i>Question logic</i>	Next question

D3.	
<i>Name</i>	Semantic standards and specifications for the data delivered
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Semantic</b>
<i>Weight</i>	30%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Use of existing semantic standards and specifications (e.g. data models standards, standardised XML schemata, metadata standards) ensures interoperability in the data exchange between the digital public service and the receiving IT systems (only applicable for machine-to-machine interfacing).
<i>Question</i>	<p><b>To what extent does the digital public service use semantic standards and specifications for the data delivered?</b></p> <ul style="list-style-type: none"> <li>• Not applicable, there is no machine-to-machine interfacing</li> <li>• The digital public service is only using proprietary standards and is not leveraging existing (open) semantic standards for data delivery</li> <li>• The digital public service is using some (open) semantic standards for data delivery, combined with proprietary standards</li> <li>• The data delivery is entirely based on existing (open) semantic standards and specifications</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• A unique data model is developed specifically for data exchange.</li> <li>• The digital public service uses open semantic standards for definitions and specification of the data exchange to the fullest extent available.</li> </ul>
<i>Question logic</i>	Next question

**D4.**

<i>Name</i>	Data privacy
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Legal, Organisational</b>
<i>Weight</i>	25%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Transparency as regards how personal data is managed is essential in fostering users' trust in the digital public service. It is related to securing the right to the protection of personal data, by respecting the applicable legal framework for the large volumes of personal data of citizens, held and managed by Public administrations.
<i>Question</i>	<p><b>To what extent are data privacy considerations transparent to the user (such as scope of data stored, purpose of usage of data, rights to request changes or lodge complaints, applicable data privacy regulation, preservation policy)?</b></p> <ul style="list-style-type: none"> <li>• Not applicable, the digital public service does not require personal data (e.g. only information provisioning, search functionality)</li> <li>• There is no information available on data privacy considerations</li> <li>• Partly, there is limited information available on data privacy considerations</li> <li>• Fully, there is detailed information available on data privacy considerations</li> <li>• Fully &amp; adaptable, there is detailed information available on data privacy available and the user can manage (some of his) data privacy settings online</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• The citizen is redirected to a secure site where he/she can manage her privacy settings.</li> <li>• The business owner is informed about what business data will be shared with other administrations.</li> </ul>
<i>Question logic</i>	Next question



**D5.**

<i>Name</i>	Multilingualism
<i>Category</i>	Manifestation
<i>EIF-layer</i>	<b>Semantic, Technical</b>
<i>Weight</i>	25%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Multilingualism in the context of computing indicates that a digital public service supports two or more languages.
<i>Question</i>	<p><b>To what extent does the digital public service support multilingualism?</b></p> <ul style="list-style-type: none"> <li>• Multilingualism is not applicable for the digital public service</li> <li>• The digital public service is only available in a single language and it is not applicable to be available in more languages</li> <li>• The digital public service is only available in a single language. It could be applicable to be available in other languages, but there are no provisions in place.</li> <li>• The digital public service supports multilingualism partially and only at a technical level</li> <li>• The digital public service supports multilingualism at a technical level and/or partially at a semantic level</li> <li>• The digital public service supports multilingualism fully both at a semantic and technical level</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• There is information on the criminal records service available in a non-official language of country A but the service to request such a record is only available in the country's official language.</li> <li>• The electronic procurement platform of Belgium delivers its data in all national languages i.e. Flemish, French and German</li> </ul>
<i>Question logic</i>	Next question

**D6.**

<i>Name</i>	Service Catalogue
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Technical, Organisational</b>
<i>Weight</i>	25%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Providing detailed information on the availability & features of the digital public service is an enabler for the usage by citizens, business and administrations. Note that what is meant here by service catalogue is a catalogue overarching various

	organisations (e.g. across several administrations or a national catalogue of public services). Digital public services that provide information to discover their offered services are considered highly mature.
<i>Question</i>	<p><b>Is the digital public service included in a service catalogue?</b></p> <ul style="list-style-type: none"> <li>• The digital public service is not registered in a Service Catalogue</li> <li>• The digital public service is part of a catalogue available to a restricted user group (e.g. partners)</li> <li>• The digital public service is part of a publicly available catalogue</li> <li>• The digital public service is part of a publicly and online discoverable catalogue and includes a public service description (including information such as contact details, provider, preconditions and required input)</li> <li>• The digital public service is part of a publicly and online discoverable catalogue and includes a public service description based on standards such as CPSV-AP</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• The digital public service is displayed on a government portal that holds a full repository of all public services offered to citizens, to increase the awareness and usage of the digital public service</li> <li>• 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</li> </ul>
<i>Question logic</i>	Next question

**D7.**

<i>Name</i>	Authentication mechanisms
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Technical, Legal</b>
<i>Weight</i>	15%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Appropriate mechanisms should allow secure exchange of electronically verified messages, records, forms and other kinds of information between the different systems. They should handle specific security requirements and electronic identification. This item aims to assess how the digital public service manifests its behavioral interoperability performance towards its end users, by assessing if the digital public service provides authentication mechanisms for its end users or if there are any such mechanisms based on already existing IT solutions and services.
<i>Question</i>	<p><b>To what extent does the digital public service provide authentication mechanisms for people identification?</b></p> <ul style="list-style-type: none"> <li>• Not applicable, authentication is not required for users to access the digital public service</li> <li>• The digital public service does not provide any authentication mechanisms although it is applicable for the specific digital public service</li> </ul>

	<ul style="list-style-type: none"> <li>• The digital public service provides login authentication mechanisms (username, password) for people identification</li> <li>• The digital public service provides formalised authentication mechanisms e.g. EU Login based on Single sign-on principle for people identification</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• EU Login based on Single sign-on principle</li> </ul>
<i>Question logic</i>	Next question

#### D8.

<i>Name</i>	Certification
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Technical, Organisational</b>
<i>Weight</i>	10%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	<p>Certification is a success factor for ensuring working interconnections. A digital public service that requires formal certification is considered more interoperable. Certification is a formal procedure to verify if a constituency meets the prerequisites to connect to a service. Certification may examine areas like: security, governance, technological and semantic interoperability and availability.</p>
<i>Question</i>	<p><b>Is there a certification procedure defined for the end users to access the digital public service?</b></p> <ul style="list-style-type: none"> <li>• Not applicable, certification is not required for users to access the digital public service</li> <li>• No, there is no certification procedure available for the end users</li> <li>• Yes, there is a certification procedure available for the end users</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• Although there is a separate test environment made available to test the interconnection with other systems, there is no certification process to ensure proper interconnection and interoperability.</li> </ul>
<i>Question logic</i>	Next question

#### D9.

<i>Name</i>	Delivery channels
<i>Category</i>	Manifestation
<i>EIF-layer</i>	<b>Technical, Organisational</b>
<i>Weight</i>	22%
<i>Question type</i>	Multiple choice (1 answer possible)

<i>Rationale</i>	Assesses through which channels the digital public service is delivered towards the user(s). This question captures both traditional (non-digital) and digital channels. Digital channels are: interactive digital collaboration (chat, cognitive agent), mobile app, web portal / website, e-mail and a machine-to-machine interface. Traditional channels are: physical counter, postal and telephone.
<i>Question</i>	<p><b>Through which delivery channels is the digital public service made available to the user(s)?</b></p> <ul style="list-style-type: none"> <li>• One digital channel</li> <li>• One digital and one traditional channel</li> <li>• Multiple digital and traditional channels</li> <li>• Multiple digital (including interactive digital collaboration M2M) and traditional channels</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• The digital public service is made available via a portal that provides access to a set of public services (<a href="http://www.mijnrijksverheid.nl/">http://www.mijnrijksverheid.nl/</a>).</li> <li>• The service is made available via a dedicated website, telephone and physical counter.</li> </ul>
<i>Question logic</i>	Next question

<b>D10.</b>	
<i>Name</i>	Pre-filling
<i>Category</i>	Manifestation
<i>EIF-layer</i>	<b>Technical, Organisational</b>
<i>Weight</i>	25%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Re-use of existing trustworthy data sources to pre-fill data fields should be stimulated as it minimizes user effort and reduces the risk for erroneous data entries.
<i>Question</i>	<p><b>To what extent does the digital public service use pre-filling for the data and information requested?</b></p> <ul style="list-style-type: none"> <li>• Not applicable, the digital public service does not require data entries</li> <li>• No pre-filling is used for the data and information requested. It could be applicable but there are no provisions in place yet</li> <li>• Partly, pre-filling is used but only for some data fields that are digitally available</li> <li>• Fully, pre-filling is used for all data fields that are digitally available</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• Name and address data are prefilled from existing internal or external base registries (or other data sources). Note that pre-filling also includes the automated filling of drop-down boxes and/or automatic completion of key words</li> </ul>

	<ul style="list-style-type: none"> <li>Users are able to request direct exchange of data between authorities where one public administration already holds the necessary information for a range of cross-border procedures.</li> </ul>
Question logic	Next question

**D11.**

Name	Procedural transparency
Category	Manifestation
EIF-layer	<b>Organisational, Legal</b>
Weight	20%
Question type	Multiple choice (1 answer possible)
Rationale	Users should have maximum insight into the process they are subject to.
Question	<p><b>To what extent are the administrative rules and processes underlying the digital public service (such as decision mechanisms, lead times, information sources used, reporting obligations) transparent to the end user(s) and explained in a simple and clear way?</b></p> <ul style="list-style-type: none"> <li>Not applicable, the digital public service does not need to provide insight into administrative rules and processes (e.g. only information provisioning, search functionality)</li> <li>There is no information on rules and processes available before, during and / or after usage of the digital public service. This information resides somewhere else (i.e. is not imminently discoverable)</li> <li>Partly, there is limited information on rules &amp; processes available before, during and / or after usage of the digital public service</li> <li>Fully, there is detailed information on rules &amp; processes available before, during and/or after usage of the digital public service</li> </ul>
Examples	<ul style="list-style-type: none"> <li>The citizen is made aware of how long the decision-making process of the public administration will take as regards his entitlement to family benefits.</li> <li>The business owner is informed about what exactly he needs to report on and for what purpose when registering his business</li> </ul>
Question logic	Next question

**D12.**

<i>Name</i>	User feedback and complaints
<i>Category</i>	Manifestation
<i>EIF-layer</i>	<b>Organisational</b>
<i>Weight</i>	10%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Being able to provide feedback is essential to empower users in their relation with public administrations and improve digital public services' quality.
<i>Question</i>	<p><b>To what extent does the digital public service provide to the end user the necessary means to contribute to its further development and continuous improvement?</b></p> <ul style="list-style-type: none"> <li>• The digital public service does not provide such capabilities</li> <li>• The digital public service provides tracking and/or feedback mechanisms, but the feedback is considered in an ad-hoc manner</li> <li>• The digital public service provides tracking and/or feedback mechanisms, but and all feedback is fully considered for the further development and continuous improvement of our digital public service</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• At the end of the service delivery process, citizens can rate the pension benefit service.</li> <li>• Users can see how others have rated the same service</li> </ul>
<i>Question logic</i>	Next question

**D13.**

<i>Name</i>	Accessibility
<i>Category</i>	Manifestation
<i>EIF-layer</i>	Technical
<i>Weight</i>	10%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Accessibility ensures that people with all abilities and disabilities can perceive, understand, navigate, and interact with the digital public service.
<i>Question</i>	<p><b>To what extent is the digital public service accessible to people with disabilities (e.g. visual, auditory, physical, cognitive) at a comparable level to other users?</b></p> <ul style="list-style-type: none"> <li>• Not applicable, the digital public service does not utilize a graphical user interface</li> <li>• The digital public service does not provide any accessibility features</li> <li>• Partly, the digital public service provides some accessibility features</li> <li>• Fully, the digital public service is compliant with an accessibility standard such as Web Content Accessibility (WAI) Guidelines 2.0, level AA, ISO/IEC 40500:2012</li> </ul>

<i>Examples</i>	<ul style="list-style-type: none"> <li>• The digital public service features the WAI conformance logo as proof of compliance at AA level.</li> <li>• The web site has been designed with accessibility criteria in mind such as text equivalents and consistent navigation.</li> <li>• Datasets are published in line with the web accessibility requirements Web Content Accessibility Guidelines 2.0 and 2.1, facilitating the inclusion and accessibility for all types of people including users with disabilities.</li> </ul>
<i>Question logic</i>	Next question
<b>D14</b>	
<i>Name</i>	Cross-border service delivery
<i>Category</i>	Manifestation
<i>EIF-layer</i>	<b>Legal, Technical, Semantic, Organisational</b>
<i>Weight</i>	10%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	The Digital Single Market stipulates seamless public service delivery across all European countries.
<i>Question</i>	<p><b>Are there any administrative level restrictions in the delivery of the digital public service (e.g. at a local, national or EU level)?</b></p> <ul style="list-style-type: none"> <li>• Yes, there are restrictions. The digital public service is not fully interoperable at all applicable administrative levels (geographies)</li> <li>• No, there are no restrictions. The digital public service is already fully interoperable at all applicable administrative levels (geographies)</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• An electronic ID issued by country A is required to access the cadastre service whilst foreigners who may require using the service cannot obtain such an ID.</li> <li>• A national of country B cannot view her pension entitlements as she has worked in multiple EU countries and her records are not reconciled across these.</li> <li>• The European Exchange School Alliance used in HU-ROSK-UA highlights how specialised and non-formal educational services are provided at an external EU border.</li> </ul>
<i>Question logic</i>	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.

<i>Name</i>	Manual or digital consumption of services
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Technical, Organisational</b>
<i>Weight</i>	60%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Gain insight into how the digital public service is being consumed.
<i>Question</i>	<b>How does the digital public service currently consume other services (manually versus digitally)?</b> <ul style="list-style-type: none"> <li>• Fully manually</li> <li>• Mainly manually, some digitally</li> <li>• Mix of manual and digital consumption</li> <li>• Mainly digitally, some manually</li> <li>• Fully digitally</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• An example of digital consumption is the tax administration digitally fetching data from the Citizen Base Register.</li> <li>• An example of manual consumption is fetching data with the help of a paper form.</li> </ul>
<i>Question logic</i>	Next question

#### C2.

<i>Name</i>	Reusing or producing services
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Technical</b>
<i>Weight</i>	40%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Specify how the digital public service is being consumed (reuse versus produce). Delivering a digital public service, while a service is available externally for use is considered less interoperable as it implies that the digital public service has “reinvented the wheel”.
<i>Question</i>	<b>To what extent does the digital public service reuse or self-produce consumed services?</b> <ul style="list-style-type: none"> <li>• Most consumed services are self-produced, while relevant services are available for reuse</li> <li>• A selection of consumed services are reused</li> <li>• (Nearly) all consumed services are reused</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• The digital public service uses Google Translate as a translation service for her web portal (Reuse).</li> </ul>



	<ul style="list-style-type: none"> <li>An Identity and Access Management (IAM) service is developed and used by the administration itself while there is an institutionalized IAM-standard available in the country.</li> </ul>
<i>Question logic</i>	Next question
<b>C3.</b>	
<i>Name</i>	Legal means for service consumption
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Legal</b>
<i>Weight</i>	50%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	For reuse of services or data to reach its full potential, legal interoperability and certainty is essential. For this reason, the right for anyone to reuse services should be communicated clearly throughout the Member States, and legal regimes to facilitate the reuse of data, such as licenses, should as far as possible be promoted and standardised. This item assess whether the service consumption is facilitated via any legal means that the digital public service has in place.
<i>Question</i>	<p><b>To what extent does the digital public service provide legal means (e.g. tracing and logging mechanisms, legal agreements, legal rules, etc.) to handle service consumption?</b></p> <ul style="list-style-type: none"> <li>There are no applicable legal means or legal rules for the specific digital public service</li> <li>The digital public service does not have in place any legal means or rules to handle the service consumption</li> <li>Partially, the digital public service has in place some of the applicable legal means and rules to handle the service consumption</li> <li>Yes, the digital public service has in place all the applicable legal means and rules to handle the service consumption</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>A national eGovernment portal consumes data under legally binding requirements at a national/cross-border level.</li> <li>The data exchanged between the tax registry and the ePayment service is regulated via national legal acts.</li> </ul>
<i>Question logic</i>	Next question

**C4.**

<i>Name</i>	Data consumption
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Semantic, Technical</b>
<i>Weight</i>	50%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Interoperability depends on ensuring the availability of interfaces to these systems and the data they handle. In turn, interoperability facilitates reuse of systems and data, and enables these to be integrated into larger systems. This item assesses the overall importance of data within the digital public service, in terms of how far the digital public service goes with data collection, access and processing.
<i>Question</i>	<p><b>To what extent does the digital public service handle the data that it consumes?.</b></p> <ul style="list-style-type: none"> <li>• The digital public service only collects data</li> <li>• The digital public service accesses (and consequently collects) more than half of the total data handled</li> <li>• The digital public service reports (and consequently collects and accesses) more than half of the total data handled</li> <li>• The digital public service analyses (and consequently collects, access and reports) more than half of the total data handled</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• The digital public service consumes widely-used formats such as MS Excel (.xls/.xlsx), MS Access (.mdb/.accdb), dBase (.dbf) and OpenDocument Spreadsheet (.ods) and integrates them in its delivery.</li> </ul>
<i>Question logic</i>	Next question

**C5.1.**

<i>Name</i>	Landscaping Service Consumption
<i>Category</i>	Manifestation
<i>EIF-layer</i>	<b>Technical</b>
<i>Weight</i>	N/A
<i>Question type</i>	Multiple choice (>1 answer possible)
<i>Rationale</i>	Gain insight into the services that the digital public service is consuming.
<i>Question</i>	<p><b>Please select the services that the digital public service has to consume in order to work:</b></p> <p>First, indicate for the below generic services if these are required (note that this is an indicative list)</p> <p>Second, add specific services which are specific to the digital public service and required by it in order to work</p> <p>Important note: Please list both services that are consumed from within the administration (internally) and from a third party (externally). Please list both manually and digitally consumed services.</p> <ul style="list-style-type: none"> <li>• Firstly, select the Generic services (indicative list – select applicable ones): <ul style="list-style-type: none"> <li>○ Authentication Service</li> <li>○ e-Signature Creation Service</li> <li>○ e-Signature Verification and Validation Service</li> <li>○ e-Signature Preservation Service</li> <li>○ ePayment Service</li> <li>○ Messaging Service</li> <li>○ Audio-visual Service</li> <li>○ Data Transformation Service</li> <li>○ Data Validation Service</li> <li>○ Machine Translation Service</li> <li>○ Data Exchange Service</li> <li>○ Business Analytics Service</li> <li>○ Business Reporting Service</li> <li>○ Forms Management Service</li> <li>○ Records Management Service</li> <li>○ Document Management Service</li> <li>○ Content Management Service</li> <li>○ Access Management Service</li> <li>○ Logging Service</li> <li>○ Audit Service</li> <li>○ Metadata Management</li> <li>○ Networking Service</li> <li>○ Hosting Service</li> <li>○ Storage Service</li> <li>○ Base Registry Information Source</li> <li>○ Registration Service</li> <li>○ Administration and Monitoring Service</li> <li>○ Partner Management Service</li> <li>○ eArchiving Service</li> <li>○ Data Publication Service</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>○ e-Seal Creation Service</li> <li>○ e-Seal Verification and Validation Service</li> <li>○ e-Seal Preservation Service</li> <li>○ e-Timestamp Creation Service</li> <li>○ e-Timestamp Verification and Validation Service</li> <li>○ Registered Electronic Delivery Service</li> <li>○ Trust Registry Service</li> <li>○ Service Discovery</li> <li>○ Choreography Service</li> <li>○ Orchestration Service</li> <li>○ Test Service</li> <li>○ Configuration and Cartography Service</li> <li>○ Conformance Testing Service</li> </ul>
<i>Examples</i>	See above
<i>Question logic</i>	Next question

**C5.2.**

<i>Name</i>	Landscaping Service Consumption
<i>Category</i>	Manifestation
<i>EIF-layer</i>	<b>Technical</b>
<i>Weight</i>	N/A
<i>Question type</i>	Open question (free text)
<i>Rationale</i>	Gain insight into the services that the digital public service is consuming.
<i>Question</i>	<p><b>Please name any relevant specific services that are required by your digital public service in order to function.</b></p> <p>Again: Please include both services that are consumed from within the administration (internally) and from a third party (externally). Please include both manually and digitally consumed services.</p>
<i>Examples</i>	See above
<i>Question logic</i>	Next question

**C5.3.**

<i>Name</i>	Data exchange in service consumption
<i>Category</i>	N/A
<i>EIF-layer</i>	<b>Technical, Semantic</b>
<i>Weight</i>	N/A
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	This item clarifies if data exchange is involved in service consumption.
<i>Question</i>	Based on the generic and specific services above, to what extent is data exchange involved in service consumption? <ul style="list-style-type: none"> <li>• Data exchange is involved in service consumption</li> <li>• No data exchange is involved in service consumption</li> </ul>
<i>Examples</i>	See above
<i>Question logic</i>	Next question

**C6.**

<i>Name</i>	Cross-border service consumption
<i>Category</i>	Manifestation
<i>EIF-layer</i>	<b>Semantic, Organisational</b>
<i>Weight</i>	60%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Enabling visibility inside the administrative environment of a public administration. This is about allowing other public administrations, citizens and businesses to view and understand administrative rules, processes, data, services and decision-making. Reusing services or data from different administrative levels is a key success factor for ensuring organisational interoperability.
<i>Question</i>	<b>Does the digital public service consume services from different administrative levels (geographies or sectors)?</b> <ul style="list-style-type: none"> <li>• No, the digital public service does not consume services from different administrative levels.</li> <li>• Yes, the digital public service consumes services from different administrative levels (e.g. services from different MS, services from different organisations)</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• The national electronic service of citizens' identities (eID) consumes semantically aligned data from national portals.</li> <li>• The national electronic public procurement platform consumes electronic notices to the TED eNotices platform of EU.</li> </ul>
<i>Question logic</i>	Next question

C7.	
<i>Name</i>	Subscriptions to updates
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Technical</b>
<i>Weight</i>	40%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Digital public services proactively delivering on life events are considered more interoperable than their counterparts who rely on manual intervention.
<i>Question</i>	<p><b>To what extent does the digital public service subscribe to automatic updates of services (e.g. life events) to trigger its execution and/or update information?</b></p> <ul style="list-style-type: none"> <li>• Not applicable, such subscriptions are not considered relevant</li> <li>• The digital public service does not subscribe to any automatic updates as they require manual intervention from public service staff or end user(s)</li> <li>• The digital public service subscribes partially to the relevant automatic updates, as some of them require manual intervention from public service staff or end user(s), while others are received automatically</li> <li>• Fully, the digital public service receives automatically all relevant updates</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• A digital public service in the area of social security receives automated updates of births from a base registry service and provides child allowance without the user having to request it.</li> </ul>
<i>Question logic</i>	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](#).

## 5.2.4 Service Management (B) - Questions

**B1.**

<i>Name</i>	Architecture Framework
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Semantic</b>
<i>Weight</i>	10%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Using existing, common architectural frameworks ensures that the administration is leveraging best practices and designs a digital public service that is interoperable with other public services.
<i>Question</i>	<p><b>To what extent is the integrated public service compliant to a reference architecture framework?</b></p> <ul style="list-style-type: none"> <li>• The integrated public service is not compliant to any reference architecture framework</li> <li>• The integrated public service is compliant to a custom national reference model</li> <li>• The integrated public service is compliant to a formalised, common, trans-European model (e.g. SEMIC model for e-payments)</li> <li>• Both the integrated public service and the consumed services are compliant to a reference model (custom and/or formalised)</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• The digital public service is aligned with a set of frameworks on the European-level such as EIRA (European Interoperability Reference Architecture) or at a national level (such as NORA in The Netherlands).</li> <li>• (For further information on EIRA, please consult the related ISA action here: <a href="https://ec.europa.eu/isa/actions/02-interoperability-architecture/2-1action_en.htm">https://ec.europa.eu/isa/actions/02-interoperability-architecture/2-1action_en.htm</a>)</li> <li>• ISA<sup>2</sup> specifications, such as e-Government Core Vocabularies, Asset Description Metadata Schema (ADMS), DCAT Application Profile for Data Portals in Europe (DCAT-AP)).</li> </ul>
<i>Question logic</i>	Next question

**B2.**

<i>Name</i>	Data and metadata management
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Semantic</b>
<i>Weight</i>	15%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Data and metadata should be appropriately managed, shared, and preserved. Management of data, metadata, master data and reference data should be prioritised. This item goes beyond the previous question and assesses if standardised methodologies are in place in the data and metadata management governance of the digital public service
<i>Question</i>	<p><b>To what extent does the digital public service apply a data and metadata management process?</b></p> <ul style="list-style-type: none"> <li>• The digital public service does not apply any data or metadata management processes</li> <li>• The digital public service applies custom data or management processes, but not compliant to any common standard</li> <li>• The digital public service applies custom data or metadata management processes, that are compliant to common standards</li> <li>• The digital public service applies both data and metadata management processes and at least one of them is compliant to common standards</li> </ul>
<i>Examples</i>	-
<i>Question logic</i>	Next question

**B3.**

<i>Name</i>	EIF layers
<i>Category</i>	Manifestation
<i>EIF-layer</i>	<b>Legal, Organisational, Semantic, Technical</b>
<i>Weight</i>	20%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	The EIF gives guidance, through a set of recommendations, to public administrations on how to improve governance of their interoperability activities, establish cross-organisational relationships, streamline processes supporting end-to-end digital services, and ensure that existing and new legislation do not compromise interoperability efforts. Taking into account the EIF recommendations of the four interoperability layers (Legal, Technical, Organisational, and Semantic) ensures that the administration is leveraging best practices and designs a digital public service that is interoperable with other public services.



<i>Question</i>	<b>To what extent has the digital public service been designed considering the EIF layers (Legal, Technical, Organisational, Semantic)?</b> <ul style="list-style-type: none"> <li>• The digital public service has not been designed considering any of the EIF layers</li> <li>• The digital public service has been designed considering partially the EIF layers</li> <li>• The digital public service has been designed considering fully the EIF layers</li> </ul>
<i>Examples</i>	-
<i>Question logic</i>	Next question

**B4.**

<i>Name</i>	EIRA views
<i>Category</i>	Manifestation
<i>EIF-layer</i>	<b>Legal, Organisational, Semantic, Technical</b>
<i>Weight</i>	15%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	The European interoperability architecture (EIRA) is important part of interoperability governance at the EU level. Compliance with the EIRA views (Legal, Technical, Organisational, and Semantic) ensures that the administration is leveraging best practices and designs a digital public service that is interoperable with other public services.
<i>Question</i>	<b>To what extent has the digital public service been designed considering the EIRA views (Legal, Technical, Organisational, Semantic)?</b> <ul style="list-style-type: none"> <li>• The digital public service has not been designed considering any of the EIRA views</li> <li>• The digital public service has been designed considering partially the EIRA views</li> <li>• The digital public service has been designed considering fully the EIRA views</li> </ul>
<i>Examples</i>	-
<i>Question logic</i>	Next question

**B5.**

<i>Name</i>	Procedures for validation of the service
<i>Category</i>	Manifestation
<i>EIF-layer</i>	<b>Legal, Organisational, Semantic, Technical</b>
<i>Weight</i>	20%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Organisations that have in place procedures needed for functions to operate after a disastrous event and ensuring data quality and service performance contribute to interoperability.
<i>Question</i>	<p><b>To what extent does the digital public service perform any the following procedures to validate the consistency of the data, information and knowledge it manages?</b></p> <ul style="list-style-type: none"> <li>✓ Change Management Process</li> <li>✓ Conformance Testing</li> <li>✓ Business Continuity Plan</li> <li>✓ Disaster Recovery Plan</li> <li>✓ Performance Testing</li> <li>✓ Data Quality Assurance (Activities)</li> <li>✓ Certification Process</li> </ul> <ul style="list-style-type: none"> <li>• None of the listed procedures is applicable for the specific digital public service</li> <li>• The digital public service does not perform any of the listed procedures, although some of them are be applicable for the specific digital public service</li> <li>• The digital public service performs partially some of the listed procedures that are applicable</li> <li>• The digital public service performs all of the listed procedures that are applicable</li> </ul>
<i>Examples</i>	-
<i>Question logic</i>	Next question

**B6.**

<i>Name</i>	Catalogue of specifications and standards
<i>Category</i>	Manifestation
<i>EIF-layer</i>	<b>Legal, Organisational, Semantic, Technical</b>
<i>Weight</i>	20%
<i>Question type</i>	Multiple choice (1 answer possible) & text field
<i>Rationale</i>	Standards and specifications are fundamental to interoperability. Documenting standards and specifications, in open catalogues, using a standardised description for reuse contributes to interoperability.
<i>Question</i>	<p><b>To what extent has the digital public service been designed considering a catalogue of specifications and standards?</b></p> <ul style="list-style-type: none"> <li>• No standards or specifications are applicable for the specific digital public service</li> <li>• The digital public service has not been designed considering a catalogue of specifications and standards, although there are applicable ones for the specific digital public service</li> <li>• The digital public service has been partially designed considering a catalogue of specifications and standards that are applicable for the specific digital public service</li> <li>• The digital public service has been fully designed considering a catalogue of specifications and standards, for all standards or specifications that are applicable for the specific digital public service</li> </ul> <p>In case options 2 has been selected, please indicate in the text field below which catalogues of specifications and standards are considered.</p>
<i>Examples</i>	-
<i>Question logic</i>	Next question

**B7.**

<i>Name</i>	Reuse and sharing
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Organisational, Semantic, Technical</b>
<i>Weight</i>	40%
<i>Question type</i>	Multiple choice (1 answer possible) and free text field
<i>Rationale</i>	Organisations that make available documentation and / or (software) components for reuse contribute to interoperability.

	(For further information on how to foster sharing & reuse, please consult the related ISA action: <a href="https://ec.europa.eu/isa/actions/04-accompanying-measures/4-2-5action_en.htm">https://ec.europa.eu/isa/actions/04-accompanying-measures/4-2-5action_en.htm</a> )
<i>Question</i>	<p><b>To what extent does the digital public service perform any of the following options to share its release components?</b></p> <ul style="list-style-type: none"> <li>✓ Sharing documentation to provide other (related) organisations valuable insights into processes, organisation, governance, technology choices, etc.</li> <li>✓ Sharing source code or downloadable software to enable other organisations to effectively build their services.</li> <li>✓ Making available open Web-API services to enable other organisations and individuals to (re)use functionality and/or gain access to data via web and/or mobile apps.</li> <li>✓ Providing support to organisations leveraging the resources provided.</li> </ul> <ul style="list-style-type: none"> <li>• None of the listed options are applicable for the specific digital public service</li> <li>• None of the listed options are considered for the specific digital public service. Although some of the listed options could be applicable for the specific digital public service, there are no provisions in place for those that are applicable</li> <li>• Partially. More of the listed options could be applicable for the specific digital public service, but there are no provisions in place for all that are applicable</li> <li>• Fully, for all the listed options that are applicable for the specific digital public service</li> </ul> <p>In case options 3 has been selected, please indicate in the text field below which options are considered share the digital public service's components and knowledge with the external environment.</p>
<i>Examples</i>	<ul style="list-style-type: none"> <li>• The digital public service shares best practices and documentation via its website.</li> <li>• The tax declaration digital public service makes available an open Web-API to calculate the income after taxes of a citizen – this web service can be reused by other public services e.g. in the area of social security.</li> </ul>
<i>Question logic</i>	Next question

**B8.**

<i>Name</i>	Security profile
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Technical</b>
<i>Weight</i>	20%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Security and privacy are primary concerns in the provision of public services. Having in place different security processes such as security profiles ensures the secure

	exchange of information during its transmission, processing and storage. A security profile is a set of rights and restrictions that can be associated with a user or group of users. The security profile determines the actions (such as viewing, creating, and editing) that a user can perform on various resources, such as sourcing documents and master data.
<i>Question</i>	<p><b>To what extent has the digital public service established a security profile?</b></p> <ul style="list-style-type: none"> <li>Establishing a security profile is not applicable for the specific digital public service</li> <li>The digital public service does not have a security profile established, although it is applicable for the specific digital public service</li> <li>The digital public service has established a custom security profile</li> <li>The digital public service has established a security profile that follows a specific semantic model</li> </ul>
<i>Examples</i>	-
<i>Question logic</i>	Next question

<b>B9.</b>	
<i>Name</i>	Data protection
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Legal</b>
<i>Weight</i>	20%
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Public administrations should ensure that they are compliant with the legal requirements and obligations regarding data protection and privacy acknowledging the risks to privacy from advanced data processing and analytics. Data protection implementation approaches ensure the secure data management and contribute to interoperability.
<i>Question</i>	<p><b>To what extent does the digital public service handle data protection?</b></p> <ul style="list-style-type: none"> <li>Data protection measures are not applicable for the specific digital public service</li> <li>The digital public service does not handle data protection, although it is applicable for the specific digital public service</li> <li>The digital public service handles data protection under custom policies and regulations</li> <li>The digital public service handles data protection under formalised regulations e.g. GDPR</li> </ul>
<i>Examples</i>	<ul style="list-style-type: none"> <li>The data delivered by the national eGovernment portal is compliant with the GDPR</li> </ul>

Question logic	Next question
----------------	---------------

**B10.**

Name	Service Level Agreements (SLAs)
Category	Enabler
EIF-layer	<b>Legal, Organisational</b>
Weight	20%
Question type	Multiple choice (1 answer possible)
Rationale	Service Level Agreements give users of the digital public service certainty about the conditions under which they can use and request support for the service.
Question	<p><b>To what extent is the digital public service mandated by a Service Level Agreement (SLA)?</b></p> <ul style="list-style-type: none"> <li>• Not applicable</li> <li>• The digital public service is not mandated by any Service Level Agreements (SLAs)</li> <li>• The digital public service is mandated by a SLA but compliance is not monitored</li> <li>• The digital public service is mandated by a SLA and compliance is monitored regularly, while procedures are triggered for corrective actions when required</li> </ul>
Examples	<ul style="list-style-type: none"> <li>• The website of the Ministry for Education clearly stipulates the service levels for applications for educational allowances.</li> <li>• The social security institution monitors compliance of its IT service levels for retrieval of social security data by partnering institutions.</li> </ul>
Question logic	Next question

**B11.**

Name	Terms and conditions of the service
Category	Enabler
EIF-layer	<b>Legal, Organisational</b>
Weight	100%
Question type	Multiple choice (1 answer possible)
Rationale	Any public service that has any form of interaction with its end users should include a terms and conditions page within it, which outlines the legal limitations of the service. This will facilitate organisational interoperability between public services and enforces user-centricity practices.

<i>Question</i>	<b>To what extent does the digital public service provide clearly and explicitly defined terms and conditions?</b> <ul style="list-style-type: none"> <li>• The digital public service does not provide clear and explicitly defined terms and conditions</li> <li>• The digital public service provides partially clear and explicitly defined terms and conditions</li> <li>• The digital public service provides fully clear and explicitly defined terms and conditions</li> </ul>
<i>Examples</i>	-
<i>Question logic</i>	Next question

**B12.**

<i>Name</i>	Data policies
<i>Category</i>	Enabler
<i>EIF-layer</i>	<b>Legal</b>
<i>Weight</i>	N/A
<i>Question type</i>	Multiple choice (1 answer possible)
<i>Rationale</i>	Data policies are a set of broad, high level principles which form the guiding framework in which data assets can be managed. More specifically, data policies govern data management, data interoperability and standards, data quality, data protection and information security.
<i>Question</i>	<b>To what extent does the digital public service provide data policies related to the data owner?</b> <ul style="list-style-type: none"> <li>• The digital public service does not provide any data policies</li> <li>• The digital public service provides data policies specifying the data owner of the service</li> </ul>
<i>Examples</i>	-
<i>Question logic</i>	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 IMAPS RECOMMENDATIONS

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

### 6.1 Principles

The following five principles are applied to generate recommendations:

- **Principle 1:** Each semantic 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 interoperability attribute;
- **Principle 3:** When a digital public service does not yet reach the maximum level for a specific interoperability attribute, a recommendation is given to make the step towards the next interoperability level;
- **Principle 4:** When a digital public service successfully attains the maximum maturity level for a interoperability attribute, no recommendation is given<sup>8</sup>;
- **Principle 5:** When the maturity improvement is not based on specific 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<sup>9</sup>;
- The recommendation as to how to reach the next maturity level.

---

<sup>8</sup> The reason for this is that in this case- according to the model- the service is already implementing a semantic interoperability attribute in a way that it corresponds to best practice. There are no direct recommendations to improve further

<sup>9</sup> With the exception when this is considered a sliding scale



## 6.3 Recommendations

### 6.3.1 Service Delivery (D) – Scoring table

Table 4: Service Delivery scoring model

Item	Ad hoc (1)	Opportunistic (2)	Essential (3)	Sustainable (4)	Seamless (5)
D1	No score				
D2	Open data is published in non-structured formats (e.g. pdf, jpeg)			Open data is published in structured formats (e.g. MS Excel)	Open data is published in structured formats with semantic metadata / ontologies (e.g. rdf, linked open data)
D3	The digital public service is only using proprietary standards and is not leveraging existing (open) semantic standards for data delivery			Some (open) semantic standards are used for data delivery, combined with proprietary standards	The data delivery is entirely based on existing (open) semantic standards and specifications
D4	There is no information available on data privacy considerations		Partially, there is limited information available on data privacy considerations	Fully, there is detailed information available on data privacy considerations	Fully & adaptable, there is detailed information available on data privacy available and the user can manage (some of his) data privacy settings online
D5	The digital public service is only available in a single language. It		The digital public service supports multilingualism partially and	The digital public service supports multilingualism at a technical level and/or partially at a semantic level	The digital public service supports multilingualism fully both at a semantic and technical level

	could be applicable to be available in other languages, but there are no provisions in place.		only at a technical level		
D6	The digital public service is not registered in a Service Catalogue	The digital public service is part of a catalogue available to a restricted user group (e.g. partners)	The digital public service is part of a publicly available catalogue	The digital public service is part of a publicly and online discoverable catalogue and includes a public service description (including information such as contact details, provider, preconditions and required input)	The digital public service is part of a publicly and online discoverable catalogue and includes a public service description based on standards such as CPSV-AP
D7	The digital public service does not provide any authentication mechanisms although it is applicable for the specific digital public service			The digital public service provides login authentication mechanisms (username, password) for people identification	The digital public service provides formalised authentication mechanisms e.g. EU Login based on Single sign-on principle for people identification
D8	No, there is no certification procedure available for the end users				Yes, there is a certification procedure available for the end users
D9	One digital channel		One digital and one traditional channel	Multiple digital and traditional channels	Multiple digital (including interactive digital collaboration M2M) and traditional channels
D10	No pre-filling is used for the data and			Partly, pre-filling is used but only for some data	Fully, pre-filling is used for all data fields that

	information requested. It could be applicable but there are no provisions in place yet			fields that are digitally available	are digitally available
D11	There is no information on rules and processes available before, during and / or after usage of the digital public service. This information resides somewhere else (i.e. is not imminently discoverable)			Partly, there is limited information on rules & processes available before, during and / or after usage of the digital public service	Fully, there is detailed information on rules & processes available before, during and/or after usage of the digital public service
D12	The digital public service does not provide such capabilities			The digital public service provides tracking and/or feedback mechanisms, but the feedback is considered in an ad-hoc manner	The digital public service provides tracking and/or feedback mechanisms, but and all feedback is fully considered for the further development and continuous improvement of our digital public service
D13	The digital public service does not provide any accessibility features			Partly, the digital public service provides some accessibility features	Fully, the digital public service is compliant with an accessibility standard such as Web Content Accessibility (WAI) Guidelines 2.0, level AA,

					ISO/IEC 40500:2012
D14	Yes, there are restrictions. The digital public service is not fully interoperable at all applicable administrative levels (geographies)				No, there are no restrictions. The digital public service is already fully interoperable at all applicable administrative levels (geographies)

### 6.3.2 Service Delivery (D) – Recommendations

The table below presents the respective recommendation to each option in IMAPS 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 behavioral interoperability maturity**.

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

**Table 5: Service Delivery Recommendations**

Question	Addressed Level	Next Level	Recommendation
D1.	No scoring		
D2.	Ad hoc (1)	Opportunistic (2)	Currently, your digital public service does not publish open data, although this could be applicable. Consider gradually publishing open data using non-structured formats (e.g. pdf, jpeg) to improve the semantic behavioral interoperability of your digital public service. You can investigate further these formats using the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> ).
	Opportunistic (2)	Essential (3)	Currently, your digital public service publishes data in non-structured formats (e.g. pdf, jpeg). Consider publishing open data using structured formats e.g. Excel to improve the semantic behavioral interoperability of your public service. You can investigate further these formats using the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> ).

	Essential (3)	Seamless (5)	Currently, your digital public service publishes data in structured formats such as Excel. Consider publishing your data in non-proprietary formats with semantic metadata / ontologies (e.g. rdf, linked open data) to achieve a higher level of semantic behavioral interoperability. You can investigate further these formats using the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> ).
<b>D3.</b>	Ad hoc (1)	Essential (3)	Currently, the digital public service is only using proprietary standards and is not leveraging existing (open) semantic standards for data exchange. Consider using partly some semantic standards for data exchange, combined with proprietary standards. You can investigate further these standards via the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> ) and the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ).
	Essential (3)	Seamless (5)	Currently, the digital public service is using some (open) semantic standards are used for data exchange, combined with proprietary standards. Investigate if it will be possible for your service to move towards a situation where the data exchange is entirely based on existing (open) semantic standards and specifications. You can investigate further these standards via the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> ) and the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ).
<b>D4.</b>	Ad hoc (1)	Essential (3)	Currently, end users are not provided with any information on data privacy. This is however essential in fostering users' trust in the digital public service. Map all information that would be beneficial to end users and communicate these via the available channels. Consider investigating further the maturity of the legal requirements of your public service via Legal Interoperability Maturity Assessment of a Public Service ( <a href="#">LIMAPS</a> ) and the Organisational Interoperability Maturity Assessment of a Public Service ( <a href="#">OIMAPS</a> )..

	Essential (3)	Sustainable (4)	Currently, end users are only provided with a subset of information on their data privacy. Map all information that would be beneficial to end users and focus on closing the gaps to ensure full transparency. Consider investigating further the maturity of the legal requirements of your public service via Legal Interoperability Maturity Assessment of a Public Service ( <a href="#">LIMAPS</a> ) and the Organisational Interoperability Maturity Assessment of a Public Service ( <a href="#">OIMAPS</a> )..
	Sustainable (4)	Seamless (5)	<p>Your digital public service provides detailed information on data privacy to users. However it is currently not possible for the user to manage (some of this) data privacy information online.</p> <p>This is though considered a desirable end state. As a first step, analyse which fields are important for the end user to manage and assess further the maturity of the legal requirements of your public service via Legal Interoperability Maturity Assessment of a Public Service (<a href="#">LIMAPS</a>) and the Organisational Interoperability Maturity Assessment of a Public Service (<a href="#">OIMAPS</a>)..</p>
<b>D5.</b>	Ad hoc (1)	Essential (3)	Your digital public service is not multilingual. Consider at a minimum offering a multi-lingual interface. Offer it in one or several languages which best reflect the composition of your user community. You can further investigate the extent of multilingualism using the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> ) and the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ).
	Essential (3)	Sustainable (4)	Currently, multilingualism is considered partially and only at a technical level. Whilst this is a good starting point, you may consider providing multilingualism at a semantic level as well. You can further investigate the extent of multilingualism using the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> ) and the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ).
	Sustainable (4)	Seamless (5)	Currently, multilingualism is considered adequately at a technical level and/or partially at a semantic level You can further investigate the extent of multilingualism using the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> )

			and the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ).
<b>D6.</b>	Ad hoc (1)	Opportunistic (2)	Currently, your digital public service is not registered in a Service Catalogue. Registering your public service within a catalogue is recommended to promote and increase the usage of the service. Consider investigating further the discoverability of the digital public service (inclusion in a catalogue) from all Interoperability views (L, O, S, T) using the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ) and the Organisational Interoperability Maturity Assessment of a Public Service ( <a href="#">OIMAPS</a> ).
	Opportunistic (2)	Essential (3)	Your digital public service is registered in a catalogue only accessible to a restricted user group. Consider leveraging a publicly available catalogue to reach a larger target audience. Consider investigating further the discoverability of the digital public service (inclusion in a catalogue) from all Interoperability views (L, O, S, T) using the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ) and the Organisational Interoperability Maturity Assessment of a Public Service ( <a href="#">OIMAPS</a> ).
	Essential (3)	Sustainable (4)	Your digital public service is registered in a publicly available catalogue but is not discoverable online. Ensuring online discoverability is important to promote the machine-to-machine consumption of the digital public service. Consider investigating further the discoverability of the digital public service (inclusion in a catalogue) from all Interoperability views (L, O, S, T) using the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ) and the Organisational Interoperability Maturity Assessment of a Public Service ( <a href="#">OIMAPS</a> ).
	Sustainable (4)	Seamless (5)	Your digital public service is registered in a publicly and online discoverable catalogue and includes a public service description. However, at this moment the digital public service not (fully) leveraging standards such as CPSV-AP. Adopting these standards will help in the delivery of interoperable public service descriptions and group services according to life or business events. Consider investigating further the discoverability of the digital public service (inclusion in a catalogue) from all Interoperability views (L, O, S, T) using the Technical Interoperability

			Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ) and the Organisational Interoperability Maturity Assessment of a Public Service ( <a href="#">OIMAPS</a> ).
<b>D7.</b>	Ad hoc (1)	Sustainable (4)	Currently, the digital public service does not have use any authentication mechanisms, although it could be applicable. Consider using simple login authentication mechanisms such as provision of username and password to authenticate the end-users. You can further investigate the authentication mechanisms and the technical means in place for people identification using the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ) and the Legal Interoperability Maturity Assessment of a Public Service ( <a href="#">LIMAPS</a> ).
	Sustainable (4)	Seamless (5)	Currently, the digital public service is using a login mechanism for users' authentication. Consider using formalised authentication mechanisms such as EU Login to achieve a better interoperability of your service. You can further investigate the authentication mechanisms and the technical means in place for people identification using the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ) and the Legal Interoperability Maturity Assessment of a Public Service ( <a href="#">LIMAPS</a> ).
<b>D8.</b>	Ad hoc (1)	Seamless (5)	The digital public service providing your digital public service towards the end users without a certification procedure. As a result, you create the risk of interconnections not working properly e.g. in terms of security, governance, technological and semantic interoperability and availability. Consider developing a formalised certification procedure in order to ensure your service can be delivered in a stable and safe manner to end users by investigating further the certification procedures via the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ) and the Legal Interoperability Maturity Assessment of a Public Service ( <a href="#">LIMAPS</a> ).
<b>D9.</b>	Ad hoc (1)	Essential (3)	Not all end users will be able to use your service due to the fact only one digital channel is available as access point to it. In order to ensure accessibility to all end users, the addition of a traditional channel would be beneficial. Consider investigating further



			the digital channels you can use (e.g. web portals) via the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ).
	Essential (3)	Sustainable (4)	Currently, the digital public service is using one digital and one traditional channel for its delivery. In addition to one digital and one traditional channel, your service could improve its accessibility by adding more digital channels. Consider investigating further the digital channels you can use (e.g. web portals) via the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ).
	Sustainable (4)	Seamless (5)	Currently, the digital public service is using multiple digital and traditional channel for its delivery. Consider investigating further the multiple digital channels, including interactive digital collaboration M2M via the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ).
<b>D10.</b>	Ad hoc (1)	Sustainable (4)	Currently, your service does not require pre-filling or does not make use of pre-filling. If the former is the case, periodically evaluate whether pre-filling is not becoming relevant as your service evolves. For both cases, consult peer practices in order to make sure that you do not miss out on opportunities to pre-fill. Evaluate and map the different sources that you could use for pre- filling.
	Sustainable (4)	Seamless (5)	Your service pre-fills selected, but not all data fields which would be electronically available.Pre-filling is one of the strongest manifestations of interoperability as it adds significant value to users in terms of reducing user burden and speeding up the service request process. Within your administration, pre-filling minimises the risk of erroneous data entries. Map all information that would be electronically available and design your service to consume it electronically using the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ) and the Organisational Interoperability Maturity Assessment of a Public Service ( <a href="#">OIMAPS</a> ).
<b>D11.</b>	Ad hoc (1)	Sustainable (4)	Currently, your public service does not provide information on rules & processes to its end users. This may negatively impact the perception of your service and might lead to wrong assumptions and/or expectations of end users. Map all information that

			would be beneficial to end users (such as decision mechanisms, lead times, and reporting obligations) and communicate these via the available channels. Consider using the Organisational Interoperability Maturity Assessment of a Public Service ( <a href="#">OIMAPS</a> ) and the Technical Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ) to further investigate the mechanisms of the underlying processes.
	Sustainable (4)	Seamless (5)	Currently, your service is providing limited information on rules & processes. Map all information that would be beneficial to end users (such as decision mechanisms, lead times, and reporting obligations) and communicate these via the available channels. Consider using the Organisational Interoperability Maturity Assessment of a Public Service ( <a href="#">OIMAPS</a> ) and the Technical Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ) to further investigate the mechanisms of the underlying processes.
<b>D12.</b>	Ad hoc (1)	Sustainable (4)	At this moment your digital public service does not provide the possibility to give feedback. This is though beneficial to capture information on areas for improvement and/or insight into the particular strengths of the digital public service. Ensure you have a physical and/or digital channel available to capture this information and/or address complaints. Consider using the Organisational Interoperability Maturity Assessment of a Public Service ( <a href="#">OIMAPS</a> ) to further examine other similar aspects of service performance and user experience.
	Sustainable (4)	Seamless (5)	Your digital public service has tracking and/or feedback mechanisms. Currently, your digital public service offers the possibility for feedback. It would be beneficial to provide additional insights into the (anonymised) feedback from other end users. This way, end users will have a clear view of the quality of the functionalities offered, their limitations and are able to learn from each other's user experiences. Consider using the Organisational Interoperability Maturity Assessment of a Public Service ( <a href="#">OIMAPS</a> ) to further examine other similar aspects of service performance and user experience.

<b>D13.</b>	Ad hoc (1)	Sustainable (4)	Currently, your digital public service is not equally accessible to all end users. Implement accessibility features to make navigation, information and interaction with the digital public service convenient for people with disabilities. Consider an accessibility standard such as Web Content Accessibility (WAI) Guidelines 2.0, level AA for this purpose. You can use the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> ) and the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ) to investigate the extent of accessibility features provided by the digital public service to its end users.
	Sustainable (4)	Seamless (5)	Although your digital public services provides some accessibility features, it is not fully compliant with an accessibility standard such as Web Content Accessibility (WAI) Guidelines 2.0, level AA. Work towards implementing an accessibility standard to the full extent to ensure your digital public service can obtain the conformance (compliance) logo. You can use the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> ) and the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ) to investigate the extent of accessibility features provided by the digital public service to its end users.
<b>D14.</b>	Ad hoc (1)	Seamless (5)	At this moment there are restriction for non-residents or foreigners using the digital public service. Determine how many users are potentially impacted by this and draft a plan to ensure cross border service delivery by opening up the digital public service to foreign users (requiring e.g. alternative authentication mechanisms). Consider using the Organisational Interoperability Maturity Assessment of a Public Service ( <a href="#">OIMAPS</a> ) and the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> ) to further examine the level of administrative interaction of the service with other services, businesses, end users, etc.

### 6.3.3 Service Consumption (C) – Scoring table

Table 6: Service Consumption scoring model

Item	Ad hoc (1)	Opportunistic (2)	Essential (3)	Sustainable (4)	Seamless (5)
C1	Fully manually	Mainly manually, some digitally	Mix of manual and digital consumption	Mainly digitally, some manually	Fully digitally
C2	Most consumed services are self-produced, while relevant services are available for reuse			A selection of consumed services are reused	(Nearly) all consumed services are reused
C3	The digital public service does not have in place any legal means or rules to handle the service consumption			Partially, the digital public service has in place some of the applicable legal means and rules to handle the service consumption	There are no applicable legal means or legal rules for the specific digital public service  Fully, the digital public service has in place all the applicable legal means and rules to handle the service consumption
C4	The digital public service only collects data		The digital public service accesses (and consequently collects) more than half of the total data handled	The digital public service reports (and consequently collects and accesses) more than half of the total data handled	The digital public service analyses (and consequently collects, access and reports) more than half of the total data handled
C5.1	No scoring				
C5.2	No scoring				
C5.3	No scoring				
C6	No, the digital public service				Yes, the digital public service

	does not consume services from different administrative levels				consumes services from different administrative levels (e.g. services from different MS, services from different organisations)
C7	The digital public service does not subscribe to any automatic updates as they require manual intervention from public service staff or end user(s)			The digital public service subscribes partially to the relevant automatic updates, as some pf them require manual intervention from public service staff or end user(s), while others are received automatically	Not applicable, such subscriptions are not considered relevant  Fully, the digital public service receives automatically all relevant updates

### 6.3.4 Service Consumption (C) – Recommendations

Table 7: Service Consumption Recommendations

Question	Addressed Level	Next Level	Recommendation
<b>C1.</b>	Ad hoc (1)	Opportunistic (2)	The digital public service currently consuming all the services manually. You could enhance your interoperability by ‘digitalizing’ the consumption further. This will create benefits in the areas of data quality, throughput time, costs and interoperability. Try to find ways to interact more digitally with related organisations.
	Opportunistic (2)	Essential (3)	The digital public service currently consuming most of the services manually. You could enhance your interoperability by ‘digitalizing’ the consumption further. This will create benefits in the areas of data quality, throughput time, costs and interoperability. Fully digital consumption of services also enables straight through processing and/or real-time processing. Try to find ways to interact more digitally with related organisations using the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ) and the Organizational Interoperability Maturity Assessment of a Public Service ( <a href="#">OIMAPS</a> ).
	Essential (3)	Sustainable (4)	ou are currently consuming some of the services manually. You could enhance your interoperability by ‘digitalizing’ the consumption further. This will create benefits in the areas of data quality, throughput time, costs and interoperability. Fully digital consumption of services also enables straight through processing and/or real-time processing. Try to find ways to interact more digitally with related organisations using the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ) and the Organizational Interoperability

			Maturity Assessment of a Public Service ( <a href="#">OIMAPS</a> ).
	Sustainable (4)	Seamless (5)	The digital public service currently consuming most of the services digitally. You could enhance your interoperability by 'digitalizing' the consumption further. This will create benefits in the areas of data quality, throughput time, costs and interoperability. Fully digital consumption of services also enables straight through processing and/or real-time processing. Try to find ways to interact more digitally with related organisations using the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ) and the Organizational Interoperability Maturity Assessment of a Public Service ( <a href="#">OIMAPS</a> ).
<b>C2.</b>	Ad hoc (1)	Sustainable (4)	The digital public service currently not consuming all relevant services from other public administrations whilst they are available for reuse. This shows that the digital public service not making use of existing services to increase the effectiveness and efficiency of your own digital public service. Elaborate why this is the case. Before producing your own services, always take the time to map existing ones to possibly adapt them for your own purposes. Understand how you can improve your view on which services are being provided by other organisations using the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ).
	Sustainable (4)	Seamless (5)	Currently, your digital public service reuses a selection of consumed services. This shows that the digital public service not making use of existing services to increase the effectiveness and efficiency of your own digital public service. Before producing your own services, always take the time to map existing ones to possibly adapt them for your own purposes. Understand how you can improve your

			view on which services are being provided by other organisations using the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ).
<b>C3.</b>	Ad hoc (1)	Sustainable (4)	Currently, your digital public service does not have in place legal means to handle the service consumption. Legal requirements or any other legal mechanisms ensure a secure consumption of data and services from other public services and enable a smoother service consumption. Consider put in place legal means e.g. regulated rules to facilitate the service consumption. You can further investigate the legal means to handle the service consumption using the Legal Interoperability Maturity Assessment of a Public Service ( <a href="#">LIMAPS</a> ).
	Sustainable (4)	Seamless (5)	Currently, your digital public service has in place some of the applicable legal means and rules to handle the service consumption. You can further investigate the legal means to handle the service consumption using the Legal Interoperability Maturity Assessment of a Public Service ( <a href="#">LIMAPS</a> ).
<b>C4.</b>	Ad hoc (1)	Essential (3)	Currently, your public service only collects the data that are consumed, without handle them further. Consider accessing and reusing further the data collected from other public services. The more the integration of public data to the digital public service, the better for establishing smooth interoperation among them.
	Essential (3)	Sustainable (4)	Currently, more than half of the total data handled is accessed. Consider reusing further the data collected from other public services. The more the integration of public data to the digital public service, the better for establishing smooth interoperation among them. Consider using the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> ) and the Technical Interoperability Maturity Assessment of a



			Public Service ( <a href="#">TIMAPS</a> ) to further investigate how your digital public service can handle the data collected and consumed from other services.
	Sustainable (4)	Seamless (5)	Currently, more than half of the total data handled is reported. Consider analysing and reusing further the data collected from other public services. The more the integration of public data to the digital public service, the better for establishing smooth interoperation among them. Consider using the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> ) and the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ) to further investigate how your digital public service can handle the data collected and consumed from other services.
<b>C6.</b>	Ad hoc (1)	Seamless (5)	Currently, the digital public service does not consume services from other administrative levels. Expanding the boundaries of the organisational relationships between the digital public service and the consuming services is very important for the organisational interoperability of a public service. Consider consuming gradually services from different organisations or from different MS. The more the different public administrations that can use the data, information, knowledge delivered, the greater becomes the ability of interoperability and interconnection of the digital public service with its end users.
<b>C7.</b>	Ad hoc (1)	Sustainable (4)	Currently, all updates require manual intervention. This means manual effort and potentially quality issues. Determine the business case for improving the automatic processing of updates in terms of efficiency, quality, responsiveness and security. Start with (life) events that have the highest impact on the functioning of the digital public service. Consider

			investigating further the automatic updates of the consumed services.
	Sustainable (4)	Seamless (5)	Currently, your digital public service still relies on some manual intervention when it receives updates. This means manual effort and potentially quality issues. Determine the business case for improving the automatic processing of updates in term of efficiency, quality, responsiveness and security. Proceed with (life) events that have the highest impact on the functioning of the digital public service. Consider investigating further the automatic updates of the consumed services via the Technical Interoperability Maturity Assessment of a Public Service ( <a href="#">TIMAPS</a> ).

## 6.3.5 Service Management (B) – Scoring table

Table 8: Service Management scoring model

Item	Ad hoc (1)	Opportunistic (2)	Essential (3)	Sustainable (4)	Seamless (5)
B1	The integrated public service is not compliant to any reference model		The integrated public service is compliant to a custom national model	Yes, to a formalised, common, trans-European model (e.g. SEMIC model for e-payments)	Yes, both the integrated public service and the consumed services are compliant to a reference model (custom and/or formalised)
B2	The digital public service does not apply any data or metadata management processes		The digital public service applies custom data or management processes, but not compliant to any common standard	The digital public service applies custom data or metadata management processes, that are compliant to common standards	The digital public service applies both data and metadata management processes and at least one of them is compliant to common standards
B3	The digital public service has not been designed considering any of the EIF layers			The digital public service has been designed considering partially the EIF layers	The digital public service has been designed considering fully the EIF layers
B4	The digital public service has not been designed considering any of the EIRA views			The digital public service has been designed considering partially the EIRA views	The digital public service has been designed considering fully the EIRA views
B5	The digital public service does not perform any of the listed			The digital public service performs partially some of the	The digital public service performs all of the listed

	procedures, although some of them are be applicable for the specific digital public service			listed procedures that are applicable	procedures that are applicable
B6	The digital public service has not been designed considering a catalogue of specifications and standards, although there are applicable ones for the specific digital public service			The digital public service has been partially designed considering a catalogue of specifications and standards that are applicable for the specific digital public service	The digital public service has been fully designed considering a catalogue of specifications and standards, for all standards or specifications that are applicable for the specific digital public service
B7	None of the listed options are considered for the specific digital public service. Although some of the listed options could be applicable for the specific digital public service, there are no provisions in place for those that are applicable			Partially. More of the listed options could be applicable for the specific digital public service, but there are no provisions in place for all that are applicable	Fully, for all the listed options that are applicable for the specific digital public service
B8	The digital public service does not have a security profile established, although it is			The digital public service has established a custom security profile	The digital public service has established a security profile that follows a specific semantic model

# IMAPS version 2.0.0 user guide

	applicable for the specific digital public service				
B9	The digital public service does not handle data protection, although it is applicable for the specific digital public service			The digital public service handles data protection under custom policies and regulations	The digital public service handles data protection under formalised regulations e.g. GDPR
B10	The digital public service is not mandated by any Service Level Agreements (SLAs)			The digital public service is mandated by a SLA but compliance is not monitored	The digital public service is mandated by a SLA and compliance is monitored regularly, while procedures are triggered for corrective actions when required
B11	The digital public service does not provide clear and explicitly defined terms and conditions			The digital public service provides partially clear and explicitly defined terms and conditions	The digital public service provides fully clear and explicitly defined terms and conditions
B12	No scoring				

### 6.3.6 Service Management (B) – Recommendations

Table 9: Service Management Recommendations

Question	Addressed Level	Next Level	Recommendation
<b>B1.</b>	Ad hoc (1)	Essential (3)	Currently, the integrated public service is not compliant to any reference model. Using common architectural frameworks ensures that the administration is leveraging best practices and designs a digital public service that is interoperable with other public services. Consider using a custom national model as a reference architecture for the integrated public service. You can further investigate the reference service models using the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> ).
	Essential (3)	Sustainable (4)	Currently, the integrated public service is compliant to a custom national model. Using common architectural frameworks ensures that the administration is leveraging best practices and designs a digital public service that is interoperable with other public services. Consider using a formalised, common, trans-European model as a reference architecture for the integrated public service. You can further investigate the reference service models using the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> ).
	Sustainable (4)	Seamless (5)	Currently, the integrated public service is compliant to a formalised, common, trans-European model. Using common architectural frameworks ensures that the administration is leveraging best practices and designs a digital public service that is interoperable with other public services. Consider having both the integrated public service and the consumed services are compliant to a reference model (custom and/or formalised). You can further investigate the reference service models using the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> ).
<b>B2.</b>	Ad hoc (1)	Essential (3)	Currently, your digital public service does not use methodologies for implementing data management nor metadata management. Having in place such methodologies would enable better readiness of the digital public service data to be aligned with other implementations of data. Consider gradually using a

			methodology for implementing data management or metadata management.
	Essential (3)	Sustainable (4)	Your digital public service is adequately mature to follow a certain methodology to perform data management. However, considering a commonly standardised methodology, would enable better readiness of the digital public service data to be aligned with other implementations of data. Consider using the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> ) to further investigate the methodologies available for data and metadata management.
	Sustainable (4)	Seamless (5)	Your digital public service is adequately mature to follow a certain methodology to perform data management. However, considering a commonly standardised methodology, would enable better readiness of the digital public service data to be aligned with other implementations of data. Consider using the Semantic Interoperability Maturity Assessment of a Public Service ( <a href="#">SIMAPS</a> ) to further investigate the methodologies available for data and metadata management.
<b>B3.</b>	Ad hoc (1)	Sustainable (4)	Currently, your digital public service does not take into consideration none of the recommendations of EIF. Consider gradually taking into consideration some of the EIF recommendations e.g. of Semantic Interoperability to improve the interoperability of your public service.
	Sustainable (4)	Seamless (5)	Currently, your digital public service takes into consideration partially the recommendations of EIF. Consider gradually taking into consideration the EIF recommendations of all layers to improve the interoperability of your public service. You can further investigate the EIF layers (L, O, S, T) in the IMAPS specialisations.
<b>B4.</b>	Ad hoc (1)	Sustainable (4)	Your digital public service does not take into consideration none of the EIRA views. This means that there is no part of your public service that is compliant to EIRA ABBs. Consider applying the EIRA views at least at some parts of your service to make it more interoperable. You can get further inspiration for the EIRA views (L, O, S, T) using the IMAPS specialisations ( <a href="#">LIMAPS</a> , <a href="#">OIMAPS</a> , <a href="#">SIMAPS</a> , <a href="#">TIMAPS</a> ).
	Sustainable (4)	Seamless (5)	Currently, your digital public service takes into consideration partially the EIRA views. This means that some parts of your public service are compliant to some

			EIRA ABBs. Consider applying the EIRA views to all parts of your service to make it more interoperable. You can get further inspiration for the EIRA views (L, O, S, T) using the IMAPS specialisations ( <a href="#">LIMAPS</a> , <a href="#">OIMAPS</a> , <a href="#">SIMAPS</a> , <a href="#">TIMAPS</a> ).
<b>B5.</b>	Ad hoc (1)	Sustainable (4)	Currently, your digital public service does not provide any of the proposed procedures to validate the consistency of the data, information and knowledge managed which is not adequate. Consider putting in place at least two of the proposed processes to monitor the performance and the data quality of your service.
	Sustainable (4)	Seamless (5)	Currently, your digital public service is not mature enough as it provides some of the proposed processes to validate the consistency the data, information and knowledge managed. Consider put in place at least half of the proposed processes to achieve a higher level of behavioral interoperability. You can take further inspiration for these processes via the IMAPS specialisations ( <a href="#">LIMAPS</a> , <a href="#">OIMAPS</a> , <a href="#">SIMAPS</a> , <a href="#">TIMAPS</a> ).
<b>B6.</b>	Ad hoc (1)	Sustainable (4)	Currently, your digital public service does not consider a catalogue of specifications and standards. This is not considered a good practice for the behavioral interoperability of your service. Consider gradually having a catalogue of specifications and standards of at least one interoperability layer. You can take further inspiration for these processes via the IMAPS specialisations ( <a href="#">LIMAPS</a> , <a href="#">OIMAPS</a> , <a href="#">SIMAPS</a> , <a href="#">TIMAPS</a> ).
	Sustainable (4)	Seamless (5)	Currently, your digital public service is mature enough as it considers a catalogue of specifications and standards. Consider gradually having a catalogue of specifications and standards of two interoperability layers (L, O, S, T). You can take further inspiration for these processes via the IMAPS specialisations ( <a href="#">LIMAPS</a> , <a href="#">OIMAPS</a> , <a href="#">SIMAPS</a> , <a href="#">TIMAPS</a> ).
<b>B7.</b>	Ad hoc (1)	Sustainable (4)	Currently, your digital public service does not share components and knowledge with the external environment. Work towards reuse and sharing on four areas:  - Provisioning of open Web-API services  - Sharing source code and/or  downloadable software components



			<p>(including required licensing)</p> <ul style="list-style-type: none"> <li>- Sharing documentation</li> <li>- Provisioning of knowledge (direct Q&amp;A support).</li> </ul> <p>You can get further inspiration using the technical (<a href="#">TIMAPS</a>), organisational (<a href="#">OIMAPS</a>) and legal (<a href="#">LIMAPS</a>) specialised versions of IMAPS.</p>
	Sustainable (4)	Seamless (5)	<p>Currently, your digital public service shares partially components and knowledge with the external environment. Work towards reuse and sharing on four areas:</p> <ul style="list-style-type: none"> <li>- Provisioning of open Web-API services</li> <li>- Sharing source code and/or downloadable software components (including required licensing)</li> <li>- Sharing documentation</li> <li>- Provisioning of knowledge (direct Q&amp;A support).</li> </ul> <p>You can get further inspiration using the technical (<a href="#">TIMAPS</a>), organisational (<a href="#">OIMAPS</a>) and legal (<a href="#">LIMAPS</a>) specialised versions of IMAPS.</p>
<b>B8.</b>	Ad hoc (1)	Sustainable (4)	<p>Currently, there is no security profile established within your public service. A security profile is a set of rights and restrictions that can be associated with a user or group of users. The security profile determines the actions (such as viewing, creating, and editing) that a user can perform on various resources, such as sourcing documents and master data. Consider establishing a security profile based on custom rules and rights. You can get further inspiration using the technical (<a href="#">TIMAPS</a>) specialised version of IMAPS.</p>
	Sustainable (4)	Seamless (5)	<p>Currently, there is a custom security profile established within your public service. Consider establishing a security profile based on a specific semantic model which includes a detailed service process description of its security choreography or workflow. You can get further inspiration using the technical (<a href="#">TIMAPS</a>) specialised version of IMAPS.</p>

<b>B9.</b>	Ad hoc (1)	Sustainable (4)	Currently, your digital public service does not have any measures in place for data protection. Data protection ensures transparency and integrity of the data processed and collected, therefore it is necessary to have policies in place to handle them. Consider using custom data policies and regulations to handle data protection. You can further investigate the measures to handle data protection via the Legal Interoperability Maturity Assessment of a Public Service ( <a href="#">LIMAPS</a> ).
	Sustainable (4)	Seamless (5)	Currently, your digital public service handles data protection with custom policies and regulations. Consider using formalised regulations e.g. GDPR to handle the data protection within your service, as it provides a set of rules and regulations that governs the use of personal data. You can further investigate the measures to handle data protection via the Legal Interoperability Maturity Assessment of a Public Service ( <a href="#">LIMAPS</a> ).
<b>B10.</b>	Ad hoc (1)	Sustainable (4)	Currently, your digital public service is not using Service Level Agreements (SLAs) to make the expected service performance transparent and predictable for users. Ensuring SLAs and institutionalizing a Service Level Management process is considered a good practice and helps the organisation to steer on service stability and outcome.
	Sustainable (4)	Seamless (5)	As part of the Service Level Management process, good practice organisations monitor the compliance monthly and provide reports to their users to indicate compliance or provide an overview of the corrective actions that were taken to restore the service. Consider using ( <a href="#">LIMAPS</a> ) and ( <a href="#">OIMAPS</a> ) to further investigate the legal and organisational requirements of the digital public service.
<b>B11.</b>	Ad hoc (1)	Sustainable (4)	Currently, the terms and conditions of the digital public service operation are not clearly defined to its end users. Consider partially defining the legal terms and conditions of your public service using a public service description or a license.
	Sustainable (4)	Seamless (5)	Currently, the terms and conditions of the digital public service operation are partially defined to its end users. Consider fully defining the legal terms and conditions of your public service using a public service description or a license. You can use ( <a href="#">LIMAPS</a> ) and ( <a href="#">OIMAPS</a> ) to further investigate how to make clear the terms and conditions of the digital public service to the end users.