

Interoperable Europe Academy

IMAPS eLearning



February 2022



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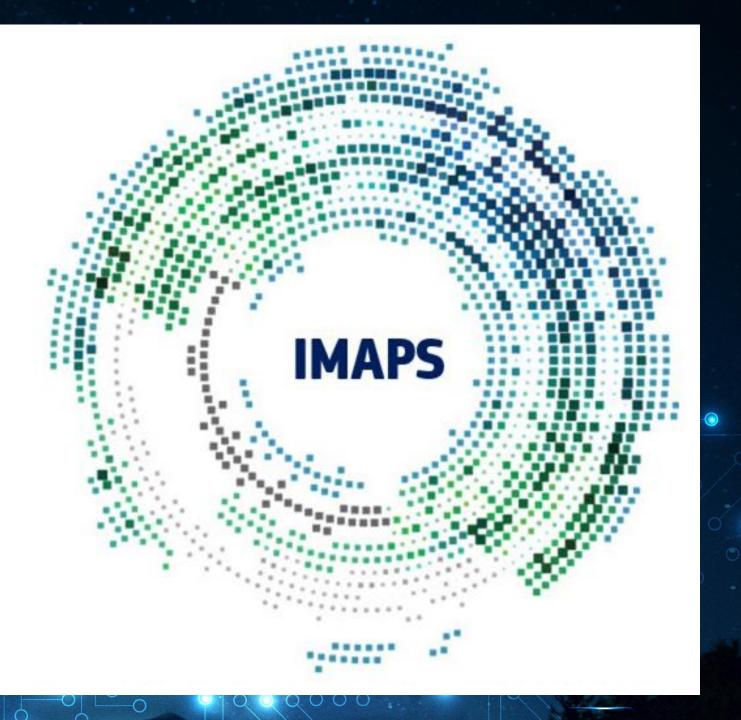


IMAPS eLearning

Module 1

Introduction to IMAPS

Interoperability Maturity Assessment of a digital Public Service



About this eLearning



Welcome to this eLearning on IMAPS, the Interoperability Maturity Assessment of a Public Service. It is the beginning of your learning journey through IMAPS.



This eLearning is composed of **2 modules**. This module is the **first** one and has for objective to provide you with **general knowledge** on IMAPS, its concepts, context and practicalities. The second module of this eLearning will elaborate on the functioning of the IMAPS assessment in practice.



The completion of this module will take approximately **30 minutes**.



No prerequisites are required but we recommend you to follow the online course on the European Interoperability Framework (EIF) to acquire a general understanding of the concept of interoperability.



A self-assessment is available at the end of the course where you can test your knowledge.



























Technical information



To help you navigate through this eLearning, here are a few additional explanations:



To go through this module, different clickable elements can be used:

- The **circled numbers** at the bottom of the pages direct you directly from a chapter to another;
- The **arrows** on the lower-right corners lead you to the next page of the module;
- Some light blue icons are also clickable and conduct to specific slides.



This module has different learning objectives:

- Understand the **relevance of IMAPS** in the context of the European Interoperability Framework;
- Familiarise with the concept of IMAPS and discover use cases for the assessment of the behavioural interoperability maturity of digital public services;
- Understand the requirements for the completion of the IMAPS survey for a digital public service;
- Get insight into the IMAPS specialisations and their complementarity with IMAPS;
- Acquire a **basic understanding of IMAPS** for being able to take the IMAPS assessment via EU Survey.





























Audience of this eLearning

For whom is this eLearning module relevant?

- This eLearning has been developed to introduce IMAPS to future and current users in public administrations without prior knowledge or experience in using IMAPS.
- The eLearning is targeting professionals working on or interested in interoperability, administrative simplification or digitalisation of administrative procedures.



























Table of contents

- 1 About this eLearning
- 2 What is interoperability?
- 3 What is IMAPS?
- How does IMAPS assess the interoperability of a digital public service?
- 5 How does the IMAPS assessment work in practice?

- 6 Specialised versions of IMAPS
- Success stories from public administrations across Europe
- 8 How can you prepare for the IMAPS assessment?
- 9 Key takeaways



The European Union's political agenda for interoperability



Digital public services are a core element of the European Union's plan for <u>Europe's Digital Decade</u> and a key component of **Europe's**Roadmap to Recovery. Interoperability is one of the different elements put into place to develop a **digital Europe** and is reflected in a set of different legal documents.











TALINN DECLARATION

BERLIN DECLARATION

EUROPEAN INTEROPERABILITY FRAMEWORK ISA² PROGRAMME

DIGITAL EUROPE PROGRAMME

The **interoperability** of a digital public service means that the public service is able to exchange and share data, information and knowledge with another service, provided by an organisation, in a seamless way regardless of their **legal**, **organisational**, **semantic** and **technical** environment.

The **European context of interoperability** is defined by three elements: the European Interoperability Framework, the Berlin Declaration and the ISA² Programme.























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EUROPEAN INTEROPERABILITY FRAMEWORK ISA²
PROGRAMME

DIGITAL EUROPE PROGRAMME

Signed on the 6th of October 2017 by all the European Member States and the **European Free Trade Area (EFTA) countries**, the <u>Tallinn</u>

<u>Declaration on eGovernment</u> confirms the political commitment towards ensuring high quality, open, efficient and inclusive, user-centric and seamless cross-border digital public services **to all citizens and businesses in the EU**.

The Tallinn Declaration establishes the foundation for **further digital evolution** by spreading digitisation across all policy areas and putting the end users at the heart of digital public services design and delivery.

























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DIGITAL EUROPE PROGRAMME

Signed on the 8th of December 2020 by the Member States, this declaration follows the <u>Tallinn Declaration on eGovernment</u> of 2017.

Based on the user-centricity principles, the <u>Berlin Declaration</u> on **Digital Society and Value-based Digital Government** strengthens the pioneering role of public administrations in driving a value-based digital transformation of our European societies.

The Berlin Declaration also acknowledges the essential role of public sector for the European Single Market and for innovative technological solutions for public services and societal challenges.























The European Union's political agenda for interoperability



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EUROPEAN INTEROPERABILITY FRAMEWORK ISA² PROGRAMME

DIGITAL EUROPE PROGRAMME

Adopted on the 23rd of March 2017, the first <u>European Interoperability Framework</u> (EIF) defined the interoperability principles and identified 47 recommendations to further improve governance of interoperability activities.

These principles, such as **openness**, **transparency** and **reusability** of the data, are fundamental behavioral aspects to drive interoperability actions. They describe the context in which European public services are designed and implemented.

The objective of the EIF is to **improve the quality of European public services** and to create an environment where public administrations can collaborate digitally. The EIF defines four levels of interoperability (the L-O-S-T context), further developed here-public services and to create an environment where public administrations can























The European Union's political agenda for interoperability



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BERLIN DECLARATION

EUROPEAN INTEROPERABILITY FRAMEWORK ISA² PROGRAMME

DIGITAL EUROPE PROGRAMME

The <u>ISA² Programme</u> (2014-2020) supports the **development of digital solutions** that enable public administrations, businesses and citizens in Europe to benefit from interoperable cross-border and cross-sector public services for the benefit of public administrations, businesses and citizens across EU.

The ambition of this programme is to **anticipate needs as well as to develop and pilot concrete solutions**. IMAPS, explained <u>here</u>, is part of this programme.

The ISA² Programme has been replaced by the <u>Digital Europe Programme</u> that funds interoperable European solutions in support of the <u>Interoperable Europe</u> public policy initiative.























The European Union's political agenda for interoperability



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TALINN DECLARATION

BERLIN DECLARATION

EUROPEAN INTEROPERABILITY FRAMEWORK ISA² PROGRAMME DIGITAL EUROPE PROGRAMME

The <u>Digital Europe programme</u>, part of the next long-term EU budget (2021-2027), funds interoperable European solutions in support of the Interoperable Europe public policy initiative. The programme has been established by the European Commission to accelerate the recovery and drive the digital transformation of Europe.

This programme aims to build the **strategic digital capacities of the EU** and facilitate the wide deployment of digital technologies, to be used by **Europe's citizens, businesses and public administrations**.

The Digital Europe programme provides strategic funding to support projects in **supercomputing**, **artificial intelligence**, **cybersecurity**, **advanced digital skills** and in ensuring the **wide use of digital technologies across the economy and society**.



























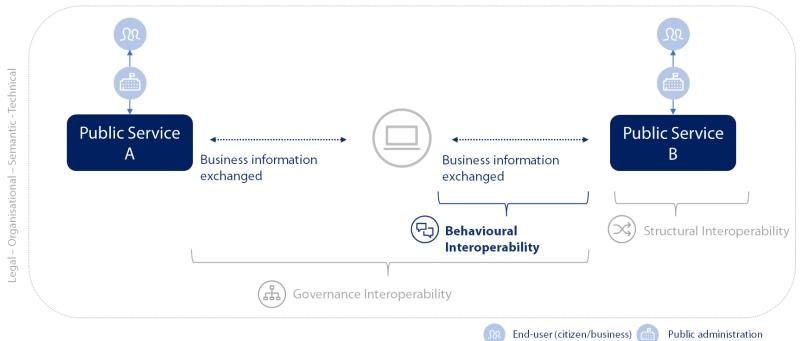
Interoperability in the IMAPS context



IMAPS stands for Interoperability Maturity Assessment of a Public Service.



Interoperability of a digital public service is an attribution defined as "the extent that 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".





























Interoperability in the IMAPS context



Interoperability is of multidimensional nature involving structural interoperability, behavioral interoperability and governance interoperability. IMAPS focuses on behavioral interoperability.

Structural interoperability is the extent to which the structure of a digital public service has been developed reusing and/or sharing components in support of a peerto-peer collaboration.

Structural interoperability defines the structure or format of data exchange. It defines the standards for exchanging data between two hospitals, for example.

Governance interoperability is the extent to which a digital public service's agreed choreography rules support a peer-to-peer collaboration.

Governance interoperability can for example be standards-based specifications promoting interoperability among components of a service-oriented architecture.

behavioral interoperability is the extent to which a digital public service's manifested behaviour exchanges data, information or knowledge with his environment in support of a peer-to-peer collaboration. behavioral interoperability represents the data exchange between different public administrations at different levels of governance (local, regional, national or European). It can for example be the exchange of data between different national health portals or eGovernment portals or the sharing of criminal records.

























Concrete applications



IMAPS is an online self-assessment survey which helps public service owners to evaluate and improve all key behavioral interoperability aspects of their digital public service (legal, organisational, semantic or technical). The IMAPS assessment has three concrete applications:

Allows to view and monitor the compliance of a digital public service with the **European** Interoperability Framework (EIF).

Provides recommendations for improving the behavioral interoperability of a digital public service based on interoperability standards and good practices.

























Concrete applications



The IMAPS <u>online self-assessment survey</u> can be used by several **users**, such as policy-makers, public service owners or IT architects. IMAPS is relevant for **all levels of government** – from local to international.



INTERNATIONAL

- European Commission
- EU institutions & agencies
- International organisations

• ..



NATIONAL/ CENTRAL

- Ministry of Public Administration
- Ministry of the Interior
- Ministry of Health
- Ministry of Finance
- Ministry of Justice
- eGovernment Agency

• ..



REGIONAL

- Regional Ministry of Transport
- Regional Tax Authorities
- Administrative
 Simplification Agency

•



LOCAL

- City of ...
- Local Tax Authorities
- Municipalities

...



USERS

- Policy-makers
- Public Service Owners
- IT Solution Portfolio Managers
- IT Architects
- Public Procurement Officers

























Types of digital public services which can be assessed



IMAPS can be used to assess the interoperability of any digital public service, from open data portals and e-voting platforms to public procurement services. Here are a few concrete examples:

- e-invoicing service;
- Application for study programmes;
- e-birth certification;
- Government online service portal;
- Electronic health record access;
- Social care online application;
- Online procurement service;
- Application for family allowances;
- Recruitment services;
- And many more!



In the case of the e-birth certification service, IMAPS can assess interoperability and provide concrete recommendations to improve:

- The way health related data are being processed;
- The level of data exchange between the local authorities and the hospitals;
- The languages available to the citizens;
- Etc.

























Eligibility criteria



In order to be eligible for the IMAPS self-assessment, the digital public service needs to fulfill **five eligibility criteria**:



Service outcome

The digital public service leads to a single outcome or public decision.



Service owner

The digital public service has a single service owner (the public administration responsible for the service).



End user group

Services can be delivered towards three types of end users (front office): citizens, businesses and other public administrations or be consumed by another service (back-office).



Administrative level

The digital public service can be delivered at one or multiple administrative levels: local (e.g. city, municipality), regional, national, European, international.



Delivery channel

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.

























Conceptual model



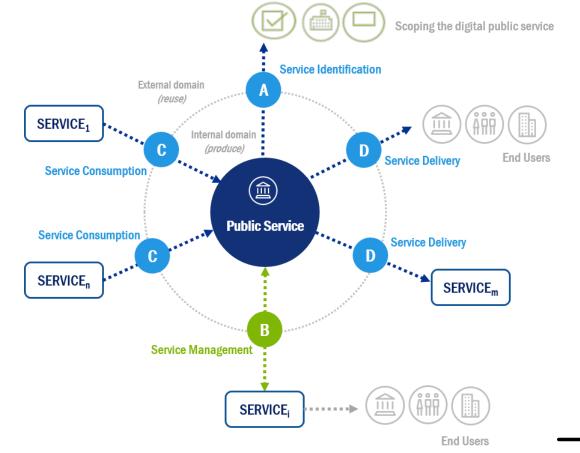
The IMAPS assessment is composed of **four main sections**:



2 Service Delivery

Service Consumption

4 Service Management























Conceptual model



The IMAPS' conceptual mode looks more particularly at three **different service areas** of the digital public service:

Service Delivery (D)

Focusses on how the digital public service is **delivered** to its end users or other services and through which **channels**.

Service Consumption (C)

Focusses on the extent to which the digital public service consumes reusable machine-to-machine services from other public administrations and businesses.

Service Management (B)

Focusses on how the digital public service is managed in terms of controlling and monitoring the process flow related to service interactions with the external domain.





























Key components



The IMAPS assessment is composed of three elements: an online questionnaire (1) leads to the interoperability score (2) of the assessed digital public service as well as to a global report with tailored recommendations (3).



STEP 1



STEP 2

IMAPS interoperability

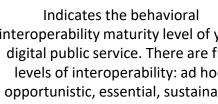
score





STEP 3

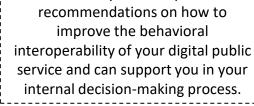
Online questionnaire



IMAPS assessment report & recommendations

Available on **EUSurvey**, the online questionnaire counts 46 questions. It can easily be completed in 45 minutes.

interoperability maturity level of your digital public service. There are five levels of interoperability: ad hoc, opportunistic, essential, sustainable and seamless.



Provides you with specific

























Step 1/3: The online questionnaire



Firstly, the IMAPS survey assesses the level of behavioral interoperability through an online questionnaire.



STEP 1

Online questionnaire



- Looks at several **key interoperability requirements** and manifestations, within the three services areas (delivery, consumption & management).
- Includes questions on key interoperability requirements, such as delivery channels, authentication mechanisms and data protection.

SERVICE AREA

KEY INTEROPERABILITY **REQUIREMENTS**

SERVICE DELIVERY

- **Delivery channels**
- Multilingualism
- Authentication mechanisms
- Pre-filling of information

SERVICE CONSUMPTION

- Type of service consumption (manual/automated)
- Data consumption process
- Subscription to automatic updates

SERVICE MANAGEMENT

- Compliance with EIF recommendations
- Data protection
- Service Level Agreements



























Step 2/3: The IMAPS interoperability score



Secondly, based on the answers provided by the user to this questionnaire and the estimated level of compliance to the key interoperability requirements, the IMAPS survey defines the **interoperability maturity score** with the digital public services.



STEP 2

IMAPS interoperability score



Indicates the interoperability maturity level of your digital public service and allows for **comparison** with the interoperability of other digital public services.

There are **five levels** of interoperability:



Ad hoc

Poor interoperability – the digital public service cannot be considered interoperable



Opportunistic

Fair interoperability – the

digital public service

implements some elements of

interoperability best practices



Essential interoperability – the digital public service implements the essential best practices for interoperability





Sustainable

Good interoperability – all relevant interoperability best practices are implemented by the digital public service



Seamless

Interoperability leading practice – the digital public service is a leading interoperability practice example for others























Step 3/3: The IMAPS assessment report and the tailored recommendations



Finally, the IMAPS assessment provides you with specific recommendations on how to improve the behavioral interoperability of your digital public service and can support you in your internal decision-making process.



STEP 3

IMAPS assessment report and recommendations



Depending on the interoperability maturity score, the IMAPS assessment provides recommendations to guide the digital public service in its evolution from its current interoperability level to the next one. These recommendations are specifically elaborated based on the answers provided to the question.

* D4. 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)? More Info

Enabler / Manifestation

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

- O Not applicable, the digital public service does not require personal data (e.g. only information provisioning, search
- No, there is no information on data privacy available
- Partly, there is limited information on data privacy available
- Fully, there is detailed information on data privacy available
- O Fully & adaptable, there is detailed information on data privacy available and the user can manage (some of his) data privacy settings online

D4. 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 priva more...

Your answer ✓ Partly, there is limited information on data privacy available Recommendation: 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 (LIMAPS).

250 out of

500 points





















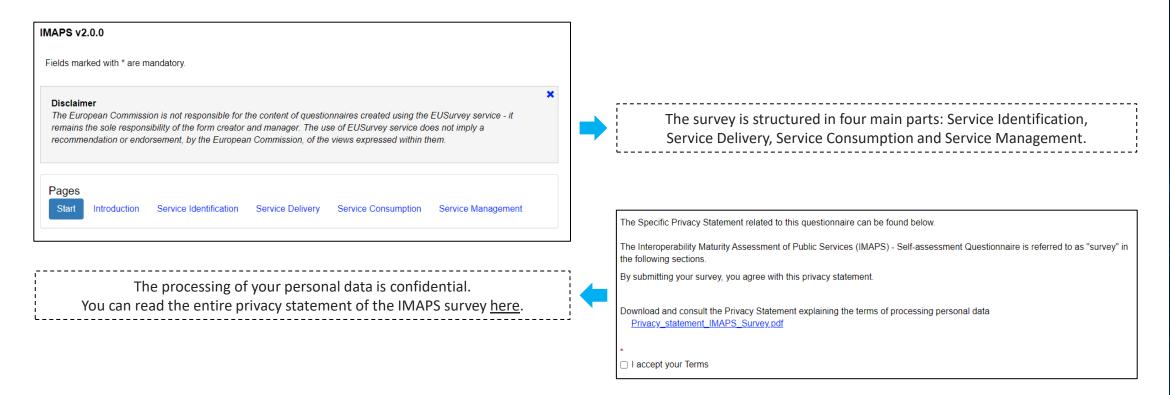




How does the IMAPS assessment work in practice? Global structure of the survey



The survey is provided via EU survey. It is structured into **five sections**, gives the possibility to save a draft of your answer and data **confidentiality** is ensured.



























How does the IMAPS assessment work in practice? Types of questions



The visuals here under show the **type of question** you can expect for the example of service delivery.

* D5. To what extent does the digital public service support multilingualism?

More Info

Enabler / Manifestation

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

- O The digital public service is only available in a single language and it is not applicable to be available in more languages
- O 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.
- O Multilingualism is considered partially and only at a technical level
- O Multilingualism is considered adequately at a technical level and/or partially at a semantic level
- O Multilingualism is considered fully both at a semantic and technical level

The online self-assessment guides the user through the different service areas composing the assessed digital public service and asks detailed questions, with multiple choice answers.























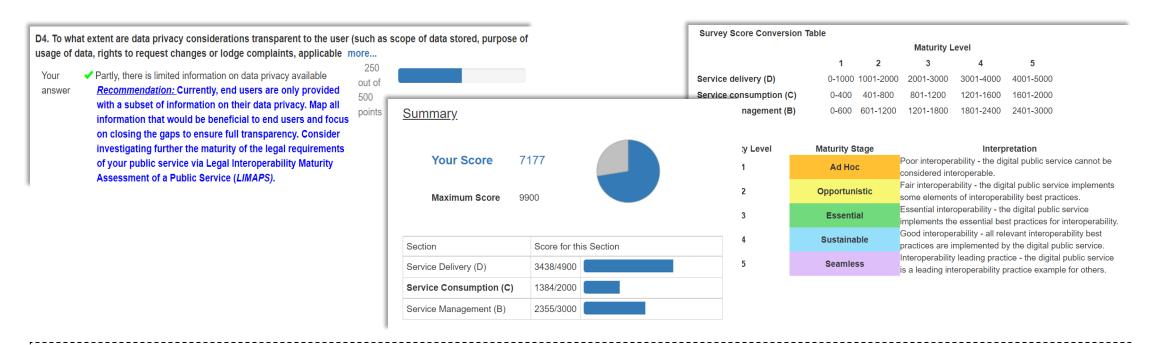


How does the IMAPS assessment work in practice?

Components of the report & recommendations



These visuals provide insight into the **components of the report** and how a recommendation looks like.



Ultimately, the survey tool automatically calculates the score and provides recommendations to upgrade the digital public service's performance in terms of behavioral interoperability, based on the answers provided to each question.

























Specialised versions of IMAPS



Specialised versions of IMAPS are available, which enable public service owners to assess their digital public services in terms of their **Legal, Organisational, Semantic** and **Technical** behavioral interoperability.









Legal behavioral Interoperability

Organisational behavioral Interoperability

Semantic behavioral Interoperability Technical behavioral Interoperability

The <u>LIMAPS survey</u> provides insights into legal behavioral interoperability aspects enabling the provision of a digital public service in a cross-border context and provides recommendations.

The <u>OIMAPS survey</u> provides insights into organisational behavioral interoperability aspects enabling the provision of a digital public service in a crossborder context and provides recommendations.

The <u>SIMAPS survey</u> focuses on semantic behavioral interoperability aspects enabling the provision of a digital public service in a cross-border context and provides recommendations.

The <u>TIMAPS survey</u> focuses on technical behavioral interoperability aspects enabling the provision of a digital public service in a cross-border context and provides recommendations.























Specialised versions of IMAPS



These specialisations provide complementary insights to the IMAPS assessment and can be used in conjunction with the IMAPS survey. The recommended approach is to start from the IMAPS survey and get tailored recommendations on which of the rest of interoperability viewpoints you could further assess via IMAPS specialisations. The illustration of the IMAPS "user journey" follows.









Legal behavioral Interoperability

Organisational behavioral Interoperability

Semantic behavioral **Interoperability**

Technical behavioral Interoperability

Ensures that organisations operating under different legal frameworks, policies and strategies are able to work together.

Means documenting and integrating or aligning business processes and relevant information exchanged.

Ensures that the **precise format** and meaning of exchanged data and information is preserved and understood throughout exchanges between parties.

Refers to systems and services that link applications and infrastructures (via interfaces, data integration services and secure communication protocols).















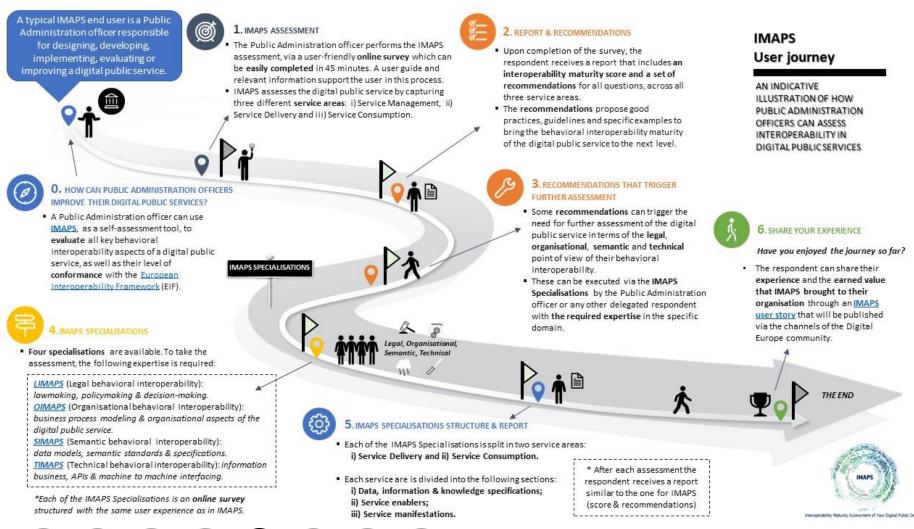








Specialised versions of IMAPS















































IMAPS success stories from public administrations across Europe



IMAPS was used for assessing the interoperability of-digital public service, i.e. 'online application for subsidised public transport tickets for students', provided by the **Slovenian**Ministry of Public Administration via its eGovernment portal ("eUprava").

In the assessment, different departments and teams were involved, i.e. colleagues from the Electronic Services Development Department and Data Management Department.

The IMAPS expert team from the European Commission facilitated IMAPS knowledge transfer sessions with the project team. They assisted the Slovenian Ministry of Public Administration in the IMAPS assessment and reflected upon the recommendations received for improving the digital public service.



The Federal Service Bus (<u>FSB</u>) of **the Belgian Federal Public Service Policy and Support Directorate General Digital Transformation** (FPS BOSA DT) wants to be the gateway to the most important data sources of the Belgian federal government.

Specifically, the service provides a platform for the federal administrations and bodies, or institutions that perform a task in the public interest. The platform provides web services in a homogeneous and secure manner that offer error-free access to data sources.

The IMAPS survey was used to check the maturity of the Federal FSB services. In this way, IMAPS has helped improve the service to a level whereby upon the introduction of eIDAS it will already be interoperable and better serve businesses and citizens across the EU.



The IMAPS testing was performed for the digital public service on cross-border exchange of medical documentation and cross-border "ePrescription" and "eDispensation".

The system enabling the digital delivery of the public service is managed by the Czech Ministry of Health. Health care professionals and citizens are end users of this service. Citizens can view their medical documentation via a web portal, while health care professionals can access patient-related information in one single point from different systems. To enter the web portal, authentication is required. The eIDAS scheme was used as reference for building the authentication interface.

The recommendations provided by IMAPS helped to implement the strategic point-of-view to the system. Furthermore, they provided guidance for managing changes on the system.























How can you prepare for your IMAPS assessment?

Which info do you need to complete the IMAPS self-assessment?

- Details on the **Service Identification** area (e.g. name of the digital public service, which public administration is responsible for the service, at what administrative level is the service provided etc.).
- Details on the **Service Delivery** area (e.g. data privacy, multilinguism, service catalogue, delivery channels, etc.).
- Details on the **Service Consumption** area (e.g. legal means for handling service consumption, reuse / self-production, 3 approach to handling the data consumed etc.).
- Details on the **Service Management** area (e.g. Reference architecture framework, Data and metadata management, Compliance with EIF recommendations, Compliance with EIRA views etc.).



- Ready to take the IMAPS assessment? You can access it here: IMAPS online survey 2.0.0
- If you need more guidance, you will find them on the IMAPS solution and user guide
- Want to discover more about the IMAPS and its specialised versions? You can have a look at the IMAPS user journey
- To have a view on the different initiatives taken under the IMAPS project, you can consult the IMAPS community on Joinup
- The Single Interoperability Assessment Gateway is the single point of access to all interoperability assessment solutions
- Curious about the results of the IMAPS project? Discover the Report on the IMAPS 2020 edition

























Key takeaways



Want to learn more? Check the second module of this eLearning IMAPS in practice!

IMAPS is part of a broader European ambition to put digital public services at the centre of the European digital strategy.

- The IMAPS assessment helps you bring your digital public service to the next level of behavioral interoperability 2 maturity, in a free, fast and tailored way.
- The IMAPS tool helps to improve the effectiveness and quality of the delivery of digital public services and, thus, 3 leads to a **better end user experience**, which is particularly relevant for **citizens and businesses**.



























Credentials

Start your assessment

LIMAPS Survey
OIMAPS Survey
SIMAPS Survey
TIMAPS Survey



More on the Interoperable Europe https://joinup.ec.europa.eu/collection/interoperable-europe

Contact Interoperable Europe

☑ DIGIT-INTEROPERABILITY@ec.europa.eu

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Contact us <u>DIGIT-IMAPS@ec.europa.eu</u>
Provide your feedback at GitHub · IMAPS-toolbox
https://github.com/IMAPS-toolbox

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