



23 FEBRUARY
2022

Interoperability Assessment Tools (IATs) – Transforming the digital public services of the future

EUROPEAN COMMISSION

Directorate General for Informatics (DIGIT)

DIGIT D2

[Digital Europe programme](#)

Project Officer: Dr. Raul Abril

interoperable
europe

AGENDA

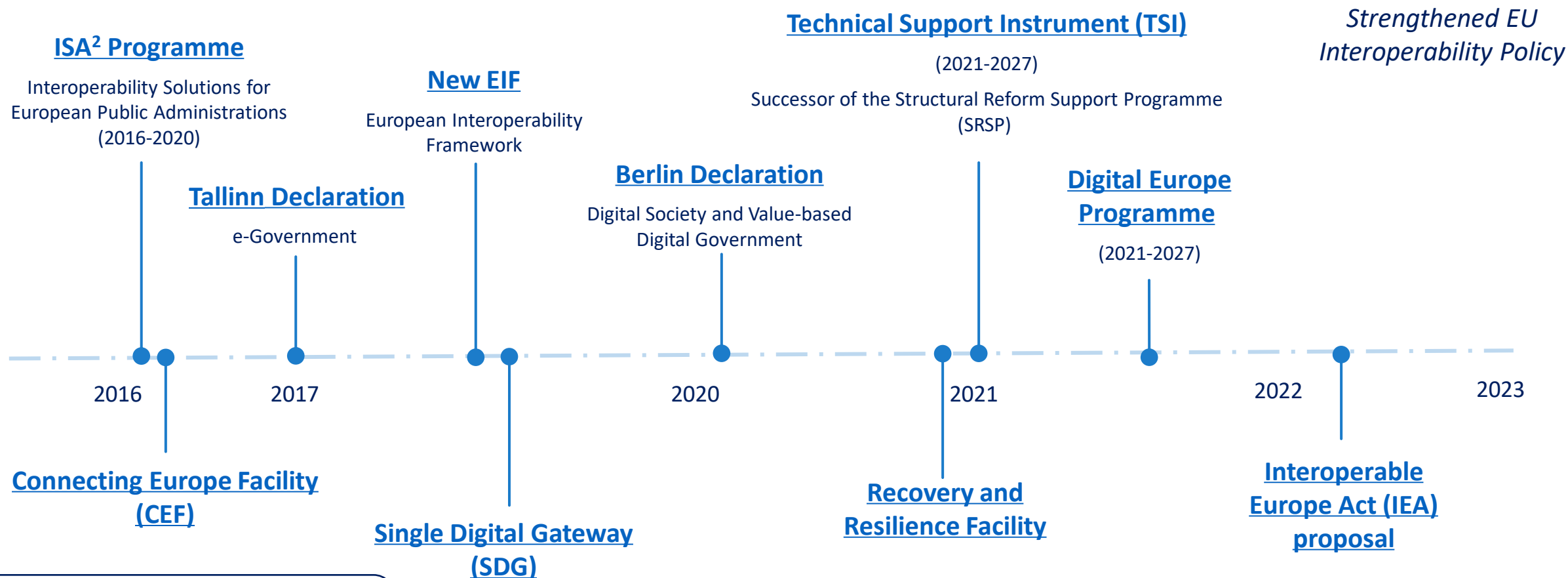
- 01** | **KEYNOTE SPEECH** 🕒 10'
Dr. Raul M. Abril, PMP
IATs Project Officer
- 02** | **INTRODUCTION TO THE IATs** 🕒 25'
Irene Matzakou – Project team
- 03** | **DEEP DIVE (User journey & Value propositions)** 🕒 25'
Athina Chroni, Korina Chatzigeorgiou – Project team
- 04** | **IATs IN PRACTICE (Success Stories)** 🕒 10'
Athina Chroni – Project team
- 05** | **Q&A** 🕒 20'
Ideas exchange and feedback gathering



Keynote speech

Dr. Raul M. Abril, PMP
IATs Project Officer

The EU Agenda for interoperability...



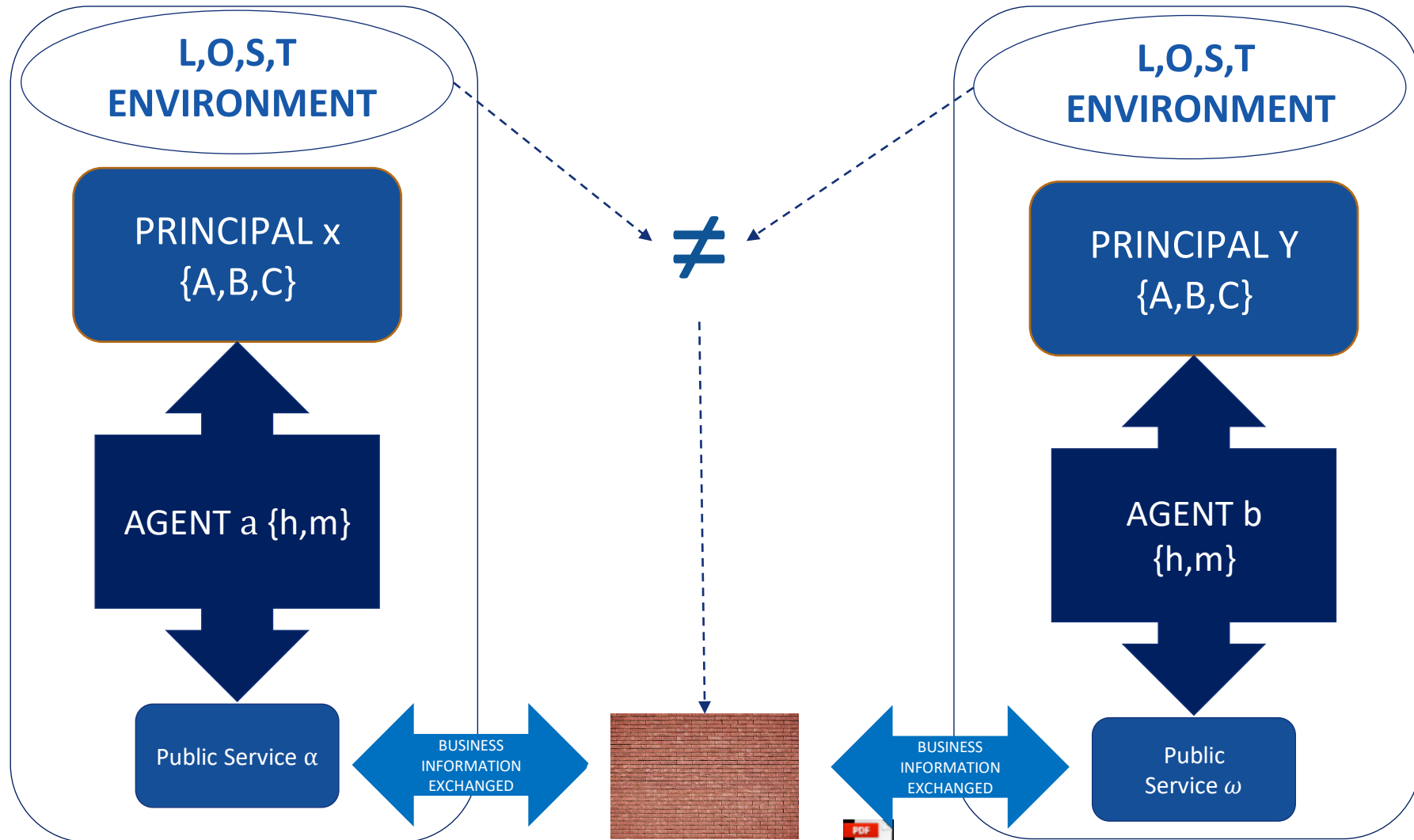
... part of the broader EU Digital Policy effort

EU Member States and eGovernment Benchmark 2022

N/A	Country (EU 27)	Population (as of 2021, Eurostat)	eGovernment Benchmark 2022 score
1	Romania	19.201.662	42%
2	Cyprus	896.007	50%
3	Greece	10.678.632	52%
4	Poland	37.840.001	55%
5	Slovakia	5.459.781	60%
6	Bulgaria	6.916.548	61%
7	Croatia	4.036.355	61%
8	Italy	59.236.213	61%
9	Czechia	10.701.777	63%
10	Germany	83.155.031	63%
11	Hungary	9.730.772	66%
12	Slovenia	2.108.977	67%
13	France	67.656.682	70%
14	Belgium	11.554.767	74%
15	Portugal	10.298.252	78%

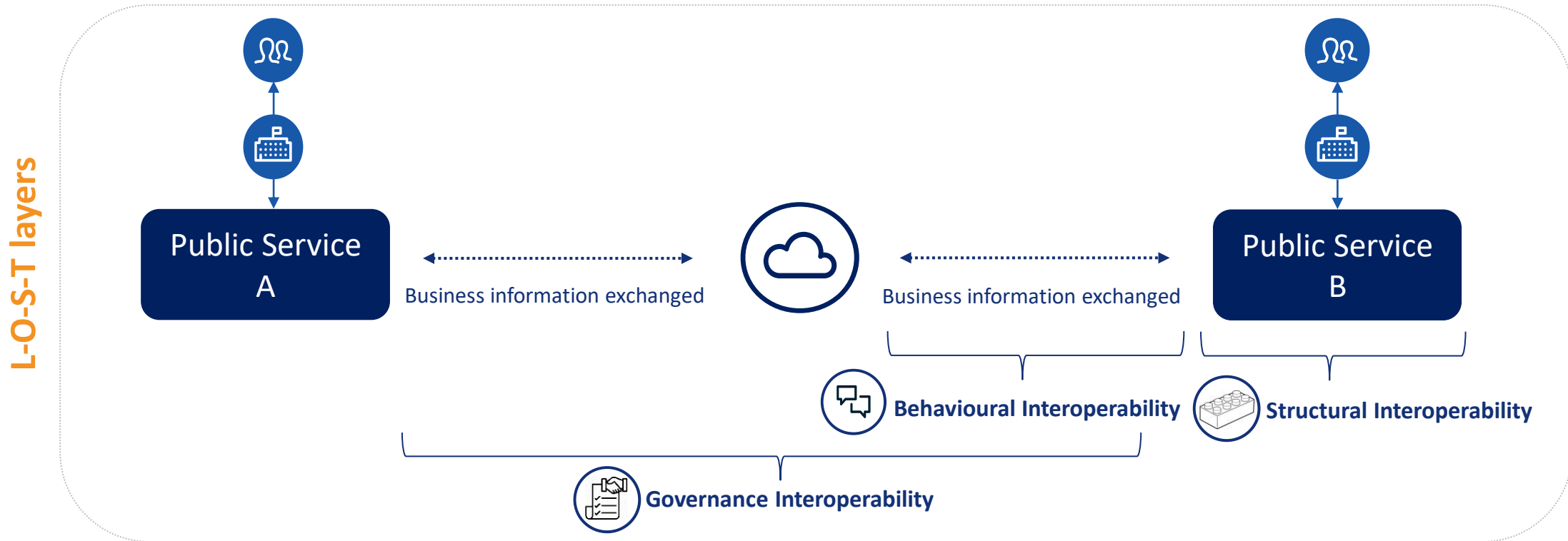
EU Member States ranked by their eGovernment Benchmark 2022 score.
For the ones with the highest scores, there is still space for improvement in the smoother delivery of digital public services.

The IOP challenge: LOST environments



A: Public Administration
(local, regional, national, European)
B: Business
C: Citizen

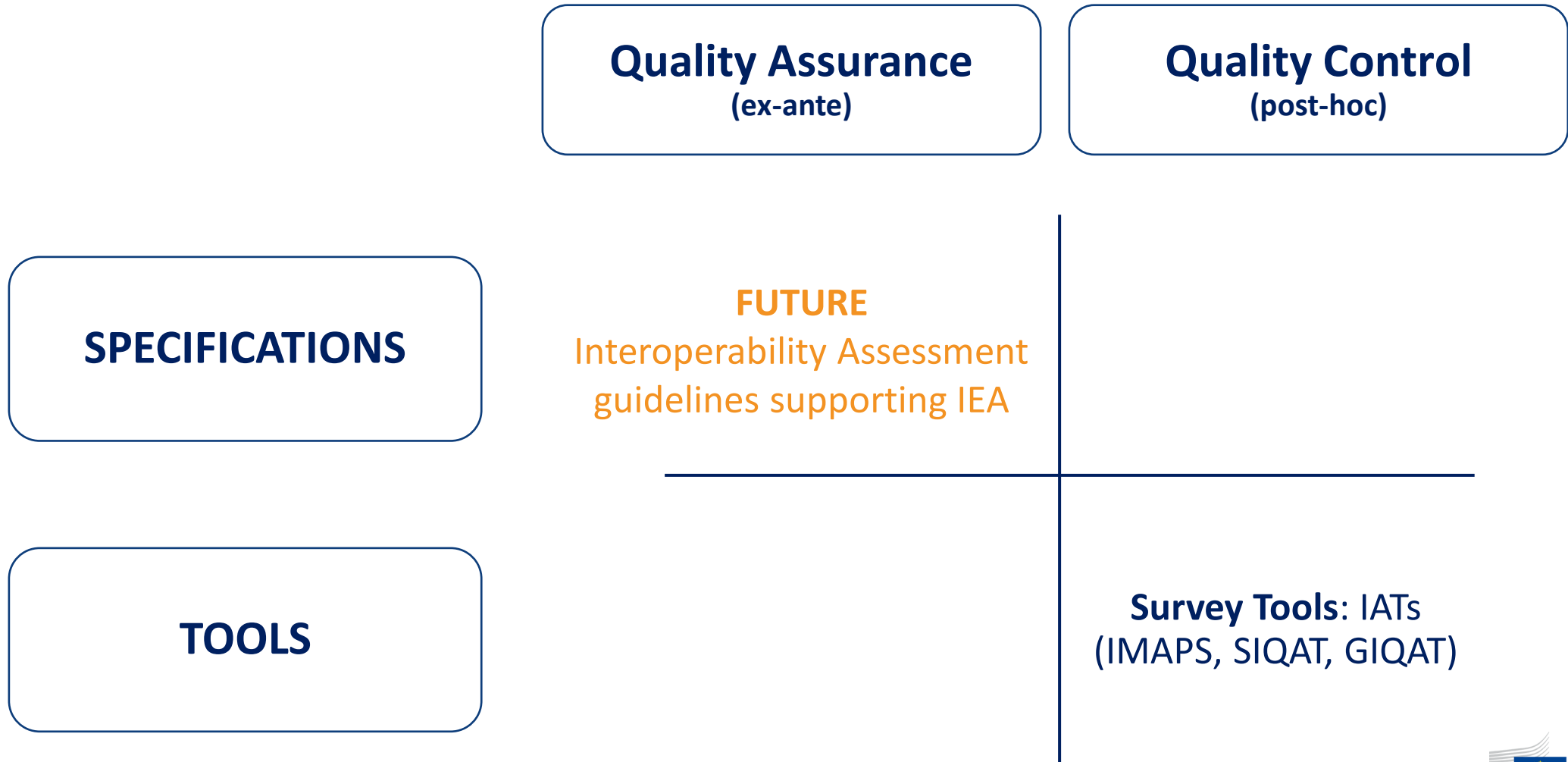
Interoperability aspects



Structural Interoperability: Interoperability by design
Behavioral Interoperability: Information exchange
Governance Interoperability: Collaboration

 End-user (citizen/business)  Public administration

Positioning



Interoperability Assessment Tools (IATs)

IATs are part of the **Interoperable Europe public initiative of the [Digital Europe programme](#)**, (former ISA² programme) developing digital solutions that enable public administrations, businesses and citizens in Europe to benefit from interoperable cross-border and cross-sector public services.



IATs **awareness raising** and support to **communication campaigns** in **Interoperable Europe** participating countries



IATs **knowledge transfer** and **capacity-building**, including training of owners of digital public services in public administrations in **Interoperable Europe** participating countries



Further development of the **IATs concept and model**, including survey management and support to users

How it works with IATs?



The **Interoperability Assessment Tools (IATs)** act as **barometer** of the interoperability maturity of digital public services.



The IATs team aims to **engage with EU Member States** that aspire to further assess and improve the interoperability of digital public services.



Introduction to the IATs

Basics

What IATs are



IATs are **online surveys** that help public service owners evaluate, consider and improve all key interoperability aspects of their digital public service (legal, semantic, organisational, or technical).

- IATs allow to view and monitor the service's compliance with the **New European Interoperability Framework (EIF)**.
- IATs can be used to assess the interoperability of **any digital public service**.
- IATs are applicable to services at **all levels of government** (international, national, regional and local).

YOU SUBMIT



Online questionnaire

Available on EUSurvey which can be easily completed in 30 minutes.

YOU GET



IATs interoperability score

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



IATs assessment report & recommendations

Provides you with specific recommendations on how to improve the interoperability of your service and can support you in your internal decision-making process.

Interoperability Assessment Tools (IATs)



Behavioral Interoperability

The **behavioral interoperability** is "the extent its manifested behavior **exchanges** data, information or knowledge with its environment in support of a peer-to-peer collaboration".



Structural Interoperability

The **structural interoperability** is "the extent its structure has been developed reusing and/or sharing components in support of a peer-to-peer collaboration".



Governance Interoperability

The **governance interoperability** is "the extent its agreed choreography rules support a peer-to-peer collaboration".

Specialised IMAPS versions

L-O-S-T

- Legal layer aspects - [LIMAPS](#)
- Organisational layer aspects - [OIMAPS](#)
- Semantic layer aspects - [SIMAPS](#)
- Technical layer aspects - [TIMAPS](#)



Who is it relevant for

Public administrations at **all government tiers**, in charge of the design, development or delivery of a digital public service. **End-users** of the service can be citizens, businesses or other public administrations.



NATIONAL/ CENTRAL

- Ministry of Public Administration
- Ministry of the Interior
- Ministry of Health
- Ministry of Finance
- Ministry of Justice
- e-Government Agency
- ...



REGIONAL

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



LOCAL

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



INTERNATIONAL

- European Commission
- EU institutions & agencies
- International organisations
- ...

Where do you stand today | Interoperability maturity scores

1

Ad hoc

Poor interoperability – the digital public service cannot be considered interoperable

2

Opportunistic

Fair interoperability – the digital public service implements some elements of interoperability best practices

3

Essential

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



Average maturity level of digital public services in Europe (2018)¹

4

Sustainable

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



*All **best practices** implemented*

5

Seamless

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

What type of digital public services can be assessed | Examples

e-invoicing service

Application for study programmes

Provision of e-certificates for citizens

electronic health record access **Government online service portal**

Tax payment service

Online application for social care

e-procurement service

Online application for family allowances

Access to criminal records

... and many more.



Deep dive (User journey & Value Propositions)

User journey

USER JOURNEY

Interoperability Assessment Tools (IATs)

An indicative illustration of how
Public Administration Officers can build
interoperable digital public services

who

Pablo is a **Public Administration Officer** responsible for a digital public service's portal.

why

Pablo is puzzled over the digital public service's interoperability. The first challenge that Pablo needs to anticipate is the **format of the data exchanged** with other services (behavioural aspect). Pablo also wonders about any further **documentation** that could be produced for the best **support software reuse** (structural aspect), as well as the **conditions required to regulate peer-to-peer interactions** for information exchange (governance aspect).

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- user-friendly online questionnaires;
- time saving and cost-efficient in interoperability tests;
- compatible with the EIF principles.

The EuroXCEL-IOP® label

After performing the IATs assessments and demonstrate a **high level of interoperability maturity**, the digital public service can get certified with the **EuroXCEL-IOP®**, which is a **Quality Label (QL)** supported by the Digital Europe Programme (DEP).



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- **compatible with the EIF principles.**

The EuroXCEL-IOP® label

After performing the IATs assessments and demonstrate a **high level of interoperability maturity**, the digital public service can get certified with the **EuroXCEL-IOP®, which is a Quality Label (QL)** supported by the Digital Europe Programme (DEP).



Scan or [click here](#) to find the online version



01

STEP 01: THE BEGINNING OF THE JOURNEY FAMILIARISATION WITH THE CONCEPT

Pablo decides to **assess the behavioural, structural and governance interoperability maturity** of the digital public service across all interoperability levels (**legal, organisational, semantic, technical**) to:

- identify any *interoperability gaps* that are not yet considered; and
- receive useful *recommendations* for improvement.

02

STEP 02: HOW TO START? THE INTEROPERABILITY ASSESSMENTS

STEP 03: THE IATs TEAM HANDS-ON SUPPORT

The IATs team provides Pablo with **continuous support of his choice**, at all stages of the assessments process through:

- **Knowledge transfer sessions;**
- **User guides;**
- **E-learning.**

04

STEP 04: REPORTS & RECOMMENDATIONS STRUCTURE & REPORT

Pablo receives a report that includes an **interoperability maturity score** and a **set of recommendations**, at the end of each survey, for all questions.

These recommendations propose **good practices, guidelines and specific examples.**

*Some recommendations can trigger the need for further assessment in terms of the **legal, organisational, semantic and technical** behavioural interoperability.*

STEP 05: HOW TO EXCEL? THE IMPLEMENTATION

Pablo implements the recommendations to the digital public service to **bring its interoperability maturity to the next level.**

He regularly checked with the IATs team for advice during the implementation of updates.

The IATs team proposed the application for the **EuroXCEL-IOP® label** that certifies a **seamless, interoperable digital public service!**

06

STEP 06: HOW WAS THE JOURNEY? SHARE YOUR EXPERIENCE

Pablo shared with his network the news about the **IATs and EuroXCEL-IOP® label experience** and the earned value brought to the organisation!

A **success story** was published with the IATs team support via the channels of the **Digital Europe Programme (DEP) community.**

USER JOURNEY

From IMAPS to its specialisations

STEP 01 THE BEGINNING OF THE JOURNEY: PERFORM THE IMAPS ASSESSMENT

The Public Administration officer performs the IMAPS assessment, via a user-friendly **online survey** which can be **easily completed** in 30 minutes. A user guide and relevant information support the user in this process.

IMAPS assesses the digital public service by capturing three different **service areas**: Service Management, Service Delivery and Service Consumption.

STEP 02 REPORT & RECOMMENDATIONS AFTER THE ASSESSMENT

Upon completion of the survey, the respondent receives a **report that includes an interoperability maturity score and a set of recommendations** for all questions, across all three service areas.

The **recommendations** propose good practices, guidelines and specific examples to bring the behavioral interoperability maturity of the digital public service to the next level.

STEP 04 IMAPS SPECIALISATIONS TYPOLOGIES

Four **specialisations** are available. To take the assessment, the following expertise is required:

LIMAPS (Legal behavioral interoperability): lawmaking, policymaking & decision-making;

OIMAPS (Organisational behavioral interoperability): business process modeling & organisational aspects of digital public service;

SIMAPS (Semantic behavioral interoperability): data models, semantic standards & specifications;

TIMAPS (Technical behavioral interoperability): information business, APIs & machine to machine interfacing.

Each of the IMAPS specialisations is an **online survey** structured with the same user experience as in IMAPS.

WHO IS A TYPICAL IMAPS END USER?

A **Public Administration Officer** responsible for designing, developing, implementing, evaluating or improving a digital public service.

WHY USE IMAPS?

IMAPS can be used by **Public Administration Officer** to improve and **evaluate** all key behavioral interoperability aspects of a digital public service, as well as their level of conformance with the **EUROPEAN INTEROPERABILITY FRAMEWORK (EIF)**.

STEP 03 RECOMMENDATIONS THAT TRIGGER FURTHER ASSESSMENT

Some **recommendations** can trigger the need for further assessment of the digital public service in terms of the **legal, organisational, semantic and technical** point of view of their behavioral interoperability.

These can be executed via the **IMAPS specialisations** by the Public Administration officer or any other delegated respondent with the **required expertise** in the specific domain.

STEP 05 IMAPS SPECIALISATIONS STRUCTURE & REPORT

Each of the IMAPS Specialisations is split in two service areas: **Service Delivery & Service Consumption**.

Each service area is divided into the following sections:

a. Data, information & knowledge specifications;

b. Service enablers;

c. Service manifestations.

After each assessment, the respondent receives a report similar to the one for IMAPS (score & recommendations)

STEP 06 HAVE YOU ENJOYED THE JOURNEY? SHARE YOUR EXPERIENCE

The respondent can share their **experience** and the **earned value that IMAPS brought to their organisation** through an **IMAPS user story** that will be published via the channels of the Digital Europe community.



Deep dive (User journey & Value propositions)



Value propositions



IMAPS VALUE PROPOSITION

INTEROPERABILITY MATURITY ASSESSMENT OF A PUBLIC SERVICE



DESCRIPTION WHAT IS IMAPS?

IMAPS is an online questionnaire which allows public administrations to assess the **interoperability maturity of their digital public services**.

IMAPS is **aligned with the principles and recommendations** set out by the **European Interoperability Framework (EIF)**.

Specialised versions of IMAPS can be used complementarily to assess the behavioural interoperability of a digital public service focusing on **legal (LIMAPS)**, **organisational (OIMAPS)**, **semantic (SIMAPS)** and **technical** aspects (TIMAPS).



AUDIENCE FOR WHOM IS IMAPS RELEVANT?

- **Public service owners** | to improve the overall behavioural 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.

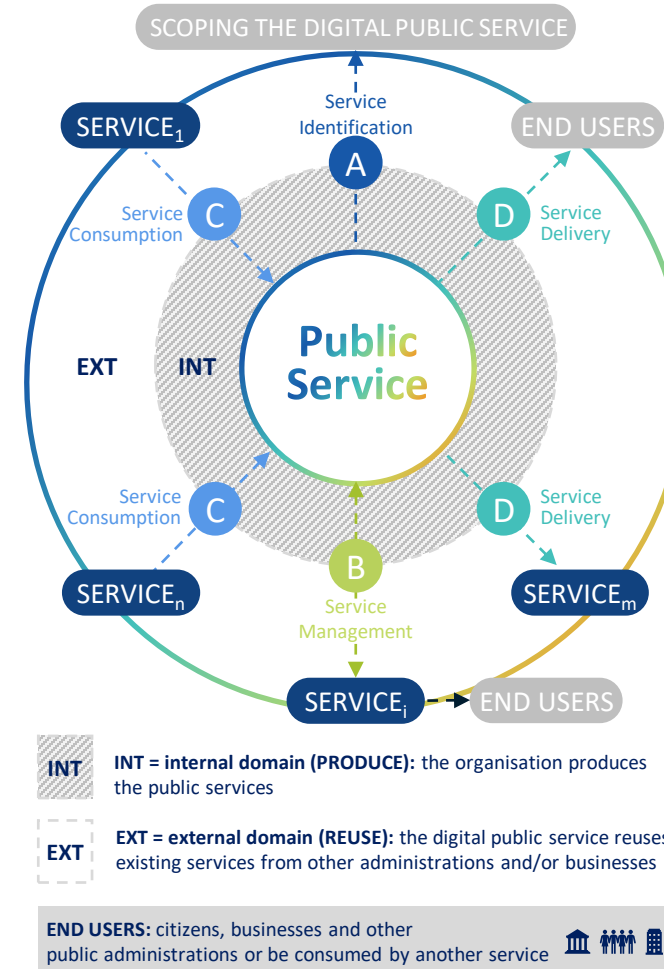


BENEFITS WHY USE IMAPS?

- ✓ A **free of charge assessment** which can be completed in 30 minutes.
- ✓ An **interoperability maturity score** indicating where your service stands today considering key interoperability aspects.
- ✓ A **set of recommendations** for improving your digital public service, based on interoperability standards and good practices.
- ✓ A **statement of conformance** with the EIF principles.
- ✓ A **check of interoperability requirements** for the design of new digital public services, which are interoperable by default.

IMAPS CONCEPTUAL MODEL

The IMAPS conceptual model describes all possible instances where **interoperability with the outside world may occur from the digital public service viewpoint**. It distinguishes between:



DIGITAL PUBLIC SERVICE COMPONENTS

The **IMAPS** assessment captures four different service areas:

- A Service Identification:** scopes the digital public service e.g. service outcome, service owner, administrative level, etc.
- B Service Management:** focuses on the processes related to service interactions with the external domain e.g., SLAs, data policies, etc.
- C Service Consumption:** focuses on the reusable machine-to-machine services from other public administrations and businesses e.g., manually vs digitally service consumption
- D Service Delivery:** focuses on the delivery aspects of the digital public service e.g., delivery channels, multilingualism, etc.



How the assessment looks like? | IMAPS Results and interoperability score

IMAPS - Results

Thank you for completing the survey.

Your interoperability maturity levels of the Service Delivery, Service Consumption and Service Management of your Public Service, respectively, depend on the scores you achieved in each of these sections of the survey. Please see the survey score conversion table below for guidance.

The recommendations for your public service are displayed under each question and response provided.

Disclaimer

The information and views in this results report do not necessarily reflect the official opinion of the Commission. The Commission does not guarantee the accuracy of the information included in this document. Neither the Commission nor any person acting on the Commission's behalf may be held responsible for any post-processing of the results produced in the present report.

Survey Score Conversion Table

	Maturity Level				
	1	2	3	4	5
Service delivery (D)	0-1000	1001-2000	2001-3000	3001-4000	4001-5000
Service consumption (C)	0-400	401-800	801-1200	1201-1600	1601-2000
Service management (B)	0-600	601-1200	1201-1800	1801-2400	2401-3000

LEVEL 01	AD HOC	Poor Interoperability – the digital public service cannot be considered interoperable
LEVEL 02	OPPORTUNISTIC	Fair Interoperability – the digital public service implements some elements of interoperability best practices
LEVEL 03	ESSENTIAL	Essential Interoperability – the digital public service implements the essential best practices for interoperability
LEVEL 04	SUSTAINABLE	Good Interoperability – all relevant interoperability best practices are implemented by the digital public service
LEVEL 05	SEAMLESS	Interoperability Leading Practice – the digital public service is a leading interoperability practice example for others

Your Score 5113

Maximum Score 10000



Section	Score for this Section	
Service Delivery (D)	1298 /5000	<div><div></div></div>
Service Consumption (C)	1280 /2000	<div><div></div></div>
Service Management (B)	2535 /3000	<div><div></div></div>

How the assessment looks like? | IMAPS tailored recommendations


Service Delivery (D)

Score for this Section: 1298/5000

D2. To what extent does the service publish open data in a structured format? Enabler

/ Manifestation

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

Your answer  The service publishes data, information and knowledge structured formats for a limited amount of the data, information and knowledge delivered.

350
out of
1400
points



Currently, your digital public service publishes a limited amount of data using structured formats e.g. spreadsheets. Consider refining the number of data in structured formats. 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 ([SIMAPS](#)).


Service Consumption (C)

Score for this Section: 1280/2000

C1. To what extent does the service consume data information and knowledge via digital channels?

Enabler / Manifestation

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

Your answer  The service consumes data, information and knowledge mainly via human interfaces and some machine to machine interfaces

120
out of
480
points



The digital public service currently consuming some of the services manually. You could enhance the 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 ([TIMAPS](#)).

SIQAT VALUE PROPOSITION

STRUCTURAL INTEROPERABILITY QUICK ASSESSMENT TOOL

DESCRIPTION WHAT IS SIQAT?

- SIQAT is an **online questionnaire** created in the EU Survey portal.
- SIQAT allows public administrations to assess the **Structural interoperability of their digital public services**.
- SIQAT is **aligned with the principles and recommendations** set out by the **European Interoperability Framework (EIF)**.

AUDIENCE FOR WHOM IS SIQAT RELEVANT?

- **Public service owners** | to improve the overall structural interoperability and conformance of their digital public services.
- **Policy-makers** | to get insights on the interoperability level of digital public service.
- **Public Procurement Officers** | to identify standards and specifications for an interoperable digital public service.

BENEFITS WHY USE SIQAT?

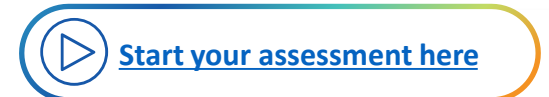
- ✓ A free of charge assessment which can be completed in 30 minutes
- ✓ An **interoperability maturity score** indicating where your service stands today considering key interoperability aspects.
- ✓ A **set of recommendations** for improving your digital public service, based on interoperability standards and good practices.
- ✓ A **statement of conformance** with the EIF principles.
- ✓ A **check of interoperability requirements** for the design of new digital public services, which are interoperable by default.

DIGITAL PUBLIC SERVICE COMPONENTS

The SIQAT assessment provides public administrations with insight into two key aspects of the structural interoperability of their digital public service:

Shareability: It is the extent that an open standard enables prospective coexistence of an off-the-shelf asset in a given domain set of digital public service value chains.

Reusability: It is the extent that an open standard enables the coexistence of an off-the-shelf asset in a given value chain of a digital public service.



GIQAT VALUE PROPOSITION

GOVERNANCE INTEROPERABILITY QUICK ASSESSMENT TOOL

DESCRIPTION WHAT IS GIQAT?

- GIQAT is an **online questionnaire** created in the EU Survey portal.
- GIQAT allows public administrations to assess the **Governance interoperability of their digital public services**.
- GIQAT is **aligned with the principles and recommendations** set out by the **European Interoperability Framework (EIF)**.

AUDIENCE FOR WHOM IS GIQAT RELEVANT?

- **Public service owners** | to improve the overall governance interoperability and conformance of their digital public services.
- **Policy-makers** | to get insights on the interoperability level of digital public service.
- **Public Procurement Officers** | to identify standards and specifications for an interoperable digital public service.

BENEFITS WHY USE GIQAT?

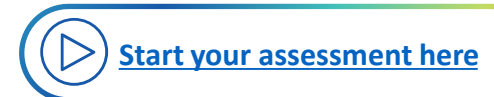
- ✓ A free of charge assessment which can be completed in 30 minutes
- ✓ An **interoperability maturity score** indicating where your service stands today considering key interoperability aspects.
- ✓ A **set of recommendations** for improving your digital public service, based on interoperability standards and good practices.
- ✓ A **statement of conformance** with the EIF principles.
- ✓ A **check of interoperability requirements** for the design of new digital public services, which are interoperable by default.

DIGITAL PUBLIC SERVICE COMPONENTS

The GIQAT assessment provides public administrations with insight into two key aspects of the governance interoperability of their digital public service:

Collaboration Control: Is the extent that an open standard enables the collaboration control of a digital public service with another digital public service.

Collaboration Assurance: Is the extent that an open standard enables the collaboration assurance of a digital public service with another digital public service.





IATs in practice (Success stories)



IATs in practice



IATs success stories

1



Belgium: The Federal Service Bus (FSB) of the Belgian Federal Public Service Policy and Support Directorate General Digital Transformation (FPS BOSA DT).

2



Czech Republic:

A number of digital public services provided by public administrations in the Czech Republic (e.g., the Czech Ministry of Health).

3



Slovenia: “Online application for subsidised public transport tickets for students”, (Slovenian Ministry of Public Administration) via its eGov portal (“eUprava”).

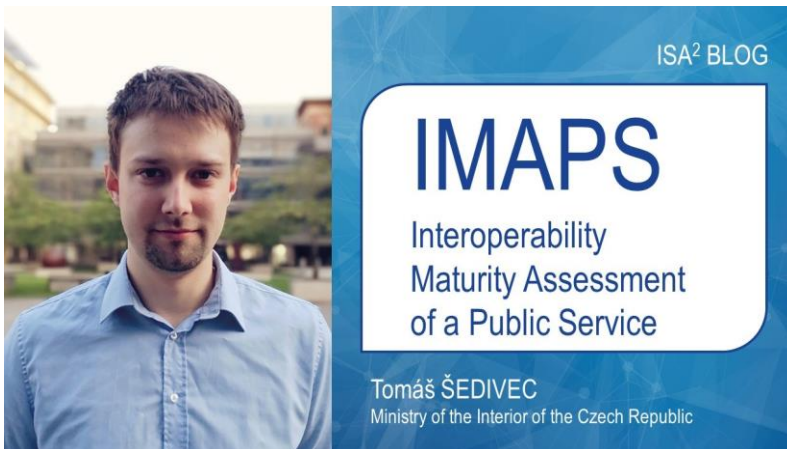
4



Valencia: Assessment of the existing digital public services and design of the “Sede Electrónica de CACSA” (Ciudad de las Artes y de las Ciencias).

The case of Czech Republic

Tomáš Šedivec has used **IMAPS** for **assessing** a number of digital public services provided by public administrations in the Czech Republic, such as **the Czech Ministry of Health**.



Digital public services assessed:

- cross border exchange of medical documentation and;
- cross border “ePrescription” and “eDispensation”.

IMAPS benefits:

- a set of standardised questions for assessing the interoperability that can be used in a cross-border as well as national context and;
- can be applied to any existing or new system.

IMAPS value to the organisation:

- recommendations provided by IMAPS helped to implement the strategic point-of-view to the system;
- guidance for managing changes on the system;
- useful recommendations in the area of security services regarding identification.



Q&A

Reflections



Q&A

What are your
thoughts about the
**Interoperability
Assessment Tools?**





Q&A

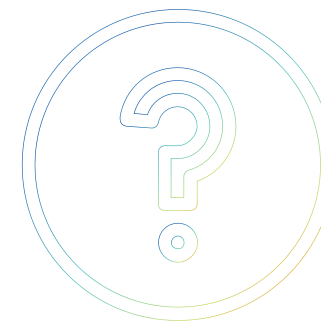
Are the
**Interoperability
Assessment Tools**
relevant for you?





Q&A

How do you think **IATs**
can promote the
digital transformation
within your
organisation?





Q&A

Would you consider
performing the
**Interoperability
Assessment Tools?**



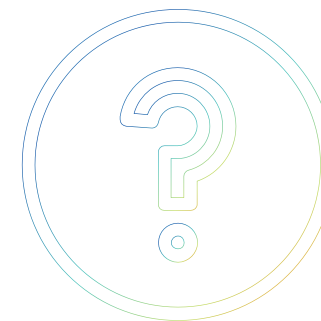


Q&A

Do you still have questions?

Reach out to us:

DIGIT-IMAPS@ec.europa.eu



A complex network visualization on a dark blue background. It features a dense web of thin, light blue lines that flow and curve across the frame. Interspersed within these lines are numerous small, bright yellow and orange nodes, which appear to be concentrated in certain areas, particularly in the center and towards the right. The overall effect is one of dynamic, interconnected movement.

Thank you



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Stay in touch



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