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# Interoperability Maturity Tools: A unified package to measure the interoperability maturity of digital public services

**Samos Summit 2023**

EUROPEAN COMMISSION

Directorate General for Informatics (DIGIT)

DIGIT B2

[Digital Europe programme](#)

Project Officer: Dr. Raul Abril

interoperable  
europe

**Samos Summit**

On ICT-enabled Governance





# AGENDA



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Dr. Raul Abril, EC DIGIT

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Project Team

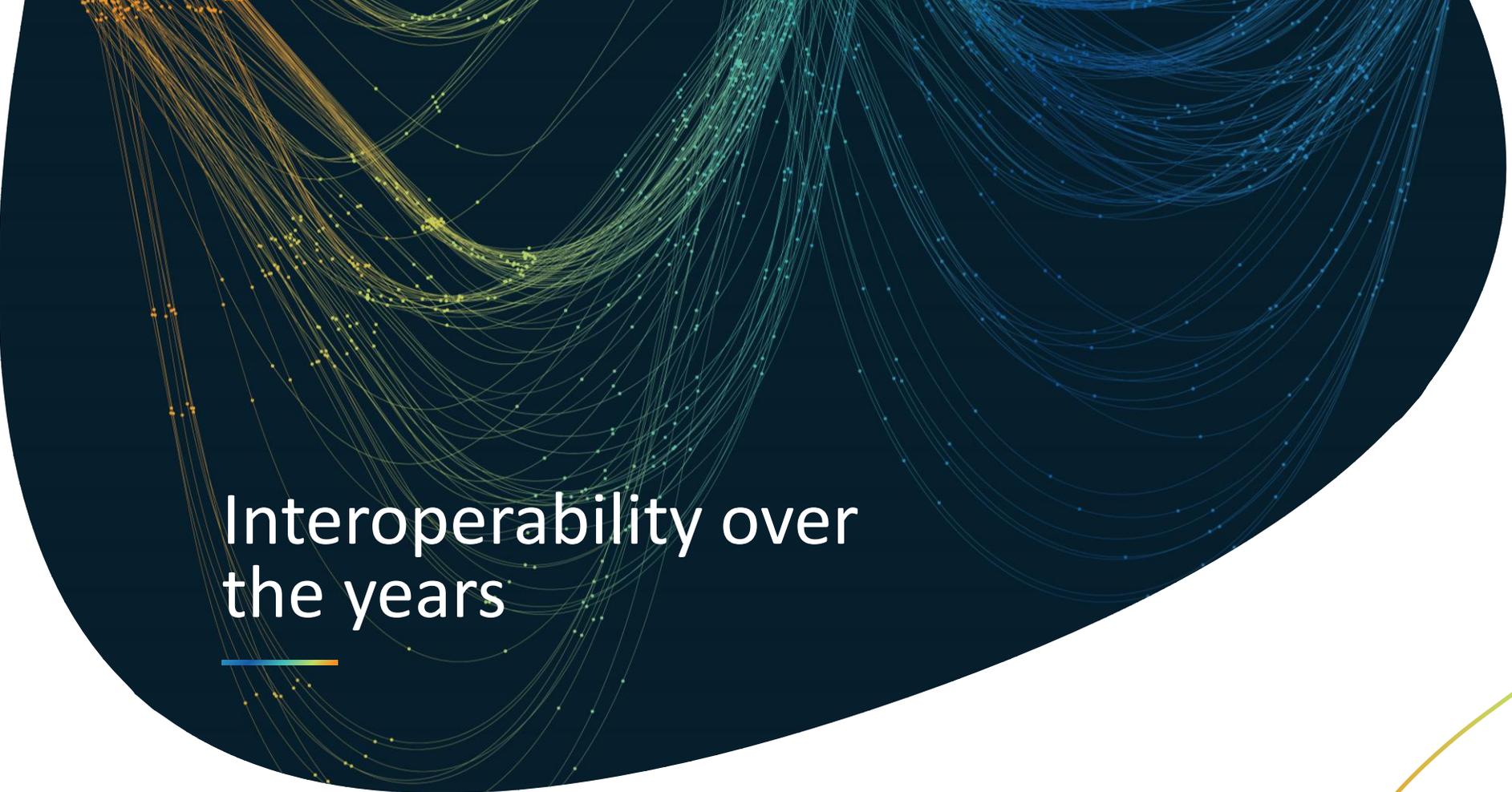
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# Interoperability over the years

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The EU Agenda  
Defining IOP Aspects  
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# Meet the Keynote Speaker

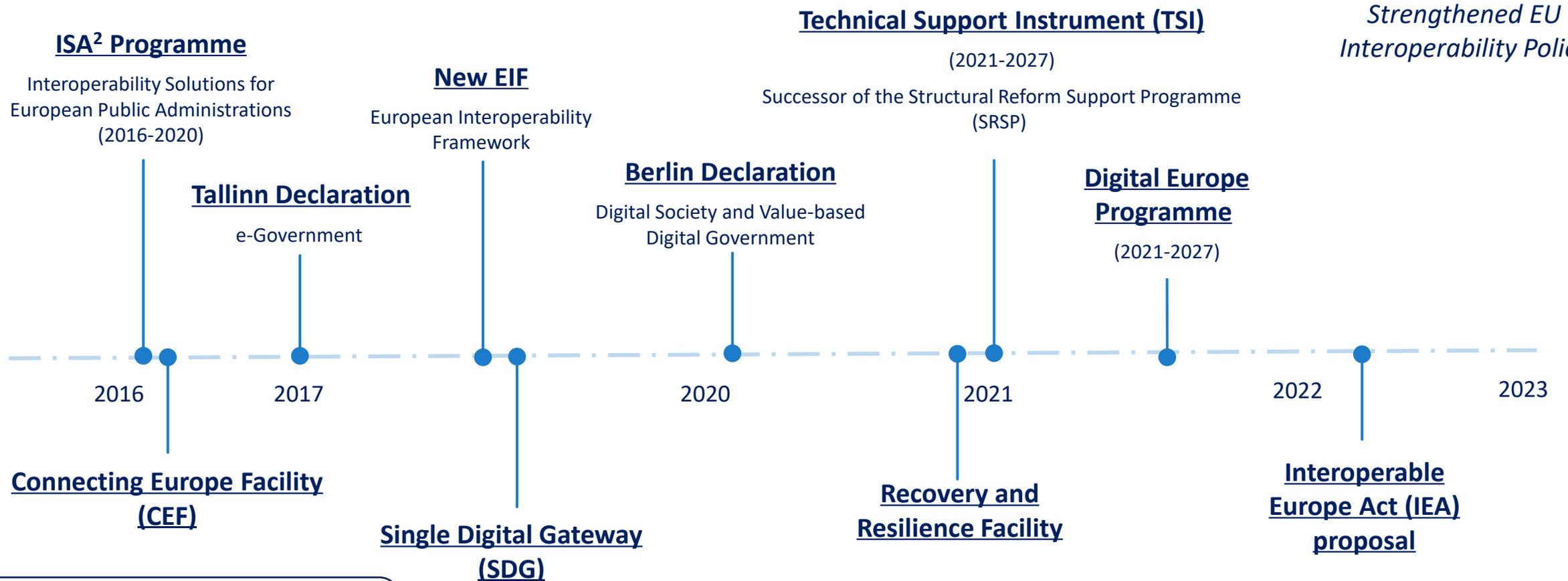


**Dr. Raul Abril**

**Program Manager EU policies at  
European Commission**

Dr. Raul Abril is a **Project officer** at the **European Commission DG DIGIT B2**. He is an experienced **IT Senior Manager, lecturer and researcher** with a demonstrated history in senior positions in eGovernment, IT industry and academia. Skilled in Enterprise Architecture, **Interoperability**, IT R&D, Data Warehousing, Market Research, Portfolio/Program Management, and Business Intelligence. Strong portfolio, program and project management professional with a Doctorate of Philosophy (Ph.D.) focused in Data Quality.

# The EU Agenda for interoperability...

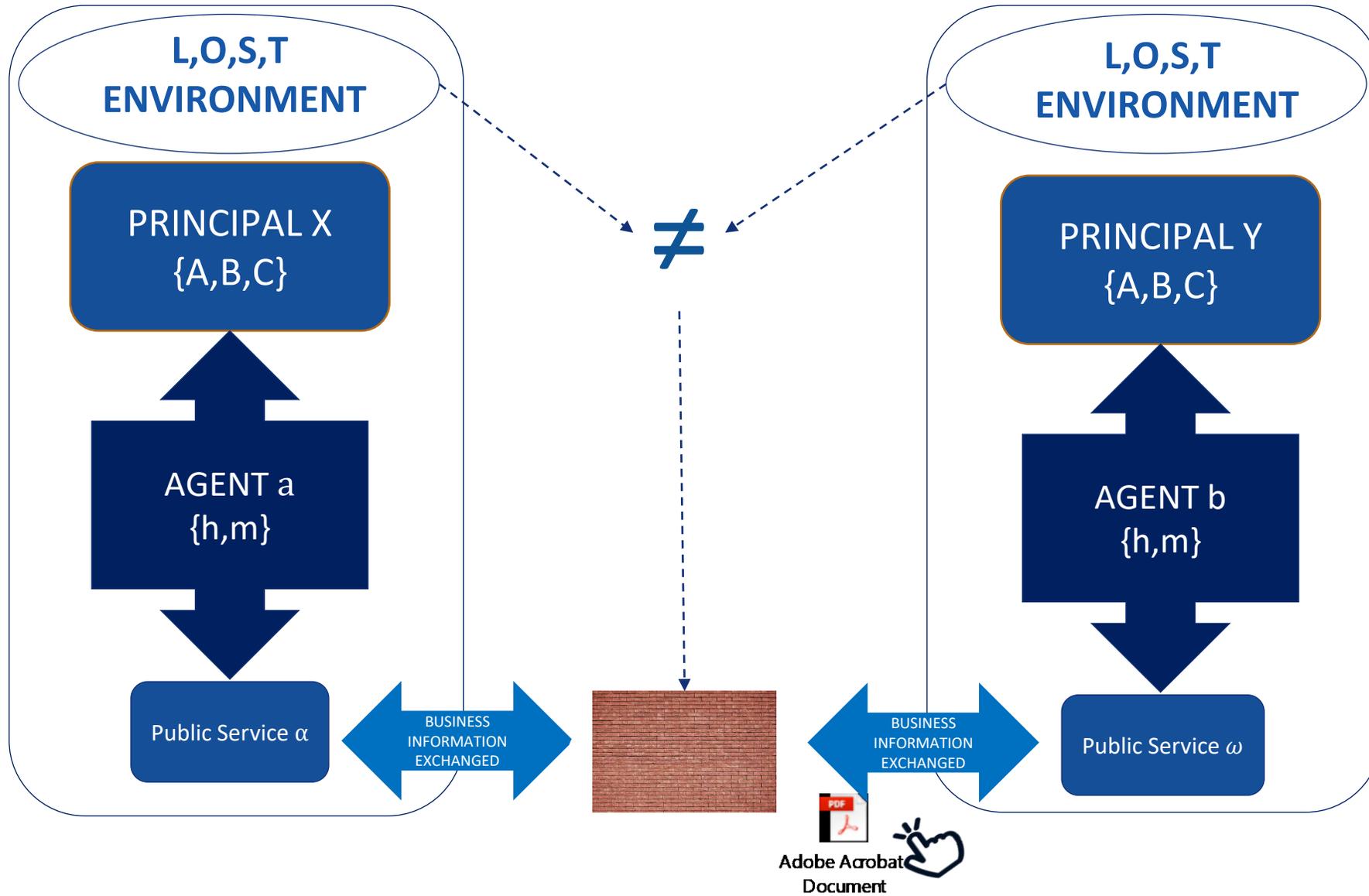


# EU Member States and eGovernment Benchmark 2022

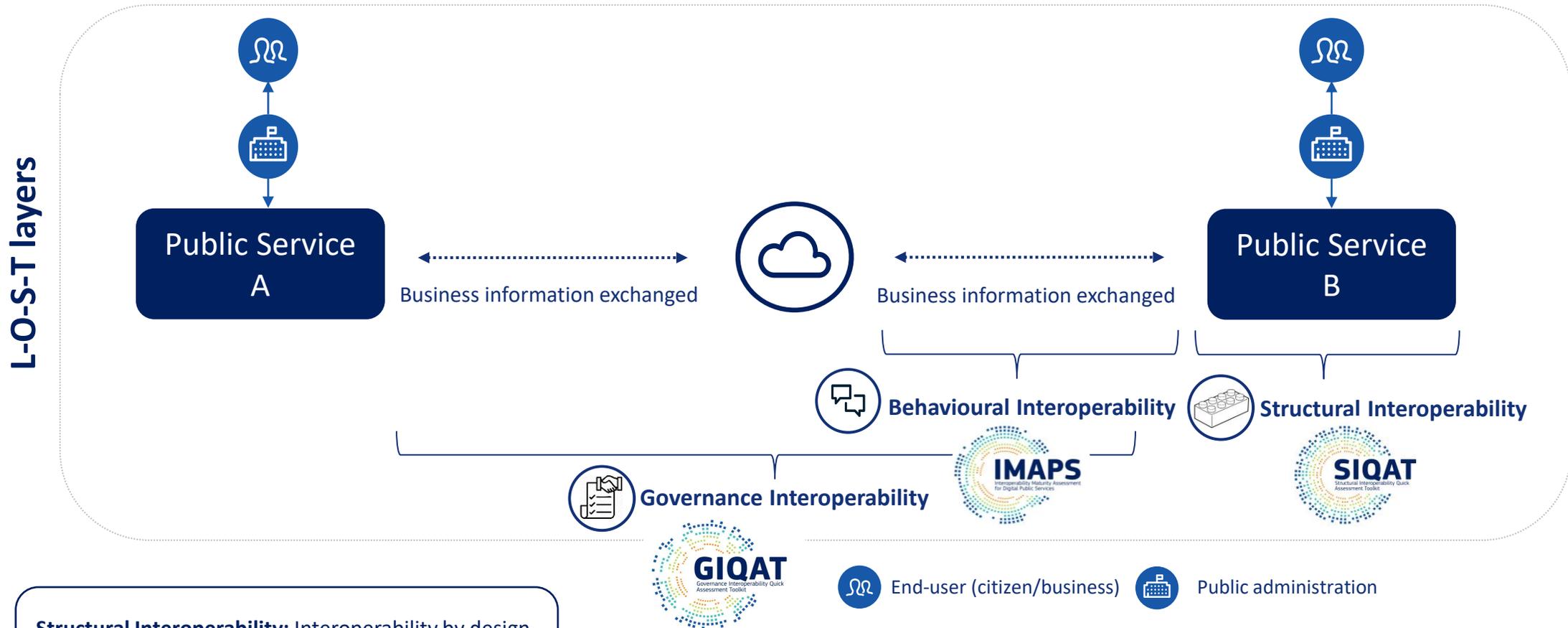
N/A	Country (EU 27)	Population (as of 2021, Eurostat)	eGovernment Benchmark 2022 score
1	Romania	19.201.662	42%
2	Cyprus	896.007	50%
3	Greece	10.678.632	52%
4	Poland	37.840.001	55%
5	Slovakia	5.459.781	60%
6	Bulgaria	6.916.548	61%
7	Croatia	4.036.355	61%
8	Italy	59.236.213	61%
9	Czechia	10.701.777	63%
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

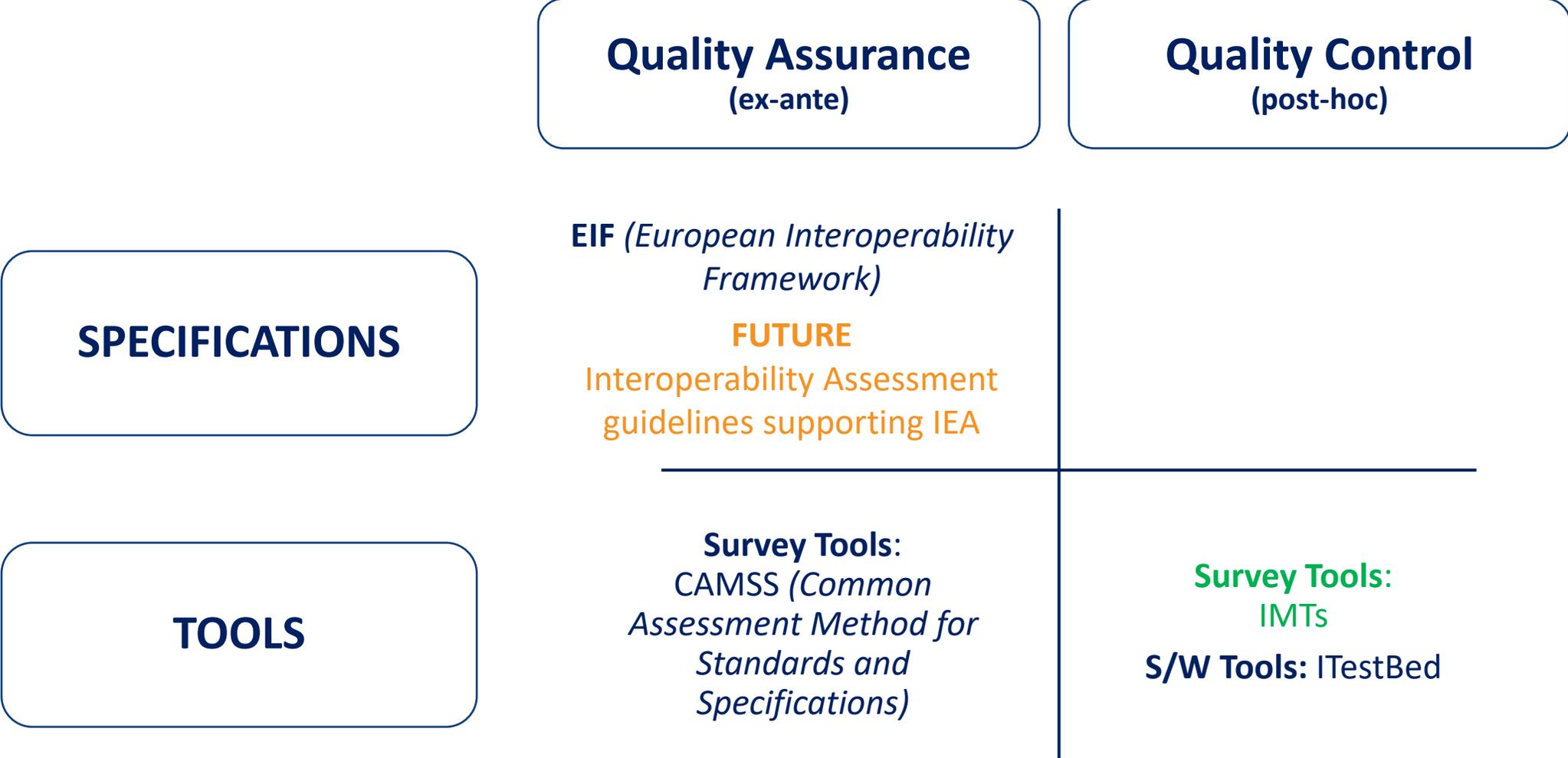


# Interoperability aspects



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

# Positioning: The Interoperability Landscape



# Interoperability Maturity Tools (IMTs)

IMTs are part of the **Interoperable Europe public initiative of the [Digital Europe programme](#)**, (former ISA<sup>2</sup> programme) developing digital solutions that enable public administrations, businesses and citizens in Europe to benefit from interoperable cross-border and cross-sector public services.



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



IMTs **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 **IMTs concept and model**, including survey management and support to users

# What is in for Public Administrations?

## Objectives

- Enable you to **assess** the current interoperability maturity of your digital public service(s)
- **Explain the IMTs** and guide you through the IMT assessments
- **Discuss** the IMT assessments results with you and reflect on how these can be implemented for increasing the interoperability of your digital public service(s)

## Benefits

- **Free of charge** support by IMTs team
- **Availability of IMTs experts** to provide analysis, advice and insights into interoperability good practices from other digital public services
- Possibility to **request translation** of IMTs
- **Sharing of IMTs experience** with other users

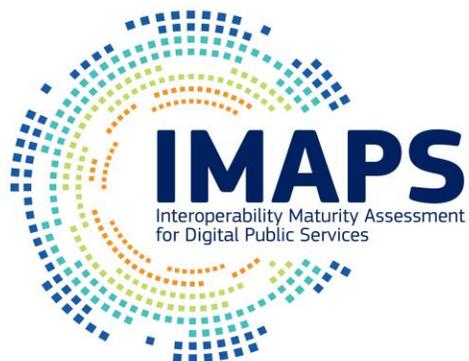


# Introduction to IMTs

Basics and examples

# Interoperability Maturity Tools (IMTs)

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## Behavioral Interoperability

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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

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The **structural interoperability** is "the extent that a digital public service is interoperable on its **structure/design**". Assesses on how a digital public service owner can use or reuse the digital public service.



## Governance Interoperability

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The **governance interoperability** is "the extent its agreed choreography rules support a P2P collaboration". Focuses on collaboration and assesses the existence of **protocols and agreements** to allow the information exchange in agreed terms between digital public services.

# Comparison among IMTs - Example

Let's suppose that a digital public service is using APIs for information exchange.

The digital public service owner may use one or all of the following tools to assess the interoperability maturity of the service:



**Behavioral**

Interoperability

**IMAPS** to assess if **open web API services** are made available/considered to **share** the digital public service release components



**Structural**

Interoperability

**SIQAT** to assess if there is **documentation** and **technical specifications** in place to support the **reuse** of the API



**Governance**

Interoperability

**GIQAT** to assess the extent on which there are in place **technical agreements to define rules** for the exchange of the information

# Specialised IMAPS versions (Specialisations)

## L-O-S-T

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

A dedicated video for an *Introduction to SIMAPS* is available in the Interoperable Europe YouTube channel and can be found [here](#).



# What are IMTs?

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

- Allow to view and monitor the service's compliance with the **New European Interoperability Framework (EIF)**.
- Can be used to assess the interoperability of **any public service**.
- 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



### IMTs interoperability score

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



### IMTs 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.*

# Who are they 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
- ...

# IMTs interoperability score | Where do you stand today?

1

**Ad hoc**

**Poor interoperability** – the digital public service cannot be considered interoperable

2

**Opportunistic**

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

3

**Essential**

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

4

**Sustainable**

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

5

**Seamless**

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



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



All **best practices** implemented

# What type of digital public services? | Examples

e-invoicing service

Backoffice for e-certificate 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.*

# IMTs eligibility criteria | How to select & scope your digital public service in production



## 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, business 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.

## Case example

*e-birth certificate*

*Ministry of  
Interior*

*Parents of new-born*

*National*

*e-Government  
Portal*



# IMTs Testimonials

The case of IMAPS in  
the EU Public Sector

# The case of Interoperability Maturity Tools in the Greek Public Sector

**We have been using the IMTs since 2015 and the provided recommendations have helped us improve the interoperability of digital public services**

*National Center for Public Administration and Local Government - EKDDA*



**The IMTs are useful, beneficial and ultimately necessary tools to increase interoperability of public administrations**

*Greek Research and Technology Network - GRNET*



**We assessed 10 digital public services in 2021 as part of the eGovernment Master thesis at the University of the Aegean and the IMTs provided us with insights on identifying interoperability gaps of digital public services**

*Ministry of Rural Development and Food*



HELLENIC REPUBLIC  
Ministry of Rural Development  
and Food

**We assessed 10 digital public services in 2023 as part of the eGovernment Master thesis at the University of the Aegean and the IMTs provided us with insights on identifying interoperability gaps of digital public services**

*e-Government Center for Social Security - IDIKA*



# 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



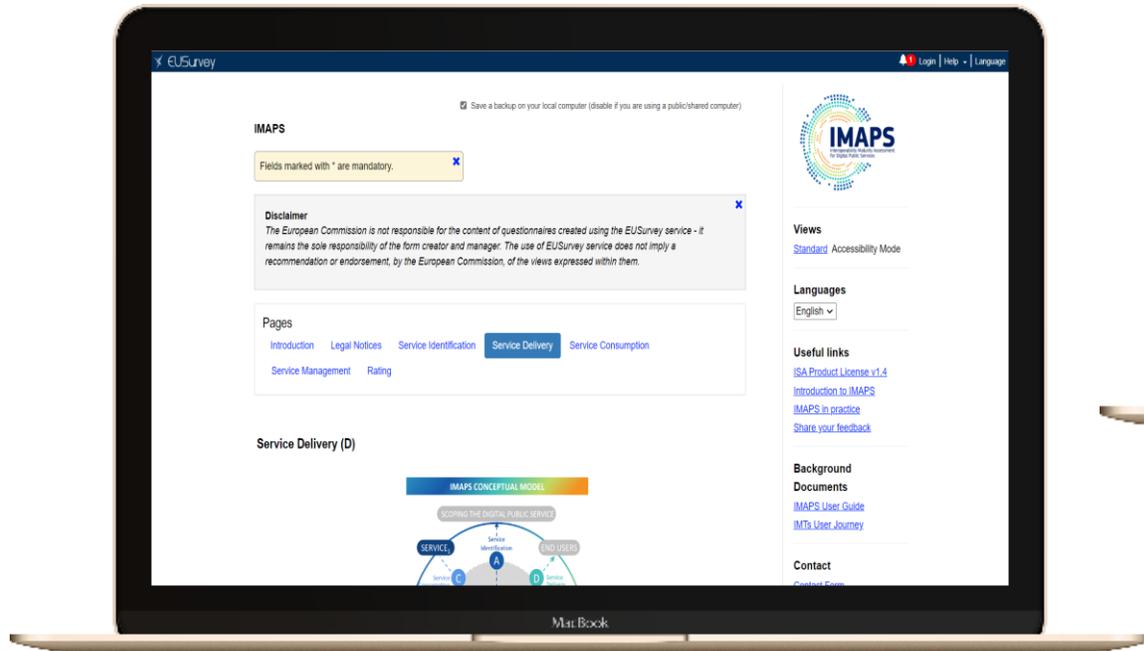
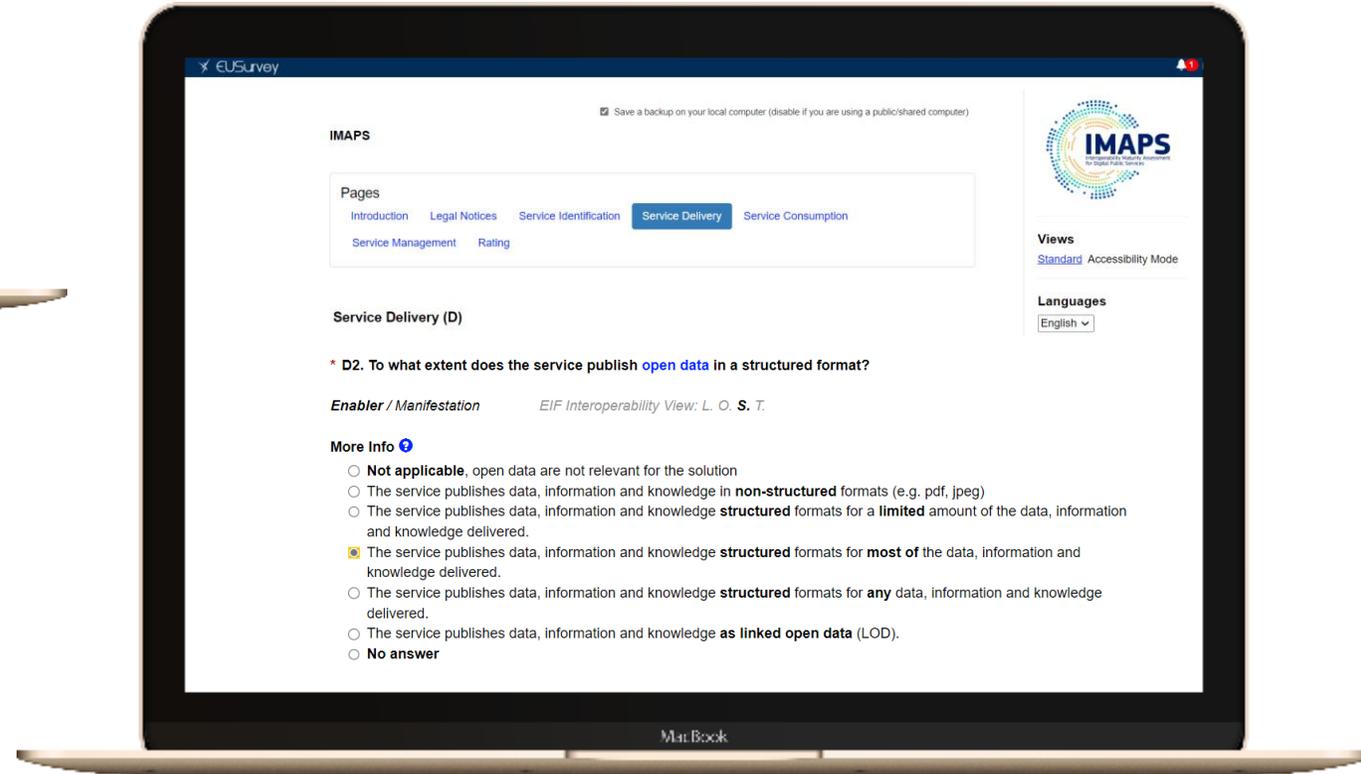
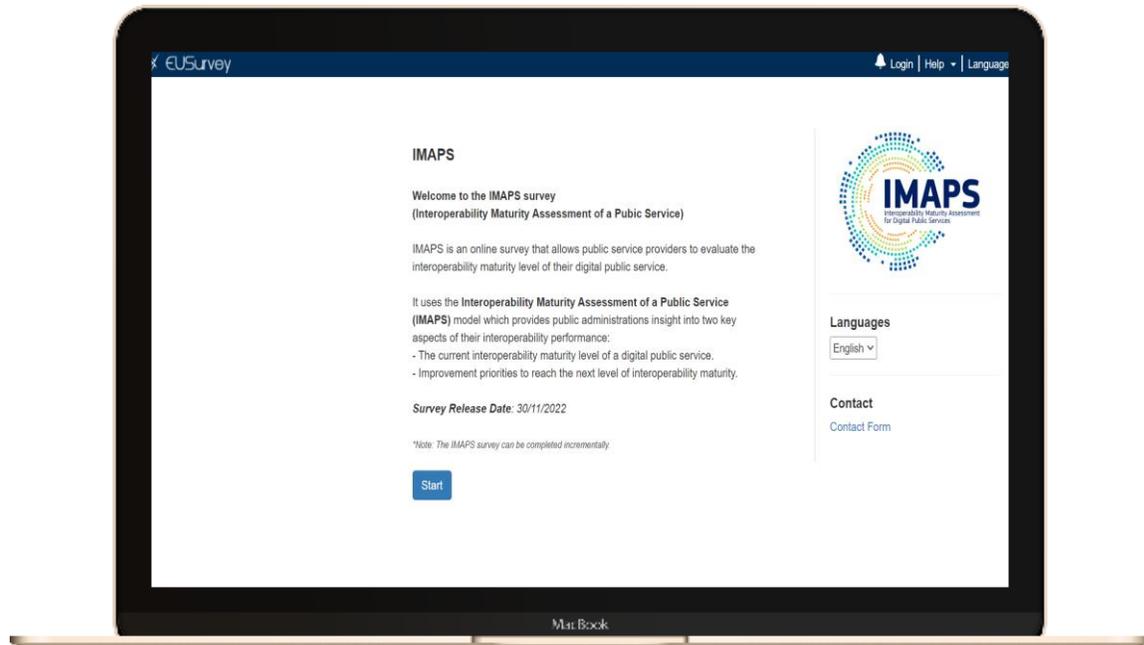
**Valencia**: Assessment of the existing digital public services and design of the “Sede Electrónica de CACSA” (Ciudad de las Artes y de las Ciencias).



# Welcome to the IMAPS Survey

Interoperability Maturity Assessment of Digital Public Services





# IMAPS Results report 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.

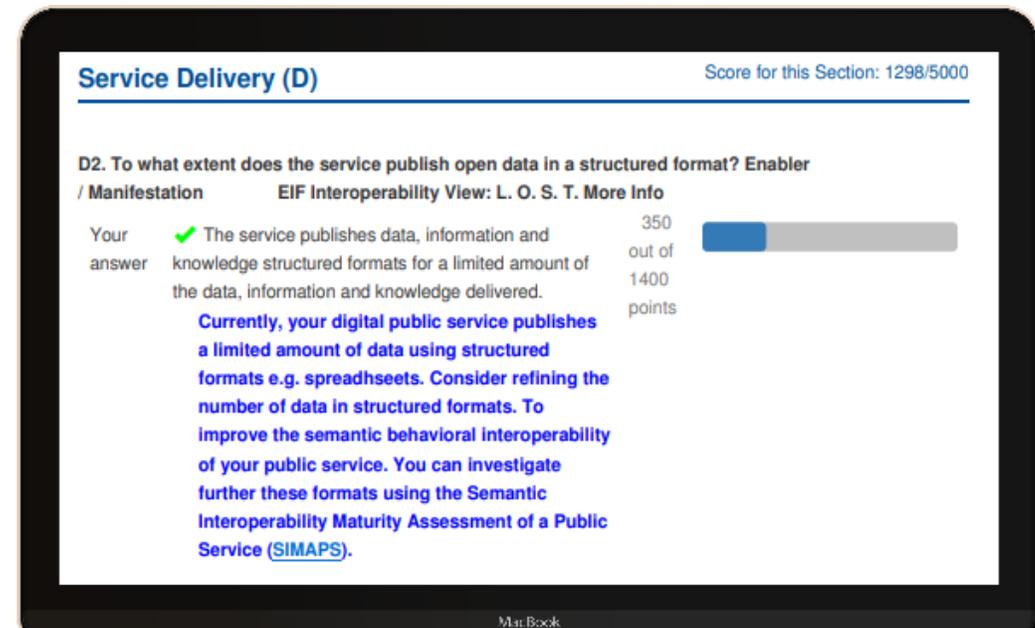
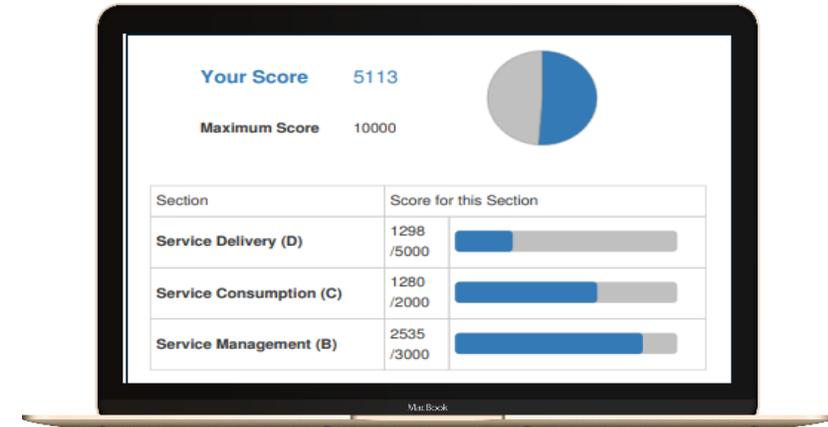
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### Survey Score Conversion Table

	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

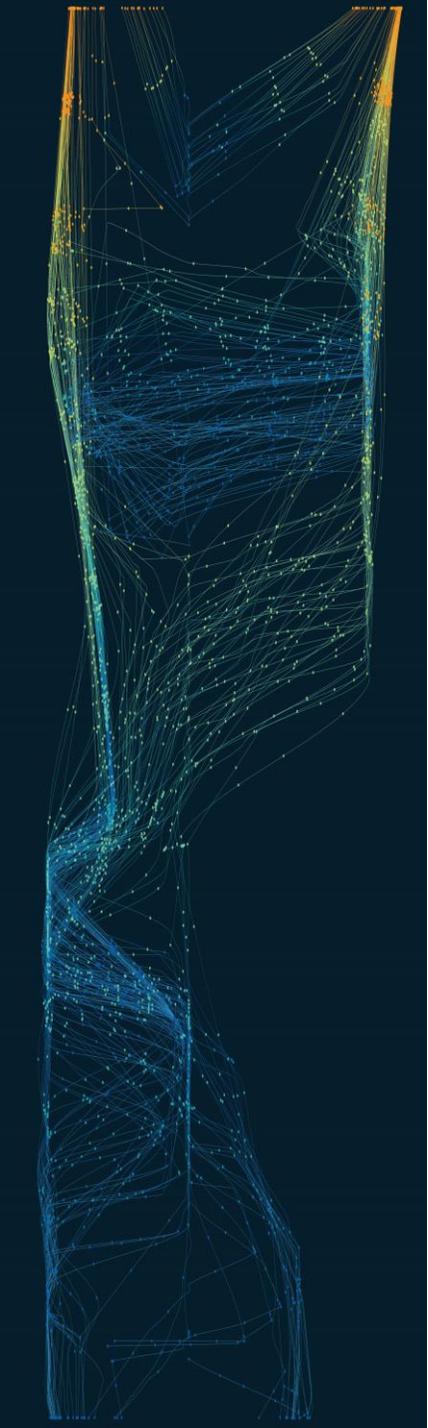




# Closing Remarks

Reflections and  
next steps

# Next Steps



## Interested to learn more?

Join our **workshop** at *Samos Summer School* for a **LIVE demo** that will showcase the **look and feel** of the IMTs.

On behalf of the European Commission, the IMTs team may also **organise tailored knowledge transfer sessions** to interested public officials.

We will be pleased to hear from you!



*Kind reminder to please bring your **laptop** for the IMTs workshop!*

# Next Steps

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Do you have any questions?



*Reach out to us:*

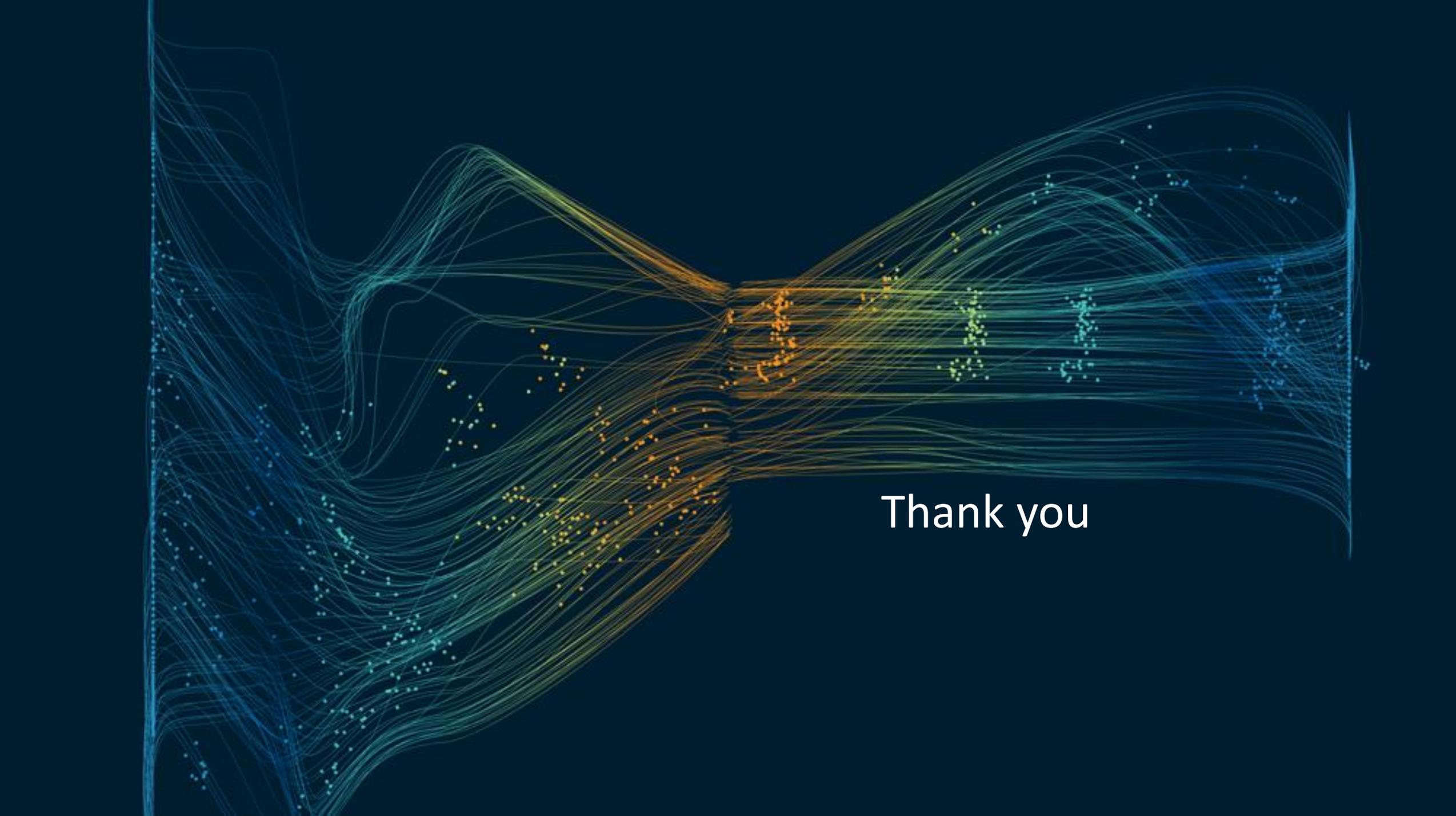
[Ine.VRANCKX@ext.ec.europa.eu](mailto:Ine.VRANCKX@ext.ec.europa.eu)

[DIGIT-IMAPS@ec.europa.eu](mailto:DIGIT-IMAPS@ec.europa.eu)

# Q & A

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A complex network graph visualization on a dark blue background. The graph consists of numerous nodes and edges. The nodes are small dots, and the edges are thin lines connecting them. The color of the nodes and edges transitions from a deep blue on the left to a bright yellow in the center, and then back to a lighter blue on the right. The overall structure is dense and interconnected, with a central hub-and-spoke pattern. The text "Thank you" is overlaid on the right side of the graph.

Thank you



# interoperable europe

innovation ∞ govtech ∞ community

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[Interoperable Europe - YouTube](https://www.youtube.com/InteroperableEurope)



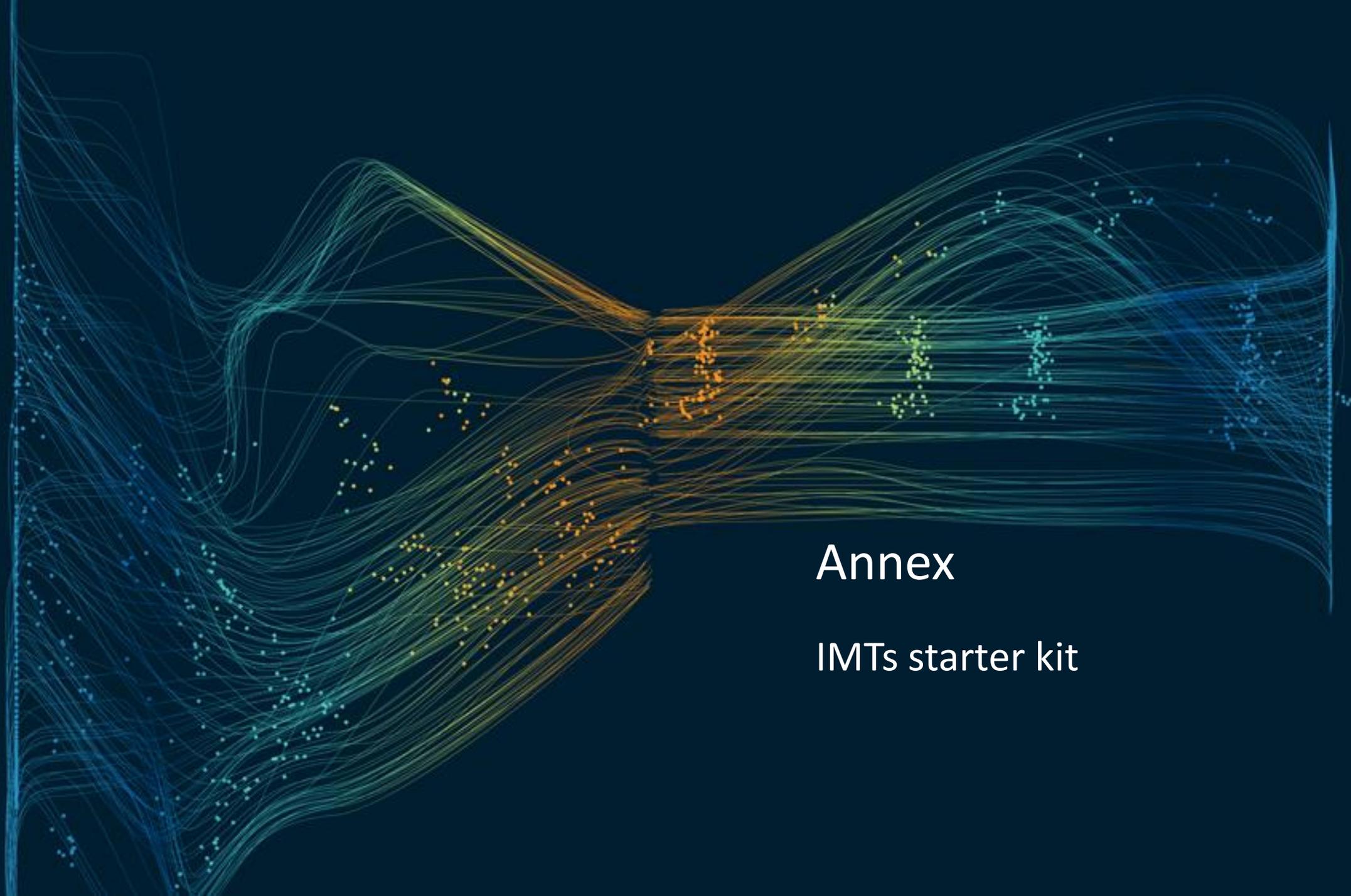
[Interoperable Europe | LinkedIn](https://www.linkedin.com/company/interoperable-europe/)



[DIGIT-INTEROPERABILITY@ec.europa.eu](mailto:DIGIT-INTEROPERABILITY@ec.europa.eu)



<https://joinup.ec.europa.eu/collection/interoperable-europe/interoperable-europe>



Annex

IMTs starter kit

# How to get started?

- IMTs community on Joinup: <https://joinup.ec.europa.eu/collection/interoperability-maturity-tools-imts-digital-public-services/about>
- IMAPS online survey: [https://ec.europa.eu/eusurvey/runner/IMAPS\\_v\\_2\\_2\\_0](https://ec.europa.eu/eusurvey/runner/IMAPS_v_2_2_0)
- IMAPS action on Interoperable Europe page on Joinup website: <https://joinup.ec.europa.eu/collection/interoperable-europe/imaps>
- LIMAPS online survey: [https://ec.europa.eu/eusurvey/runner/LIMAPS\\_v\\_1\\_2\\_0](https://ec.europa.eu/eusurvey/runner/LIMAPS_v_1_2_0)
- LIMAPS page on Joinup: <https://joinup.ec.europa.eu/collection/imaps-interoperability-maturity-assessment-public-service/solution/limaps/about>
- OIMAPS online survey: [https://ec.europa.eu/eusurvey/runner/OIMAPS\\_v\\_1\\_2\\_0](https://ec.europa.eu/eusurvey/runner/OIMAPS_v_1_2_0)
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