interoperable europe
Academy
2024

11-12 April Leuven, Belgium

KU LEUVEN

European Commission

Realising the full potential of smart cities

Overview

01 Context and problem to solve
Text box

02 Solution and applications
Text box

03 Next steps
Text box

European Commission

Context and problem to solve

Use advanced technologies to harness the full potential of cities/communities to:

- Optimise the **management and operations**

- Improve **services** for citizens, creating inclusive, safe, resilient, and sustainable urban environments

- Create a rich **ecosystem of interoperable urban data**, in which businesses, including SMEs, technology companies, and public administrations, can seize the opportunities offered by the data economy

Solutions and applications

Ensuring **equitable access to digital services -** both as users and **contributors** to the decisions in the city

We address this challenge in two ways:

- ***Support center for small cities and communities***: identifying technological gaps, defining digitalization roadmaps and strategies, and help procure the appropriate interoperable technologies *(common templates/MIMs specs)*

- ***Toolbox with advanced tools – AI based that will support cities in building their Local Digital Twins:*** Digital representation of a city to simulate the functioning of an urban environment in key areas (such as traffic, energy, water consumption) and optimize its management
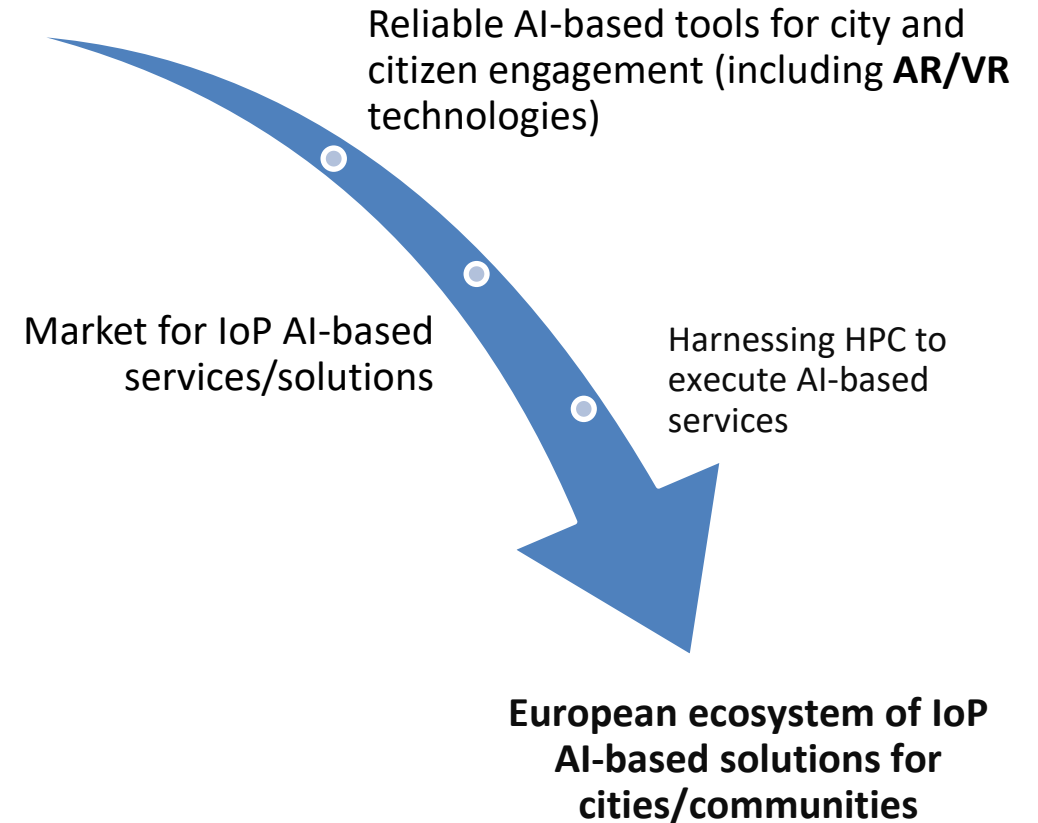
Next steps (I):
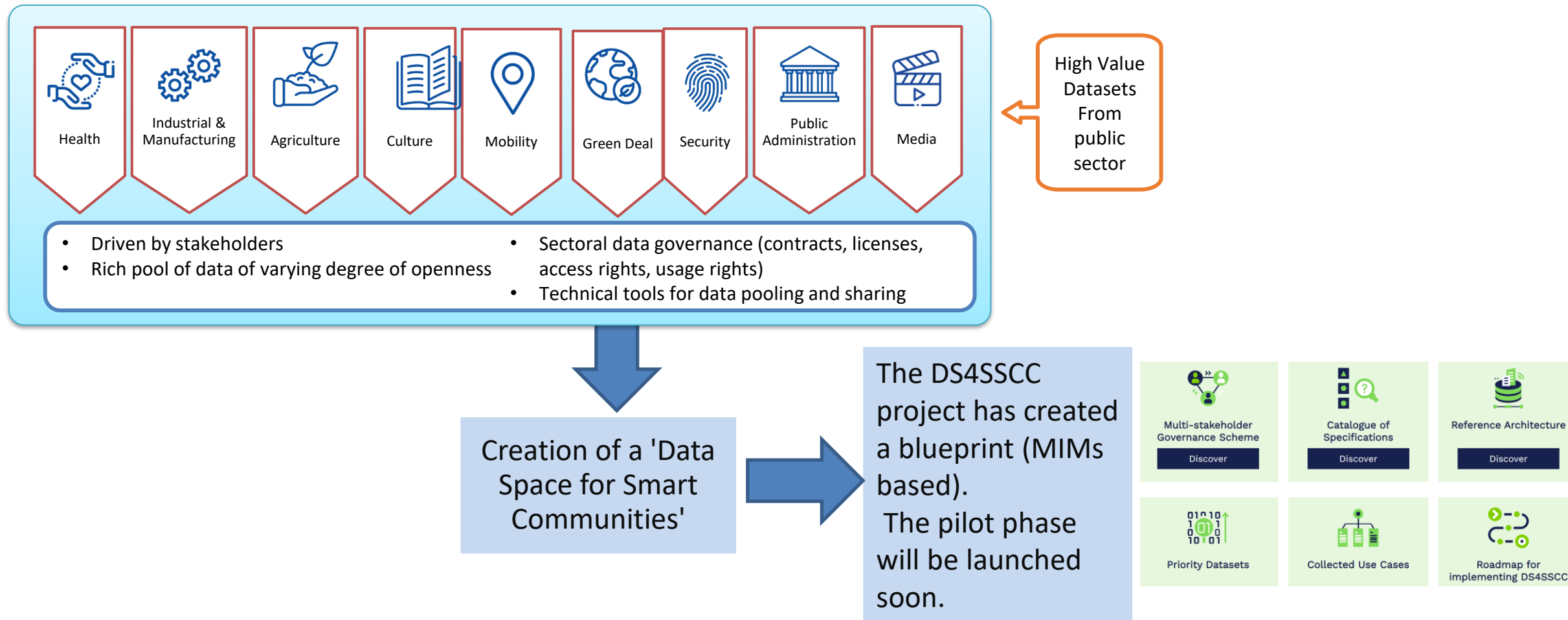## European Consortium of Digital Infrastructures for Digital Twins (EDIC)

Objectives:

- Vehicle for the ownership and operation of **common infrastructures** (e.g., national cloud-based platforms for urban data, "Local Digital Twin Toolbox")

- **Advantage**: Sharing costs and investments, creating a solid European market, sharing resources and **interoperable AI-based solutions** - economies of scale

- Opportunities for **local innovators** as providers of artificial intelligence tools

- Currently involves **11 Member States**. Cities can join after legal establishment (November 2024)

Reliable AI-based tools for city and citizen engagement (including **AR/VR** technologies)

Market for IoP AI-based services/solutions

Harnessing HPC to execute AI-based services

European ecosystem of IoP AI-based solutions for cities/communities

Next steps (II)

- Establishment of a list of **high-value datasets**, to be exchanged, at low cost, in 9 strategic domains

| Health | Industrial & Manufacturing | Agriculture | Culture | Mobility | Green Deal | Security | Public Administration | Media |

High Value Datasets From public sector

- Driven by stakeholders
- Rich pool of data of varying degree of openness
- Sectoral data governance (contracts, licenses, access rights, usage rights)
- Technical tools for data pooling and sharing

Creation of a 'Data Space for Smart Communities'

The DS4SSCC project has created a blueprint (MIMs based). The pilot phase will be launched soon.

| Multi-stakeholder Governance Scheme — Discover | Catalogue of Specifications — Discover | Reference Architecture — Discover |
| Priority Datasets | Collected Use Cases | Roadmap for implementing DS4SSCC |

Towards a common European mobility data space (EMDS)

Overview

Context and problem to solve

At the crossroads of two EU strategies

Data Strategy

Establish a single market for data.
Enable data sharing and establish fair
and clear rules on data use and access.

Sustainable and Smart Mobility Strategy (SSMS)

Ensure that the EU transport sector is fit
for a clean, digital and modern economy.

→ A **common European mobility data space (EMDS)**
facilitating access, pooling and sharing of data from
existing and future transport and mobility data sources.

Challenges of mobility and transport data sharing

Reluctance to share data: security, competition concerns, lack of trust
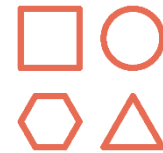
Heterogeneity and diversity of stakeholders, transport modes, data types, etc.

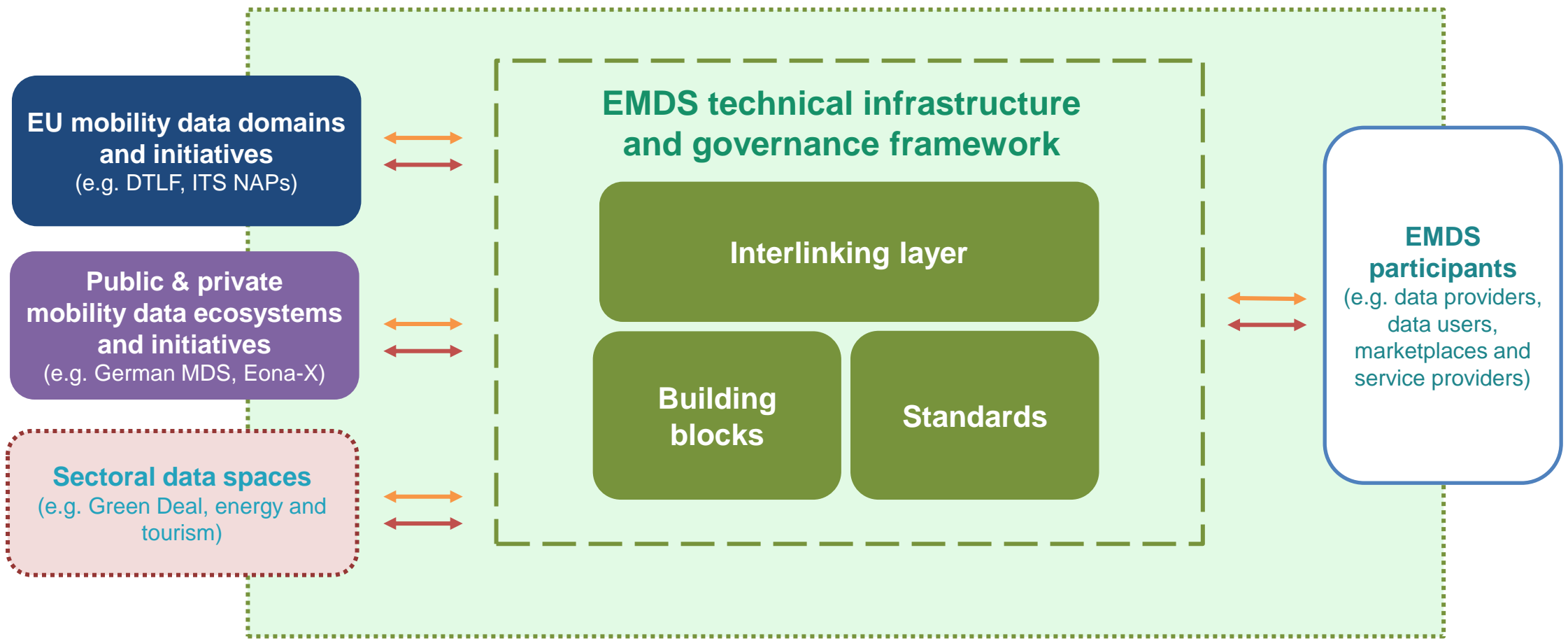**Fragmentation**, lack of access and interoperability

Solution and applications

It outlines the Commission's proposed way forward for the creation of a common EMDS, including its **objectives, main components, supporting measures** and **milestones**.

The Commission is seeking to promote the exchange of information on this topic, as well as collaboration more generally.

EUROPEAN COMMISSION

Brussels, 29.11.2023
COM(2023) 751 final

COMMUNICATION FROM THE COMMISSION TO THE EUROPEAN
PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL
COMMITTEE AND THE COMMITTEE OF THE REGIONS

Creation of a common European mobility data space

EMDS framework

EU mobility data domains and initiatives
(e.g. DTLF, ITS NAPs)

Public & private mobility data ecosystems and initiatives
(e.g. German MDS, Eona-X)

Sectoral data spaces
(e.g. Green Deal, energy and tourism)

EMDS technical infrastructure and governance framework

Interlinking layer

Building blocks

Standards

EMDS participants
(e.g. data providers, data users, marketplaces and service providers)

→ data access/sharing

→ metadata flows

16

Actions supporting the common European mobility data space (1/2)

Preparatory action
Digital Europe Programme
12 months coordination & support action:
[PrepDSpace4mobility](#)
Oct 2022-Sept 2023
→Map existing mobility data ecosystems
→Recommend first common building blocks

Deployment action
Digital Europe Programme
36 months deployment action:
[deployEMDS](#)

Kick-off Nov 2023

→Deployment of mobility data sharing use cases related to **traffic and urban mobility** indicators

Technical assistance
Connecting Europe Facility
12 months study

Kick-off Jan 2024

Followed by a deployment action in 2025 (TBC)

→Focus on the **governance**, **interlinking layer** and further definition of building blocks and **interoperability**

- Building on the **Data Spaces Support Centre** and **SIMPL**

New

Multi-country projects
Digital Europe Programme

First call will be:

- [published](#) Feb 13, 2024 ✅

- open Feb 29-May 29, 2024

→ Support the establishment of a **lasting collaboration structure**

→ Support the deployment of **cross-border use cases** in different areas

New

Proof-of-Concept
Digital Europe Programme

6 months PoC

Kick-off Jan 2024 ✅

→ Focus on how **personal data** are managed in the EMDS framework, through a **multimodal use-case**

→ Looking for **local authorities and transport operators** to test the PoC

- Building on the **Data Spaces Support Centre** and **SIMPL**

Mobility and Logistics Data EDIC

European Digital Infrastructure Consortium (EDIC): new **mechanism to implement Multi-Country Projects (MCP)** created by the [Digital Decade Policy Programme 2030](#)

Ongoing preparation of a possible **Mobility and Logistics Data EDIC** to ensure long term sustainability of common data infrastructure and promote large scale adoption. Proposed scope:

Allowing the **coordination** and **alignment** on common standards among its members.

support the **implementation of cross-border use cases** under a coherent approach

Preparation of an application by the **Netherlands** (host), **Austria, Germany, Finland, France** and **Spain,** closely followed by the EC. Other Member States, regions and organisations showed interest. Application planned by the Members States for May-June 2024.

Next steps

Next steps

Follow-up on the **EMDS Communication**

Completion of the **PoC** on how personal data are managed in the EMDS framework (July 2024)

Review of the EMDS **technical assistance study** deliverables

Review of the **deployEMDS** preliminary deliverables

Define terms of reference for the **deployment action of the interlinking layer** (Q3-Q4 2024)

Thank you

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PoC on Data Sovereignty for Multimodal Mobility Scenario

Overview

01 Context and problem to solve

Text box

02 Solution and applications

Text box

03 Next steps

Text box

European Commission

PoC Scenario

Provide **personalised commuting recommendations** based on commuters' <u>personal data</u>, mixed with data on road works, accidents, strikes, weather conditions, transport interruptions, location of charging stations etc.

Mobility Data Space Actors:
1) Commuters
2) Public Transport Authority
3) Public Transport Operator
4) Transport Infrastructure Manager
5) Infrastructure Operators
6) Service providers (SP)

PoC Objective

Build a Data Space infrastructure component with the ability to transact personal data, among mobility actors, implementing data sovereignty

Data sovereignty refers to the European laws and regulations around how personal data is accessed, processed or stored.
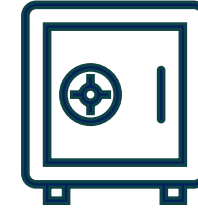
Problem

- Find a technology that allows to systematize access and exchange of Personal Data inside the common European mobility data space with a level of control that reflects the EU regulatory framework (e.g. The Data Governance Act, The Data Act, GDPR) to the highest level of detail.
- Support data access and exchange by increasing interoperability among the actors in the data space

Solution Space

Interoperability

Semantic Interoperability: open the space for the mobility operators to apply **shared semantics** when sharing data inside the EMDS.

CORE BUSINESS VOCABULARY
CORE LOCATION VOCABULARY
CORE PERSON VOCABULARY
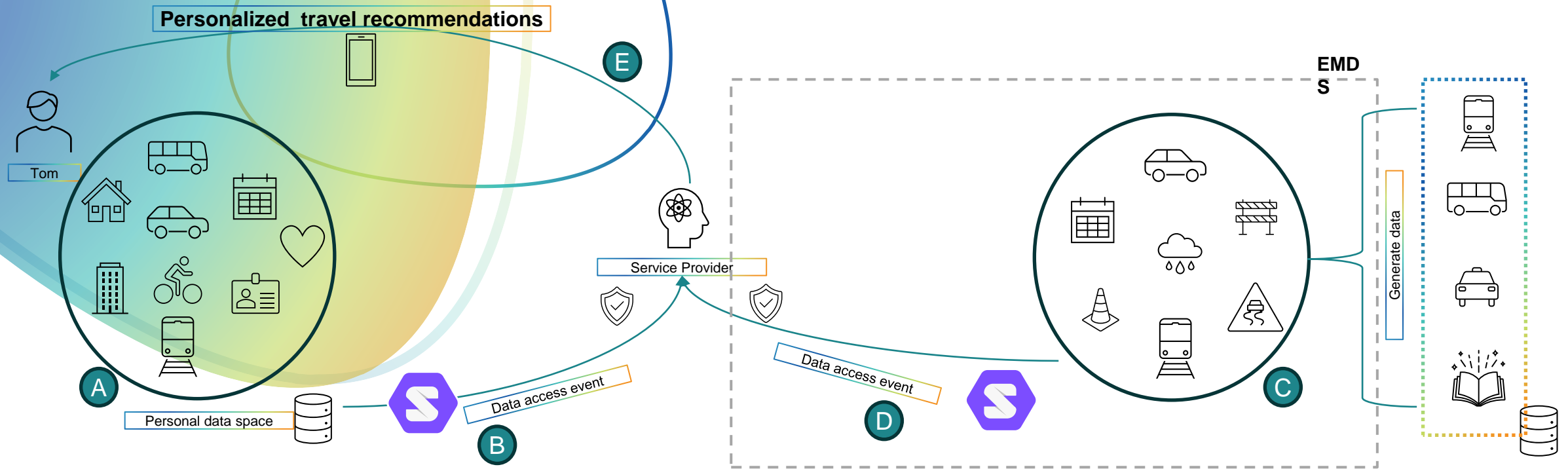CORE PUBLIC SERVICE VOCABULARY
CORE PUBLIC EVENT VOCABULARY

Data Sovereignty & Trust

Data Sovereignty & Trust orchestrator: implements **decentralized data access** event as the data owner keeps complete control over his/her own data.

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Personalized travel recommendations use case

A. Tom generates personal data, which contains his commuting habits, personal preferences, office locations, …
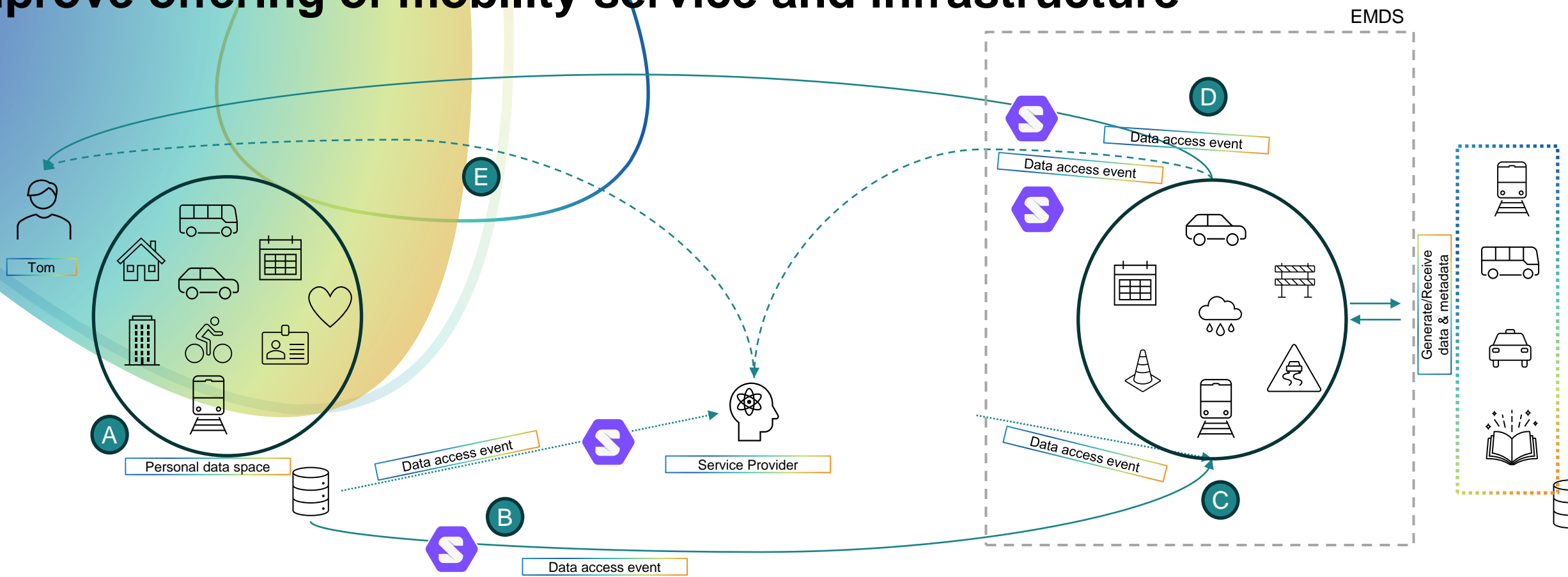
B. Thanks to the SOLID protocol, Tom's personal data is safely made available to the Service Provider (SP) and has only access to the information Tom grants access to.

C. Mobility Operators, infrastructure actors, government, NAP's provide input to the EMDS.

D. The SOLID protocol ensures a safe way of data sharing from the EMDS to the SP.

E. SP combines the two data streams as input and provides most suitable, personal travel recommendations based on multimodal mobility options for Tom.

Improve offering of mobility service and infrastructure

EMDS

Data access event

Data access event

D

Generate/Receive data & metadata

Tom

E

Personal data space

Data access event

Service Provider

A

Data access event

B

C

Data access event

A. Tom generates personal data, which contains his commuting habits, personal preferences, office locations, …

B. Thanks to the SOLID protocol, Tom his personal data is safely made available to the Service Provider (SP) or directly to the transport actors through the EMDS. They can only access the information that Tom grants access to.

C. Mobility actors receive the data and search for patterns, bottlenecks, …

D. Mobility actors inform commuters directly about the renewed service offering and infrastructure adaptations made.

E. Commuters are informed via SP about renewed service offering and infrastructure adaptations.

European Commission

Ongoing and Next Steps

Data Sovereignity in an SDK
We are packing the capabilities of implementing data sovereignity via SOLID in an SDK that can be integrated for personalized travel reccomendation as well as other scenario that involve accessing personal mobility data.

PoC demo and webinar
We are preparing a webinar to demonstrate how the SDK enables personalized multimodal travel reccomendations through mechanism of consent and data control achieved using SOLID protocol within the SDK

Alignement with EMDS/Local MDS use cases
We are investigating how the experience of the PoC can be replicated in existing use cases whether inside the common European mobility data space or other local/national mobility data spaces

Portability of the solution
We intend to investigate how the SDK can be portable in other data spaces beyond mobility and where there is a need to govern personal data access.

European Commission

Data Sovereignty and Trust for Multimodal Mobility in EMDS

Verifiable Credentials

A new way of sharing information

Overview

01 **We all need to share something**
The need for a secure and verifiable way to share and confirm information digitally

02 **Verifiable Credentials**
A framework for the modern times

03 **Next steps**
Experience it yourself

European Commission

EU Verify

Innovative verification solutions

Education

Content and events to **understand Web3 technology** & its use cases

Advisory

Guidance and support on implementing **Web3 solutions**

Studies

Piloting
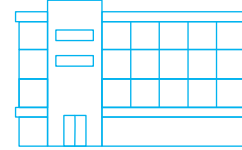
Proof-of-Concept

Infrastructure

European Commission
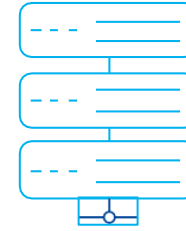
We all need to share (and verify) something

In the digital age, we need a native digital format that you can trust and verify

Diploma or certification
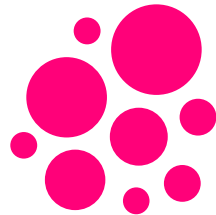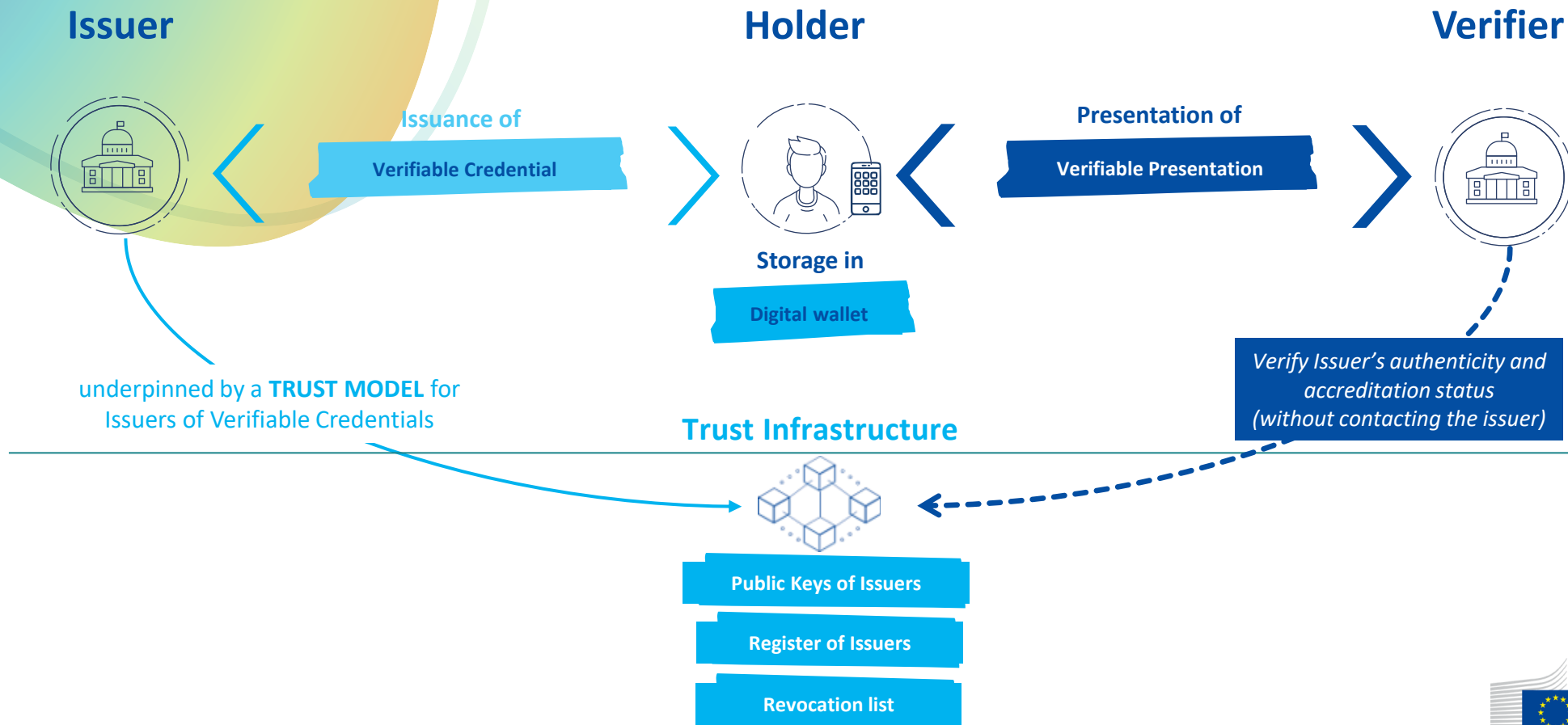
Conference invitation

Digital access to a system

PDF

European Commission

Based on open standards and already widely used

W3C standards and recommendations

OpenID Connect

JSON Web Tokens

Social Security documents as Verifiable Credentials

DG EMPL

Learning achievements as Verifiable Credentials

DG EMPL

IP rights as Verifiable Credentials

EUIPO

Reusing Vcs, OIDC4VC & OIDC4VP

EUDI Wallet

Study on Verifiable Credentials for cross-border trade

UN/CEFACT

Verifiable academic credits Verifiable vaccination credentials

LatAm Blockchain Alliance

Verifiable Credentials for different use cases (travel, immigration & citizenship status, employment, residency status, etc.)

US Department of Homeland Security

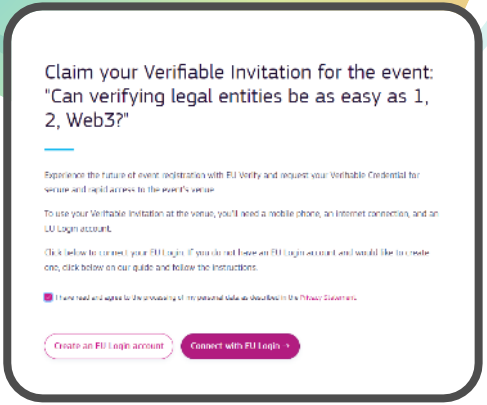**Accreditation programme for mining companies**

Government of British Columbia
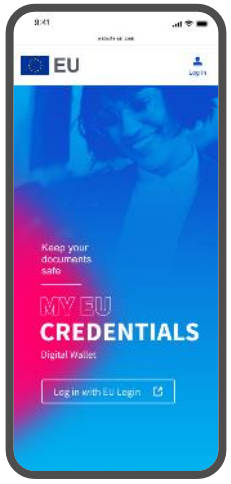
European Commission

My EU Credentials

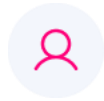A Proof-of-Concept to prove our point

Registration and issuance platform

Digital Wallet

Verification platform with auditable results
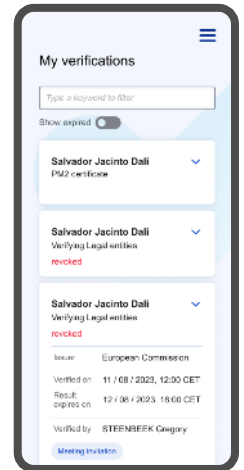
Register easily with one-click form (integration with EU Login)

Eliminate manual and costly verification processes

Receive a verifiable credential which is unique and not sharable

Ensure secure registration without compromising data privacy

Present and verify the credentials with the option of not sharing personal data

Effortlessly manage lists and registrations

European Commission

Next step: experience it yourself!

Request your attendance certificate as a Verifiable Credential

The solution

Introducing **My EU Credentials** — a simple and user-friendly solution for digital verification leveraging on innovative technologies.
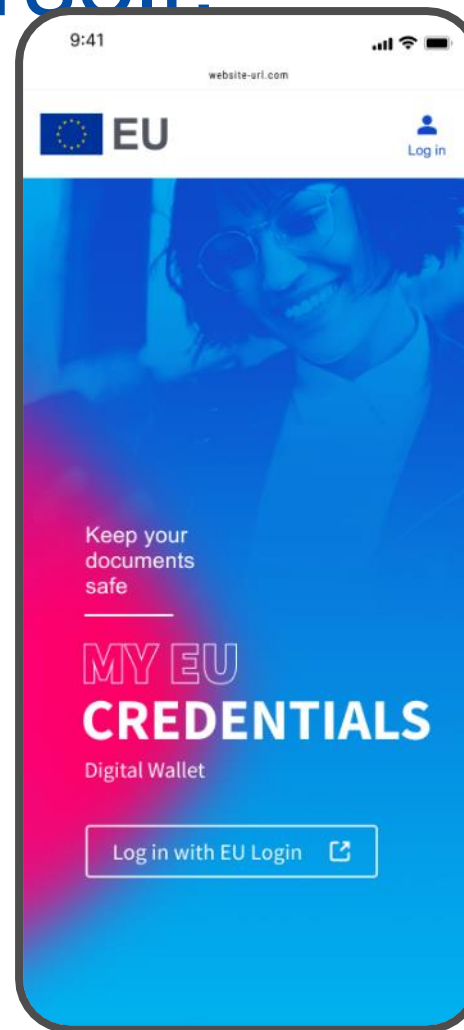
mGov4EU

Get SDG & eIDAS mobile

European Commission

Overview

01 Context and problem to solve
Get eIDAS & SDG mobile-focused

02 Solution and applications
Buildings blocks to reuse

03 Next steps
Suggest mobile-first policies

European Commission

Context and problem to solve

- The eIDAS Regulation and the Single Digital Gateway Regulation have cross-border interoperability of eID and data provision at their core
- Still, overlapping objectives ask for good SDG-eIDAS alignment
    - Cf. OOTS-EUDI synergies interim report and session later today
- Our computing habits moved mobile, SDG and eIDAS so far are at most *mobile-tolerant*, but not really *mobile-focused*
- mGov4EU's goal was to demonstrate seamless SDG, eID and eSignature integration using mobile and Wallet technologies
    - Which we propose even before the EC proposal of an EUDI Wallet, which however was pretty reassuring

European Commission

Solution and applications

- Research on where gaps exist for a truly mobile experience

  - E.g. extensive use of attributes and once-only to avoid user typing-in data

- Building Blocks for mobile

  - eID and eIDAS node extension

  - eSignature components

  - Wallet concepts

  - SDG support like data exchange and consent management

- Demonstrating the concepts in three cross-border pilots

  - i-Voting, e-Signature, and smart mobility

eID Building Block | e-Signature Building Block | Wallet Building Block | SDG Building Block

i-Voting Pilot | Smart Mobility Pilot | e-Signature Pilot

European Commission
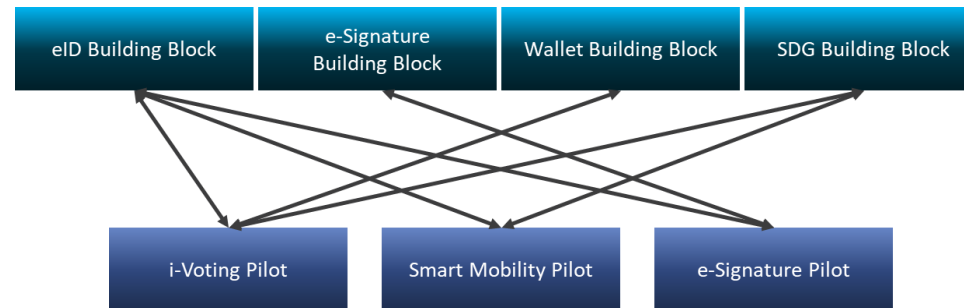
Next steps

- Some results already get introduced to production services of project partners, e.g.

    - Signature portal https://signer.eid.as/

    - AT Wallet elements https://a-sit-plus.github.io/

- Key learning was to promote mobile-first policy

A-SIT Plus Open Source

Sharing is Caring!

Below you'll find projects developed at A-SIT Plus published as free an
We heavily rely on Kotlin multiplatform. Hence, some of the project's bu
of interest to the public, even if a certain project may be specifically
needs.

KMM VC Library

KMP (JVM and iOS)
verifiable credentials

VC Lib Swift Package

Swift package wrapping
the KMM VC library. Also

KMP
feat

European
Commission

**That's it, thank you
for your patience
and for listening.**

Herbert.Leitold@a-sit.at

IMPULSE Overview

01 **Context and problem to solve**
Secure digital access to Public Services

02 **Solution and applications**
IMPULSE Digital Identity wallet

03 **Next steps**
Solution improvements and challenges

European Commission

Context and problem to solve

Public service's demands: more robust, secure and user-friendly eID

Impact assessment

Ethical & legal

Socio-economic

Policy & standards

Operational

Pathways for adoption, escalation, sustainability

Disruptive technologies supporting advanced eID:
1) AI-based biometrics and document verification;
2) Blockchain and smart contracts.

European Commission
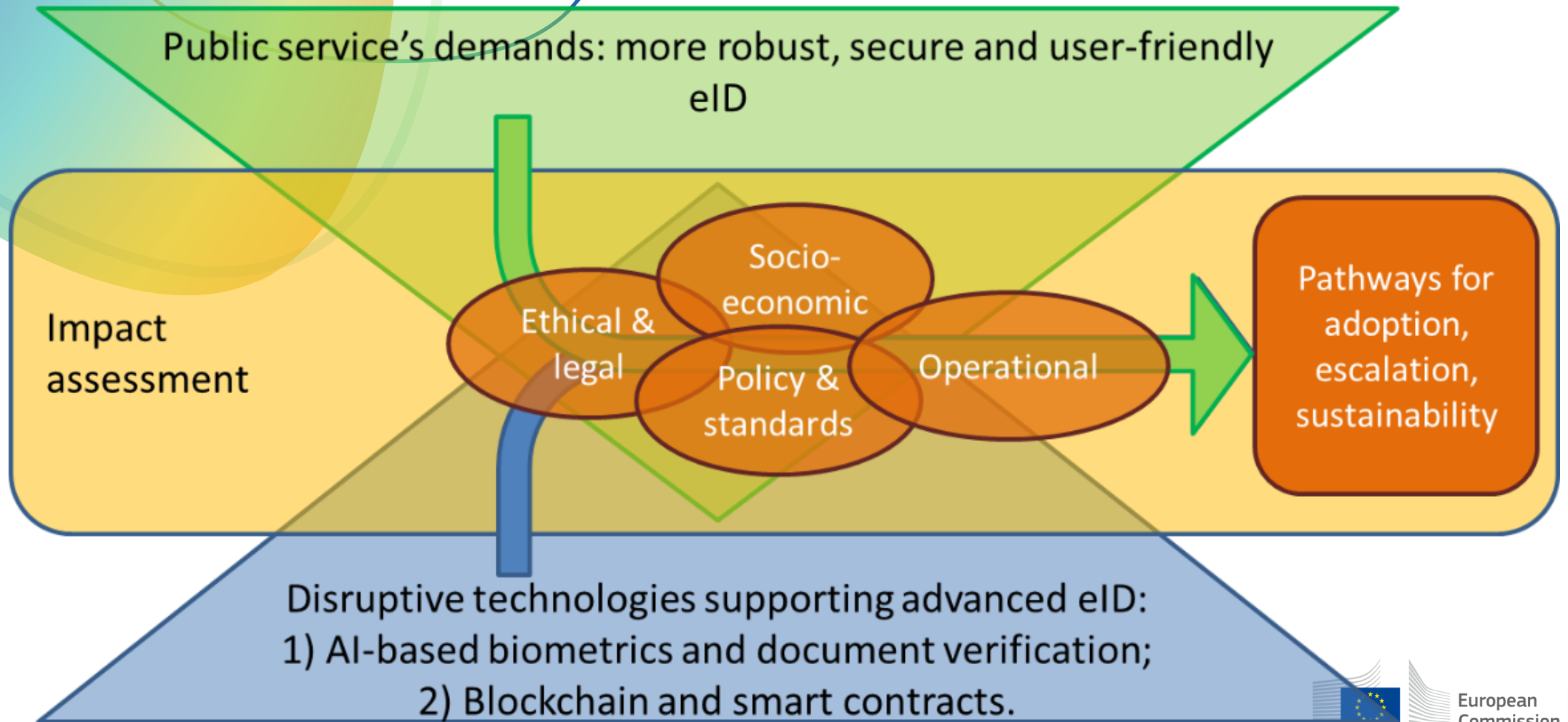
IMPULSE solution and applications

An improved method for **eID management** using **AI-based digital onboarding techniques** and **DLT-based SSI models**

Registration	Authentication

EBSI

eIDAS2

TOOLBOX - ARF

EUDIW

GDPR

European Commission

IMPULSE solution and applications

- **User registration**: A registration process based on digital onboarding takes place.
- **User authentication:** The PA needs to verify the user identity.
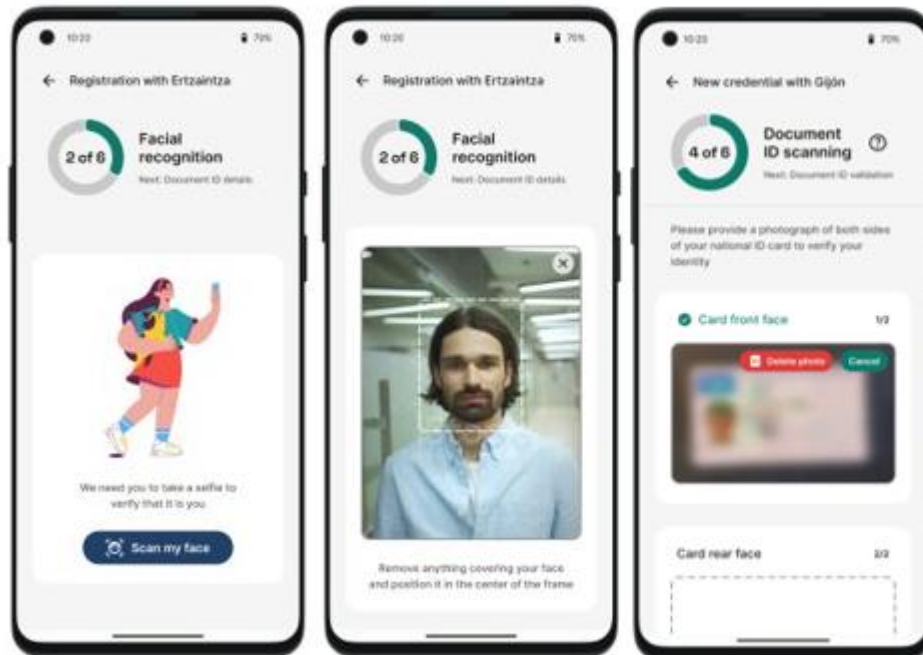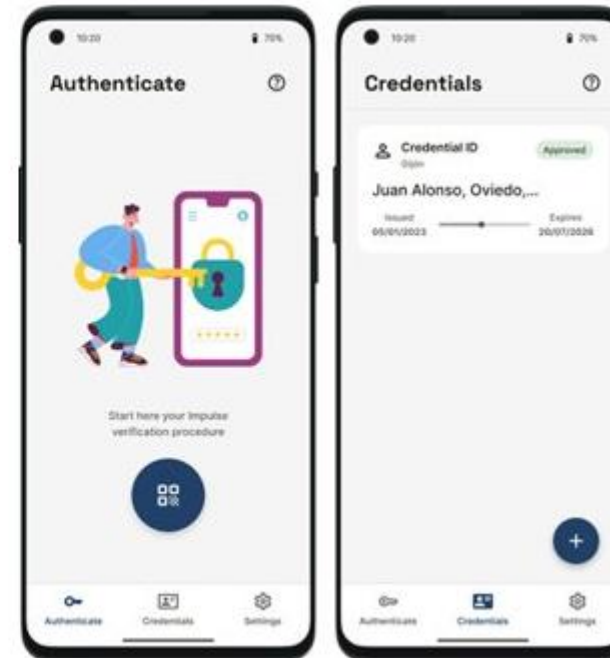

Mobile App for citizens

- ✓ Request, storage and presentation of ID-VC
- ✓ Informed Consent Service
- ✓ Biometric module

Enterprise Service for PAs

- ✓ Issuance and verification of ID-VC
- ✓ Biometric Service
- ✓ Document validation Service
- ✓ Remote Qseal Service

User domain

USER MOBILE

HOLDER

PA domain

ISSUER

PUBLIC WEB SERVICES (PAS)

VIERIFIER

1 Enrolment

2 Authentication

3 Online Public Service Delivering

Decentralized register

✓ Register of the trusted issuers DIDs in EBSI

IMPULSE solution and applications

City of Reykjavik

Reykjavik, Iceland
Better Reykjavik participatory democracy portal

Ertzaintza, Spain
Online complaints filing service

gijón

Gijón, Spain
Gijón public services app

CITY OF AARHUS

Aarhus, Denmark
NemID card retrieval from lockers

UNIONCAMERE

IC InfoCamere

UnionCamere & InfoCamere, Italy
Enterprise digital drawer

Peshtera, Bulgaria
Civil registration & certification

European Commission

IMPULSE solution and applications - Findings

1 The underlying technology is "transparent", what really matters are the services. Blockchain and AI perceived as obscure

2 Services and usability are fundamental for the adoption. Important to choose services that people really need and provide added value

3 Presence of other already working eID services is an obstacle. Interoperability is a must. Different adoption paths for different needs

4 Consider all the actors of the eID ecosystem . Inclusion not to be an "add-on" – to be considered since the starting design

5 Compliance with current and future regulations is essential for interoperability and data privacy

European Commission

Next steps

Exploitation

EU cross-border testing

Inclusion of additional credentials

Regulation and standards compliance

Promotion of the adoption of disruptive SSI eID

ETHICS　　**DEVELOPMENT**

SECURITY　　**DEPLOYMENT**

POLICY　　**PRIVACY**

SOCIAL　　**LEGAL**

STANDARDS

European
Commission

inGOV

Inclusive Governance Models and ICT Tools for
Integrated Public Service Co-Creation and Provision

Mariza Konidi
Senior Project Manager, Uni Systems Greece
inGOV Project Coordinator

European Commission

Overview

01 **Project Information**

Introduction and information for the project and the consortium

02 **Main objectives**

Integrated Public Service Co-creation and Provision

03 **inGOV Pilots and ICT tools developed**

Evaluation in 4 different pilots

04 **Next steps**

Contributions to Policies – Policy Recommendations

European Commission

Project Information

- **inGOV - Inclusive Governance Models and ICT Tools for Integrated Public Service Co-Creation and Provision**
- **Grant Agreement ID:** 962563
- **Topic:** DT-GOVERNANCE-05-2018-2019-2020 - New forms of delivering public goods and inclusive public services
- **Call:** H2020-SC6-GOVERNANCE-2020
- **Funding Scheme:** RIA - Research and Innovation action
- **Overall budget:** € 3 287 000
- **Start Date:** January 1st, 2021
- **End Date:** March 31st, 2024

12 partners from 9 countries

- 2 Large Enterprises
- 2 Dynamic SMEs
- 4 Academic partners/ Research organisations
- 4 Local/Public authorities

inGOV main objectives

- inGOV aims to enhance existing and device new **Policies, Methods and ICT Tools** for inclusive IPS Co-creation and Provision

- inGOV capitalizes on existing relevant policies and initiatives, academic literature and practitioners' good practices

European Commission
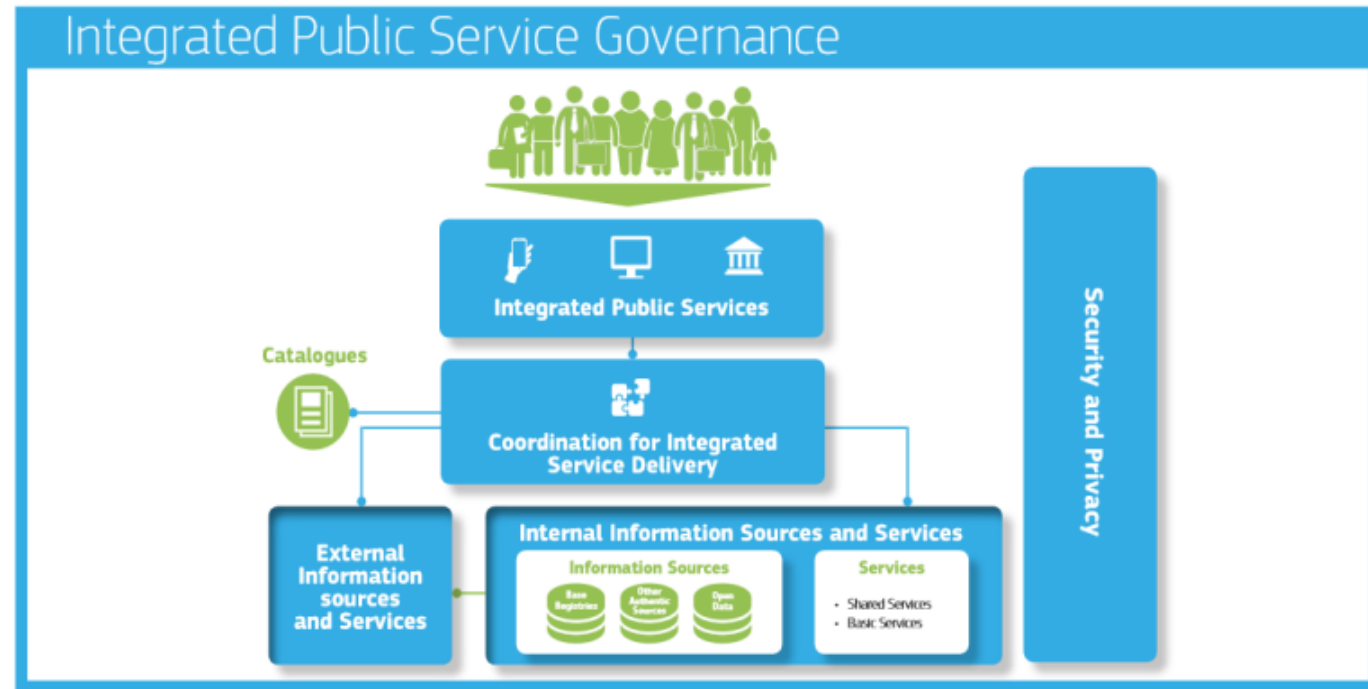
inGOV Pilots and ICT tools developed

- ☑ Digitization of the overnight stay tax in Lower Austria

- ☑ Sustainable Digital Household Unit in Malta

- ☑ Virtual assistant for the citizens of Bjelovar, Croatia

- ☑ Digitization of the transportation discount card for the disabled people in Thessaly, Greece
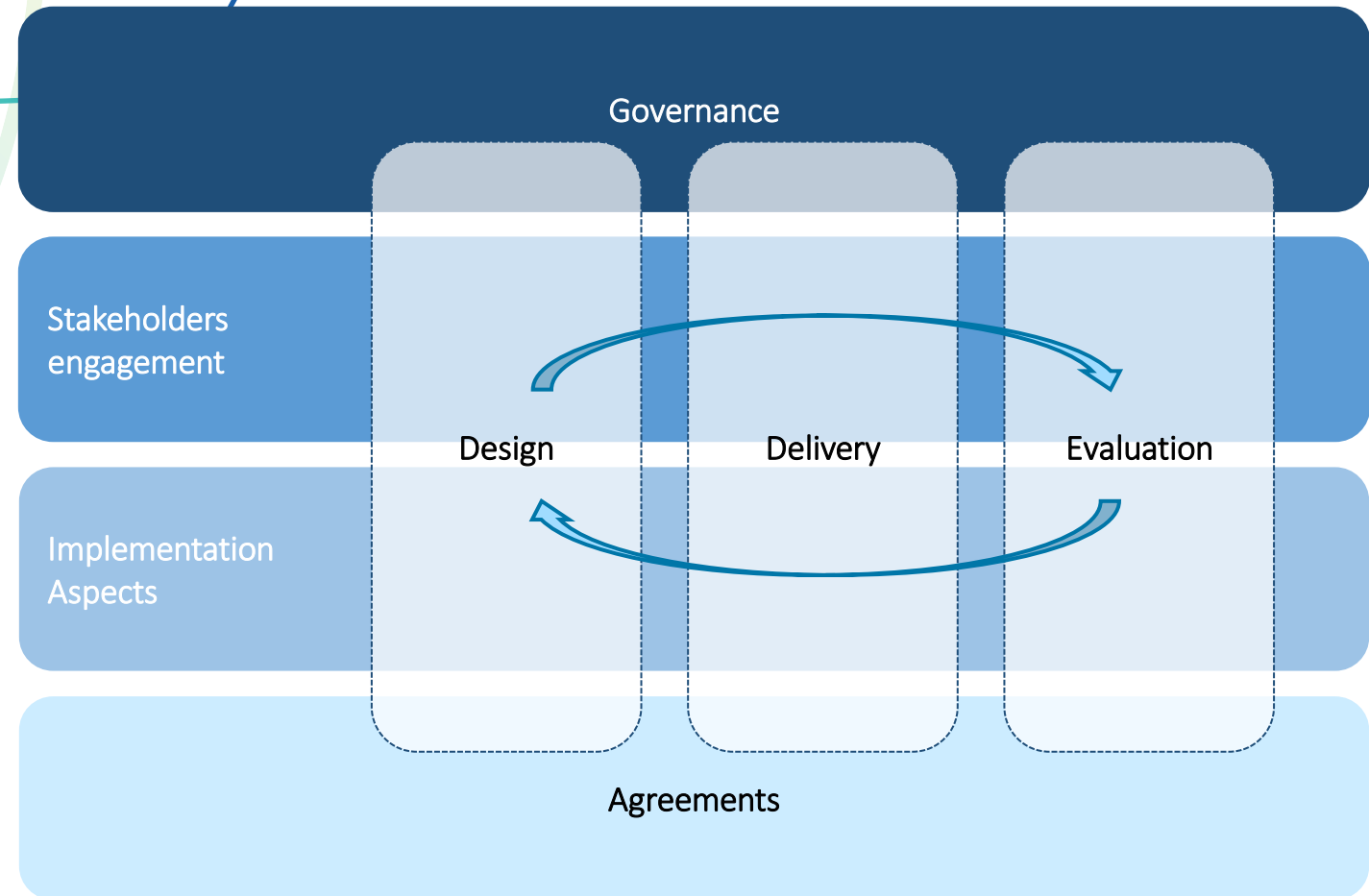
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Contributions to Policies – Policy Recommendations

- **Proposition of an extended version of Core Public Service Vocabulary Application Profile (CPSV-AP)**

- **Recommendation for improving European Interoperability Reference Architecture (EIRA)**
  - ➢ To include co-creation as a requirement to define interoperability

- **Recommendations for improving the European Interoperability Framework (EIF) Integrated Public Service Conceptual Model**
  - ➢ 13 recommendations related to:
    - Flexibility and scalability of a service
    - Identification of stakeholders and their roles
    - Communication with stakeholders
    - Inclusivity and accessibility
    - Involvement of the local community and use of forums, networks and working groups
    - Monitoring and evaluation

- **Recommendations for improving Interoperability Maturity Assessment of a Public Service (IMAPS) and (Interoperability Quick Assessment Toolkits) IQAT**
  - ➢ Identification of some points for further refinement of IMAPS and IQAT©

- **Greek National Interoperability Framework documentation references inGOV and is**

Thank you

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Commission