Live

Generic Dissemination Material

Simpl-Live Feasibility Study

11/04/2025

Objective and Limitations of Document

This document contains the final version of the Generic Dissemination Material of the Simpl-Live Feasibility Studies of Specific Contract 1 of the Simpl Framework Contract. It provides an overview of the Simpl Programme, details the methodology of the Simpl-Live Feasibility Studies, focuses on the analysis and findings for each data space and concludes with information on the Simpl integration roadmap for the selected data spaces.

It is important to note that this document has an overarching and concise view across all initiatives and does not attempt to cover every detail of Simpl-Live Feasibility Study. Due to the unique status, timelines and intricacies of each data space, the scope and focus of the study are tailored accordingly.

Beginning with an overview of the broader Simpl Programme, this document situates Simpl-Live and the Simpl-Live Feasibility Study within its other components and objectives of the Simpl Programme.

The following section describes the methodology and Roadmap used in the Simpl-Live Feasibility Study, highlighting the key steps taken. It also provides an overview of Simpl-Live's past activities and next steps, highlighting key milestones and objectives. This section provides the reader with a comprehensive understanding of Simpl-Live's strategy and development.

The core of the document presents the finding and results of the feasibility assessment of the integration of Simpl-Open into the data spaces, presenting a high-level state of the initiatives and laying the foundation for further analysis. The aim here is to deepen the understanding about each data space, providing insight into its current state, commitment to Simpl-Open adoption, an overview of the data space architecture, as well as challenges and constraints. Furthermore, it presents an overview on the findings and results for each data space, presenting the specific integration scenarios and depicting indicative roadmaps and timelines for a possible integration of Simpl-Open into the data space.

The document serves as a foundational resource for members of the data space initiatives interested in gaining insights into the Simpl-Live feasibility study within the broader context of the Simpl Programme, as well as for a general audience interested in the development of the common European data space ecosystem*. It lays the groundwork for an informed and ongoing dialogue as Simpl-Live continues to evolve.

* Disclaimer: All links to the European Commission SharePoint have been deleted, since the Generic Dissemination Material will be shared with externals who do not have access.

List of Abbreviations (1/2)

Abbreviation	Full Name
AI	Artificial Intelligence
BREG-DCAT	Standard data model and specification for base registries access and interconnection
DEDL	DestinE Data Lake
DESP	DestinE Core Service Platform
DestinE	Destination Earth
DSSC	Data Spaces Support Centre
DTE	Digital Twin Engine
EC	European Commission
EHDS2	European Health Data Space
EOSC	European Open Science Cloud
ePO	eProcurement Ontology Documentation
ETL	Extract, transform, load
EU	European Union
EUMETSAT	European Organisation for the Exploitation of Meteorological Satellites
GDPR	General Data Protection Regulation
HDAB	Health Data Access Body
IAM	Identity and Access Management
IdM	Identity Management

List of Abbreviations (2/2)

Abbreviation	Full Name
LDS	Language Data Space
LLM	Large Language Model
M1-12	Month 1-12
MaaS	Mobility as a Service
NCP	National Contact Point
NLP	Neuro-linguistic programming
PDI	Personal Data Intermediary
PPDS	Public Procurement Data Space
PoC	Proof of Concept
PRE-PROD	Pre-Production
PROD	Production
Public KG	Public Knowledge Graph
SCDS	Smart Communities Data Space
SMEs	Small and Mid-sized Enterprise
SPARQL	SPARQL Protocol and RDF Query Language
SPE	Secure Processing Environment
TED	Tenders Electronic Daily
UI	User Interface

Table of Contents

*Results for each data space are included in the respective section

European Commission

Introduction Simpl Programme

Simpl-Live Feasibility Study

European Single Market for Data

Data Legislation

- Data Act
- Data Governance Act
- Open data directive
- GDPR
- NIIS Directive

Common European Data Spaces

- Health
- Industrial & Manufact.
- Agriculture
- Finance
- Mobility
- Green Deal
- Energy
- Public Admin.
- Skills
- EOSC
- Tourism
- Cultural heritage
- Media
- Language

High value datasets from public sector

European Data Innovation Board

- Facilitate the sharing of best practices
- Prioritisation of cross-sectoral interoperability standards

Data Spaces Support Centre

- Development of blueprint, glossary, etc.
- Support of data space projects

Technical Infrastructure

- Standards
- Digital identity (eIDAS)
- **Smart Middleware solutions (Simpl)**
- High-Performance Computing
- Testing and Experimentation Facilities

What is Simpl?

Middlewares are software suites that enable applications and databases to work seamlessly together and provide a flawless user experience.

Open-source means built-in trust and security, flexibility to deploy, simplicity to customize.

Simpl-Open is the open-source smart middleware that enables cloud-to-edge federations and all major data initiatives funded by the European Commission.

All major data initiatives, in particular the development of **Common European Data Spaces** in a modular and interoperable way.

Cloud-to-edge federations put together resources across cloud and edge computing environments as a cohesive system, creating a seamless integrated infrastructure that combines the strengths of both cloud and edge computing.

Simpl is Made of Three Products

The open-source smart middleware that enables cloud to edge federations enabling major data initiatives.

Simpl-Open

Playground environment for Simpl-Open
+
Interoperability test for existing data spaces

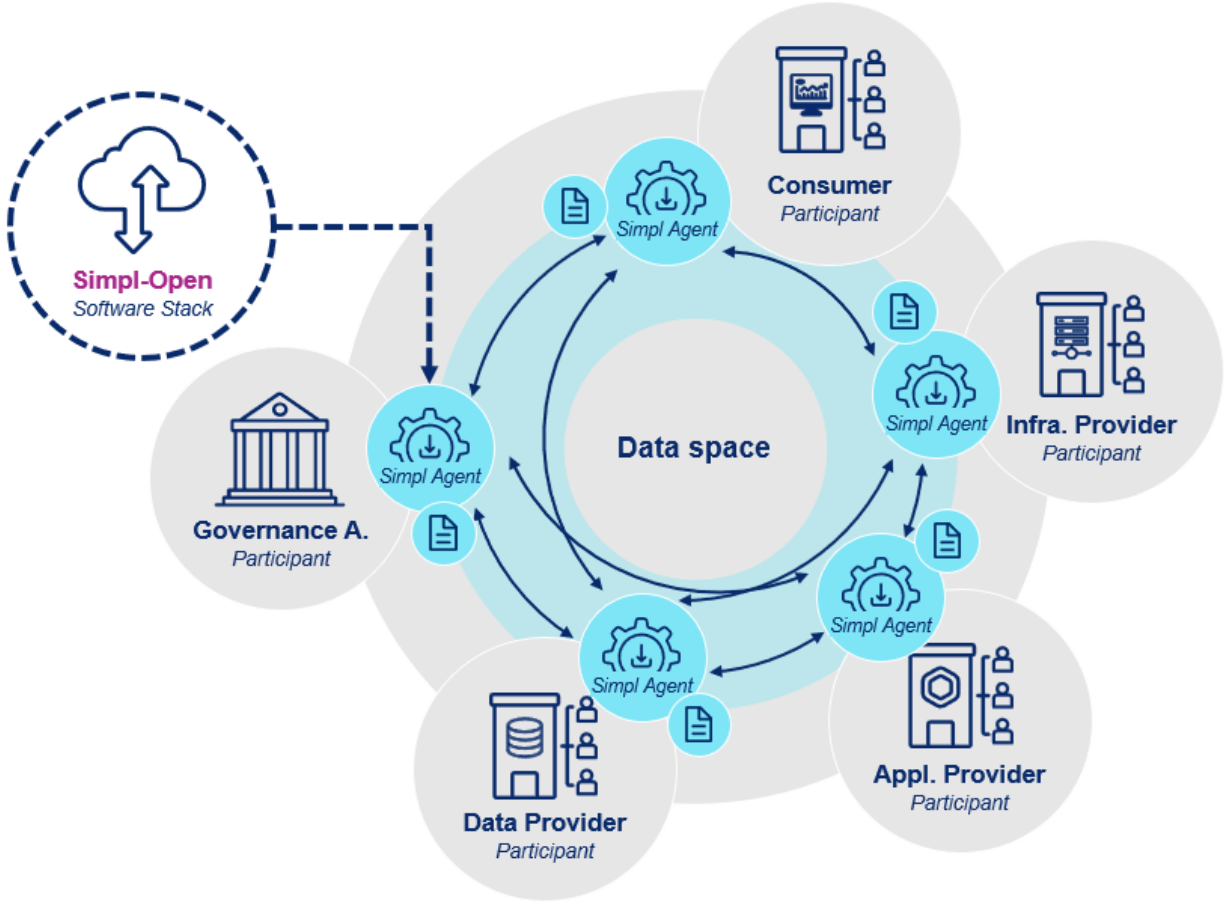
Simpl-Labs

Distinct instances of Simpl-Open software stack deployed for specific sectoral data spaces/initiatives.
European Commission plays an active role in their management.

Simpl-Live

- European Health Data Space for Secondary Data
- European Opens Science Cloud
- Public Procurement Data Space
- Destination Earth
- Language Data Space
- Smart Communities

Simpl is The Common Software Behind Common Data Spaces



Common European Data Spaces are **a federated data and service sharing ecosystems based on shared policies and rules**. Technology and contracts need to work hand in hand to enforce proper data sharing. Simpl-Open brings new features that allow a stronger technology-based enforcement. Participants of data spaces are enabled to access data in a secure, transparent, trusted, easy, and unified fashion.

Data holders remain in control of who can access and use their data, for which purpose and under which conditions.

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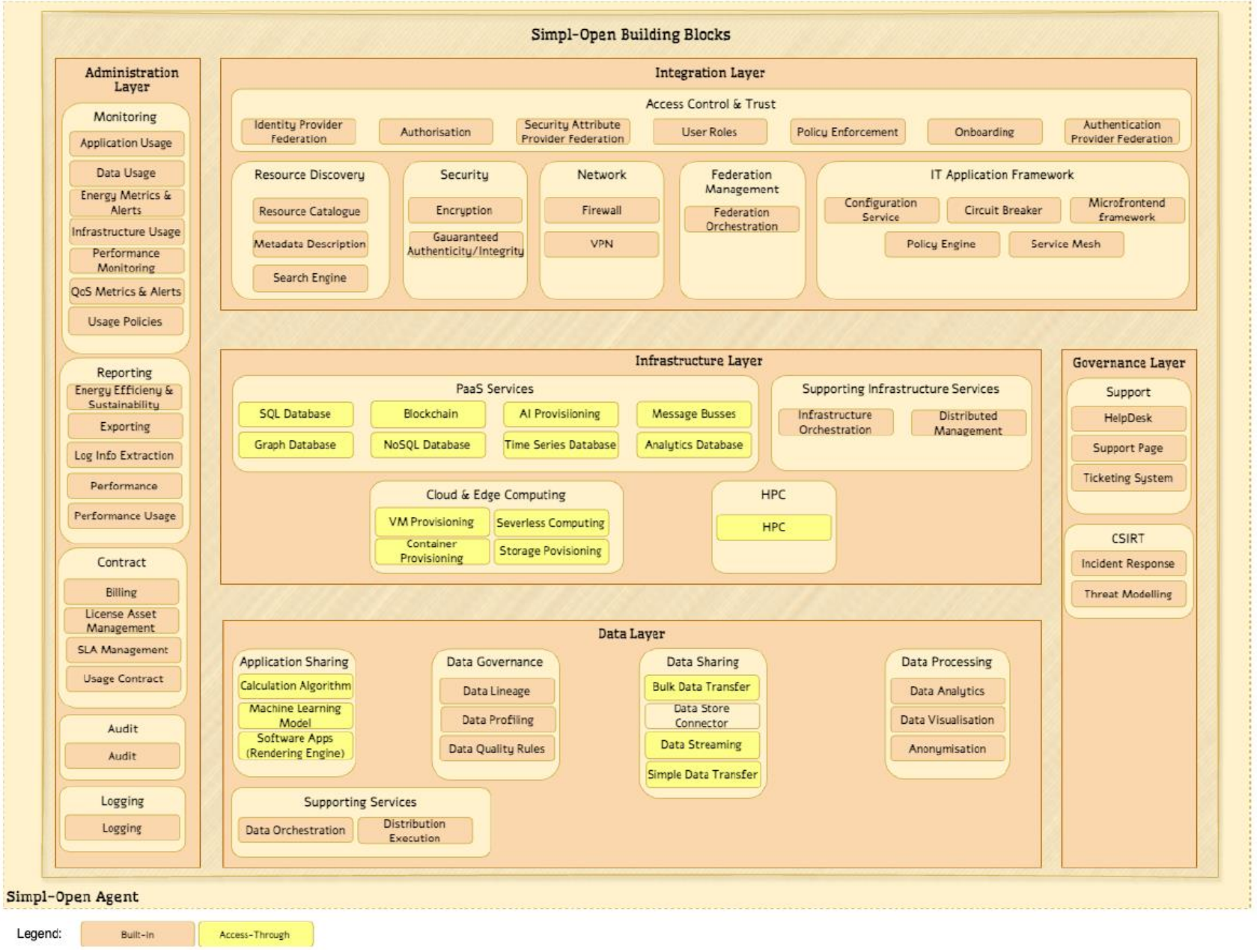
Simpl's Conceptual Architecture*



*More details on the Simpl website.

European Commission

Introduction Simpl-Live Feasibility Study

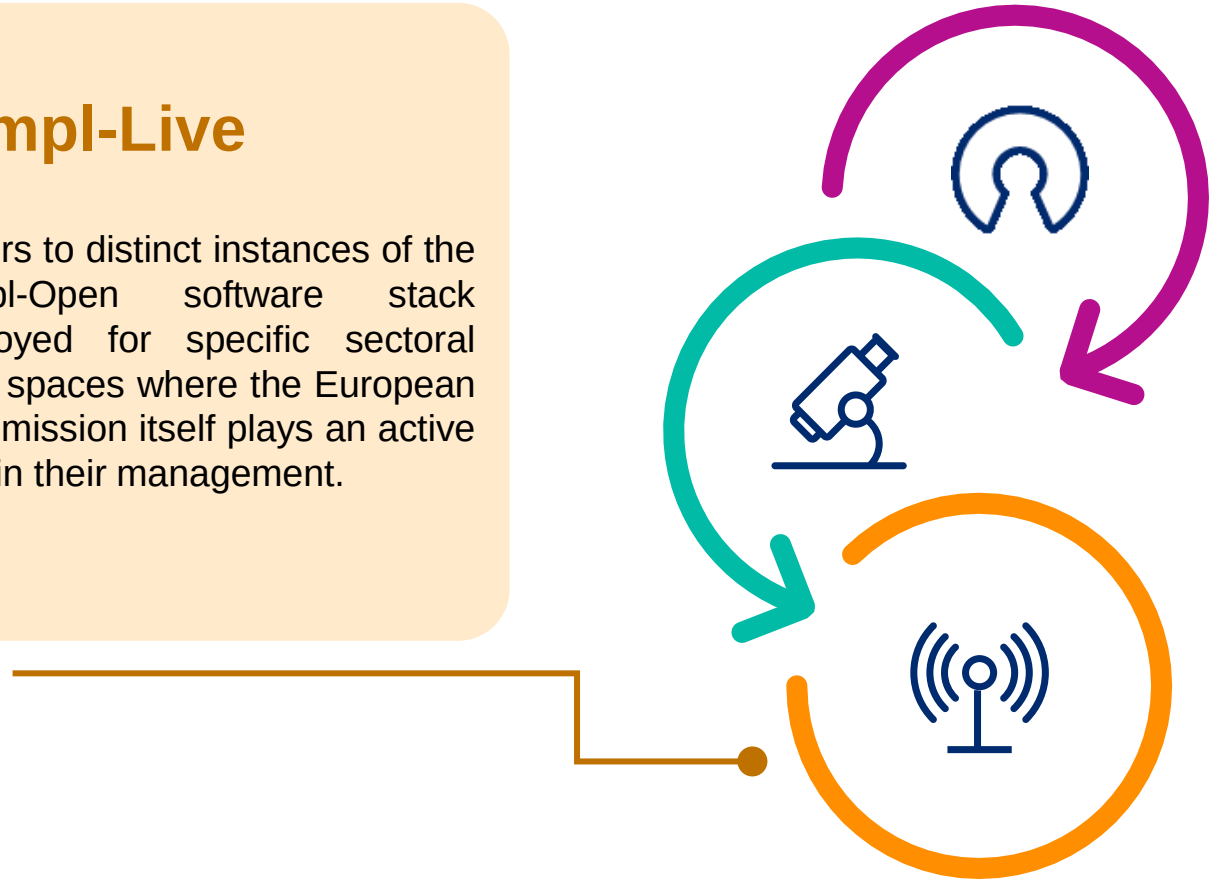
Simpl-Live Feasibility Study

Simpl-Live focuses on instances of Simpl-Open for data spaces

What is Simpl-Live?

Simpl-Live

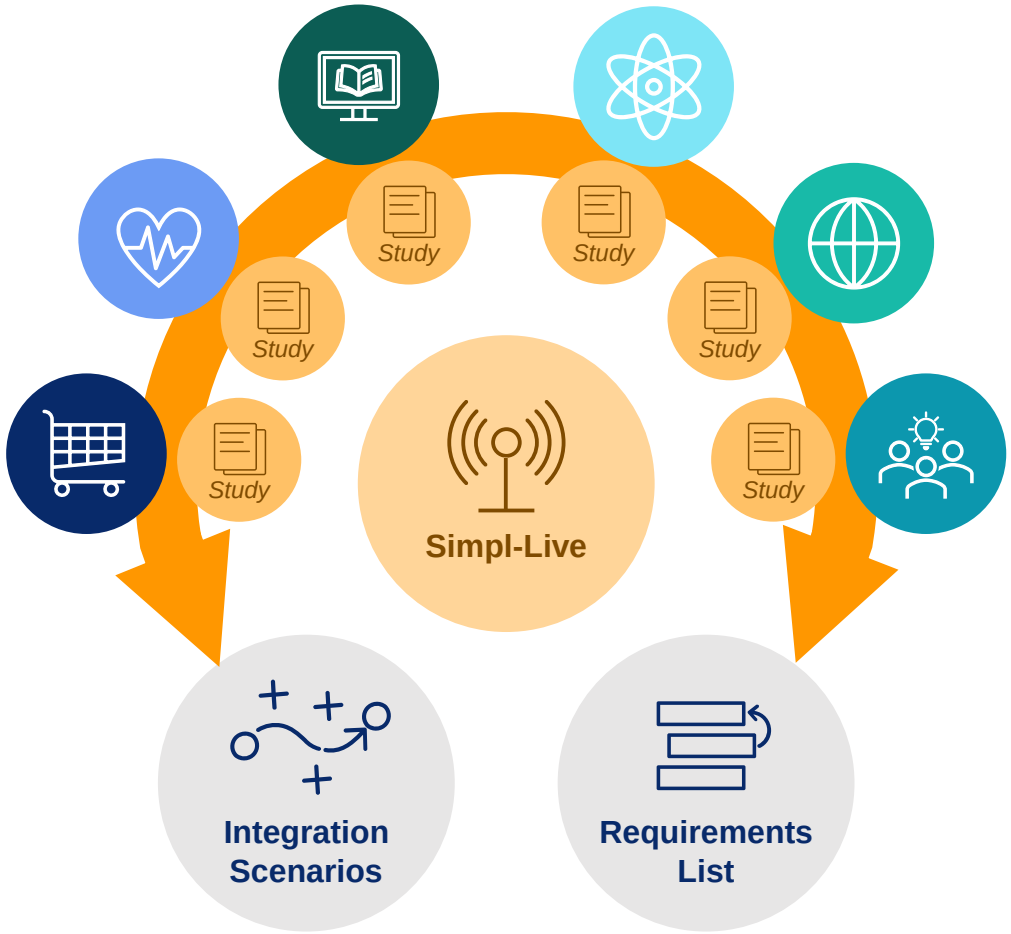
Refers to distinct instances of the Simpl-Open software stack deployed for specific sectoral data spaces where the European Commission itself plays an active role in their management.



Simpl-Live Feasibility Study - Objectives

Three core objectives

- Simpl-Live supports the implementation of Simpl-Open in existing data spaces/initiatives, via feasibility studies.
- Simpl-Live defines the integration scenario and roadmap of Simpl-Open deployment in selected data spaces/initiatives.
- By working directly with the data spaces/initiatives, Simpl-Live provides common requirements to be considered and prioritised by Simpl-Open.



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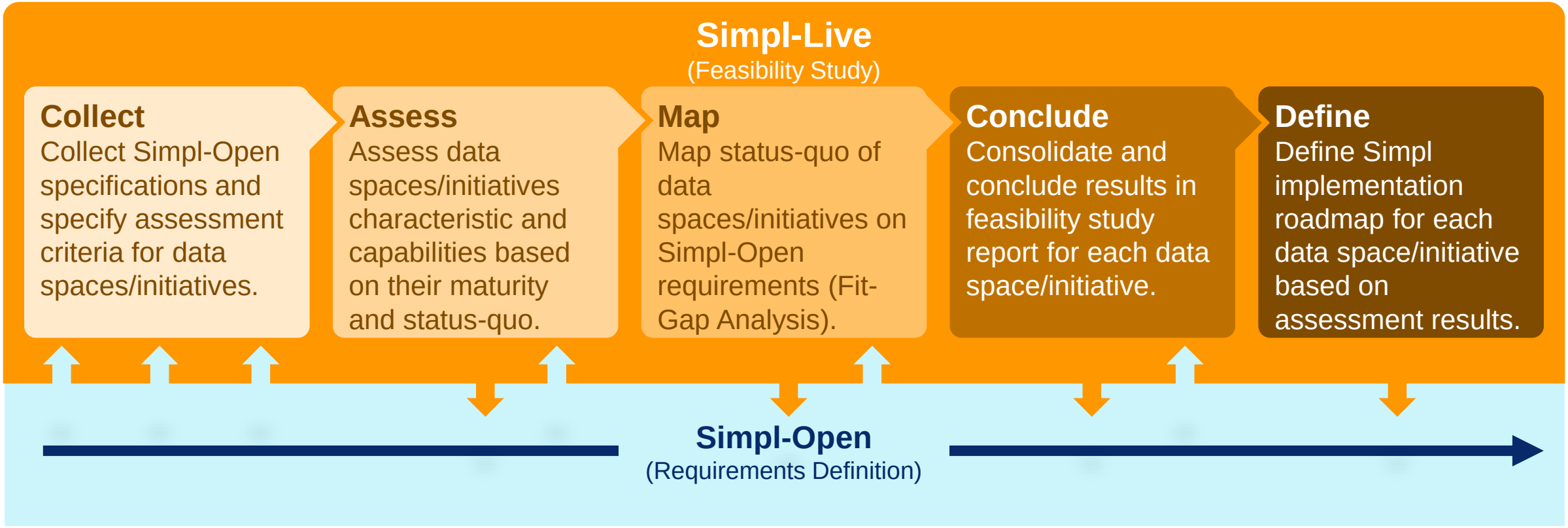
Methodology and Timeline

Simpl-Live Feasibility Study

Simpl-Live Methodology

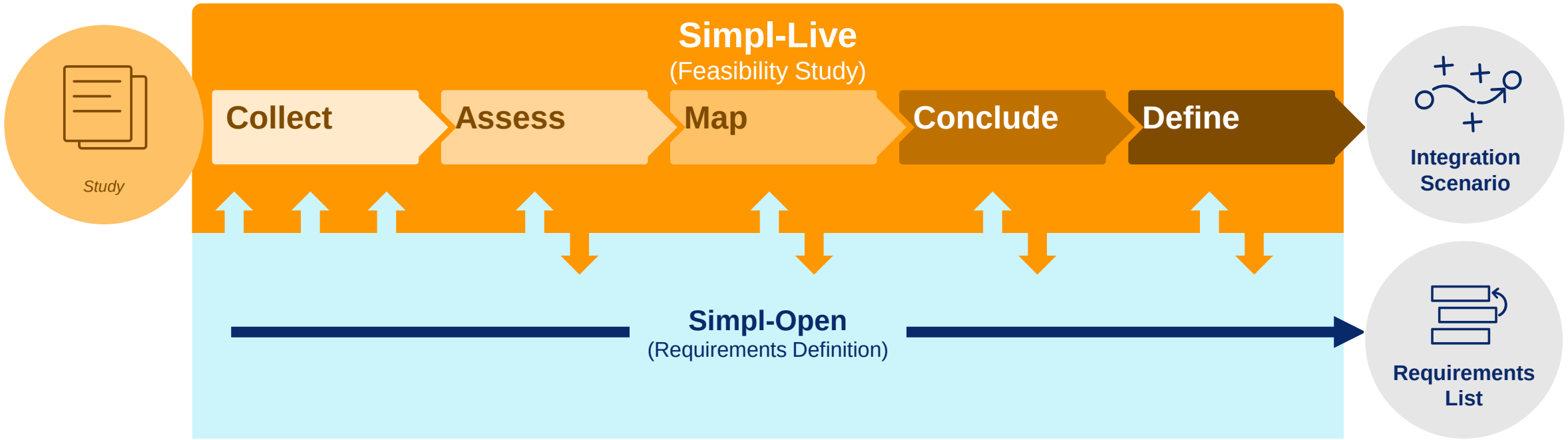
Sequential actions guide the assessment process, focusing on a fit-gap analysis and implementation strategies.



Regular alignments with Simpl-Open facilitate feedback integration and ensure coherence with project objectives.

Simpl-Live Methodology and its objectives

By following the Simpl-Live methodology, the objectives of the project are fulfilled.



The results of the Simpl-Live feasibility study provide feedback for both Simpl-Open and each data space on how to integrate Simpl.

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Overview of Simpl-Live Feasibility Studies 2024 (Contract 1)

The assessment of the feasibility of Simpl-Open deployment has been conducted with six initiatives.

Public Procurement Data Space (PPDS)

Unites European public procurement data.

European Health Data Space for Secondary Use of Health Data (EHDS2)

Enables secondary use of health data for research and policy.

Language Data Space (LDS)

Platform for multilingual language data sharing and reuse.

European Open Science Cloud (EOSC)

Seamless research data storage, management, and analysis across borders.

Destination Earth (DestinE)

"Digital Earth" model to monitor and predict interaction between nature and human activities.

Smart Communities Data Space (SCDS)

Trustworthy AI and interoperability for cross-sectoral government services.

Simpl-Live Feasibility Study Project Approach

The Simpl-Live roadmap comprised five successive steps that were driven by the overall methodology.

1. Simpl-Live Strategy

Defined Simpl-Live methodology and strategy in line with Simpl-Open.

2. Data space Overview and Assessment Criteria

Obtained status-quo, aligned timeline and roadmap with data spaces and specified assessment criteria.

3. Feasibility Study Report

Carried out a comprehensive feasibility assessment of the individual data spaces with the aid of a fit-gap analysis.

4. Implementation Roadmap

Synthesis assessment insights and derived individual Simpl-Open implementation roadmap.

5. Submitted Feasibility Study and Roadmap

Concluded feasibility study and roadmap, finalised results and hand over deliverables.

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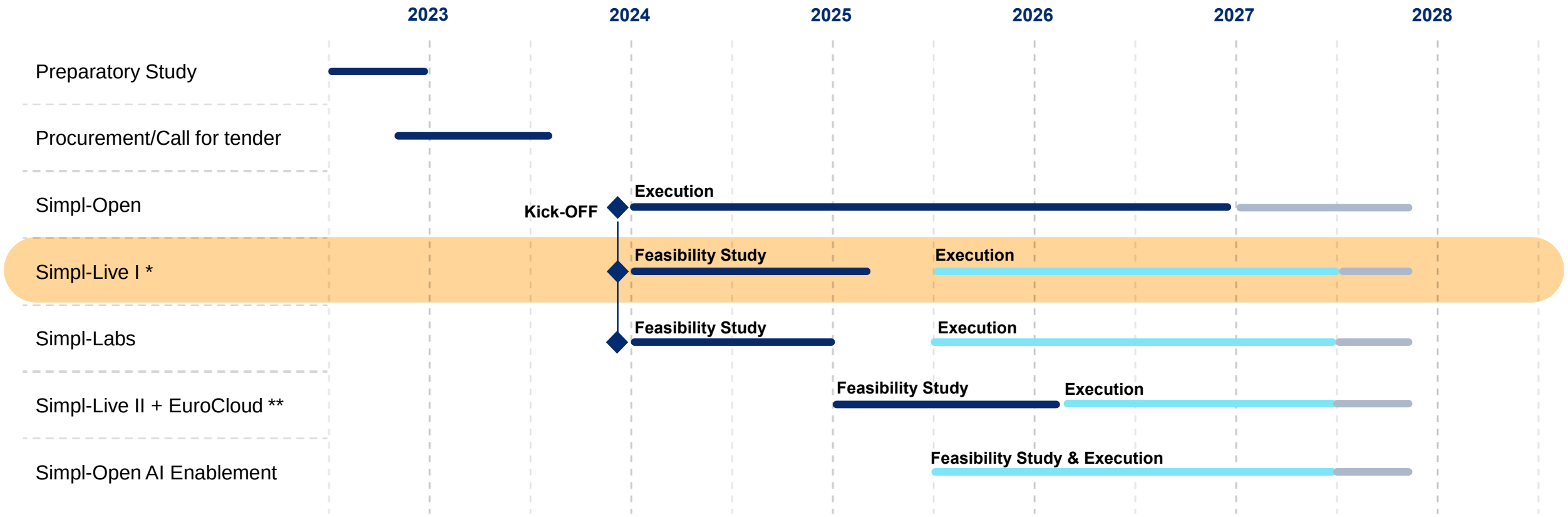
What’s next for Simpl-Live?

Simpl Programme Roadmap.

- Committed scope
- Possible Follow up - Implementation of Simpl-Live/Labs; Simpl-Live Feasibility Studies for new data space initiatives
- Potential next step still to be validated



* Data spaces included: PPDS, EHDS2, LDS, EOSC, DestinE, SCDS

** Data spaces included: Common European Agriculture Data Space, Green Deal Data Space, Common European Mobility Data Space, Common European Energy Data Space

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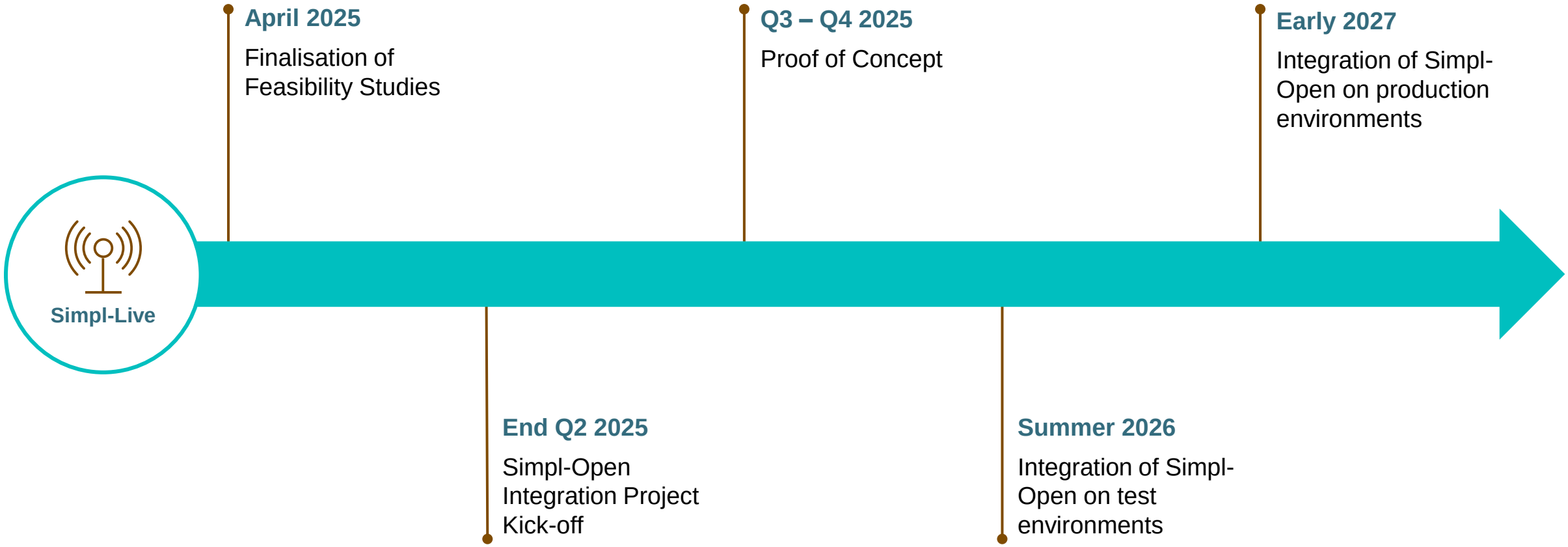
Next steps* for the data spaces/initiatives from 2024

Each data space/initiative has its own integration scenario with its own roadmap.



*Tentative roadmap subject to contractual procedures.

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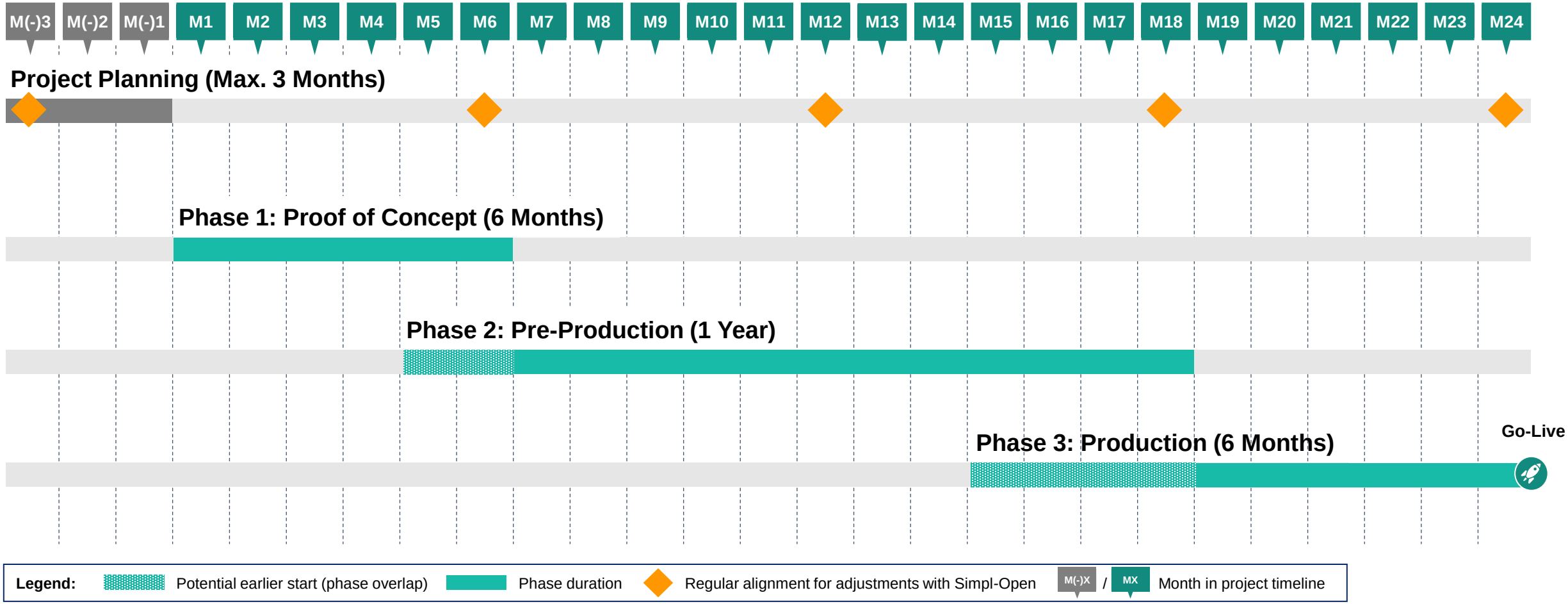
Integration Roadmap – Timeline

A tentative roadmap, subject to contractual steps, is presented for each data space initiative.



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Analysis and Findings

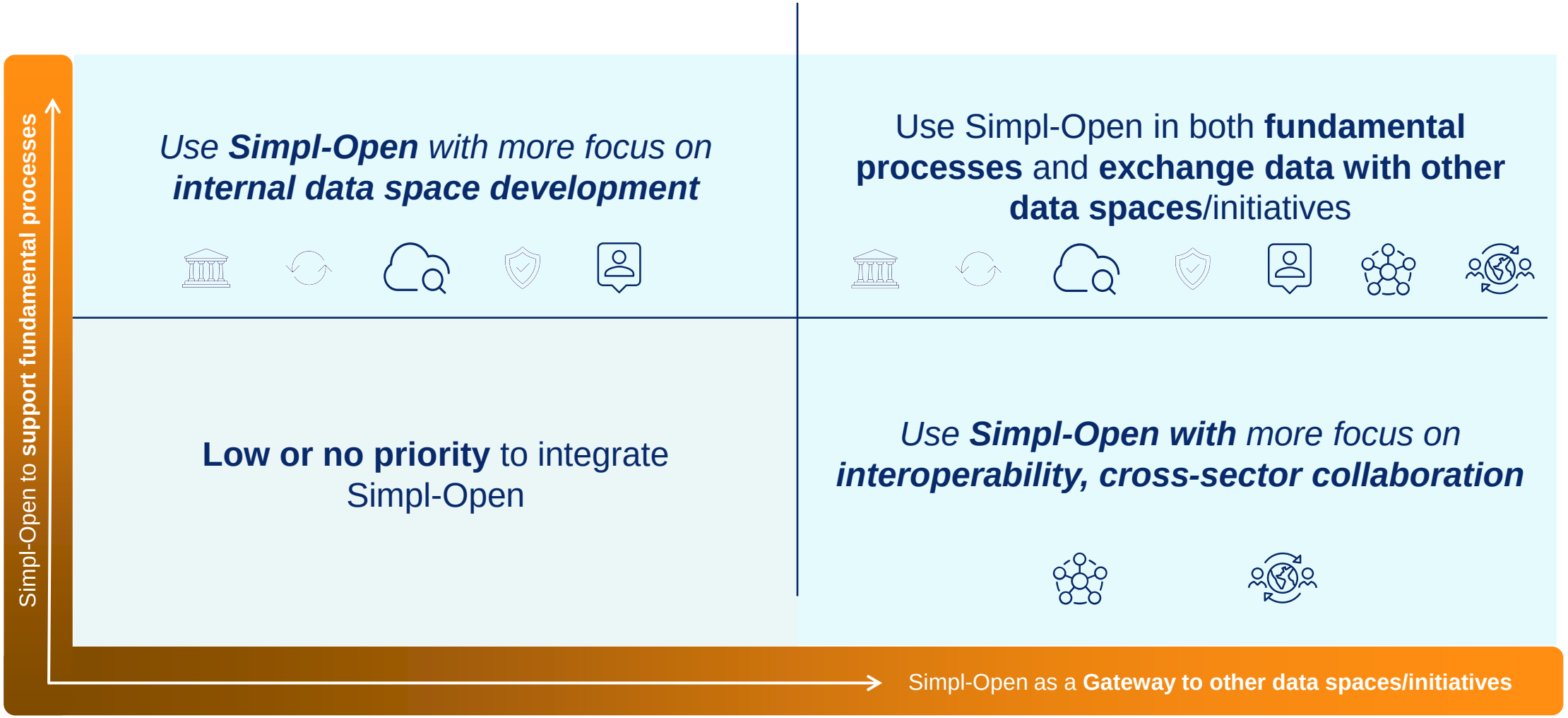
Simpl-Live Feasibility Study

Integration Scenarios

Simpl-Live Feasibility Study

Different ways to use Simpl-Open for integration scenarios

The integration scenario depends on the data space initiative priorities, objectives and state of development.



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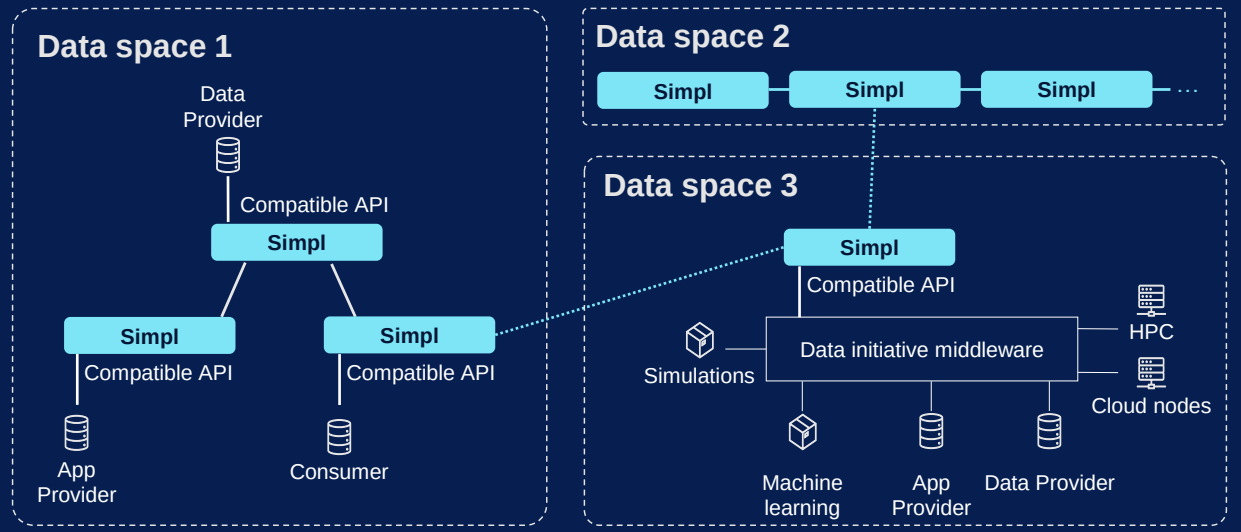
Different ways to use Simpl-Open for integration scenarios

Case 1: Simpl-Open as a gateway to other data spaces/initiatives.

Integration of Simpl-Open as a gateway

- Interoperability
- Cross-sector collaboration
- Compliance and security



Simpl-Open as a gateway allows for connecting to a single source, facilitating collaboration across data spaces/initiatives and sectors.

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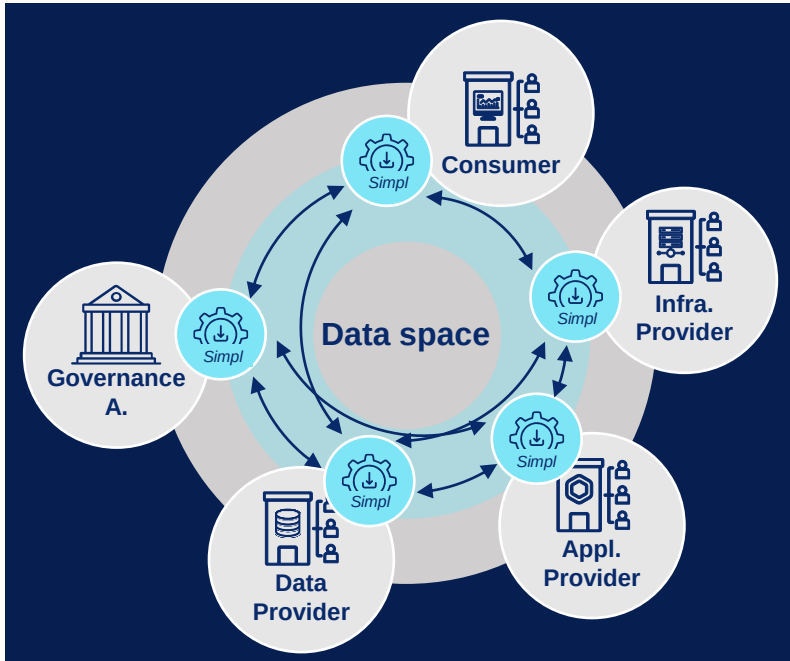
Different ways to use Simpl-Open for integration scenarios

Case 2: Simpl-Open to enable data space fundamental processes.



Integration of Simpl-Open for fundamental processes, such as:

- Governance & auditability
- Security and Compliance
- Data Ingestion & Transformation
- Interoperability
- Metadata Management & Discovery
- Personal Data Handling

Simpl-Open provides building blocks to facilitate essential internal business processes and governance.

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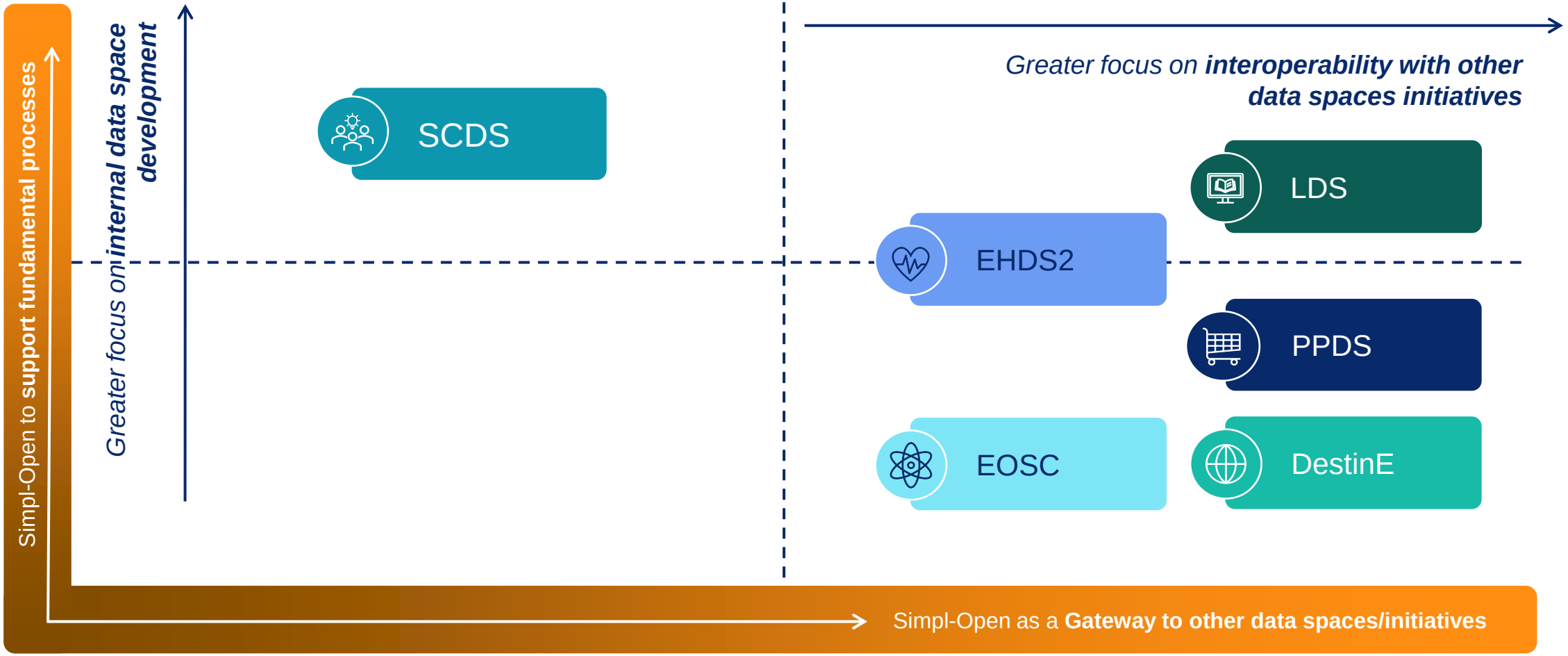
Mapping of the data spaces/initiatives into the different ways of using Simpl-Open

Initiatives of the Simpl-Live Feasibility Studies 2024.



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PPDS

Findings and Results

Simpl-Live Feasibility Study

PPDS I Data Space Overview

The PPDS enhances accessibility for effectively using public procurement data.

Public Procurement Data Space Overview

Purpose

Creating a comprehensive data space that consolidates public procurement data across Europe and provides interoperability through common data semantics (ePO Ontology).

Status-quo

The PPDS is preparing for scale-up, aiding Member States in connection, enhancing analytics tools, deploying a quality dashboard, and integrating historical data. The PPDS went live in September 2024.

Potential Benefits of Simpl-Open

PPDS shows interest and sees benefits in working with other initiatives to enrich procurement data with additional data such as company information. In addition, PPDS declares its willingness to provide public procurement data for access to other data spaces.

Exemplary Use cases

Targeting public funds towards policy priorities

PPDS will enable policymakers to identify and target areas where public spending can have the greatest impact.

Enhancing transparency and integrity

The PPDS helps safeguard against corruption and unethical practices, fostering trust and confidence in public institutions.

Facilitating access for businesses and SMEs

The PPDS simplifies the process for companies and SMEs to access tenders across the EU, breaking down barriers and promoting fair competition.

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PPDS I Overview: Technical Architecture

PPDS has a highly centralised structure due to the need for a comprehensive data orchestration process. To integrate Simpl-Open to PPDS, a Simpl Agent would be connected to the public knowledge graph.

Architecture & Main Components:

PPDS Web Portal

The PPDS Web Portal serves as the primary interface for accessing procurement data, ensuring compliance with EU standards and providing secure access controls.

Data Collection

Data collection is essential for effective data management and analysis, involving the gathering, acquisition, and recording of data from diverse sources to facilitate storage and ingestion across PPDS workflows.

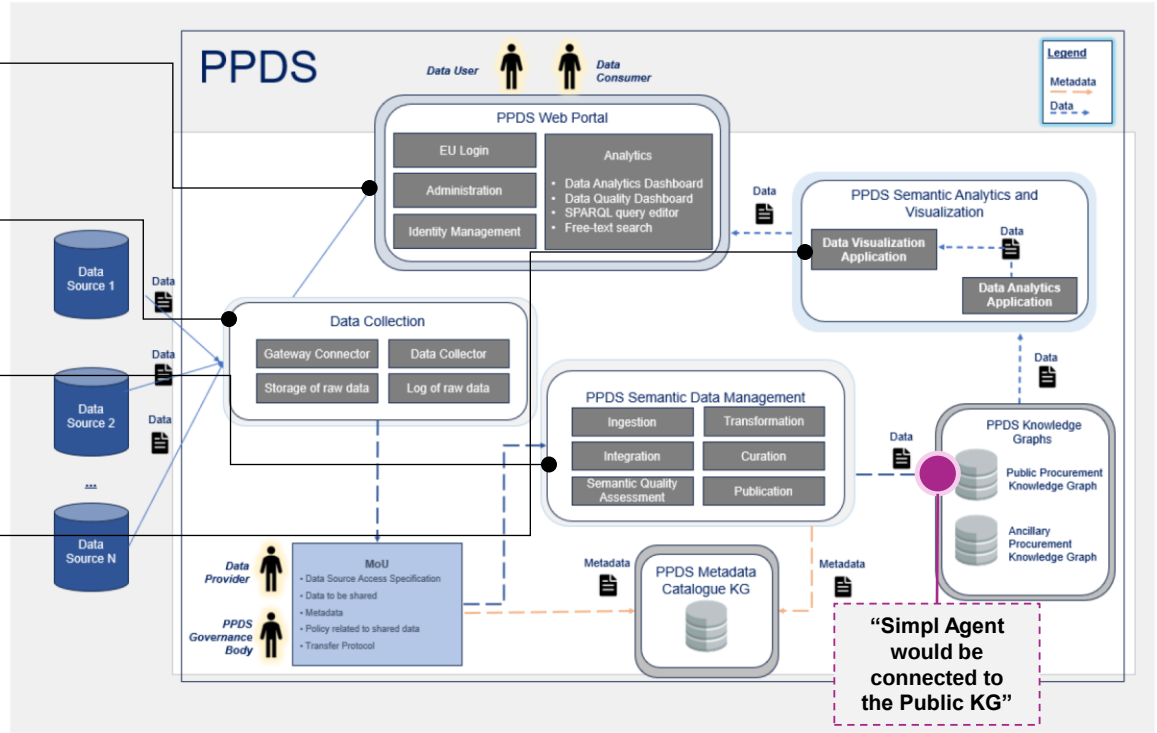
PPDS Semantic Data Management

Information is processed to semantic format and detailed with metadata to aid in content discovery. Processed data is validated and stored in PPDS knowledge graphs, using standard vocabularies like ePO ontology for data and BREG-DCAT for metadata.

PPDS Semantic Analytics and Visualisation

The tools provided in this component facilitate the assessment of performance indicators and user interaction.

PPDS Architecture



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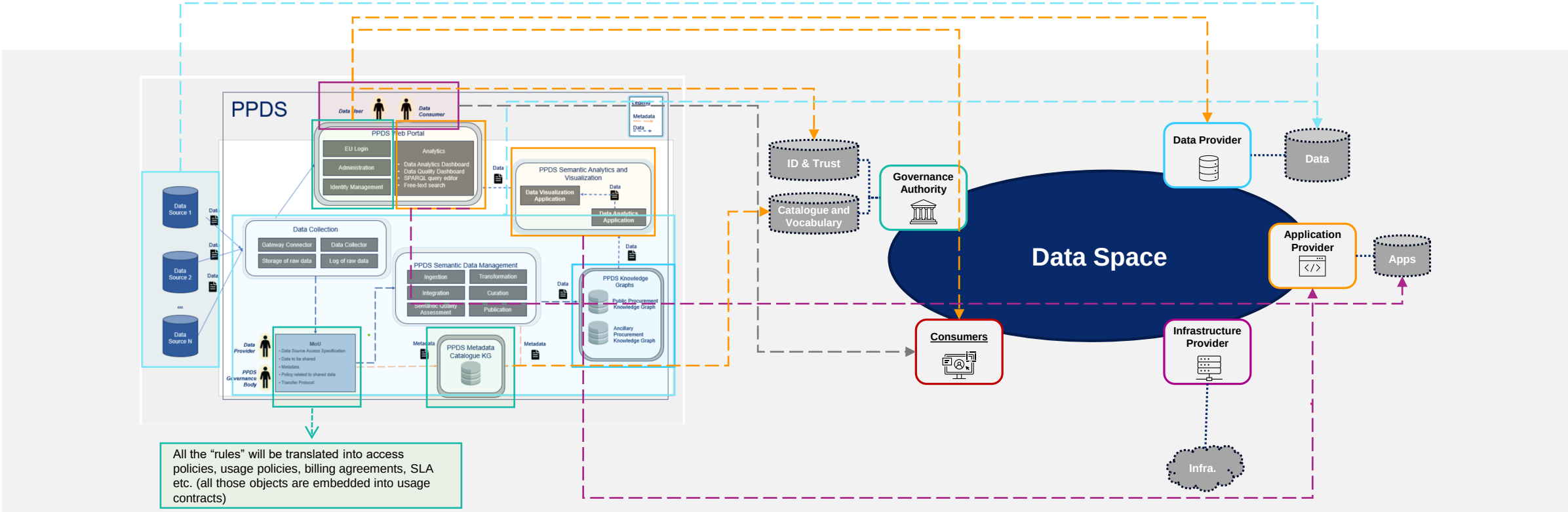
PPDS I Functional Architecture & Capabilities

PPDS architecture was mapped to the Simpl-Open Blueprint of a data space to identify what may need to be considered by Simpl-Open.



The centralised PPDS approach does not align with the decentralised model of Simpl-Open or data space approaches, which aim for distributed data management. However, PPDS could benefit from Simpl-Open capabilities that would complement PPDS existing capabilities and components. Furthermore, Simpl-Open integration into PPDS could enhance interoperability with other data spaces.

PPDS I Recommended Integration Scenario

A centralised integration appears to be the optimal scenario for PPDS, ensuring consistent data quality and governance. Simpl-Open capabilities can complement PPDS's existing components.

Objective for Integration

- Enhance interoperability with other data spaces for accessibility to public procurement data and develop analytical capabilities for various stakeholders.
- Accelerate PPDS development by leveraging on Simpl-Open capabilities.

Key Considerations & Constraints

- **Centralised structure**: PPDS has a highly centralised structure due to the need for a comprehensive data orchestration process. All data is stored within PPDS.
- **Manual onboarding and ETL:** The onboarding process for data providers is manual, and data providers cannot independently handle the ETL process and data harmonisation.
- **Data and metadata management**: PPDS stores data and metadata together in a Knowledge Graph.

Recommended Integration Scenario

Simpl-Open will integrate with the PPDS Public Knowledge Graph, enabling PPDS to connect with other data spaces. The Simpl-Open middleware may support PPDS in the following areas:

Access control & trust

- As Keycloak currently works on its own and PPDS would like to connect it to EU Login, Simpl-Open could provide authentication provider federation and authorisation services to verify users' identities and handle user permissions.

Data and metadata management & discovery

- PPDS has a high interest in Simpl-Open data discovery capabilities: data catalogue, metadata description, and search engine to enable access to the PPDS metadata catalogue;
- Simpl-Open can create a centralised metadata catalogue managed by the governance authority. Due to the current limitations of Simpl-Open, the process of mapping metadata to data for each new data provider will remain manual;
- Simpl-Open will not handle the data transformation itself but will rely on the centralised PPDS process to harmonise data received from TED and national public procurement systems. This process will not be decentralised as it complicates governance and creates technical challenges.

Monitoring data usage and usage policies

- PPDS already uses a policy management tool (ODRL to specify the policy and Breg-DCAT to specify the metadata) to manage policies with data providers. Simpl-Open could manage the policies for data consumption: supervision of the amount and type of data flowing through Simpl and what it is being used for. It could also integrate usage control capabilities regarding policies that describe the terms of conditions of how data can be used on the consumer side.

PaaS services and application sharing

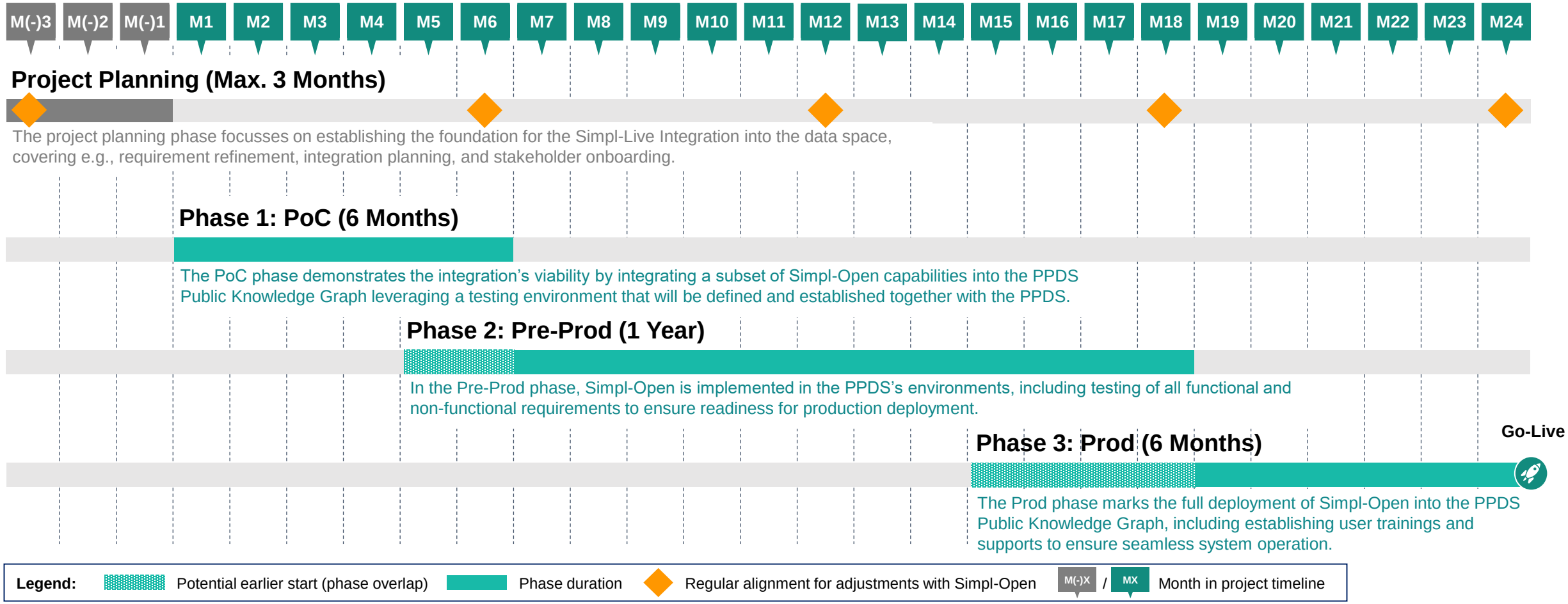
- Simpl-Open will provide an application catalogue, metadata description, and search engine. These capabilities will support PPDS by enabling the discovery and access to applications across different data spaces. Application providers within Simpl-Open could offer AI services, analytics services, and machine learning models, allowing data consumers to gain insights from PPDS data. PPDS itself could also act as an application provider;
- Large Language Model (LLM) should be trained/refined with SPARQL in order to be useful for PPDS.

Security

- Public Key Infrastructure (PKI) could support PPDS by managing digital keys for secure communication, authentication, and data integrity. It will be important for connecting with other data spaces, ensuring secure data exchange. Future plans include integrating AI and machine learning models, with PKI playing a key role in establishing Simpl as a trusted, secure-by-design platform.

PPDS I Integration Roadmap – Timeline*

The timeline for the Simpl-Live integration for PPDS.



*The detailed integration roadmap is presented in the Feasibility Study Report for PPDS.

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PPDS I Integration Roadmap – Estimated Progress*

The tasks for the integration roadmap for PPDS are estimated to progress as presented below.

Simpl-Live Operating Model Task	PoC	Pre-Prod	Prod
1. Data Space Organisation			
2. Data Space ID, Trust & Security			
3. Governance and Compliance			
4. Data Space Standard and Policies			
5. Data Space Processes			
6. Platform and Infrastructure			
7. Deployment, Configuration, Customisation			
8. Qualification Services & Training			
9. Communications, Migration, and Entry in Operations			
10. Operations and Maintenance			
11. Change Management**			
12. Data Space Services Desk			

Legend: 

*The detailed integration roadmap is presented in the Feasibility Study Report for PPDS.

**Change Management remains an ongoing task to address evolving technical needs, updates, and participant onboarding, ensuring continuous adaptation and stability.

European Commission

EHDS2

Findings and Results

Simpl-Live Feasibility Study

EHDS2 I Data Space Overview

The EHDS2 will enhance EU knowledge on health data for better policy-making and a more efficient market.

European Health Data Space Overview

Purpose

EDHS2 is an EU ecosystem comprised of standards, IT infrastructures, and governance rules that enable the cross-border use of health data for research, innovation, policy, and regulation.

Status-quo

The EC, with the HealthData@EU Pilot project, released an early version of the HealthData@EU Central platform and infrastructure that allows to discover data sets and apply for access. The final version is planned for 2026. A regulation, implementing acts and funding grants, support the integration of Member States.

Potential Benefits of Simpl-Open

Simpl-Open may accelerate the development of the EHDS2 data space by providing specific services and capabilities (e.g., support of governance functionalities, access to the Central Platform catalogue resources) and better interoperability within and across data spaces.

EHDS2

Exemplary Use cases

Infectious disease surveillance

Carry out infectious disease surveillance for antimicrobial resistance on Finnish, Belgian, Norwegian and Croatian data.

Thrombosis in COVID-19 patients

Estimate incidence of thrombosis in the general population, patients with COVID-19 with or without vaccination. Using various data points.

Cardiometabolic diseases

Building AI prediction models for cardiometabolic diseases based on data about care pathways for cardiometabolic diseases from several EU countries.

EHDS2 I Overview: Systems Architecture

EHDS2 is participated by EC, Member States, agencies (also not EU) holding health data for secondary use.

Main Components:

HealthData@EU Cross-border Infrastructure

HealthData@EU central platform

A central interoperability system offered by the EC providing services to support and facilitate the exchange of electronic health data between national contact points for digital health.

Cross-border gateway

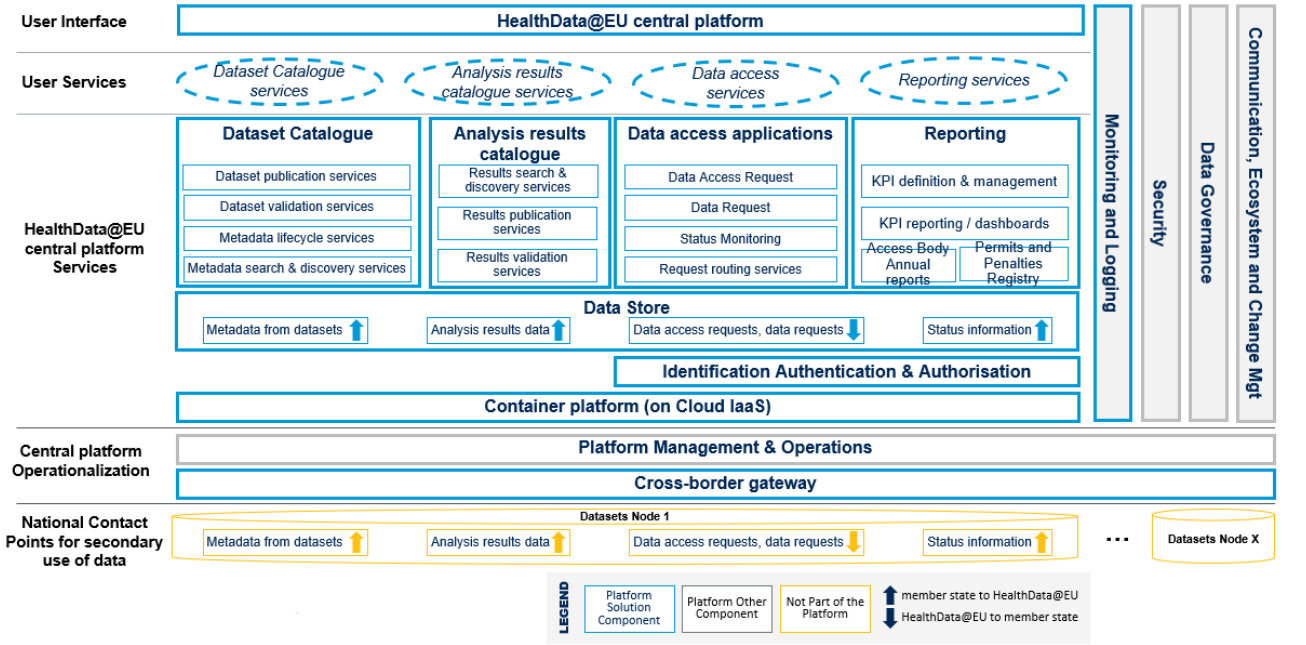
Technical Component allowing the Member States to participate in the EHDS2 to send metadata in a standard format and a secure way.

HealthData@EU National Infrastructure

National Contact Point (NCP) for secondary use of health data

Organisational and technical gateway enabling the cross-border secondary use of electronic health data, under the responsibility of the Member States.

EHDS2 systems & dependencies



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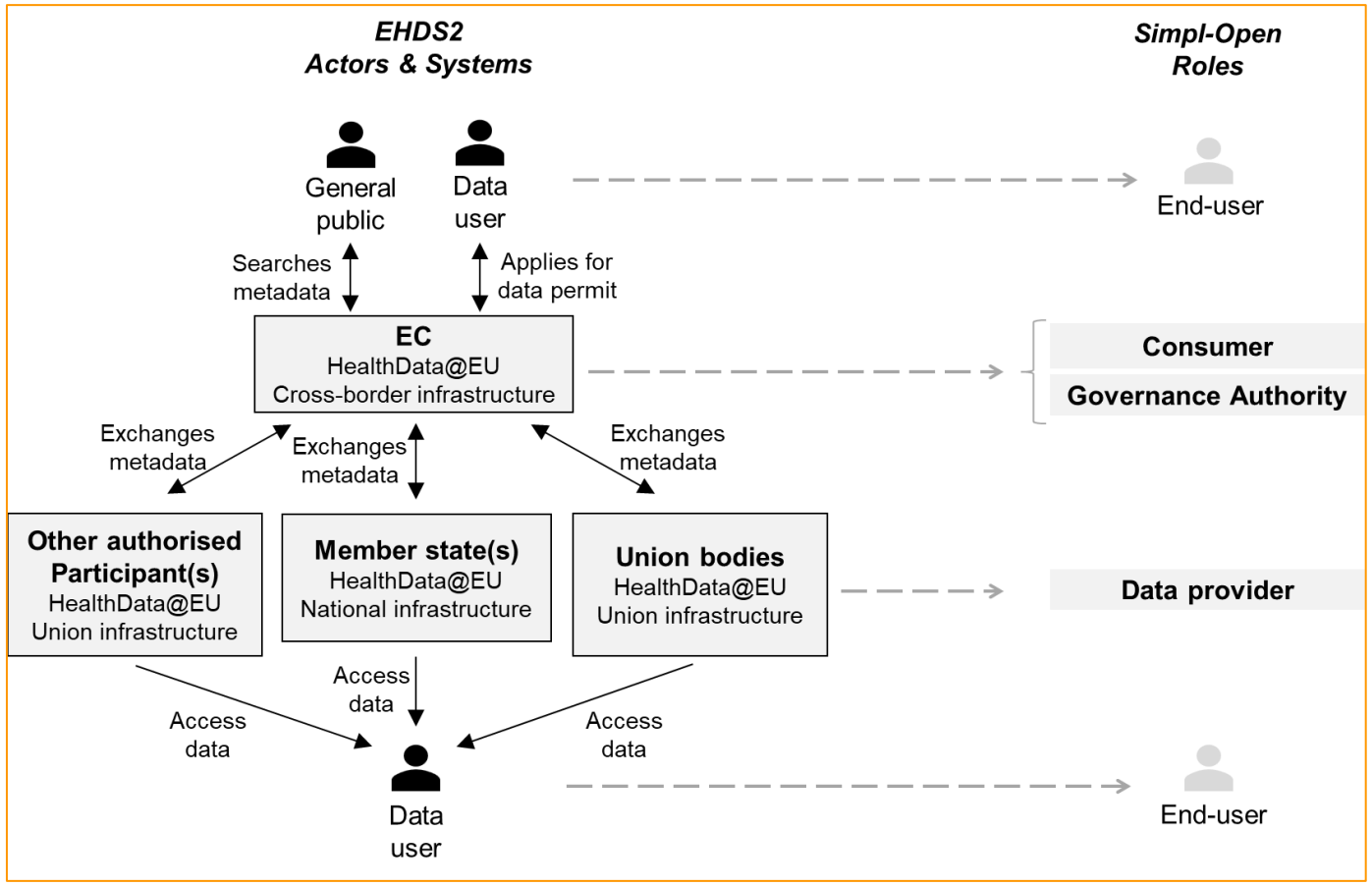
EHDS2 I Functional Architecture & Capabilities

Simpl-Open roles played by the different users and participants to the EHDS2.



- The general public and Data users (Simpl-Open **end users**) explore the metadata and request access to datasets on the **EU catalogue** provided by the Simpl-Open **Governance Authority** node (deployed as part of the **Central Platform**).
- A **Member State** (or another authorised participant) is a Simpl-Open **Data Provider.**
- The Central Platform also plays the role of Simpl-Open **Consumer** (allowing data users to ask for access, and to download data, when permitted).

EHDS2 I Recommended Integration Scenario

Adoption of Simpl-Open for HealthData@EU Central Platform with a two complementary scenarios.

Objective for Integration

- Simplify the development of the data space;
- Increase interoperability both within the data space and (in the future) with other data spaces.
- Two integration scenarios are proposed (the second being an extension of the first)
  - The first is aimed at the systems that are fully under the control of the EC;
  - The second at the systems that are under the control of the other Member States but are technically constrained by the EC.

Key Considerations & Constraints

- The EHDS2 is a distributed system where different nodes are governed by different organisations both from the operational and the design point of view;
- The EC will implement, deploy, and manage the HealthData@EU Central Platform and the Cross-Border Gateway;
- The Commission will lay down the technical specifications necessary to operationalize the requirements of the EHDS Regulation for the National Contact Points for Secondary Use (NCP) and Secure Processing Environments (SPEs);
- Simpl-Open should consider in their design the compatibility with EHDS2 results already released;
- Before developing new modules, EHDS2 should check if there are relevant SIMPL agent solutions.

Recommended Integration Scenario

Simpl-Open may support the HealthData@EU Central Platform and Infrastructure by following two integration scenarios (the second being an extension of the first):

Scenario 1: Simpl-Open adoption by HealthData@EU Central Platform and Infrastructure

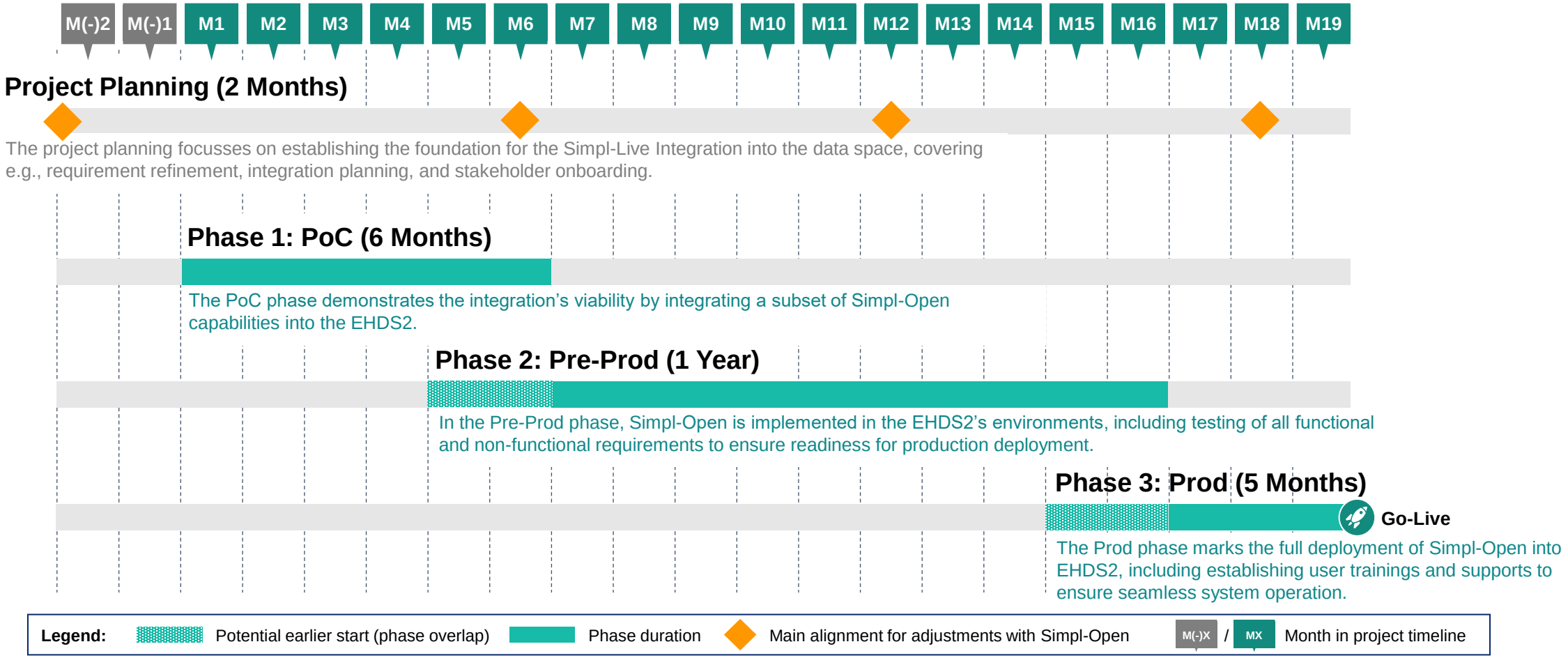
- Simpl-Open is used to implement those components of the central platform whose capabilities match those offered by Simpl-Open and are considered relevant by the EHDS2.
  - These include Identification; Authentication and Authorisation; Dataset Catalogue; Analysis results catalogue; Data Access application; Reporting; Monitoring and Logging.
- The Central Platform plays the role of both the Simpl-Open Governance Authority node and the Simpl-Open Consumer node.
  - Therefore, the Central Platform will integrate two different instances of Simpl-Open agents.
  - The Simpl-Open Governance Authority agent will be customised so that its catalogue supports the Health DCAT-AP format and related vocabularies.
  - The two Simpl-Open agent instances will also cover the communication functionalities of the Cross-Border Gateway
- All Simpl-Open business processes relevant to the EHDS2, except for the data usage one, can be supported by Simpl-Open.

Scenario 2: Simpl-Open adoption by two additional systems which have to be deployed by the Authorised Participants

- Simpl-Open is used to implement two additional systems which have to be deployed by the Authorised Participants: the (National) Contact Point M2M deployed by the NCP, and the SPEs deployed by the HDABs or Trusted Health Data Holders.
  - Simpl-Open could be used by NCPs or by the coordinator HDABs for its potential future capabilities supporting the opt-out.
  - The NCP M2M plays the role of the data provider node, while the SPEs play the role of the infrastructure provider.
  - The NCP M2M is the system that communicates to the Governance Authority the metadata to be published on the data space catalogue owned by the Governance Authority.
  - Data access is not provided by the NCP M2M, but by applications running within the SPEs and controlled by the HDABs or trusted health data holders.
  - The SPEs will host the software used for the anonymisation or pseudonymisation processing to be performed on the data sets before sharing it with data users, as well as the software applications used by users to access processed data.
- All Simpl-Open business processes relevant to EHDS2 can be supported by the Simpl-Open middleware.

EHDS2 I Integration Roadmap – Timeline*

The timeline of the Simpl-Live integration for EHDS2.



*The detailed integration roadmap is presented in the Feasibility Study Report for EHDS2.

European Commission

EHDS2 I Integration Roadmap – Estimated Progress*

The tasks for the integration roadmap for EHDS2 are estimated to progress as presented below.

Simpl-Live Operating Model Task	PoC	Pre-Prod	Prod
1. Data Space Organisation			
2. Data Space ID, Trust & Security			
3. Governance and Compliance			
4. Data Space Standard and Policies			
5. Data Space Processes			
6. Platform and Infrastructure			
7. Deployment, Configuration, Customisation			
8. Qualification Services & Training			
9. Communications, Migration, and Entry in Operations			
10. Operations and Maintenance			
11. Change Management**			
12. Data Space Services Desk			

*The detailed integration roadmap is presented in the Feasibility Study Report for EHDS2.

**Change Management remains an ongoing task to address evolving technical needs, updates, and participant onboarding, ensuring continuous adaptation and stability.

European Commission

LDS

Findings and Results

Simpl-Live Feasibility Study

LDS I Data Space Overview

The LDS will be the single marketplace for sharing language data and developing language technologies.

Language Data Space Overview

Purpose

Implementation of a European platform and marketplace for the collection, creation, sharing, monetising and re-use of multilingual and multimodal language data to power the development of language technologies and AI-based language technology services.

Status-quo

The LDS is being set up under a 3-year EC-funded contract. The project started in January 2023 and the expected go-live is in 2026 (with the possibility of a 1-year extension). The focus is currently on the technical development, promotion, and governance setup.

Potential Benefits of Simpl-Open

LDS shows interest in collaboration with other initiatives and data spaces (such as Media and Cultural Heritage) that hold high-quality language data to enrich current data assets. Providing a standardised interface Simpl-Open addresses LDS's business needs, avoiding individual efforts of connecting with selected initiatives.

LDS

Exemplary Use cases

Development of NLP/LLM technologies

Organisations can check in the LDS if data sets are available that cover their needs and purchase them.

Provision of language data

Organisations can make language data sets available while always retaining ownership.

Data preprocessing

Preprocessing services, e.g., anonymisation, can be provided by organisations through the LDS.

LDS I Overview: Technical Architecture

LDS is being designed and implemented in alignment with DSSC guidelines, creating a solid basis for future interoperability with other data spaces.

Architecture & Main Components

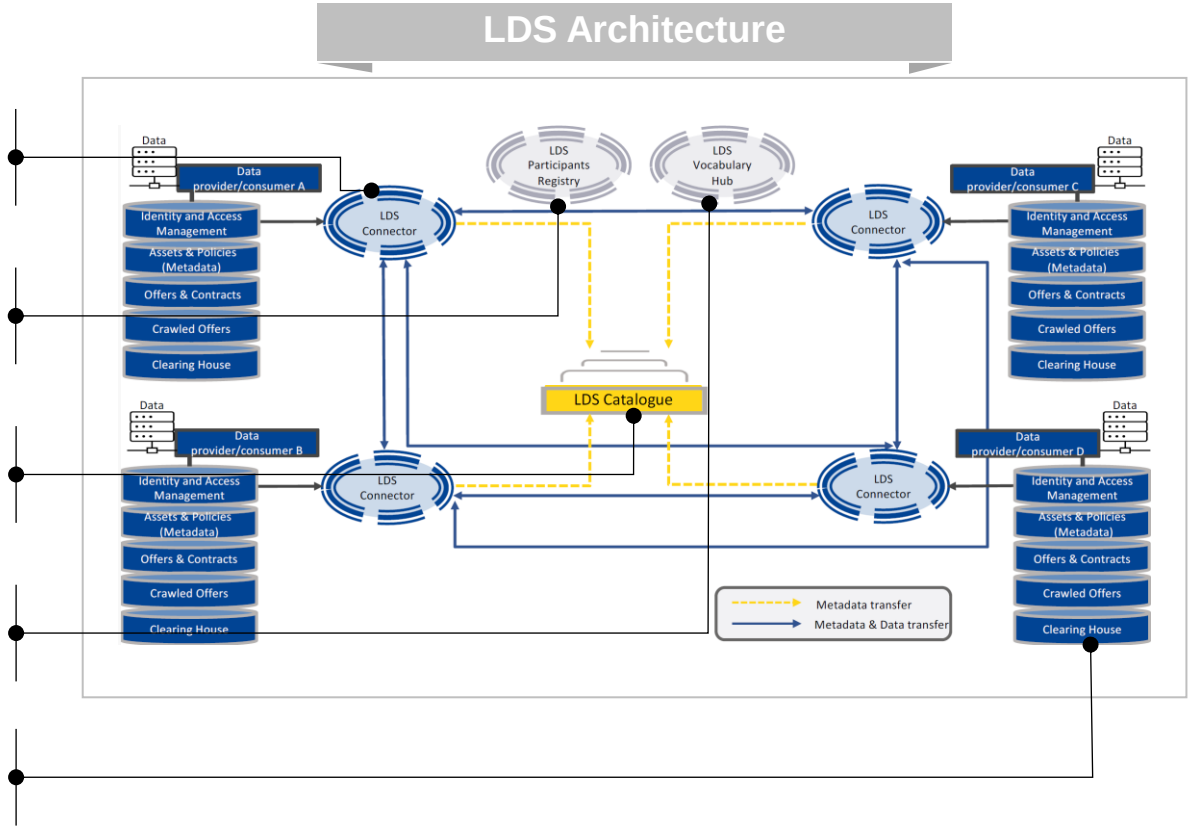
LDS Connector
Each LDS actor is represented by an LDS connector, which also enables the actor to use all the functionalities of the LDS. It is implemented as a repository system with a database and catalogue. LDS connector is based on the Dataspace Protocol specifications. The connector technology is EDC and for in-connector IAM Keycloak is used.

LDS Participants Registry
Each LDS connector with its representing legal entity is registered in the LDS participants registry. Relevant standards considered are the Trust Anchor Framework, W3C Verifiable Credentials Model, W3C Decentralised Identifiers.

Catalogue
The data catalogue stores the metadata from all LDS connectors, thus enabling data search. Currently, a peer-to-peer approach is favoured, where the catalogues reside in the LDS participants' connectors. The LDS common information model is built on LanguageDCAT-AP (for asset description), ODRL (for policy description) and SHACL rules (for validation).

LDS Vocabulary Hub
The different metadata models used within the LDS are stored in the LDS vocabulary hub. The technology for the Vocabulary Hub is not yet determined, potential solutions are among others semantic treehouse and sharing converters in a dedicated LDS GitHub Repository.

Clearing House
The clearing house will be implemented as a central component, and not as part of the LDS connector, to record all the data exchanges among the connectors.



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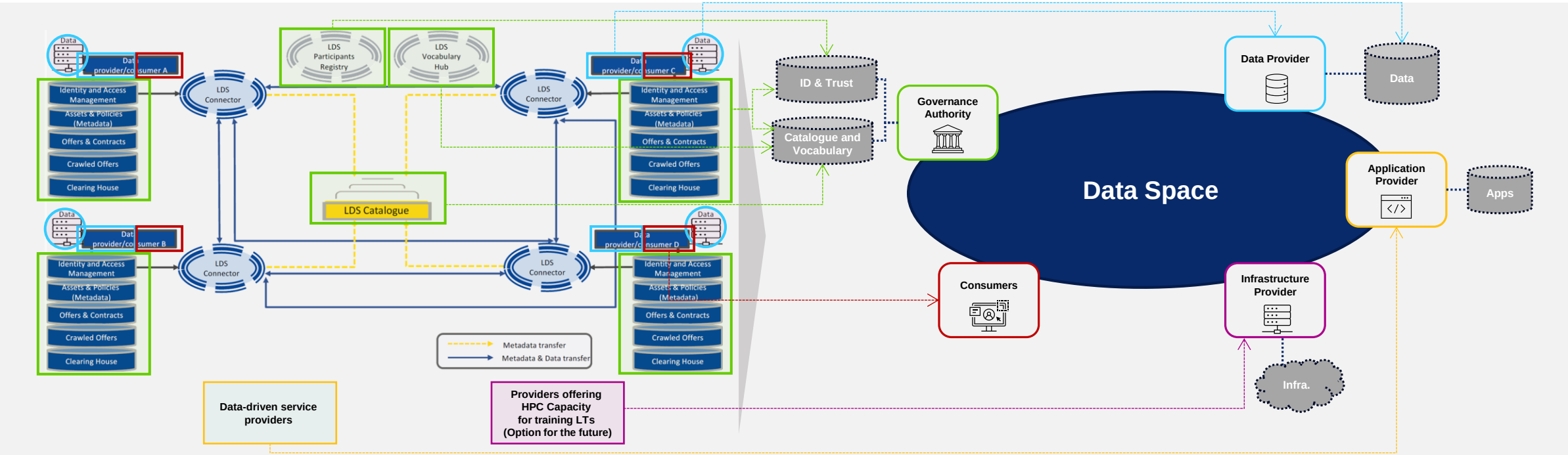
LDS I Functional Architecture & Capabilities

LDS architecture was mapped on Simpl-Open capabilities to assess the feasibility and of integration with Simpl-Open.



For the integration of Simpl-Open, mainly capabilities related to the participant groups governance authority, data provider, and consumer are relevant, as these are the key stakeholders actively participating in the LDS. In the long-term, also the integration and set-up of capabilities related to application and infrastructure provider might be relevant, depending on the data space's evolution and future objective.

European Commission

LDS I Recommended Integration Scenario

For a PoC the integration of the Simpl-Open middleware should focus on selected participants nodes.

Objective for Integration

- Enhance interoperability with other data spaces that also hold language data to advance toward the goal of becoming Europe's leading marketplace for multilingual and multimodal language resources;
- Accelerate LDS' development by leveraging on Simpl-Open capabilities.

Key Considerations & Constraints

- The LDS has a decentralised approach, connecting LDS connectors in a peer-to-peer manner. According to the tender a central LDS Catalogue shall be implemented;
- Significant growth projected, with a high three-figure number of organisations joining over the next five years;
- Shared data is protected only through license agreements, as it is shared with participants outside of the data space;
- Compliance with data protection regulations;
- LDS has a defined release plan, requiring three releases, contractually scheduled every six months starting from the end of January 2025.

Recommended Integration Scenario

The Simpl-Open middleware may support the data space in the following areas:

Metadata Management and Discovery

- Simpl-Open middleware will provide a central metadata catalogue to allow for efficient metadata discovery within and across the LDS, while each participant will maintain a local metadata repository within their LDS connector.

Data Exchange

- Data remains decentral at the data provider's premise. The Simpl-Open middleware will support peer-to-peer data exchange via the LDS connectors, ensuring that access to the data is protected by defined policies. Furthermore, Simpl-Open middleware can integrate with one-time and recurring payment mechanisms allowing data providers to monetise their data sets.

Security and Compliance

- Simpl-Open middleware supports integration with an IAM solution based on Keycloak, which can be used for authentication, authorisation, and handling user permissions. In addition, Simpl-Open middleware can accommodate various licensing schemes and supports the adoption of ODRL. It further offers tools to implement policy enforcement controls, to define and ensure compliance with license agreements for data sets. Furthermore, each LDS connector can maintain audit logs, using tools like Fluent Bit, Loki, and Grafana, integrated with the Simpl-Open middleware. The central system will aggregate the logs, enabling a comprehensive audit trail for governance and compliance.

Governance and Monitoring

- The LDS governance authority oversees the onboarding process, which is restricted to legal entities. Access control can be centrally managed via Simpl-Open middleware capabilities, streamlining identity management for participants based on LDS requirements. Additionally, the Simpl-Open middleware supports the implementation of monitoring tools to track infrastructure performance; proactive monitoring capabilities are also available.

Future Enhancements

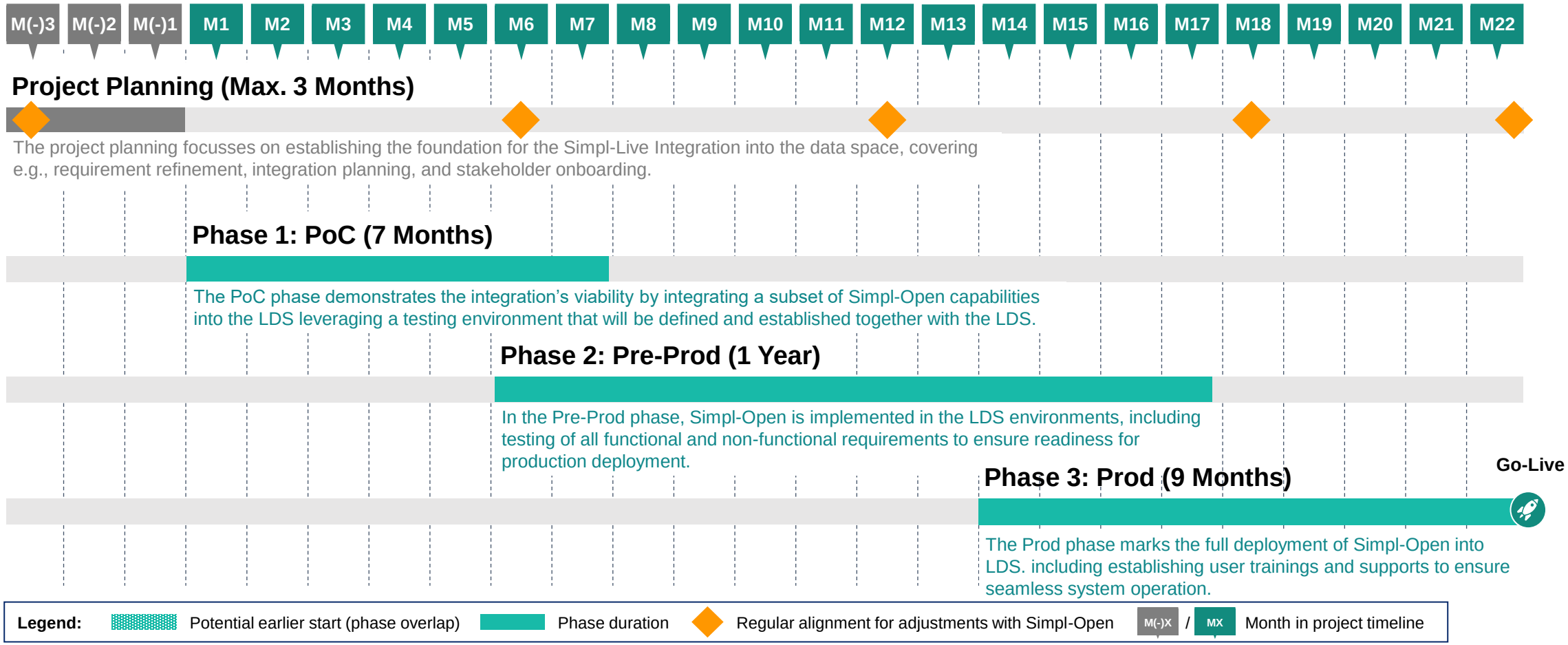
- The Simpl-Open middleware's integration capabilities can support regular updates, with advanced functionalities for IAM, metadata mapping, auditing, and policy enforcement to be rolled out in line with LDS's evolving requirements. Furthermore, Simpl-Open to provide standardised, reusable interfaces (APIs) for integration between data spaces.

Personal Data Handling (*Currently not in Scope of Simpl-Open*)

- Further extensions of Simpl-Open can enable automatic implementations and checks to process personal data (consent management, GDPR rights, GDPR connector, PDI catalogue). LDS could adapt its connector or deploy the Simpl GDPR connector to enable this. LDS could offer Personal Data Intermediary services to its participants.

LDS I Integration Roadmap – Timeline*

The timeline for the Simpl-Live integration for LDS.



*The detailed integration roadmap is presented in the Feasibility Study Report for LDS.

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LDS I Integration Roadmap – Estimated Progress*

The tasks for the integration roadmap for LDS are estimated to progress as presented below.

Simpl-Live Operating Model Task	PoC	Pre-Prod	Prod
1. Data Space Organisation			
2. Data Space ID, Trust & Security			
3. Governance and Compliance			
4. Data Space Standard and Policies			
5. Data Space Processes			
6. Platform and Infrastructure			
7. Deployment, Configuration, Customisation			
8. Qualification Services & Training			
9. Communications, Migration, and Entry in Operations			
10. Operations and Maintenance			
11. Change Management**			
12. Data Space Services Desk			

*The detailed integration roadmap is presented in the Feasibility Study Report for LDS.

**Change Management remains an ongoing task to address evolving technical needs, updates, and participant onboarding, ensuring continuous adaptation and stability.

European Commission

EOSC

Findings and Results

Simpl-Live Feasibility Study

EOSC I Data Space Overview

The EOSC is fostering open and collaborative research through a trusted digital environment.

European Open Science Cloud Overview

Purpose

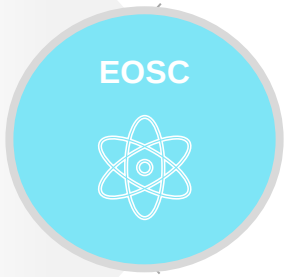
EOSC aims to create a human-centric, trusted and secure digital environment, enabling researchers to seamlessly transition to a new way of working to interconnect and share data and expand the borders of science.

Status-quo

EOSC launches the first European level EOSC node in Sep 2024, providing federating, data and infrastructure management services, and support from day one to the end users. Since its inception in 2015, EOSC has evolved through various projects funded by the EC.

Potential Benefits of Simpl-Open

Simpl-Open can connect EOSC with industrial data spaces, govern software components developed by researchers, provide complementary capabilities such as schema harmonisation, schema translation, strategic partnership management of commercial services.



Exemplary Use cases

Searching for scientific test results

A researcher searches for test results related to a specific topic within a closely related scientific discipline.

Searching for a publication within a discipline

A researcher searches for case reports related to a specific topic within the scientific discipline.

Sharing outcome of a scientific study

A researcher disseminates an original article of a completed study.

EOSC I Overview: Technical Architecture

Blueprint of EOSC EU Node federated services with EOSC Proxy Agent integration point.

Architecture & Main Components:

End User

It encompasses consumers, providers, curators and the administrators from European, regional, local scientific communities and thematic clusters, and administrative employees of providers or data space.

EOSC Portal

Is the entry point towards the data space and provides user friendly access for functions like smart-search, onboarding, publishing tools, submitting support requests or getting monitoring, accounting information.

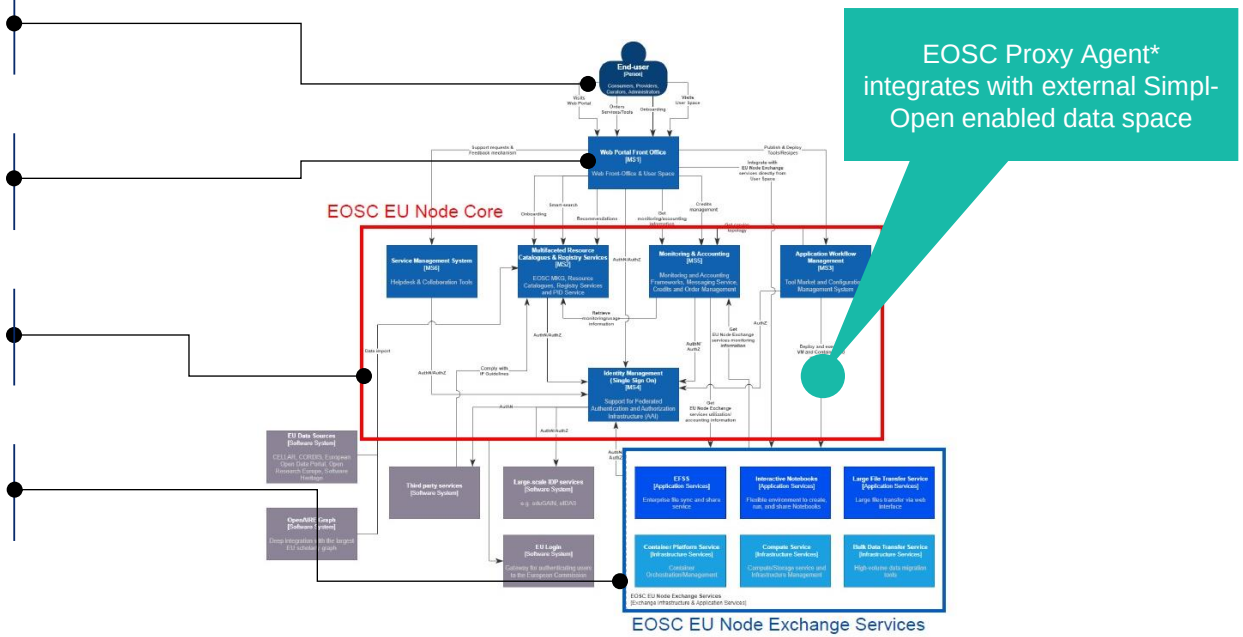
EOSC EU Node Core

Consists of **federation services** like identity management, resource catalogues and registry services, application workflow management, monitoring and accounting and a service management system including a human-centric helpdesk.

EOSC EU Node Exchange Services

Supplies user facing data management and infrastructure services such as file sync and share, notebooks, large file transfer, virtual machines. Takes care of EOSC operations and includes non-technical functions, onboarding or security.

EOSC EU Node Architecture



* EOSC Proxy Agent facilitates communication and data transfer between the EOSC EU Node and the external data spaces enabled by Simpl-Open (referred as Simpl Proxy Agent).

Note: The grey boxes represent external software systems that are not pertinent to the architecture.Green points represent potential integration points.

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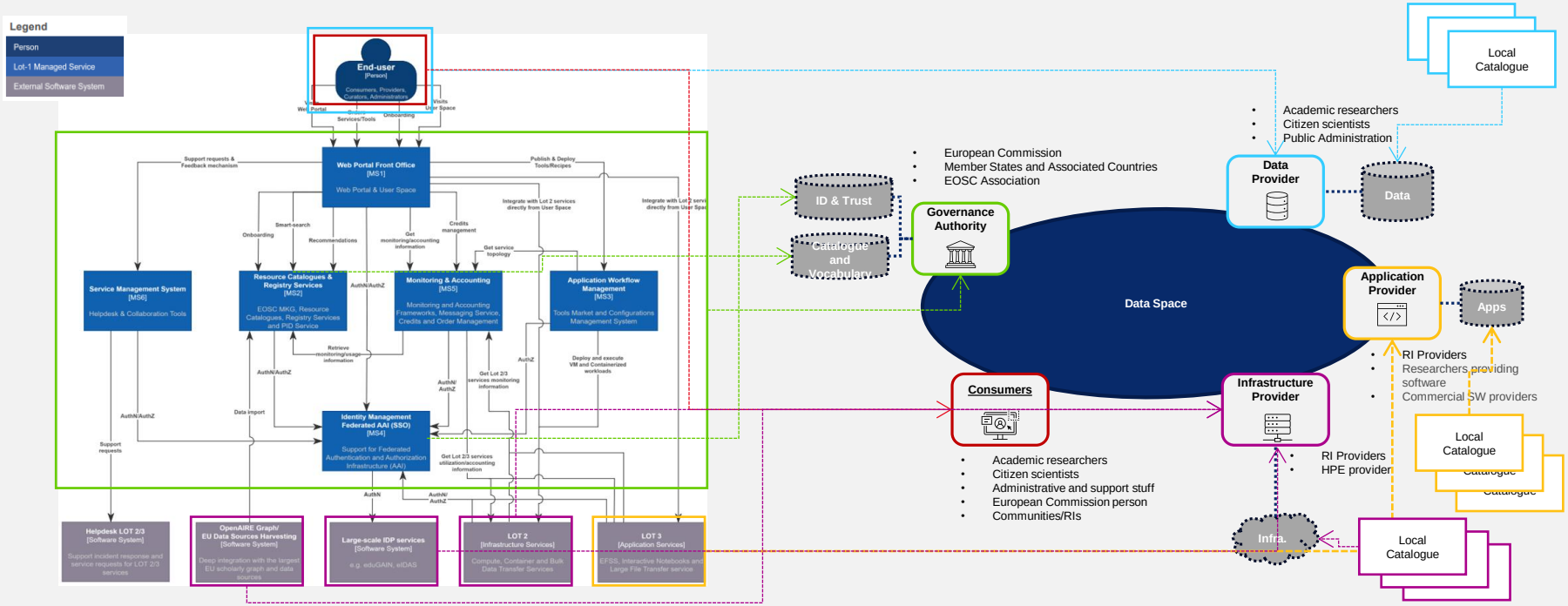
EOSC I Functional Architecture & Capabilities

There is a significant difference between EOSC's federated approach and Simpl-Open's more centralised model. While both aim to provide necessary data space capabilities, the level of autonomy and flexibility varies.



Direct integration: Simpl-Open middleware-based approach conflicts with the decentralised, highly federated model that EOSC employs. EOSC's system of systems prioritises flexibility, autonomy, and interoperability through protocols defined by the EOSC Interoperability Framework. Benefit: improved governance and operational efficiency, metadata management and discovery, data ingestion and transformation, security and compliance with GDPR. Constraints: integration complexity, lack of federation capabilities, jeopardising EOSC strategic and operational goals.

Connecting with external data space: EOSC Proxy Agent to connect with a Simp-Open enabled data space. Benefits: interoperability for cross-disciplinary research, architectural independence from Simpl-Open, reduced disruption to EOSC infrastucture, security and compliance. Constraints: performance bottlenecks, the complexity of EOSC Proxy agent.

European Commission

EOSC I Recommended Integration Scenario

Connection with Simpl-Open enabled data space via EOSC Proxy Agent.

Objective for Integration

- The objective is to **validate the feasibility of the integration**, ensuring that the proposed approach can be practically implemented while meeting the strategic and technical requirements of EOSC. This involves **verifying whether the necessary functionalities**—such as governance workflows, security protocols, discovery mechanisms, and data-sharing processes—**can be effectively integrated.**

Key Considerations & Constraints

- Key considerations include EOSC being fully operational with its EOSC EU Node providing federation services, the selection of a Simpl-Open-enabled data space for cross-domain research, the use of Simpl-Open's EDC Connector for data transfer.
- The main constraints include the uncertainty of future readiness and priorities of EOSC, Simpl-Open, and external data spaces for integration, as well as potential deviations in standards and protocols between the EOSC Interoperability Framework and Simpl-Open, which could hinder seamless interoperability and complicate the design of the EOSC Proxy Agent.

Recommended Integration Scenario

The Simpl-Open middleware may support the interoperability with the data space in the following areas:

Metadata Management & Discovery
- Simpl-Open to ensure the presence and management of metadata and provide search capabilities.

Security & Compliance
- Simpl-Open to provide federated authentication and authorisation for ensuring that authorised users can access resources, GDPR compliance to ensure privacy and data protection.

Data ingestion & Transformation
- Simpl-Open to reduce the variety of data formats for data exchange and sharing.

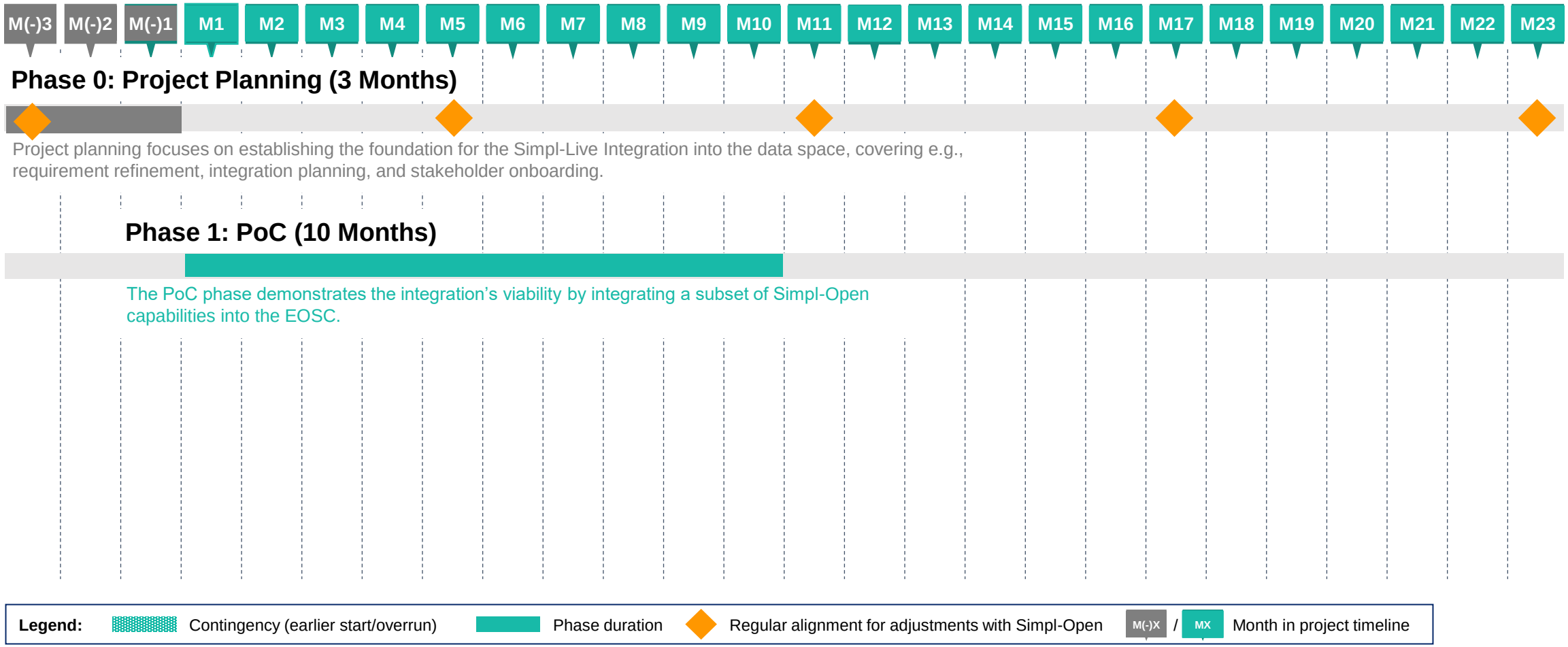
Interoperability
- Simpl-Open to provide a standardised, reusable interface via EDC Connector and Data space protocol for integration with EOSC Proxy agent.

Governance & Auditability
- Simpl-Open to ensure the governance authority to enforce data-sharing agreements and monitor the use of resources between data spaces.

Personal Data Handling (*Currently not in Scope of Simpl-Open*)
- Integration of Simpl-Open further extensions on personal data handling (consent management, GDPR rights management, GDPR connector, etc) will allow EOSC communities to import personal datasets from other data spaces (health, skills, mobility).

EOSC I Integration Roadmap – Timeline*

The timeline for the Simpl-Live integration for EOSC is expected to span from March 2025 to March 2026.



*The detailed integration roadmap is presented in the Feasibility Study Report for EOSC.

European Commission

DestinE

Findings and Results

Simpl-Live Feasibility Study

DestinE I Initiative Overview

The DestinE develops an accurate Digital Twin of the earth for environmental policy and decision support.

Destination Earth Overview

Purpose

DestinE aims to develop a highly detailed and interactive digital twin of the Earth to aid EU policymakers and other users in responding and adapting to environmental changes.

Status-quo

The DestinE is in the developmental phase. It has evolved from previous projects and leverages advancements in digital technology, science, and high-performance computing. The DestinE went live in April 2024.

Potential Benefits of Simpl-Open

The implementation of Simpl-Open within DestinE could offer enhanced data interoperability and standardisation, fostering a more collaborative environment for data analysis. This aligns with the underlying architecture's support for simplified integration and processing of diverse data sources.

DestinE

Exemplary Use cases

Climate Change Adaptation

The digital twin assists in planning and decision-making by providing high-quality climate projections and impact-sector information.

Urban Heat Island Effect

Providing high-resolution urban heat maps for cities across Europe to underpin urban climate adaptation measures.

Energy System Analysis

Improved Energy System Modelling Providing tools and guidance to support the European Transmission and Distribution System Operators.

DestinE I Overview: Technical Architecture

Key components of DestinE are DTE for climate and extreme weather simulations, DESP for user access and service interfaces, and DEDL for unified data storage, processing, and integration across federated sources.

Architecture & Main Components:

DestinE Core Service Platform (DESP)

Offers tools, applications, and services within a secure, cloud-based architecture for evidence-based decision-making.

Digital Twin Engine (DTE)

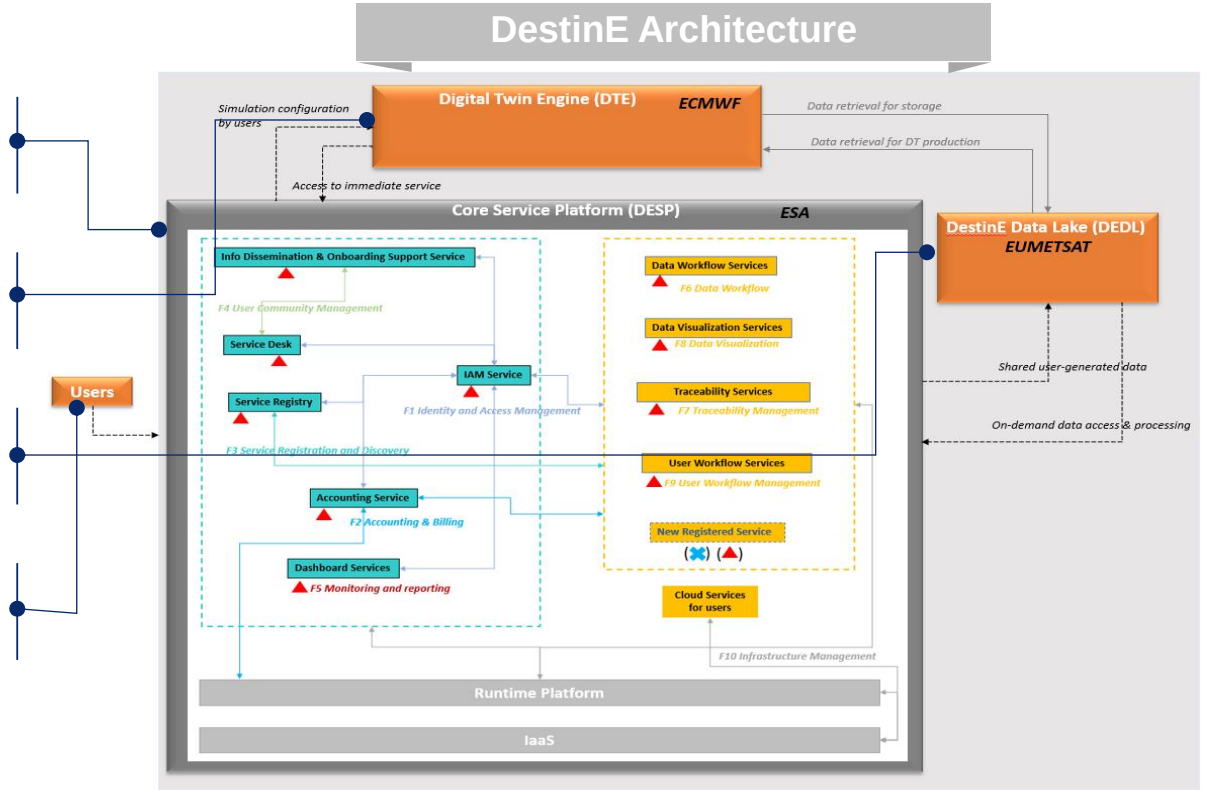
Software-defined engine supporting simulations and analytics to generate detailed environmental predictions and scenarios.

DestinE Data Lake (DEDL)

Provides data discovery, access, and big data processing services, with the ability to integrate multiple diverse data sources, such as actors.

Users

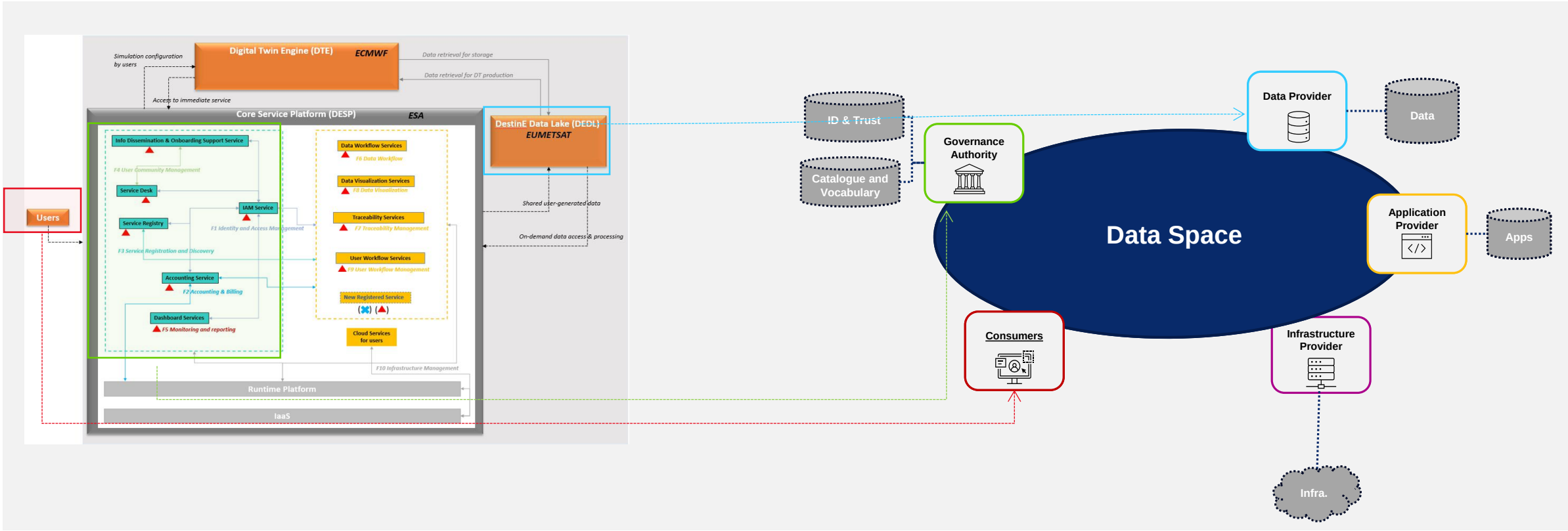
Users can access, manage identities, discover services, track usage, and monitor performance within the DestinE ecosystem.



European Commission

DestinE I Functional Architecture & Capabilities

DestinE architecture focuses on integrating distributed data sources, enabling seamless data access, and supporting advanced simulations and AI/ML processing for climate adaptation and extreme weather prediction.



The integration of Simpl-Open into the data space is expected to be **moderately challenging** due to gaps in areas such as **SLA management**, **federated security**, and **data policy enforcement**. However, Simpl-Open's strong capabilities in **data integration**, **distributed computing**, and **AI/ML processing** will significantly benefit the data space by enhancing data accessibility, supporting near-data processing, and enabling seamless integration of federated data sources. These capabilities will improve efficiency and scalability, particularly in managing large datasets and running complex simulations like those in DestinE.

DestinE I Recommended Integration Scenario

Integrating Simpl-Open into the DestinE aims to streamline data access, management, and processing while enabling seamless interoperability between various data spaces.

Objective for Integration

- **Cross-Platform Interoperability:** Seamless integration and interoperability with diverse data sources and platforms;
- **Scalability and Flexibility:** Scalable infrastructure to support growing data volumes and user demands.

Key Considerations & Constraints

- **Non-Functional Requirements:** The integration must address performance, scalability, and resilience, particularly as DestinE deals with large-scale simulations and data streams. Ensuring that Simpl-Open can scale to handle these demands is critical;
- **Technical Requirements:** There may be technical constraints in aligning Simpl-Open's security, governance, and interoperability frameworks with the unique federated structure of DestinE. Customisation and additional development might be required to fully meet these requirements.

Recommended Integration Scenario

The Simpl-Open middleware may support the initiative in the following areas:

Metadata Management & Discovery
- Simpl-Open enhances metadata management by ensuring structured, harmonized metadata for climate simulations. It facilitates metadata alignment between DestinE and external data spaces, enabling seamless data discovery and controlled access across federated providers.

Security & Compliance
- Simpl-Open enforces federated authentication and authorization, ensuring secure access to environmental data. Governance Authority Agents manage IAM policies, supporting compliance with GDPR and other regulations while maintaining data sovereignty.

Data ingestion & Transformation
- Simpl-Open streamlines data ingestion into the DestinE Data Lake, transforming heterogeneous datasets into standardized formats. The PoC (Phase 0) validates ingestion workflows, ensuring efficient integration and analysis of climate and environmental data.

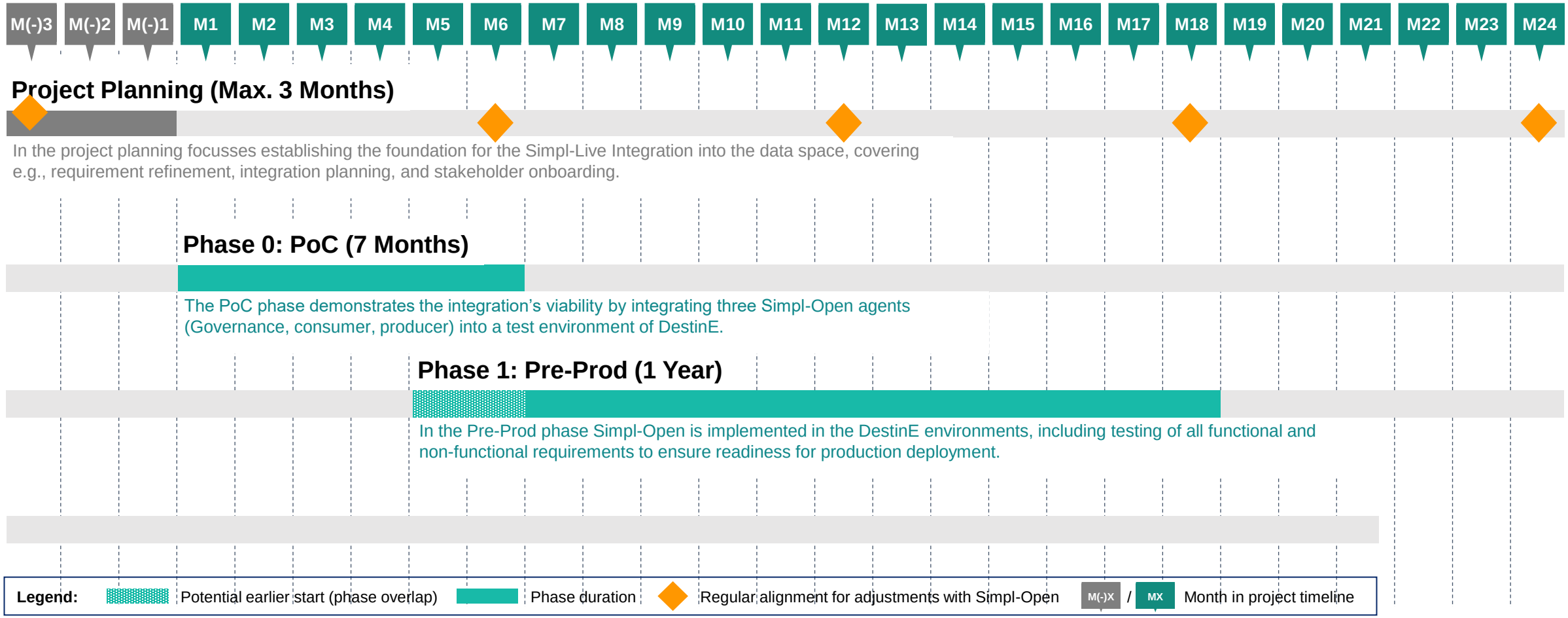
Interoperability
- The agent-based model enables interoperability by integrating diverse data sources through standardized APIs. Data Provider and Consumer Agents ensure seamless data exchange between DestinE and external platforms like EOSC, reducing protocol dependencies.

Governance & Auditability
- Simpl-Open strengthens governance by enforcing data-sharing policies and providing transparency in data access. The Governance Authority Agent monitors transactions, ensuring accountability and compliance within the federated DestinE ecosystem.

Personal Data Handling (*Currently not in Scope of Simpl-Open*)
- While not currently in scope, future Simpl-Open extensions could enable GDPR-compliant personal data handling. This includes consent management and compliance checks, supporting potential data integration from health, skills, and mobility domains.

DestinE I Integration Roadmap – Timeline*

The timeline for the Simpl-Open integration for DestinE is expected to span from April 2025 to Jan 2027.



*The detailed integration roadmap is presented in the Feasibility Study Report for DestinE.

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DestinE I Integration Roadmap – Estimated Progress*

The tasks for the integration roadmap for DestinE are estimated to progress as presented below.

Simpl-Live Operating Model Task	PoC	Pre-Prod
1. Initiative Organisation		
2. Initiative ID, Trust & Security		
3. Governance and Compliance		
4. Initiative Standard and Policies		
5. Initiative Processes		
6. Platform and Infrastructure		
7. Deployment, Configuration, Customisation		
8. Qualification Services & Training		
9. Communications, Migration, and Entry in Operations		
10. Operations and Maintenance		
11. Change Management**		
12. Initiative Services Desk		

Legend: 0% 25% 50% 75% 100%

*The detailed integration roadmap is presented in the Feasibility Study Report for DestinE.

**Change Management remains an ongoing task to address evolving technical needs, updates, and participant onboarding, ensuring continuous adaptation and stability.

European Commission

SCDS

Findings and Results

Simpl-Live Feasibility Study

SCDS I Data Space Overview

The SCDS empowers cities and communities through shared data resources.

Smart Communities Data Space

Purpose

SCDS aims to empower European cities and communities to contribute to and benefit from shared cross-sectoral data resources to facilitate the development of interoperable national, regional, or local data spaces.

Status-quo

Having developed governance and architecture plans in the preparatory phase, SCDS is currently in the development stage with the call for federated pilots to validate the blueprint about to be launched.

Potential Benefits of Simpl-Open

Simpl-Open benefits SCDS by ensuring interoperability and coexistence with existing systems, delivering economies of scale, and enhancing trust, security, and accessibility. It positions SCDS within a standardised EU-wide data ecosystem and fosters efficient coordination with other sectoral data spaces.

SCDS

Exemplary Use Cases

Traffic Management

Using insights from mobility data to create more effective transportation systems and enhance urban infrastructure for better traffic management.

Energy Flow Management

Utilising urban energy data to identify usage patterns and inefficiencies, and to develop improved sustainable energy policies for cities and communities.

Urban Water Management

Leveraging water-related data from various sources to gain enhanced insights into water usage patterns and improve predictions for water management.

SCDS I Overview: Technical Architecture

The SCDS target architecture is a comprehensive and integrated framework designed to enable system federation, facilitate secure data management, interoperability, and access across various stakeholders within and beyond the smart territories ecosystem.

Architecture & Main Components:

ARCHITECTURE:

The Data space should have an interface and **standardised data** to allow **interoperability** with the other data space participants and data platforms.

COMPONENT

Universal Trust Registry and Authorisation policy store

SCDS' Universal Trust Registry validates the service/data provider and consumer.

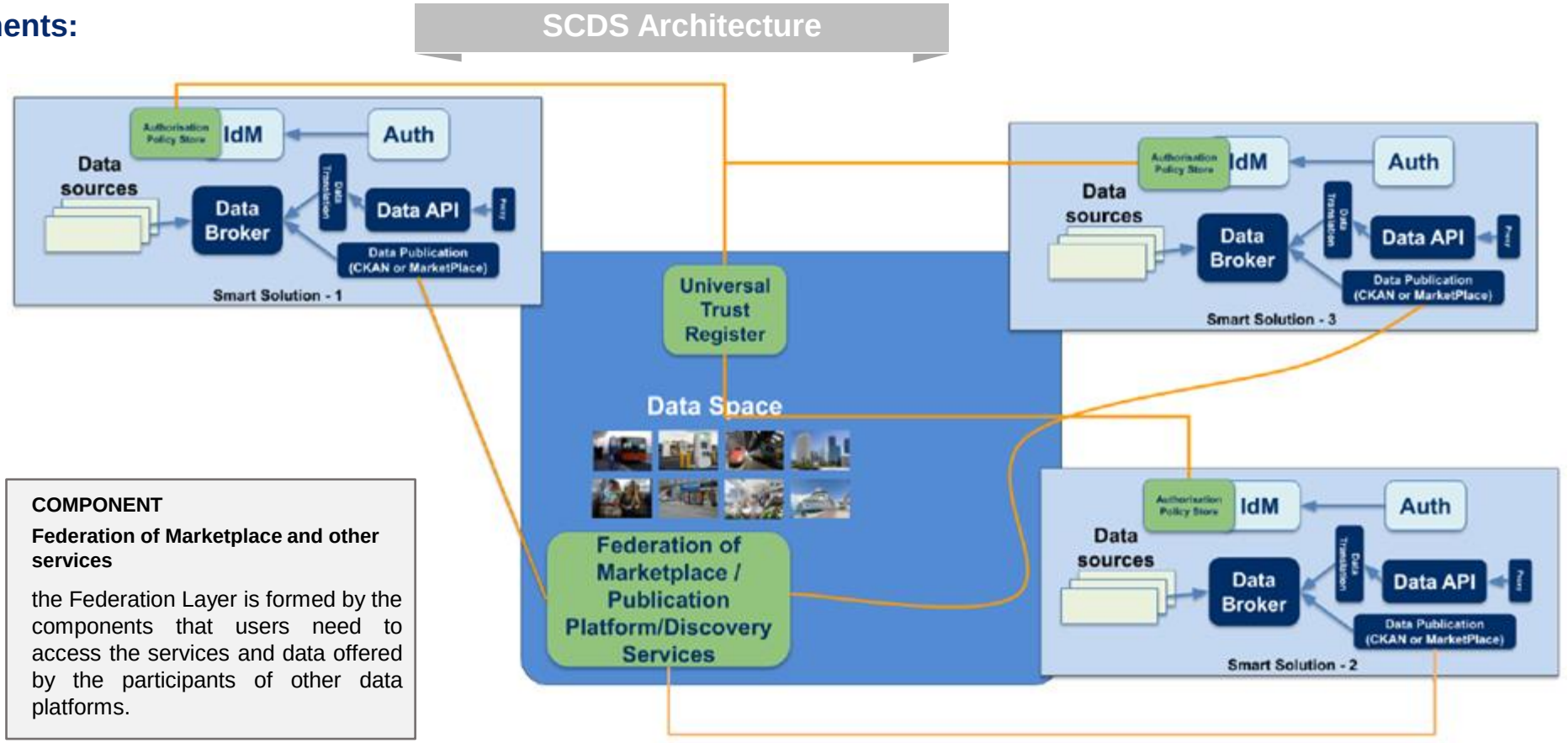
This reference architecture uses concepts from the standard XACML architecture for authorisation. The reference model should support the attribute-based access control paradigm and static role-based access control permission model.

Data platforms should have an **IdM (Identity Management)** capable of integrating with the **Authorisation policy store**.

COMPONENT

Federation of Marketplace and other services

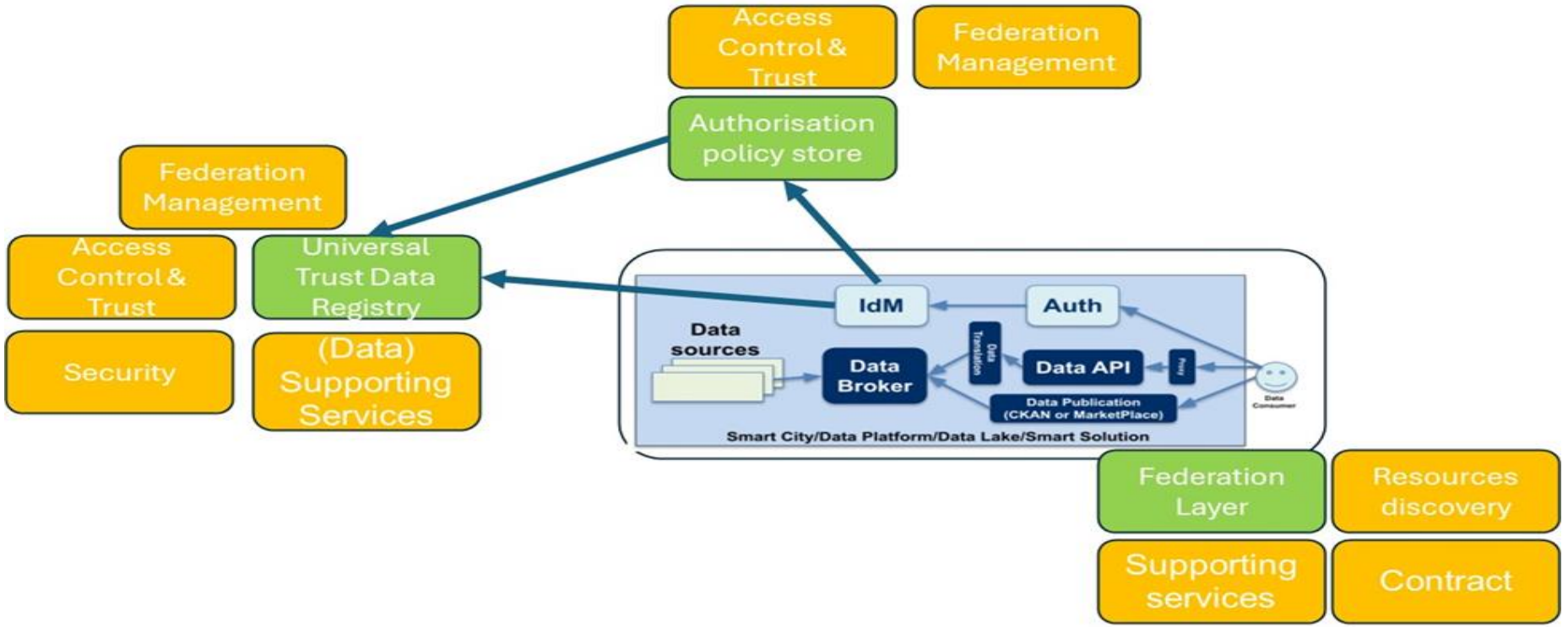
the Federation Layer is formed by the components that users need to access the services and data offered by the participants of other data platforms.



European Commission

SCDS I Functional Architecture & Capabilities

SCDS high-level architecture was mapped on Simpl-Open capabilities to perform a fit-gap analysis and assess the feasibility and benefits of integration with Simpl-Open.



Considering the current maturity level of SCDS, **integration with Simpl-Open is expected to be relatively easy** in comparison to more mature data spaces that have numerous technical constraints due to the existing solutions. With most of the business processes waiting to be deployed and the **SCDS components aligning with various categories of Simpl-Open building blocks**, SCDS is a great candidate to make the most of Simpl-Open capabilities for all the business processes that are crucial for the operational success of the data space. Through integration with Simpl-Open, SCDS will enable the seamless federation of systems, ensuring secure, interoperable, and decentralised data sharing across borders while maintaining data sovereignty and compliance with diverse regulations.

SCDS I Recommended Integration Scenario

Adopting Simpl-Open can fast-track SCDS operational and functional maturity and reduce effort and cost.

Objective for Integration

- **Enhance operational efficiency and functional breadth** by leveraging Simpl-Open business processes and capabilities**;**
- **Enhance interoperability** through streamlined integration of diverse data sources, facilitating seamless data exchange and access across the ecosystem and beyond;
- **Streamline data management** through a centralised framework to simplify and optimise the management of data flows;
- **Secure data exchange** enabled by robust security protocols in line with SCDS's goal to maintain data sovereignty and compliance with complex privacy regulations;
- **Facilitate data discovery** by streamlining the process of cataloguing metadata and data discovery.

Key Considerations & Constraints

- Integration must enable data providers to **maintain control** over their data by implementing policy enforcement and access control mechanisms;
- Simpl-Open is required to adhere to existing standards and protocols of the SCDS, facilitating **seamless integration** and **interoperability;**
- Integration needs to **mitigate privacy concerns** by offering strong consent management and anonymisation services that comply with regulatory frameworks like GDPR;
- Simpl-Open should enable **scalability** to accommodate the growth of SCDS in data volume and participant numbers while maintaining high service quality.

Recommended Integration Scenario

The Simpl-Open middleware may support the data space in the following areas:

Metadata Management & Discovery

- Simpl-Open will provide a standardised layer for cataloguing, indexing, and querying metadata, enabling efficient search and retrieval of data assets across federated systems.

Security & Compliance

- Simpl-Open will offer centralised identity management, access control, and policy enforcement mechanisms that ensure data protection, user authentication, and adherence to regulatory standards across federated systems within the smart territories ecosystem and beyond.

Data Ingestion & Transformation

- Simpl-Open will provide a flexible framework for integrating diverse data sources, transforming data into standardised formats, and ensuring smooth, real-time data flow across different platforms and systems within the data space.

Interoperability

- Simpl-Open will facilitate seamless data exchange between heterogeneous systems through standardised APIs, protocols, and data models, ensuring compatibility across different smart communities' platforms and services.

Governance & Auditability

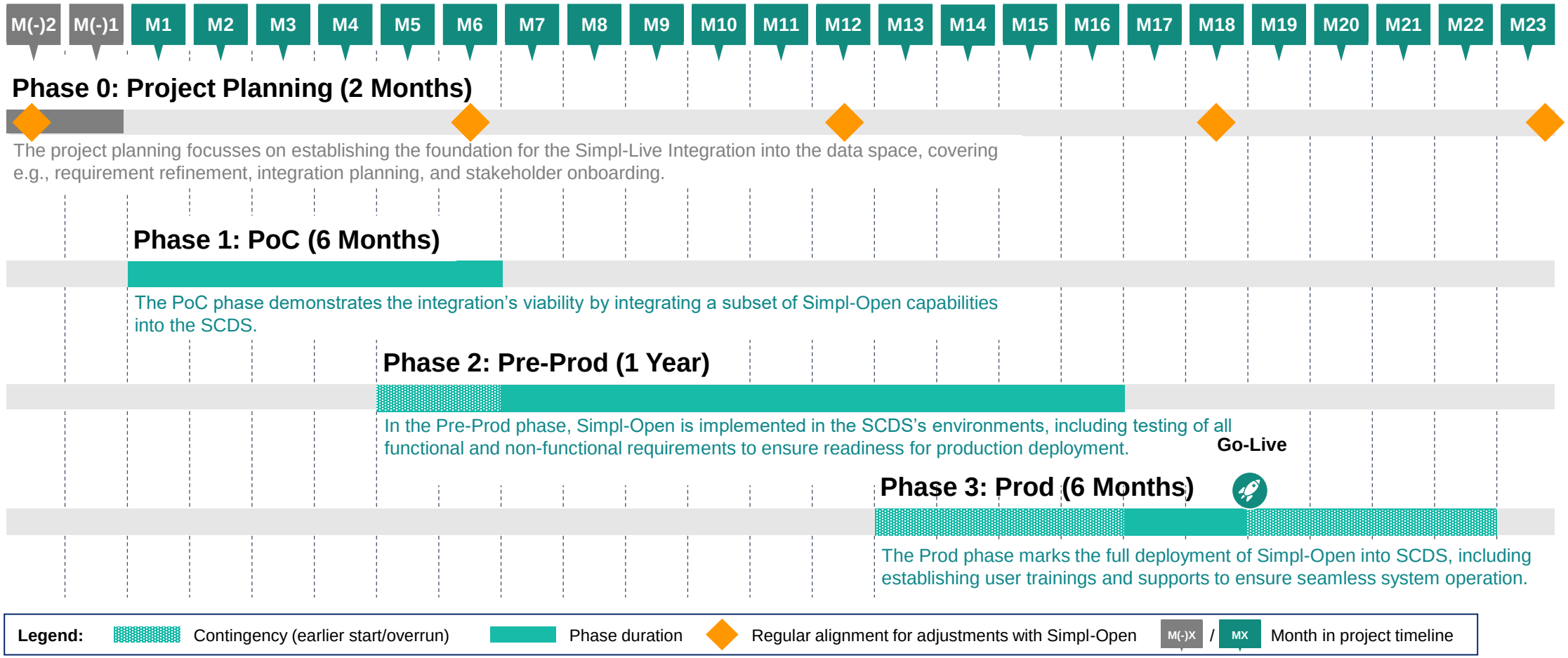
- Simpl-Open will provide tools for enforcing data governance policies, tracking data usage, and maintaining detailed audit logs to ensure transparency, accountability, and compliance within the data-sharing ecosystem.

Personal Data Handling (*Currently not in Scope of Simpl-Open*)

- In the future, Open-Simpl capabilities may be extended to offer privacy-preserving mechanisms such as data anonymisation, encryption, and role-based access controls to ensure compliance with data protection regulations (e.g., GDPR) and safeguard sensitive personal information across systems.

SCDS I Integration Roadmap – Timeline*

The timeline for the Simpl-Live integration for SCDS.



*The detailed integration roadmap is presented in the Feasibility Study Report for SCDS.

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SCDS I Integration Roadmap – Estimated Progress*

The tasks for the integration roadmap for SCDS are estimated to progress as presented below.

Simpl-Live Operating Model Task	PoC	Pre-Prod	Prod
1. Data Space Organisation			
2. Data Space ID, Trust & Security			
3. Governance and Compliance			
4. Data Space Standard and Policies			
5. Data Space Processes			
6. Platform and Infrastructure			
7. Deployment, Configuration, Customisation			
8. Qualification Services & Training			
9. Communications, Migration, and Entry in Operations			
10. Operations and Maintenance			
11. Change Management**			
12. Data Space Services Desk			

Legend:  0% 25% 50% 75% 100%

*The detailed integration roadmap is presented in the Feasibility Study Report for SCDS.

**Change Management remains an ongoing task to address evolving technical needs, updates, and participant onboarding, ensuring continuous adaptation and stability.

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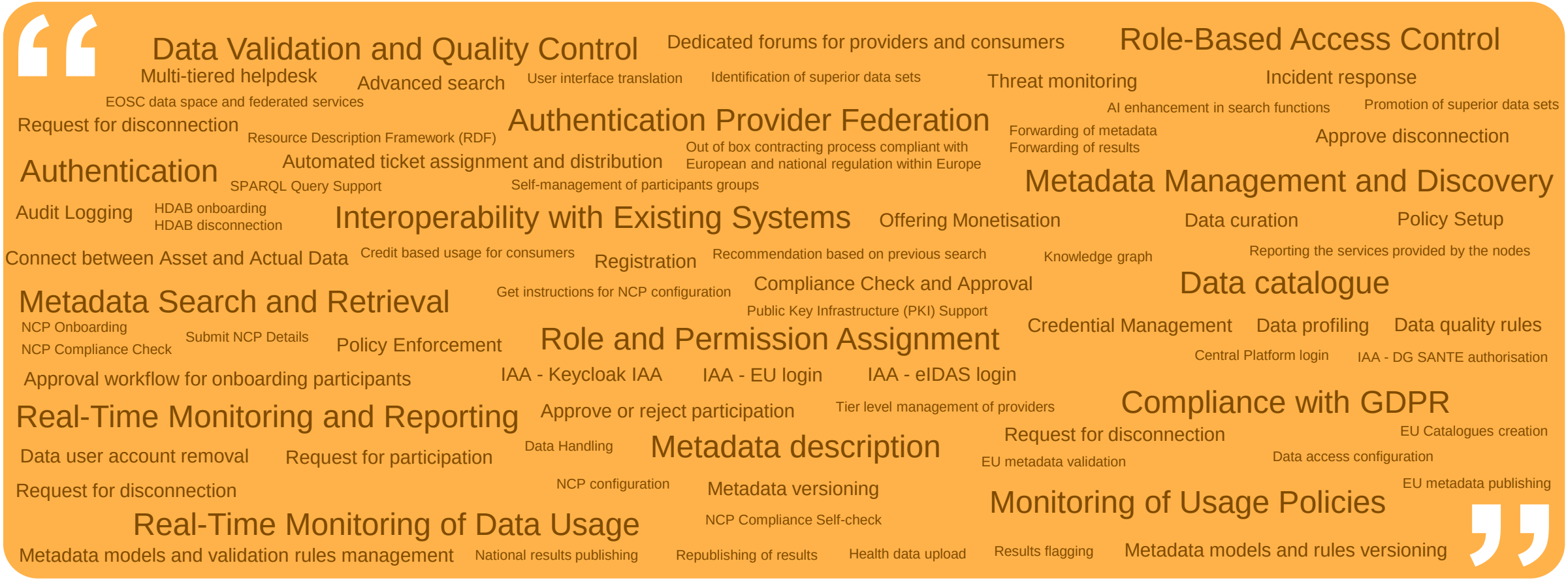
List of Common Requirements

Simpl-Live Feasibility Study

Requirements from Simpl-Live data spaces/initiatives

The data spaces/initiatives provided specific requirements and needs to be included in the Simpl-Open backlog.



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Common Requirements from Simpl-Live data spaces/initiatives

The data spaces/initiatives requirements were clustered in high-level categories.

Simpl-Live Data Spaces Common Functional Requirements

- Monitoring data usage and user activities
- Data exchange and interoperability
- Authentication and authorisation
- Data governance, compliance and audit
- Metadata management and search capabilities
- Access control mechanisms

Simpl-Open BP/Requirements

Monitoring data usage and user activities are mapped to Management/operations of data space

The data spaces/initiatives requirements were clustered in high-level categories.

- Monitoring data usage and user activities
- Authentication and authorisation
- Metadata management and search capabilities
- Data exchange and interoperability
- Data governance, compliance and audit
- Access control mechanisms

Simpl-Open Business Processes

12. Management/ operations of dataspace business

Simpl-Open Business Process Requirements

12.1 - Application sharing - Compliance Monitoring
12.2 - Enable and enforce usage policies - Logging
12.3 - Logging Simpl agent usage
12.4 - Monitoring Simpl agent health
12.5 - Monitoring compliance with EU regulation
12.6 - Logging data or application consumption
12.7 - Monitoring business actions
12.8 - Central logs repository per Simpl-Open agent
…

Simpl-Live Common Requirements Simpl-Open Business Process Included in Simpl-Open MVP

Authentication and authorisation are mapped to data space setup and onboarding of providers/consumers

The data spaces/initiatives requirements were clustered in high-level categories.

- Monitoring data usage and user activities
- **Authentication and authorisation**
- Metadata management and search capabilities
- Data exchange and interoperability
- Data governance, compliance and audit
- Access control mechanisms

Simpl-Open Business Processes

- 1. Dataspace setup: Role of governance authority
- 3a. Onboarding of providers & consumers

Simpl-Open Business Processes Requirements

1.4 - Federated authentication

3a.1 - Onboarding of a new data space participant - attribute placement during onboarding
3a.2 - Finalising onboarding
3a.3 - Onboarding procedure
3a.4 - Participant actions
3a.5 - Registration of onboarding request

Simpl-Live Common Requirements | Simpl-Open Business Process | Included in Simpl-Open MVP

Metadata management and search capabilities are mapped to add and search of resources in the catalogues

The data spaces/initiatives requirements were clustered in high-level categories.

- Monitoring data usage and user activities
- Authentication and authorisation
- **Metadata management and search capabilities**
- Data exchange and interoperability
- Data governance, compliance and audit
- Access control mechanisms

Simpl-Open Business Processes

5. Provider adds a new resource to the catalogue

6. Consumer searches resources on catalogues

Simpl-Open Business Processes Requirements

5.4 - Enable and enforce usage policies - Assignment of a policy
5.5 - Enable and enforce usage policies - Definition of a policy
5.6 - Onboarding new dataset
5.9 - Validation of metadata onboarding
5.11 - Access policy

6.1 - Data quality assessment
6.2 - Search in data/application/infrastructure catalogue in another federated data space
6.3 - Search in data/application/infrastructure catalogue through a UI or an API
6.4 - Request a resource
6.5 - Search Results

Simpl-Live Common Requirements Simpl-Open Business Process Included in Simpl-Open MVP

Data Exchange and Interoperability are mapped to use of applications or data resources from provider

The data spaces/initiatives requirements were clustered in high-level categories.

- Monitoring data usage and user activities
- Authentication and authorisation
- Metadata management and search capabilities
- **Data exchange and interoperability**
- Data governance, compliance and audit
- Access control mechanisms

Simpl-Open Business Processes

9. Consumer uses applications or data resources from provider

Simpl-Open Business Processes Requirements

9.9 - Support for (near)real time data within/across data spaces
9.10 - Various types of data sharing

Simpl-Live Common Requirements Simpl-Open Business Process Included in Simpl-Open MVP

Governance, compliance and audit are mapped to business process related to enforce usage policies

The data spaces/initiatives requirements were clustered in high-level categories.

- Monitoring data usage and user activities
- Authentication and authorisation
- Metadata management and search capabilities
- Data exchange and interoperability
- **Data governance, compliance and audit**
- Access control mechanisms

Simpl-Open Business Processes

- 5. Provider adds a new resource to the catalogue
- 9. Consumer uses applications or data resources from provider

Simpl-Open Business Processes Requirements

5.4 - Enable and enforce usage policies - Assignment of a policy

9.6 - Enable and enforce usage policies – Enforcement

Simpl-Live Common Requirements | Simpl-Open Business Process | Included in Simpl-Open MVP

Access and control mechanisms are mapped to onboarding business processes

The data spaces/initiatives requirements were clustered in high-level categories.

- Monitoring data usage and user activities
- Authentication and authorisation
- Metadata management and search capabilities
- Data exchange and interoperability
- Data governance, compliance and audit
- Access control mechanisms

Simpl-Open Business Processes

- 3a. Onboarding of providers & consumers
- 3b. Onboarding of end users

Simpl-Open Business Processes Requirements

3a.6 - Access control - end users to agent

3b.1 - Access control - roles management

Simpl-Live Common Requirements | Simpl-Open Business Process | Included in Simpl-Open MVP

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Thank you

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