

# FACIS FAP-DCM

## Decentralized Catalogue Management – Multi Catalogue Service and Resource Listings

**Version / Date: 28-Sep-2025**

**Status:** *Idea / Draft / In Review / In Implementation / Released*

This FAP enables trusted, cross-catalogue discovery and representation of digital service and resource descriptions for multi federations.

### Purpose & Value

This FAP addresses one of the key challenges in federated ecosystems: fragmented and siloed service catalogues. Its purpose is to enable **discovery, comparison, and integration of digital services** (like cloud) **and resources** (like product pass) **across multiple catalogues** without centralising them.

By introducing a **multi-catalogue abstraction layer**, it allows seamless cross-catalogue searches, service registration, and metadata harmonisation while ensuring **interoperability, transparency** and supporting **compliance requirements**.

The importance of this FAP lies in:

- **Enhancing service discoverability** across multi cloud offerings, data spaces and domains.
- **Reducing vendor lock-in** and decoupling of catalogue management.
- **Supporting sovereignty and trust** through verifiable service and resource listings.
- **Enabling scalability** for cross-border and cross-sector federations.

This FAP is essential to build a **trusted, distributed ecosystem of services**, making it easier for organisations to find, compare, and use services and resources across federated infrastructures.

## Scope & Boundaries

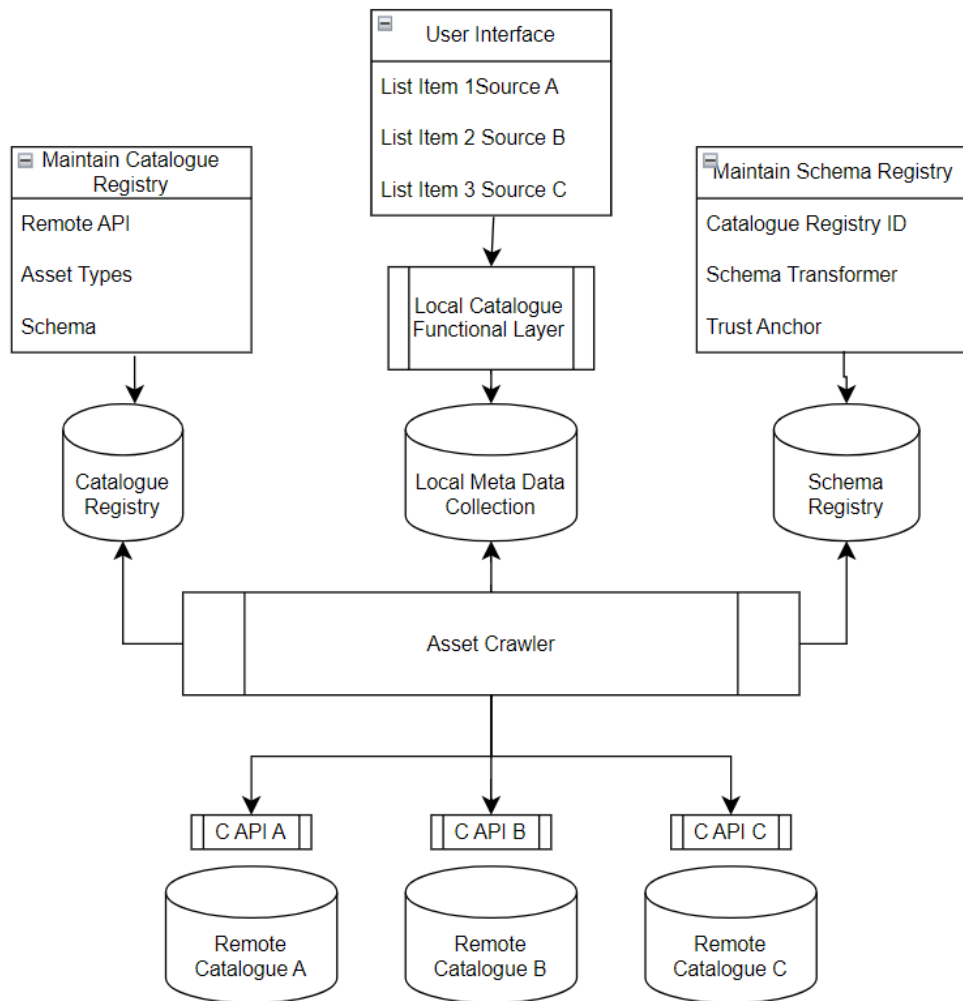
### In Scope:

- Unified search across distributed service catalogues.
- Interoperable service listings and metadata exchange.
- Integration with Orchestration (ORCE) for lifecycle management (deployment hooks, updates).
- Integration with identity credential and access management (ICAM) for secure service and resource access.
- Support for cross-domain use cases.

### Out of Scope:

- Data edits, updates, resynchronisation
- Schema harmonisation
- Service Instantiations
- Deep Integration

## Architecture Building Blocks



### Feature-FAPs:

- Asset Crawler Search & Aggregation.
- Catalogue and Schema Registry.

### Micro-FAPs (examples):

- Schema Mapping: Link local schema attributes with remote schema attributes.
- Service Listing Verification: Verify claim owner against Trust Anchor.

### FAP Components:

- Local Catalogue Functional layer and UI
  - Local Management of the meta data collection and User Interactions
- Catalogue Registry and UI
  - Maintain Remote Catalogue Services with relevant attributes like API, Trust Anchor, Schema types, Query languages ,...
- Schema Registry and UI
  - Mapping of local Schema with remote schema per Catalogue entity

- Asset Crawler
  - On demand remote crawling of available remote descriptions and transformation into local schema representation with storage in local meta data collection

#### **XFSC Services:**

- **CAT** (Catalogue): local data container for services and assets
- **ORCE** – orchestration of FAP service.
- **AAS** – authentication & authorisation service.
- **OCM/PCM (Credential Managers)**: For participant and principal credentials.

### **Standards & Protocols**

- **W3C DID/VC**: Decentralized identifiers and verifiable credentials for asset provenance.
- **OIDC4VC**: Standardized flows for credential issuance.
- **DIDComm v2**: Secure communication between participants.
- **Gaia-X Trust Framework**: Compliance, trust anchor, and catalogue integration.
- **JSON-LD**: Linked data for standardized service metadata.
- **OpenAPI / GraphQL** – service discovery and integration APIs.
- **GDPR** – data minimisation and lawful processing of metadata.

## Reuse & Variants

### Cross-domain Reuse:

- Mobility: distributed fleet service catalogues.
- Health: cross-border medical data service registries.
- Supply chain: digital product pass listings.

### Reusable Modules:

- Federated search abstraction layer.
- Metadata normalisation & verification service.
- Synchronisation service.

### Variants:

- Lightweight catalogue integration (SMEs).
- Regulated/sector-specific catalogues (finance, health).
- Hybrid: local catalogue + Gaia-X compliant synchronisation.

### Next Steps & Involvement

- **Testing & QA** with existing Gaia-X aligned catalogues.
- **Pilot integrations** across 2–3 federations (see candidates).
- **Community involvement:** OSS contributors, federation operators, domain specialists.

# Potential Remote Catalogues

- [Pontus-X](#)

The PONTUS-X Catalogue interface features a top navigation bar with links: CATALOGUE, PUBLISH, VERIFY, FAUCET, LOG, ECOSYSTEM, and RESOURCES. A search bar is located below the navigation bar. The main content area displays 909 results. On the left, there are filters for Service Type (datasets, algorithms, saas) and Access Type (download, compute). Below these are sort options (Relevance, Published). The results are presented in a grid of cards. Each card includes a title, a brief description, and a 'Free' label. Examples of services include 'Soil Moisture sensor data from the OpenAgri project', 'SENSE - API - Waterways of Germany - List of Bodies of Water', 'Dataset ITI example (compute)', 'Algorithm ITI example (compute)', and 'SciKit-Learn Forecasting Model Trainer'.

- [CISPE](#)

The CISPE cloud interface has a top navigation bar with links: Log in, Register a Service, and FAQ. The main content area displays a list of services. On the left, there is a sidebar with filters: Gaia-X Labels by CISPE, Certifications, Types of services, Layers, Locations, and Providers. The main content area shows a search bar and a list of services. The first service is 'Cloud VPS', which is a Gaia-X label Level 3 service. It is offered by ARUBA S.P.A. in Italy, Arezzo. The service is labeled 'Compute', 'VPS', and 'Virtual Machine'. The ARUBA logo is visible in the bottom right corner.

- [Mobility Data Space](#)

The Mobility Data Space interface features a top navigation bar with links: Home, About, Contact, and Privacy. The main content area displays a grid of icons representing different data types. The icons are: Traffic Information (car with signal waves), Road Works and Roads (road sign with a person), Traffic Flow Information (car on a road), Parking Information (car with 'P' sign), and a fifth icon (car on a road). Below the icons, there is a section titled 'Data Sharing Community: The entire data offering at a glance'.