

Gaia-X SUMMIT 2025



DIGITAL ECOSYSTEMS IN ACTION

Porto, Portugal | 20 & 21 November



In partnership
with



Hub Portugal



Tech Theatre | Thursday | 20.11.2025



Time	Title	Presenter(s)
12:00 – 12:30	Loire – How to use Gaia-X Label Level 2/Level 3	Giuditta Del Buono , Technical Product Manager, Gaia-X Ryan Reychico , Software Engineer, Gaia-X
12:30 – 13:00	Loire Notaries: Theory & Practice	Yassir Sellami , Software Engineer, Gaia-X Pierre Gronlier , CINO, Gaia-X
13:20 – 15:10	Networking Lunch & Expo Area	
15:00 – 15:20	From Data Meshes to Data Spaces	Stefan Dumss , Senior Researcher, Posedio GmbH
15:20 – 15:35	Eclipse Cloud Interest Group	Marco D'Angelo , Founder, Cloud Ecosystem OS, Director, Cloud Ecosystem Lead Open Source, Huawei Manuel Gutiérrez , Senior Digital Ecosystems Manager, Gaia-X Klaus Ottradovetz , VP Global Service Delivery, Atos
15:35 – 16:00	Simpl – Current State	Valentina Staveris , IT Project Officer, European Commission DG CNECT Cloud & Software
16:00 – 16:15	Orchestrating Sovereign Data Exchange	Yannick Meinberg , Research Engineer, Contact Software
16:15 – 16:30	Myrtus: A Computing Continuum Platform	Giulia Biagoni , Scientist, TNO
16:30 – 17:15	Networking Coffee & Expo Area	
17:00 – 17:15	Data Exchange Services WG – Update & Roadmap	Frédéric Bellaiche , VP Technology & Research, Dawex
17:15 – 17:45	Geography & Domain Extensions	Catherine Simonnin , Tech lead Trust & Governance, Orange Bert Verdonck , CEO, LNDS

#GaiaXSummit25

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Loire - How to use Gaia-X Label Level 2 & Level 3

Giuditta Del Buono & Ryan Reychico

Technical Product Manager – Software Engineer

Gaia-X

Agenda



- Introduction to Gaia-X Compliance
 - Combining Certifications and Declarations to Achieve Gaia-X Labels
 - Use of Certifications and Declarations in the context of L2 & L3
 - Gaia-X Loire Compliance as a Danube extension
-
- Technical terms
 - GX - Certification Notary
 - Compliance Workflow
 - Label Level 2 Valid Combination example
 - VC-JWT Playground
 - Q&A

Introduction to Gaia-X Compliance



- **Four Conformity assessment schemes - Standard Compliance, Label L1, L2, L3** - define criteria for cloud services aligned with Gaia-X goals (transparency, data protection, security, interoperability, portability, sustainability). Label L2 & L3 include additional requirements on European Control.
- Claims must be encoded as **Verifiable Credentials (VCs)** per [W3C VC Data Model 2.0](#) and using the [Gaia-X Ontology](#).
- To achieve Standard Compliance or a Label level, all VCs must be included in a single **Verifiable Presentation (VP)** and submitted to an accredited [Gaia-X Digital Clearing House](#), which issues a VC attesting compliance upon successful verification.

Combining Certifications and Declarations to Achieve Gaia-X Labels



- Depending on the assessment scheme and specific criterion, **Declarations and Certifications are required.**
- **Gaia-X Standard Compliance and Label L1** can be achieved by providing **Declarations only.**
- **Permissible Standards** that can be used to prove compliance with the criteria are **defined in the Gaia-X Compliance Document.**
- **Third-party assessment** by **Gaia-X accepted CABs** and under defined permissible standards is **mandatory** for many criteria in **L2** and **L3**, and optionally applicable also to Standard Compliance and Label L1.

Use of Certifications and Declarations for Label L2



Examples of combinations allowing achievement of Label L2:

SecNumCloud + CISPE (cert.) + 1.1.5, 1.2.8, 1.3.1, 1.3.2, 3.1.19, 4.1.2, 6.1.1, 6.1.2, 6.13, 6.1.4 (decl.)

SecNumCloud + CISPE + CNDP (cert.) + 1.1.5, 1.2.8, 1.3.1, 1.3.2, 3.1.19, 4.1.2, 6.1.1 (decl.)

EUCloudCoC (cert) + 1.1.5, 1.2.1, 1.2.5, 1.3.1, 1.3.2, 4.1.1, 4.1.2, 5.1.1, 6.1.1, 6.1.2, 6.13, 6.1.4 (decl)

ISO/IEC 27001 + CISPE (cert) + 1.1.3, 1.1.5, 1.2.8, 1.3.1, 1.3.2, 3.1.19, 4.1.1, 4.1.2, 6.1.1, 6.1.2, 6.13, 6.1.4 (decl.)

Use of Certifications and Declarations for Label L3



Examples of combinations of standards allowing achievement of Label L3:

SecNumCloud + CISPE (cert.) + 1.1.5, 1.2.8, 1.3.1, 1.3.2, 3.1.19, 4.1.2, 5.1.5, 5.1.6, 6.1.1, 6.1.2, 6.13, 6.1.4 (decl.)

EUCloudCoC (cert.) + 1.1.5, 1.2.1, 1.2.5, 1.3.1, 1.3.2, 4.1.1, 4.1.2, 5.1.2, 5.1.4, 5.1.5, 5.1.6, 5.1.7, 6.1.1, 6.1.2, 6.13, 6.1.4 (decl.)

ISO/IEC 27001 + CISPE (cert.) + 1.1.3, 1.1.5, 1.2.8, 1.3.1, 1.3.2, 3.1.19, 4.1.1, 4.1.2, 5.1.4, 5.1.5, 5.1.6, 5.1.7, 6.1.1, 6.1.2, 6.13, 6.1.4 (decl.)

CISPE + BSI C5 + CSA CCM (cert) + 1.1.3, 1.1.5, 1.2.8, 1.3.1, 1.3.2, 4.1.1, 4.1.2, 5.1.4, 5.1.5, 5.1.6, 5.1.7, 6.1.1, 6.1.2, 6.13, 6.1.4 (decl.)

Gaia-X Loire Compliance as a Danube Compliance extension



In the **Gaia-X 3.0 Danube** release, **Gaia-X Technical Compatibility** is fully **decoupled from Compliance**.

In the context of the Danube Architecture, the **Gaia-X Loire Compliance** represents a supported **Compliance extension**, in which the component that checks compliance (Gaia-X Loire Compliance Engine) runs outside the runtime control of the Gaia-X Core Engine and is accessed over the network.

Technical Terms



- **DID (Decentralized Identifier):** A DID is a unique, self-owned digital identifier that enables secure, verifiable interactions without relying on a central authority.
- **VC (Verifiable Credential):** A VC is a tamper-evident digital claim that proves information about an individual or entity, verified using cryptographic proofs.

GX - Certification Notary



The goal of the certification notary is to provide the [Gaia-X compliance](#) with trustworthy Verifiable Credentials of certifications within the [Permissible Standards of the Compliance Document](#).

➤ Inputs

- The original paper certificate

➤ Output

- A JWT format signed **VC** of the type **cap:Certification** and **scheme** of type **cap:ConformityAssessmentScheme** as well as **cap:issuer** of type **cap:ConformityAssessmentBody**

<https://gitlab.com/gaia-x/lab/gaia-x-onboarding-prototypes/gx-certification-notary/-/blob/main/README.md>

Cap:Certification Verifiable Credentials



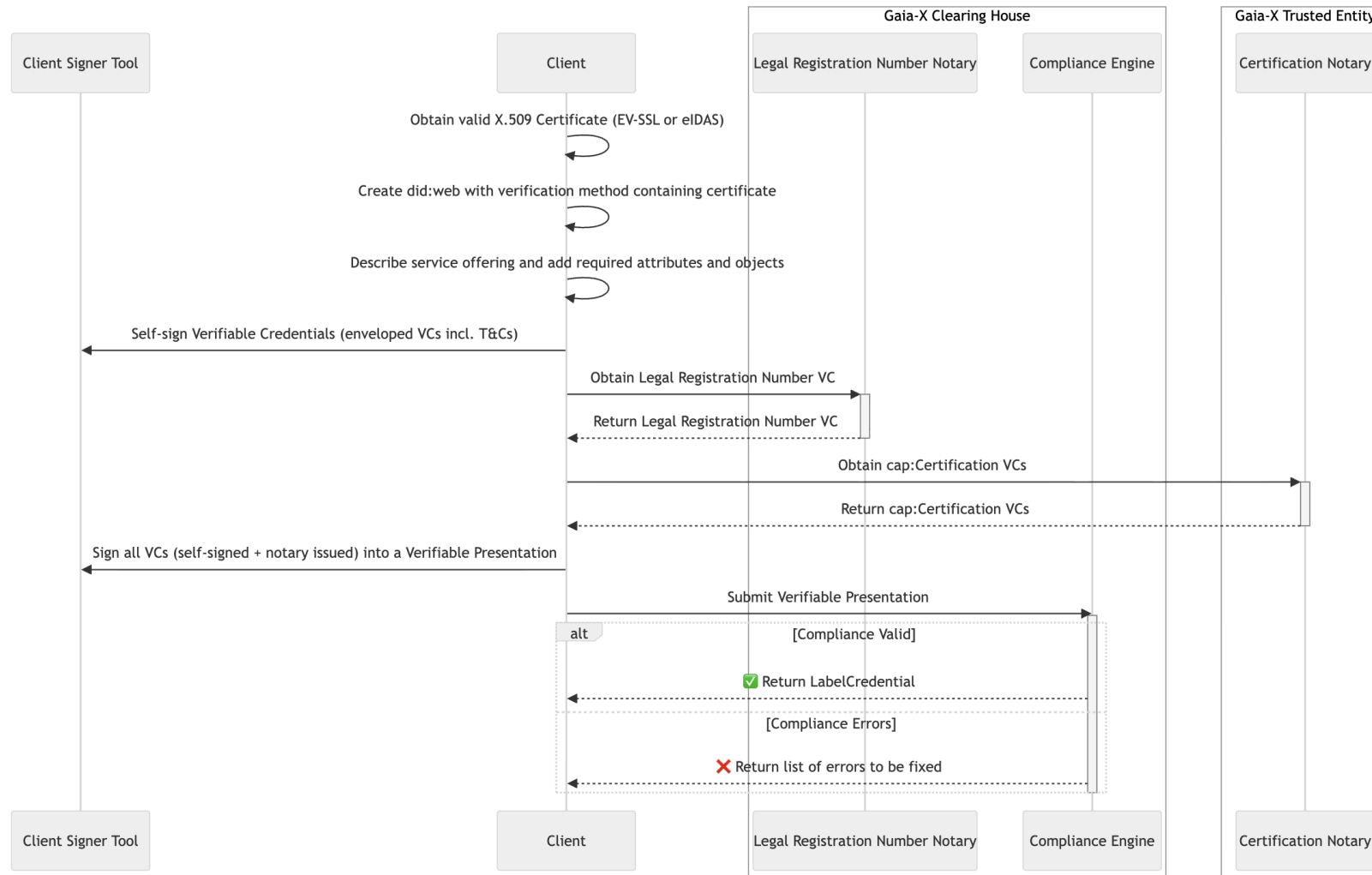
```
"@id": "ex:certification_vc_010fdb1-02be-43b9-8fd8-a5d7763cf87b",
"type": [
  "VerifiableCredential",
  "cap:Certification"
],
"issuer": "did:web:certification.notary.lab.gaia-x.eu:main",
"validFrom": "2025-04-24T14:25:50.227+00:00",
"validUntil": "2025-11-12T09:15:13.042+00:00",
"credentialSubject": {
  "@id": "ex:certification_vc_010fdb1-02be-43b9-8fd8-a5d7763cf87b#cs",
  "@type": "cap:Certification",
  "cap:object": {
    "@id": "ex:test#cs",
    "@type": "cap:Object"
  },
  "cap:conformity_assessment_scheme": {
    "@type": "cap:ConformityAssessmentScheme",
    "cap:name": "SecNumCloud",
    "cap:version": "3.2"
  }
},
```



eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.
eyJzdWIiOiIxMjM0NTY3ODkwIiwibmFtZSI6IkpvaG4
gRG9lIiwiaXNTb2NpYWwiOnRydWV9.
4pcPyMD09o1PSyXnrXCjTwXyr4BsezdI1AVTmud2fU4

<https://gitlab.com/gaia-x/lab/gaia-x-onboarding-prototypes/gx-certification-notary/-/blob/main/README.md>

Compliance workflow



<https://gitlab.com/gaia-x/lab/compliance/gx-compliance/-/blob/development/docs/level2-and-level3-compliance.md>

Label Level2 Valid Combination example



SecNumCloud + CISPE (cert.) + 1.1.5, 1.2.8, 1.3.1, 1.3.2, 3.1.19, 4.1.2, 6.1.1, 6.1.2, 6.13, 6.1.4 (decl.)

SecNumCloud and CISPE certification criteria (P1.1.1, P1.1.2)

- **P1.1.1 : ServiceOffering** has at least one **LegallyBindingAct** in its **legalDocuments**
- **P3.1.3 : ServiceOffering** has at least one **InformationSecurityRiskManagement** in its **legalDocuments**

Declaration criteria

- **P1.1.5:** Every **LegallyBindingAct** of **ServiceOfferings** have at least one **countryCode** in **governingLawCountries**
- **P3.1.19:** **ServiceOffering** has at least one **GovernmentInvestigationManagement** in its **legalDocuments**

<https://gitlab.com/gaia-x/lab/compliance/gx-compliance/-/blob/development/docs/labelling-criteria.md>

VC-JWT Playground



Verifiable Credential Playground

This is only a **testing/development instance** used to provide a DID document for verifiable credential signing and verification.

Verifiable credentials are encoded using VC-JWT according to [W3C's Securing Verifiable Credentials using JOSE and COSE](#).

Decentralized Identity (DID) information can be found at the [/well-known/did.json](#) endpoint.

VC & VP Generator

Sign into EVC

VP signer

VP JWT Decoder

Sign Verifiable Credential to Enveloped Verifiable Credential

Import from VC-JWT

Import VC array

Unsigned Verifiable Presentation Examples

- Unsigned Participant Verifiable Presentation Example
- Unsigned Standard Compliance Verifiable Presentation Example
- Unsigned Level 1 Verifiable Presentation Example
- Unsigned Level 2 Verifiable Presentation Example
- Unsigned Level 3 Verifiable Presentation Example

```
{
  "@context": [
    "https://www.w3.org/ns/credentials/v2",
    "https://www.w3.org/ns/credentials/examples/v2"
  ],
  "id": "http://university.example/issuers/565049",
  "type": [
    "VerifiableCredential",
    "ExampleDegreeCredential"
  ],
  "issuer": "https://university.example/issuers/565049",
  "validFrom": "2010-01-01T00:00:00Z",
  "credentialSubject": {
    "id": "did:example:ebfeb1f712ebc6f1c276e12ec21",
    "degree": {
```

Result

Copy to clipboard

Use in VP Signer

```
[
  {
    "@context": "https://www.w3.org/ns/credentials/v2",
    "id": "https://university.example/issuers/565049/credentials/2010-01-01T00:00:00Z/degree",
    "type": "VerifiableCredential",
    "issuer": "https://university.example/issuers/565049",
    "validFrom": "2010-01-01T00:00:00Z",
    "credentialSubject": {
      "id": "did:example:ebfeb1f712ebc6f1c276e12ec21",
      "degree": {
        "type": "BachelorDegree",
        "name": "Bachelor of Science and Arts"
      }
    }
  }
]
```

<https://vc-jwt.io/playground>

VC-JWT Playground



VC & VP Generator

Sign into EVC

VP signer

VP JWT Decoder

VP JWT Decoder

Decode a VP to JWT

Signed Level 2 Verifiable Presentation Example

Signed Participant Verifiable Presentation Example

Signed Standard Compliance Verifiable Presentation Example

Signed Level 1 Verifiable Presentation Example

☒ Signed Level 2 Verifiable Presentation Example

Signed Level 3 Verifiable Presentation Example

eyJhbGciOiJSUzI1NiIsInR5cCI6ImluZGZp3dC...
aWQ6d2ViOnZlWp3dC5pbyNYNTA5LUpXS...
MvY3JlZGVudGhbmMvdjliLCJodHRwczovL3...
HlwZSI6ImlmaWFiGVQcmVzZW50YXRp...
HRwczovL3d3dy53My5vcmcvbnMvY3JlZGV...
5SmhIR2NpT2IKU1V6STFOaUlzSW5SNWN...
xrT25kbFlqcDJZeTFxZDNRdWFXOGIMQ0py...
FN6SXdNakFpZIEuZXIKQVkyOXVkr1Y0ZEN...
Vkr2xoYkhNdmRqSWIMQ0pvZEhSd2N6b3ZMM2N6YVdRdWizSm5MMmRoYVdFdGVDOwtaWFpsYkc5d2JXVnVnKQ0...
1pTEhzaVpYz2lPaUpvZEhSd09pOHZaWGhoYlhCc1pTNXZjbWN2SW4xZExDSkFhV1FpT2IKbGVEcEJaR1J5WlhOelh6Z...
3hOaUlzSW5SNWNHVWIPbHNpVnm1WeWFXWnBZV0pzWIVoeVpXUmxiBlJwVvd3aUxDSm5IRHBCWkdSeVpYtNpJb...
DBzSW1semMzVmxjaUk2SW1ScFpEcDNaV0k2ZG1NdGFuZDBMbWx2SWI3aWRtRnNhV1JHY205dElqb2INakF5TIMw...
d09TMHdOVIF3TnpveE1UbzBOUzR6TmPbck1EQTZNRFPtENKamNtVmtaVzUwYVdGc1UzVmlhbVZqZENJNmV5Skf...
hV1FpT2IKbGVEcEJaR1J5WlhOelh6Z3hOaU5qY3Jlc0ltZDRPbU52ZFc1MGnubE9ZVzFsSWpvaVtVnNaMmxwYINJc...
0ltZDRPbU52ZFc1MGnubE9ZVzFsSWpvaVtVnNaMmxwYINJc...
2TVRFnk5EVXVNeIl3S3pBd09qQXdbJbAuZDM3MG8zQVvmQUNHWUZGZkNUVE9RLS1uRHFKY2p0dU9ySjJhUkp5...
WG1xS2FYQTFYM0IBN3drRjJnNWkyRjdNQTNReHdPWHZHV21CY2RmaDU4OGN0bkRxyWInTNYQJE5ay1qNUt1Vz...
FXZGUXbG5Uclh2d09pd1hCd3RhSUIkdmZ0aVZVWnJ3M3JFdDVsbFFQSEVoaUJHMzZfOG1INUNuaTFwQnZNZ3ISQ...
npibVZzHplam15TVRsU0Voems2cGhmNHlIRjRva3dyRGtmM3ISQ1J1czlzlJ0TDImWmM0ZWnmMU04ZWxZM0IOR...
ldudmg5bV9Q0lh6SIRYMGJpSDVBsK9vZGs5enkWUTBWwKxMNGpKnpoeFZIMW5fVDdQn1FtLVryY0RkZzJEbm5...
2SHA2TIZzQ2RGZVFIvmNWSGtKcXJkTGc1alhtcTU1OHZhaUU1RC03Z2h3liwidHlwZSI6ImlmaWFiGVQcmVzZW50aW...
ibGVdDcmVzZW50aWFiGVQcmVzZW50aWFiGVQcmVzZW50aWFiGVQcmVzZW50aWFiGVQcmVzZW50aWFiGVQcmVzZW50aW...
mlkljoiZGF0YTpHcHBSaWNhdGlvi92Ytqd3QsZXIKaGJHY2lPaUpTVXpJMU5pSXNjbl1Y0NjNkluWmpLMnAzZENJc...
0ltTjBIU0k2SW5aaklpd2lhWE56SWpvaVpHbGtPbmRsWWpwMlI5MXFkM1F1YVc4aUxDSnJhV1FpT2IKa2FXUTZkMIZ...
pT25aakXcDNkQzVwYnlOWU5UQTVMVXBYU3pJd01qQWImUS5leUpBWT15dWRHVjRkQ0k2V3IKb2RIUndjem92TD

Copy to Clipboard

Decode

Result

Copy to clipboard

```
{
  "@context": [
    "https://www.w3.org/ns/credentials/v2",
    "https://w3id.org/gaia-x/development#",
    {
      "ex": "http://example.org/"
    }
  ],
  "@id": "ex:Address_816",
  "type": [
    "VerifiableCredential",
    "gx:Address"
  ],
  "issuer": "did:web:vc-jwt.io",
  "validFrom": "2025-09-05T07:11:45.360+00:00",
  "credentialSubject": {
    "@id": "ex:Address_816#cs",
    "gx:countryName": "Belgium",
    "gx:countryCode": "BE"
  },
  "validUntil": "2025-12-04T07:11:45.360+00:00"
}
```

```
{
  "@context": [
    "https://www.w3.org/ns/credentials/v2",
    "https://w3id.org/gaia-x/development#",
    {
      "ex": "http://example.org/",
      "schema": "https://schema.org/"
    }
  ]
}
```

<https://vc-jwt.io/playground>

Q&A



<https://vc-jwt.io/playground>

Thank you!

Contacts

giuditta.delbuono@gaia-x.eu

ryan.reychico@gaia-x.eu

Giuditta Del Buono & Ryan Reychico

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Loire Notaries: Theory & Practice



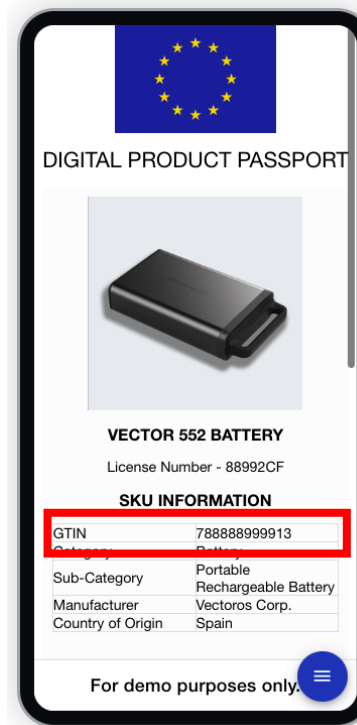
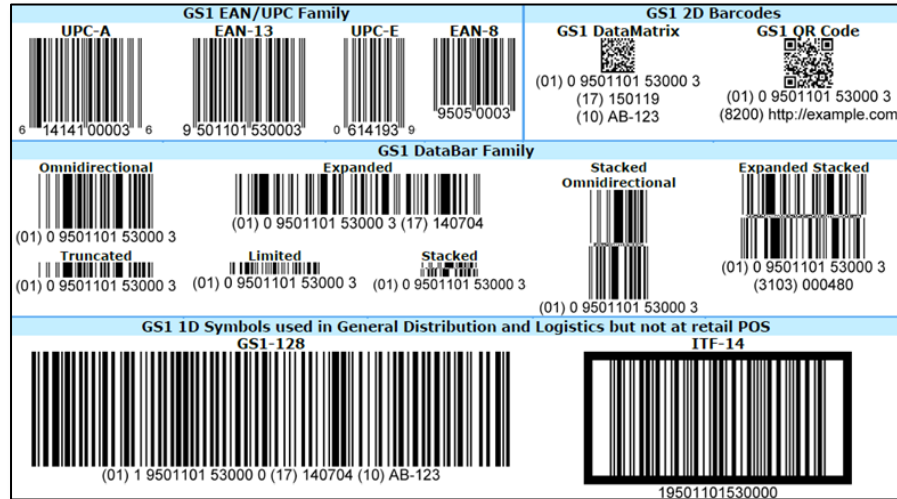
Pierre Gronlier, CInO

Yassir Sellami, Tech Lead

Gaia-X AISBL

#GaiaXSummit25

What is an identifier ?



LEI registration details	
LEI number	9695009HSLO8O4OSX010
Status	● ISSUED
Next renewal date	2026-01-17
Managing LOU	INSTITUT NATIONAL DE LA STATISTIQUE ET DES ETUDES ...

Address^c

back to [ToC](#) or [Class ToC](#)

IRI: <http://www.w3.org/2006/vcard/ns#Address>

is defined by

<http://www.w3.org/2006/vcard/ns>

To specify the components of the delivery address for the object

is equivalent to

((country_name^{dp} some xsd:string) and (country_name^{dp} max 1)) or ((locality^{dp} some xsd:string) and (locality^{dp} max 1)) or ((postal_code^{dp} some xsd:string) and (postal_code^{dp} max 1)) or ((region^{dp} some xsd:string) and (region^{dp} max 1)) or ((street_address^{dp} some xsd:string) and (street_address^{dp} max 1))

is in range of

has address^{op}

What can it identify ?

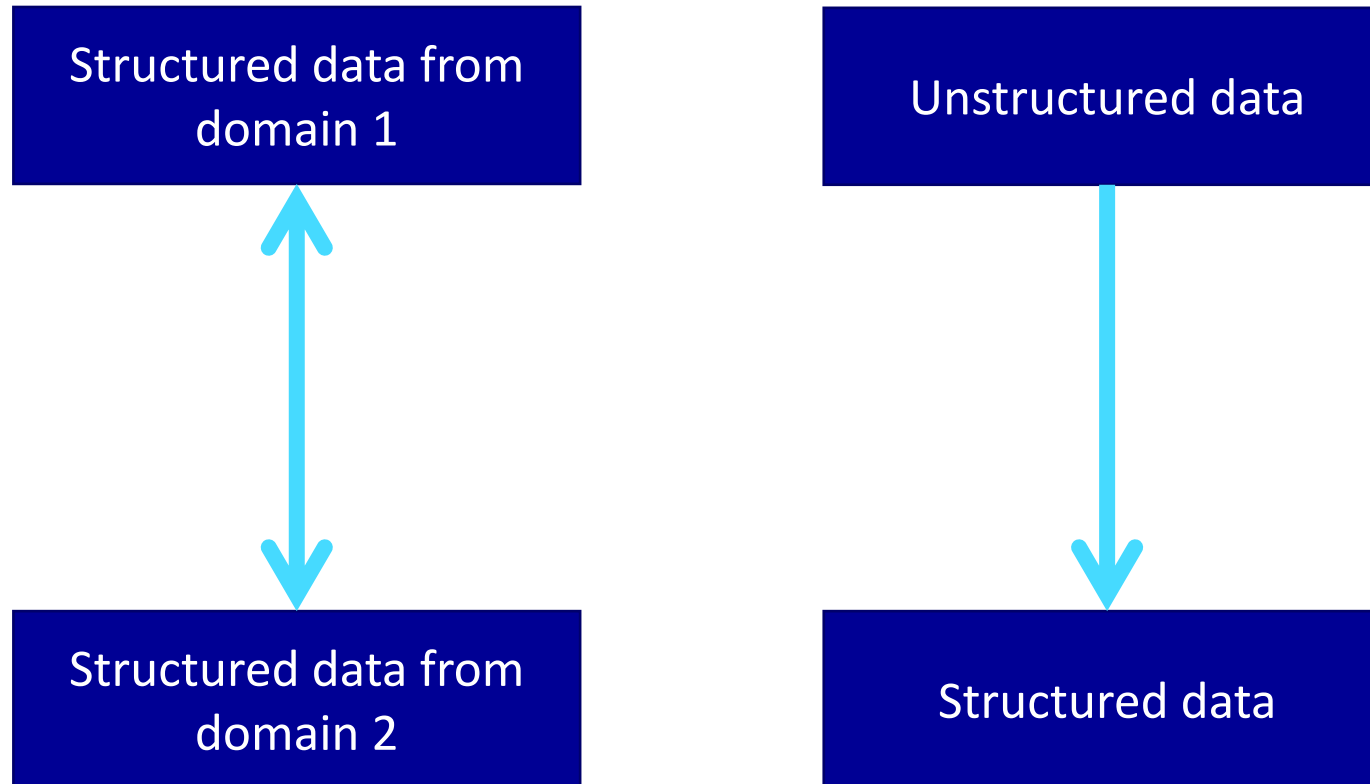
- A physical object, place, or building (GS1, AAS, OPC-UA, Digital Product Passport, etc.)
- An organisation or legal entity (EU EORI, LEI, JP Corporate number, etc.)
- A natural person (a citizen, freelancer, employee, agent, legal representative, data right holder, etc.)
- An instance of an IT service (an agent, wallet, connector, DB, control plane, etc.)
- A word, a property of an intangible object (a document, evidence, proof, rulebook, etc.)
- A statement

Trust at all levels: Trust Anchors

- **Trust in the source of information, the claims, the evidence: Trust Anchors**
 - Where does it come from ? (*traceability: Who is the issuer ? ...*)
 - Are there impartial confirmations ? (*quality: code of conduct, certifications, audit report, ...*)
 - What is the history ? (*past behavior: Is it a new certification, a renewal ? Is it a new company ?...*)
- **Trust in the verifiability / proof of the execution**
 - *Has the data been deleted after use ? Has the data left the computing enclave ? Can the algorithm be leaked ?*
- **Trust in my future strategic autonomy**
 - *Data Portability ? Software vendor lock-in ? License portability ?*
- **Automated Compliance**
 - *regulatory compliance / policy compliance*

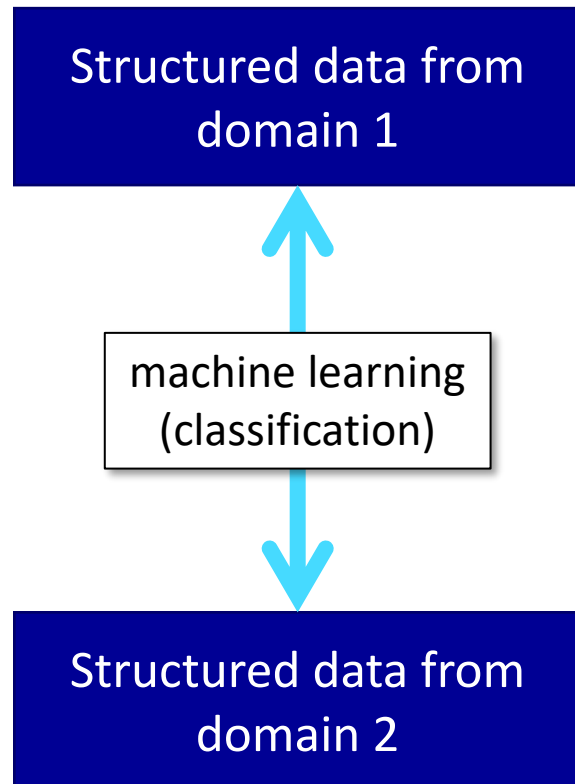


Semantic Interoperability








Semantic interoperability of identifiers (hub semantic)

- domain1:customerID <-> domain2:accountID
- TYVA:cell <-> Renault:battery
- vcard:Individual <-> schema:Person <-> gaiax:Participant
 - “did:sov:abc123 is a vcard:Individual” <-> “mylocalID is a gaiax:Participant”

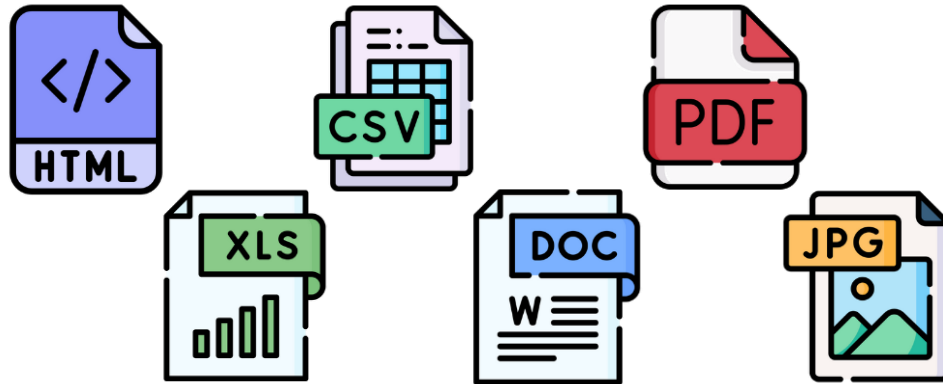


Votre colis 250803368261359

				
Colis remis à DPD	En transit	En agence	En cours de livraison	Colis livré

Numéro de référence interne	SO-44981-FD5-621407
Numéro de référence international	01366007346604
N° colis	250803368261359
Poids du colis	9.34 Kg
Expédié le	22/03/2025

Semantic interoperability of identifiers



Intervention time schedule(.ics) <-> vcard:calendar

Business card (.jpg) <-> vcard:Contact

ISO certification (.pdf) <-> cap:Certification

Unstructured data

LLM
(instruct + function calling)



Semantically structured
data

Notary features (summary)



- Translate data
- Federate Identifiers

Gaia-X Compliance Document - 25.10 Release

Compliance for Cloud Services



Criterion P3.1.15: Incident Management: Ensure a consistent and comprehensive approach to the capture, assessment, communication and escalation of security incidents.

Standard Compliance	Label Level 1	Label Level 2	Label Level 3
declaration	declaration	certification	certification

Declaration: Using the Gaia-X Ontology, the declaration shall include evidences about the provisions covering the criterion, either copied from Provider's documentation or in a structured machine-readable format (DSL). The evidence shall detail:

- procedures to provide prompt and effective response to security incidents, including the means and timelines for communicating security incidents and recommendations to limit their impact to all customers concerned;
- procedures related to the communication of responsibilities of internal and external personnel, third party and customers with regard to the reporting of security incidents ;
- procedures and guidelines for the assessment, classification, prioritisation and escalation of security incidents.

Permissible Standards

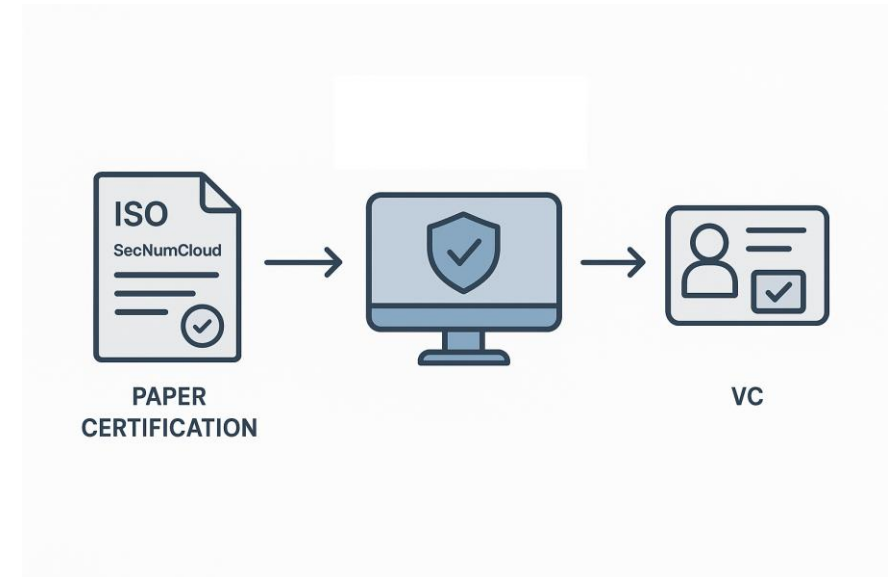


Identified / Term in this Document	Short Description (where necessary)	Version Reference & Access (might be behind a paywall)
SecNumCloud	French Cloud Service Requirements maintained by the Agence nationale de la sécurité des systèmes d'information (ANSSI) ; further information available at the project's website .	SecNumCloud 3.2.a, as of March, 8 th 2022
BSI C5	The C5 (Cloud Computing Compliance Criteria Catalogue) criteria catalogue specifies minimum requirements for secure cloud computing and is primarily intended for professional cloud providers, their auditors and customers. It is published by the German Federal Office for Information Security.	BSI C5:2020
ISO/IEC 27001		ISO/IEC 27001:2022
CISPE (GDPR, Infrastructure & IaaS)	Approved GDPR Code Of Conduct maintained by CISPE, covering Infrastructure and IaaS Cloud Services; further information available at the project's website .	February 9 th , 2021
EU Cloud CoC (GDPR, XAAS)	Approved GDPR Code of Conduct maintained by the EU Cloud CoC General Assembly, covering the full cloud stack (XAAS); further information available at the project's website .	EU Cloud CoC v2.11 as of December 2020

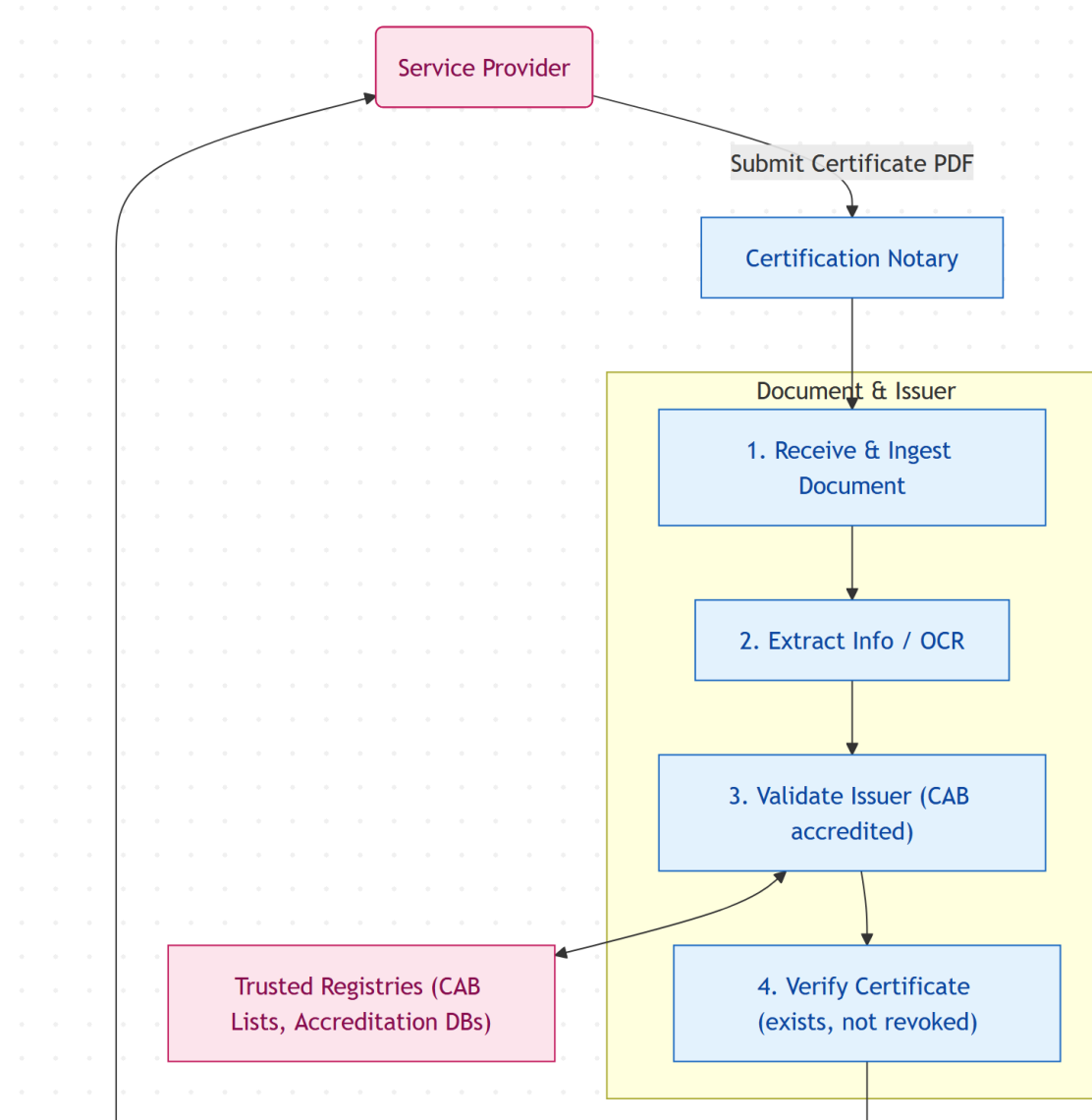
Verifiable Credentials are more useful



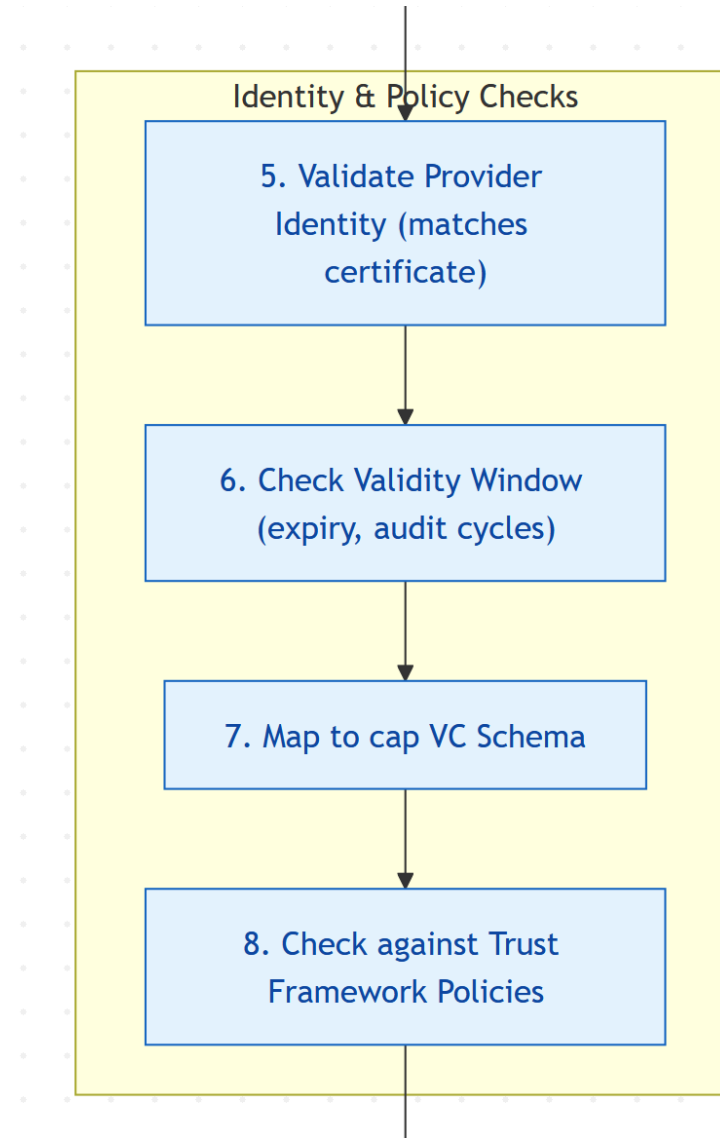
- Tamper-proof: Cryptographically secure and resistant to forgery.
- Instantly verifiable: No manual checks or contacting issuing authorities.
- Machine-readable: Enables automation and integration in digital workflows.
- Privacy-preserving: Selective disclosure allows sharing only necessary claims.
- Portable & durable: Cannot be lost or damaged like paper documents.
- Updatable & revocable: Issuers can update or revoke credentials in real time.



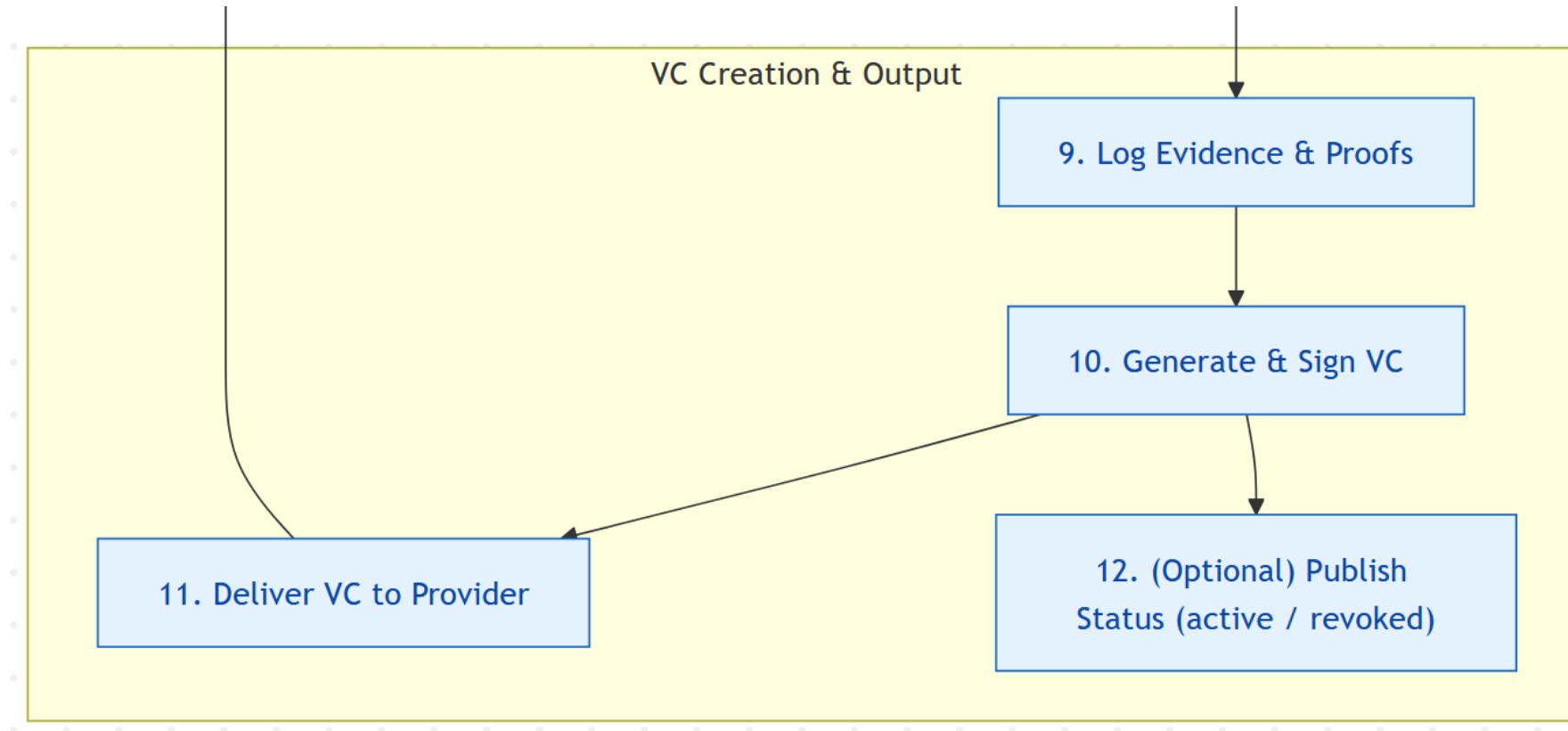
The certification notary flow



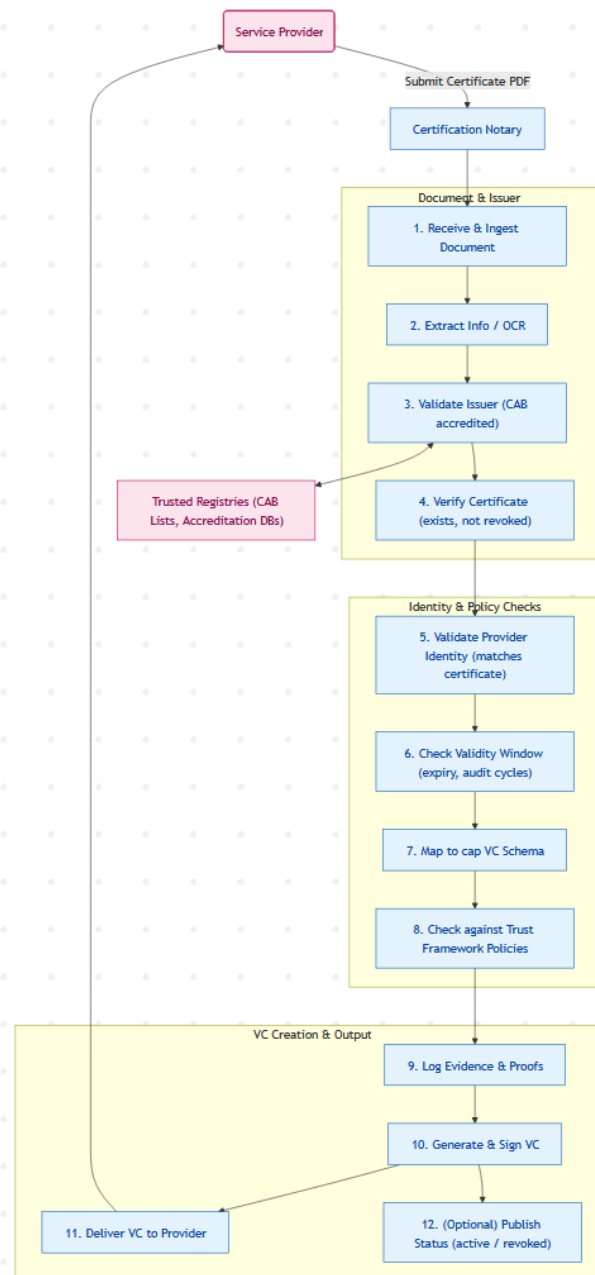
The certification notary flow






The certification notary flow







The certification notary flow















 main  gx-certification-notary

  Find file **Code** 

 **chore(release): 1.5.0**  semantic-release-bot authored 2 weeks ago

 a0f1cffc  History

Name	Last commit	Last update
 .husky	feat: initialize project for certification no...	3 months ago
 k8s/gx-certification-notary	feat: initialize project for certification no...	3 months ago
 src	feat: add service Offering id as a param...	2 weeks ago
 .dockerignore	feat: initialize project for certification no...	3 months ago
 .env.example	feat: initialize project for certification no...	3 months ago
 .eslintrc.js	feat: initialize project for certification no...	3 months ago
 .gitignore	feat: initialize project for certification no...	3 months ago
 .gitlab-ci.yml	fix: cap certification vc	3 months ago
 .nvmrc	feat: initialize project for certification no...	3 months ago
 .prettierrc	feat: initialize project for certification no...	3 months ago
 .releaserc	feat: initialize project for certification no...	3 months ago
 CHANGELOG.md	chore(release): 1.5.0	2 weeks ago

Project information



LICENSE

ECLIPSE PUBLIC LICENSE 2.0

RELEASE

V1.5.0

coverage

unknown

 32 Commits

 2 Branches

 14 Tags

 2.2 MiB Project Storage

 14 Releases

 README

 Eclipse Public License 2.0

 CHANGELOG

 CI/CD configuration

 Add CONTRIBUTING

 Add Kubernetes cluster


 Add Wiki

 Configure Integrations

Created on
May 23, 2025

Eclipse Foundation



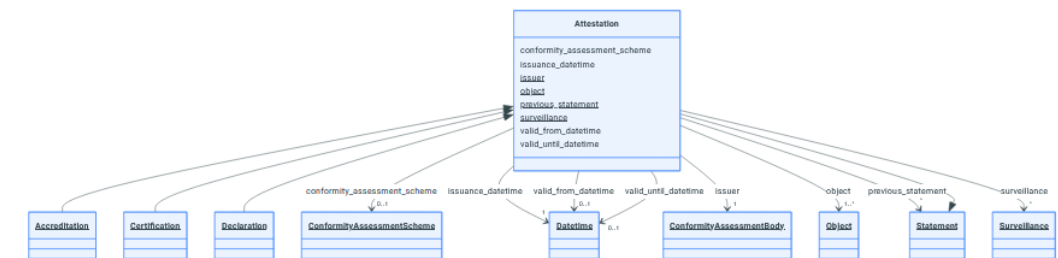
- In the Eclipse Dataspace Working Group (EDWG), Gaia-X contributions to the **Eclipse Conformity Assessment Profile (CAP)** have been released in April as v2.0 
 - Current testing projects : Gaia-X Label level 2&3, CISPE, DOME, Fulcrum
- On the path for ISO Publicly Available Specification (PAS) submission with:
 - Specification -> `cap.owl.ttl` or `cap.owl.xml`
 - TCK (shape) -> `cap.shape.ttl`
 - Reference implementation -> `cap.py`

Class: Attestation

issue of a statement, based on a *decision*, that fulfilment of *specified requirements* has been demonstrated (ISO/IEC 17000:2020)

- **NOTE:** this is an abstract class and should not be instantiated directly

URI: `cap:Attestation`



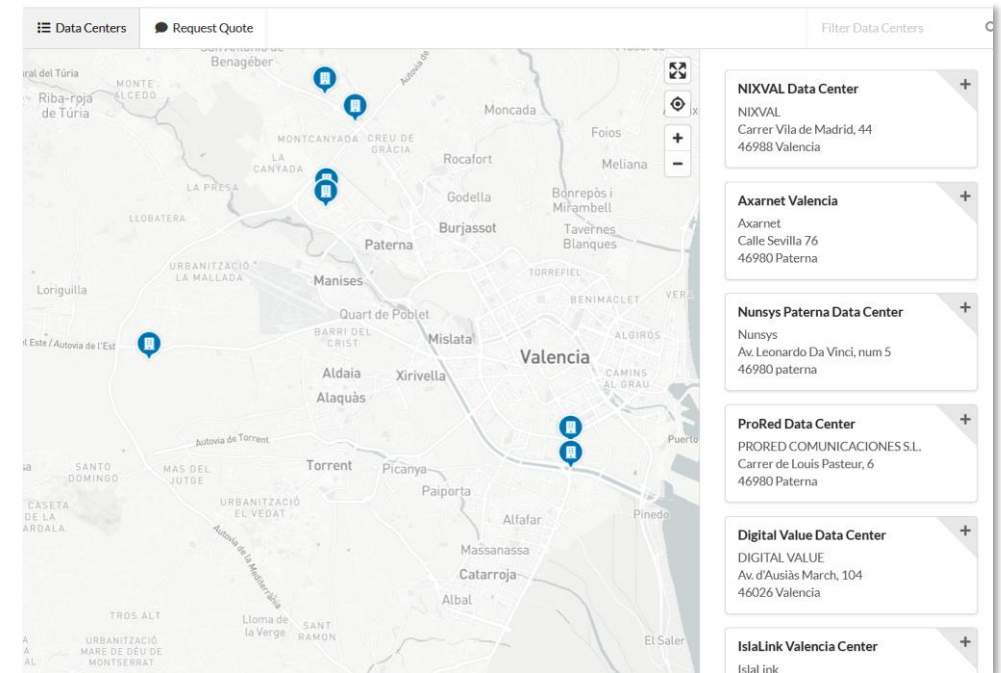
Inheritance

- **Statement**
 - **Attestation**
 - `Accreditation`
 - `Certification`
 - `Declaration`

<https://github.com/eclipse-dataspace-cap/cap-ontology> (v2.1.3)

Eclipse CAP – example of enablements

- Today's challenge:
 - certifications are PDF-based and require intensive manual labor to be assessed.
 - It's expensive and scope is usually vague
- Example with W3C ODRL + Eclipse CAP
 - ODRL:Offer
 - «The dataset <idXXX> shall **only** be processed on **ISO 27001 qualified services** in **Valencian Community, Spain**»
 - ODRL:Request
 - « I would like to consume the dataset <idXXX> and here is the **services's ISO27001 certificate** hosted in the **ES-VC administrative area**»



<https://www.datacentermap.com>

cap:Certification Verifiable Credentials



```
"@id": "ex:certification_vc_010fdbba1-02be-43b9-8fd8-a5d7763cf87b",
"type": [
  "VerifiableCredential",
  "cap:Certification"
],
"issuer": "did:web:certification.notary.lab.gaia-x.eu:main",
"validFrom": "2025-04-24T14:25:50.227+00:00",
"validUntil": "2025-11-12T09:15:13.042+00:00",
"credentialSubject": {
  "@id": "ex:certification_vc_010fdbba1-02be-43b9-8fd8-a5d7763cf87b#cs",
  "@type": "cap:Certification",
  "cap:object": {
    "@id": "ex:test#cs",
    "@type": "cap:Object"
  },
  "cap:conformity_assessment_scheme": {
    "@type": "cap:ConformityAssessmentScheme",
    "cap:name": "SecNumCloud",
    "cap:version": "3.2"
  },
}
```



```
eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJzdWIiOiIxMjM0NTY3ODkwIiwibmFtZSI6IkpvaG4gRG9lIiwiaXNTb2NpYWwiOnRydWV9.4pcPyMD09olPSyXnrXCjTwXyr4BsezdI1AVTmud2fU4
```

- <https://gaia-x.gitlab.io/policy-rules-committee/compliance-document/>
- <https://gitlab.com/gaia-x/lab/compliance/gx-compliance/-/blob/development/docs/level2-and-level3-compliance.md>
- <https://gitlab.com/gaia-x/lab/gaia-x-onboarding-prototypes/gx-certification-notary>
- <https://vc-jwt.io/playground>

Thank you!

Pierre Gronlier, CInO
Yassir Sellami, Tech Lead

Gaia-X SUMMIT 2025



DIGITAL ECOSYSTEMS IN ACTION

Porto, Portugal | 20 & 21 November



In partnership
with



From Data Mesh to Data Space



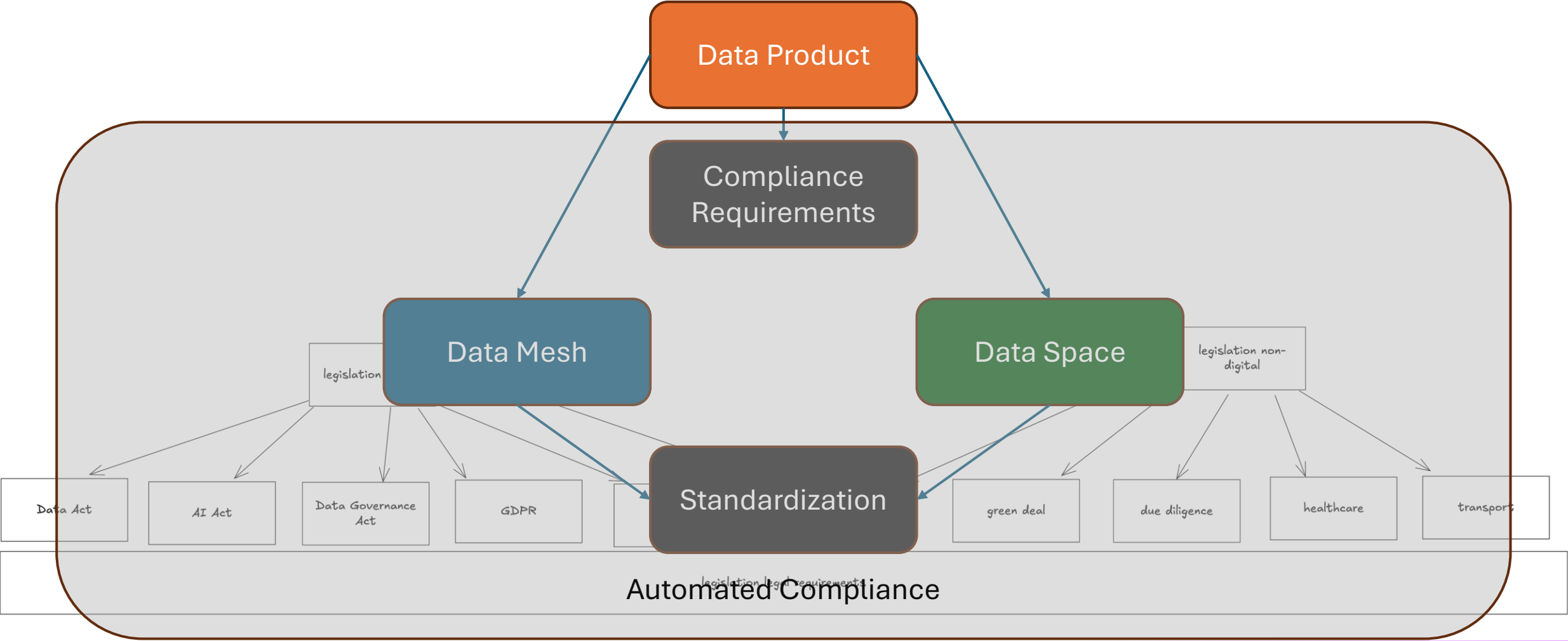
Using Data Products in Data Mesh and Space with Gaia-X
Danube Architecture

Stefan Dumss

Senior Researcher
Posedio GmbH

#GaiaXSummit25

Motivation: Automatization of Compliance



- Which company data is shared with whom?
- Which external data (sources) are used within the company?
- What obligations and restrictions apply to the use of specific data?
 - Do these data sets contain personal data?
 - Which rights must be respected (usage duration, scope of use, etc.)?
- Where in the company is data generated, and for what purposes is it used?
 - Is the data quality sufficient?
 - Can this data be shared (internally)?

Data Mesh¹



Goal: decentralized responsibility and controlled data provisioning

Principles:

- Domain Ownership
 - Business Domains (Domain Driven Development)
- Data as Product Product
 - Includes **all components** to share data (metadata, code, policy, declarations)
- Self-Service (Data Platform)
 - Empower domains to help among other things the full life cycle
- Federated Governance
 - Governance: How are data quality and ownership ensured?
 - Compliance: Are we legally allowed to use the data in this way?

¹ Data Mesh by Zhamak Dehghani

ISO 9000: „output of an organization that can be produced without any transaction taking place between the organization and the customer“¹

... but products for customers usually are standardised and regulated²

¹ISO 9000:2015 Chapter Terms and Definitions

²e.g. EU product requirements https://commission.europa.eu/business-economy-euro/doing-business-eu/eu-product-safety-and-labelling/eu-product-requirements_en

- Data Product describes the data with metadata, interfaces, policies and more¹

Three dimensions:

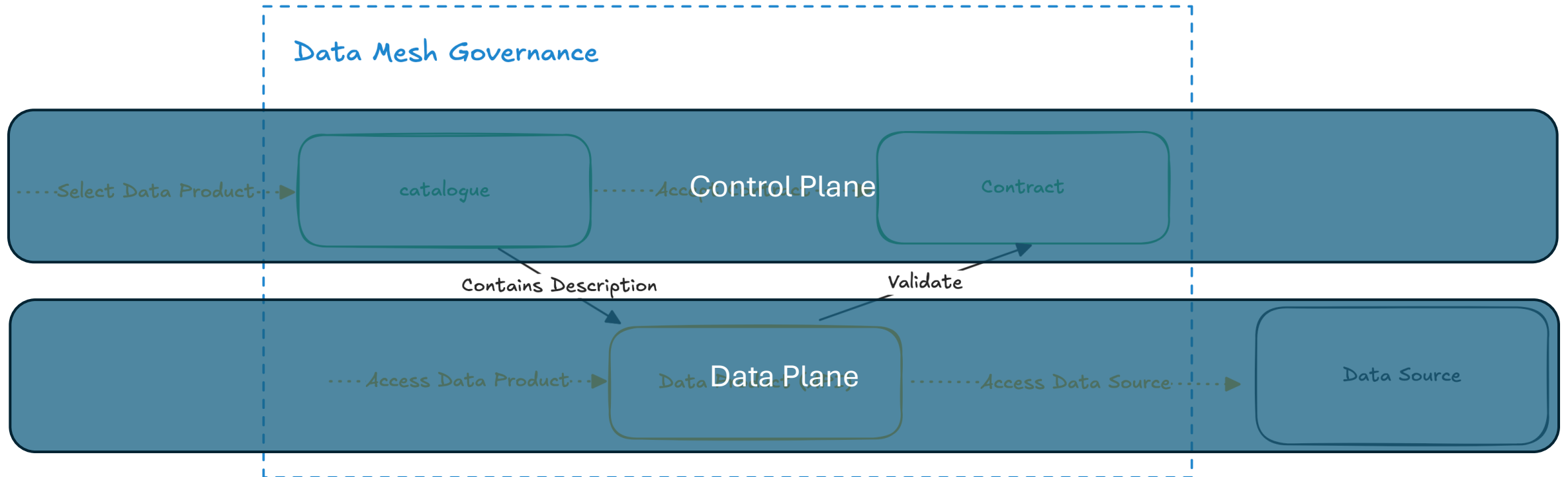
- Technical: API, schema, storage, input/output interfaces
- Organizational: owner, SLA, domain
- Regulatory: source, licensing, compliance requirements²

Goal: reusable, transparent, and responsibly managed data assets.

¹<https://opendataproducts.org/v4.1/> <https://martinfowler.com/articles/designing-data-products.html> <https://dpds.opendatamesh.org/specifications/dpds/1.0.0/> <https://www.datamesh-governance.com/policies/definitions/data-product/data-product.html> <https://docs.gaia-x.eu/ontology/development/classes/DataProduct>

² some of the specifications see it as part of the Data Contracts

Compliant Data Mesh Access Control

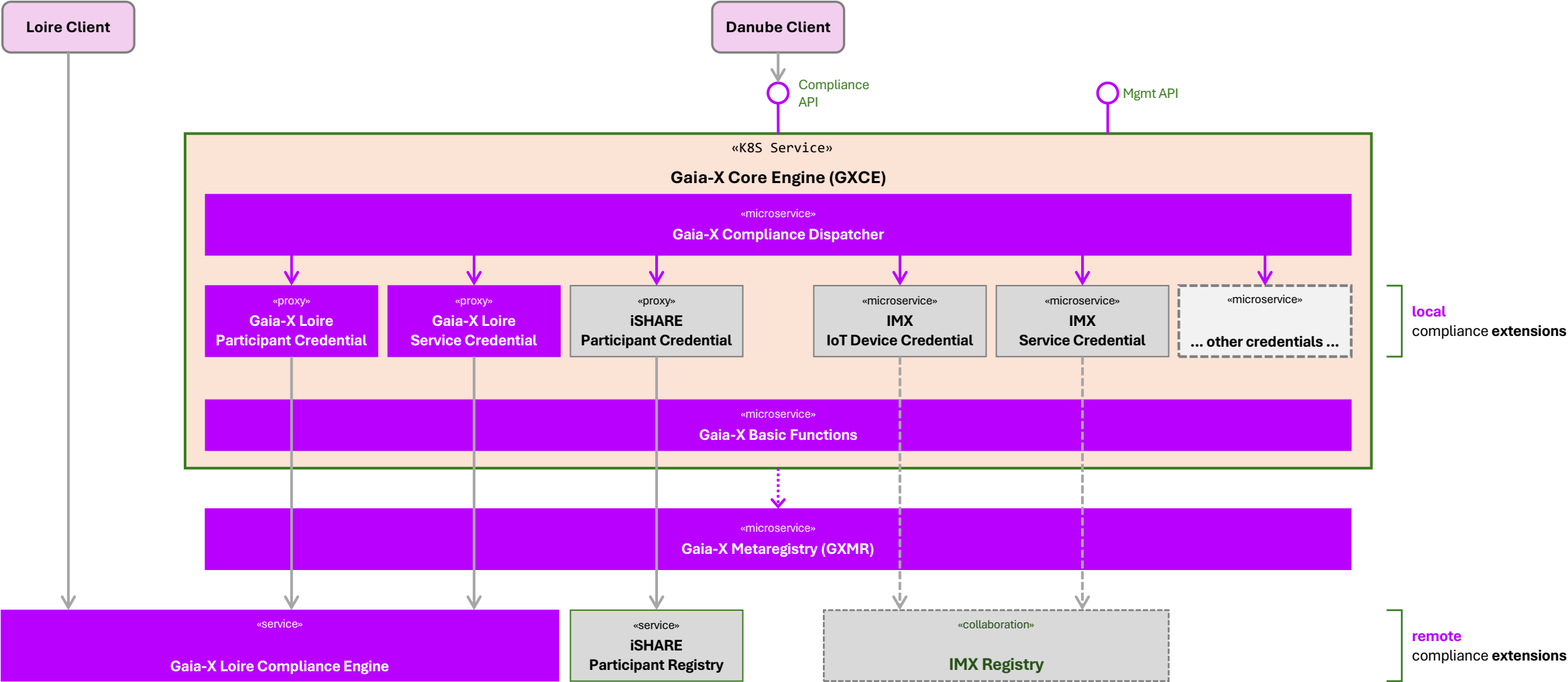


Data Space (ISO 20151)

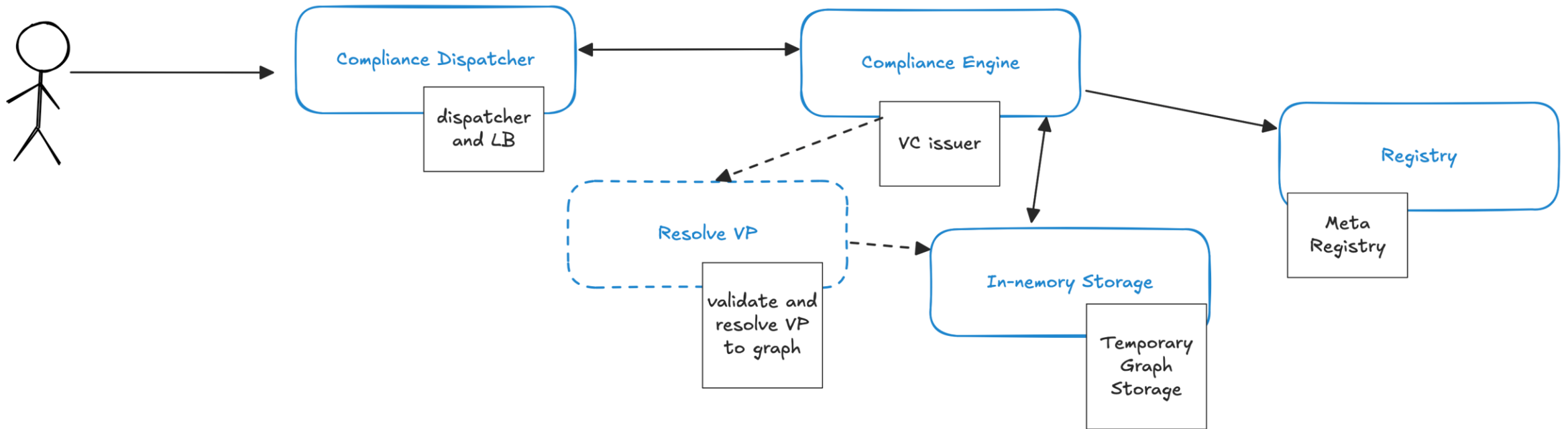


- Participants Maintain Control over the data
 - Claims, obligations, roles in interactions, and rules are defined in a standardized way
- Across organizational boundaries:
 - Create trust across organizational boundaries
 - They require agreement on shared rules, trust frameworks, trust anchors, etc.
 - Data is published in a form that makes it discoverable (for both humans and machines)
 - Metadata is represented in a unified manner across company borders
 - Enable (automated) contract negotiation with standardized components
 - This is supported through shared ontologies, both in terms of semantics and predefined components
- Dataspaces rely on interoperability in all of these aspects
 - Parts of the system can be reused both technically and conceptually

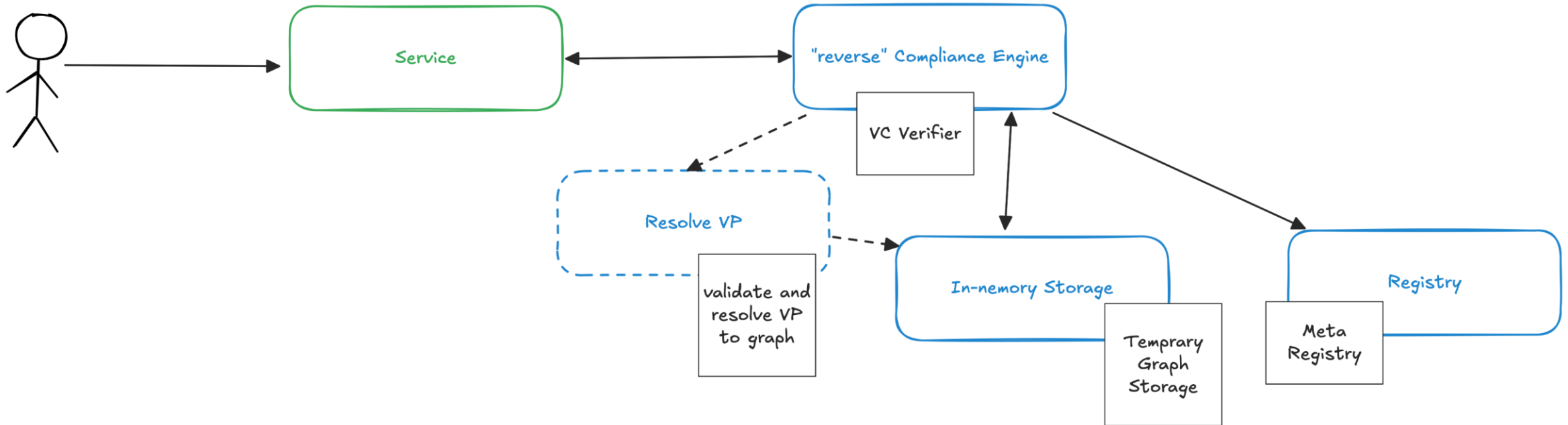
Danube Architecture



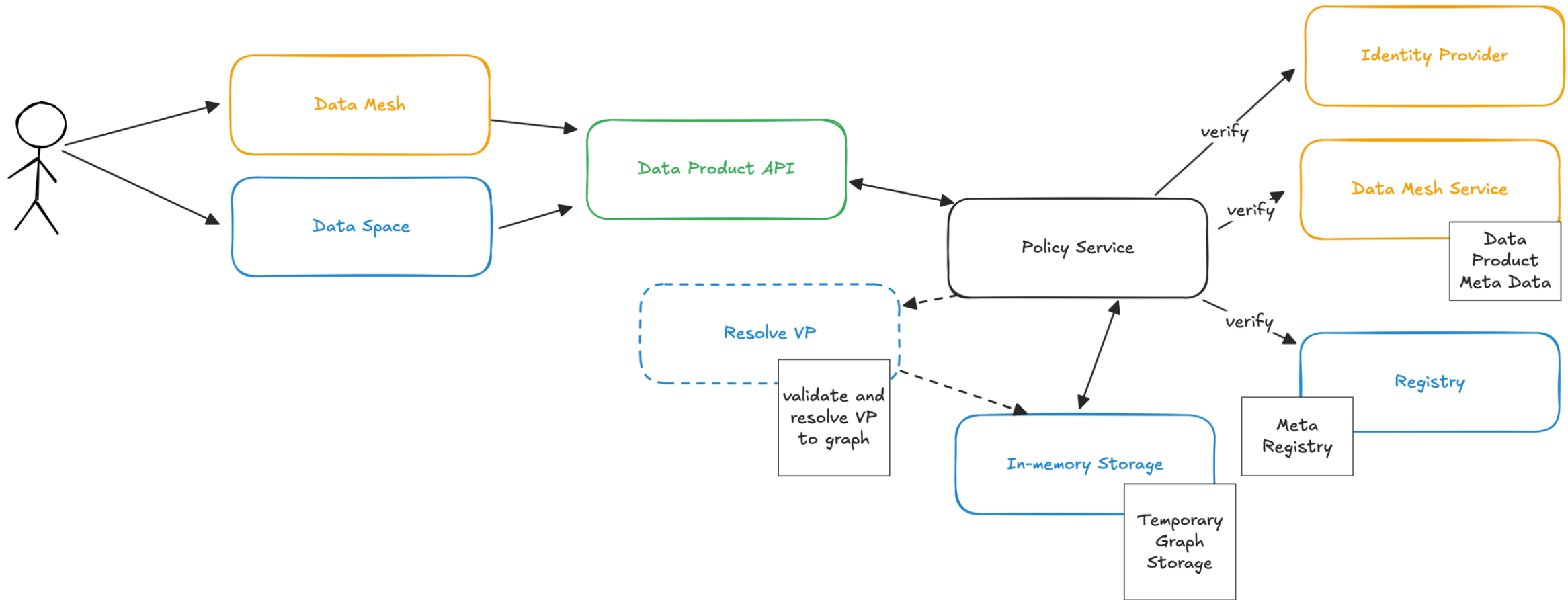
Compliance Issuance



Compliance Validation for Access Control



Combination Space and Mesh



Example Technical Architecture



Advantages Aligning Data Mesh and Space for Compliance



- Consistent trust framework across organizations
 - With the aligned Data Product view:
 - Unified internal governance for internal and external provisioning
 - Traceability and auditability as a built-in standard capability
 - Automation instead of manual audit processes
 - Policy validation integrated into data flows
- Seamless integration between Data Space and Data Mesh principles



Thank you!

Stefan Dumss, stefan.dumss@posedio.com



Eclipse Cloud Interest Group



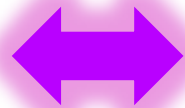
Marco D'Angelo, Klaus Ottradovetz, Manuel Gutiérrez

#GaiaXSummit25

Gaia-X & Eclipse Cloud Interest Group – WHY?



- Creating the **de facto standard** to enable **federated and trusted** data and infrastructure ecosystems
- Our goal is to establish an ecosystem, whereby data is shared and made available in a **trustworthy environment**
- Our intention is that we **give the control back** to the users by retaining sovereignty
- Our outcome is a federated system linking many cloud service providers and users together in a **transparent environment**



- Eclipse Cloud IG aims to empower stakeholders in the cloud landscape to explore and assess ways to **independently** build, manage, operate, and consume the cloud services **of their choice**
- **Freedom** from vendor lock-in
- **Scalability, resilience, and flexibility** in cloud environments
- Fostering operational **independence** and resilience
- **Interoperable**, adaptable, and easy to manage systems

WHAT we'll see in this session



Marco D'Angelo

- +25 y. of experience in SW (Microsoft and open-source ecosystem)
- External Director at Huawei for the Open-Source Office in Europe.
- Founder of Radixia.ai, startup member of Eclipse foundation with the goal to drive Open Source adoption in the ISP/CSP
- Boosting Eclipse Cloud Interest Group

Klaus Ottradovetz

- Member of the Atos Scientific community at Atos International Germany GmbH
- Having worked closely with many innovation partners on the definition and implementation of industry- and technology platforms
- Currently, Lead of the Gaia-X Technical Committee

Interest Group

- Status, opportunities, a look to the future

Gaia-X & open source

- How Gaia-X works with open-source tools in a technically compatible way – practical example

The Eclipse Cloud Interest Group aims at becoming a Working Group to foster innovation and development of open source cloud **technologies, protocols and specifications** that enable **multi-cloud interoperability** in line with the **Data Act switching** requirements and other relevant regulations, and **strategic autonomy**.

Thank you!





Simpl Programme

Gaia-X Summit 2025

Simpl State of play

Valentina Staveris IT Project officer

EC DG CNECT Cloud and Software unit

What is Simpl?

open-source means built-in trust & security, flexibility to deploy, simplicity to customise

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

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

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 strength of both cloud and edge computing.

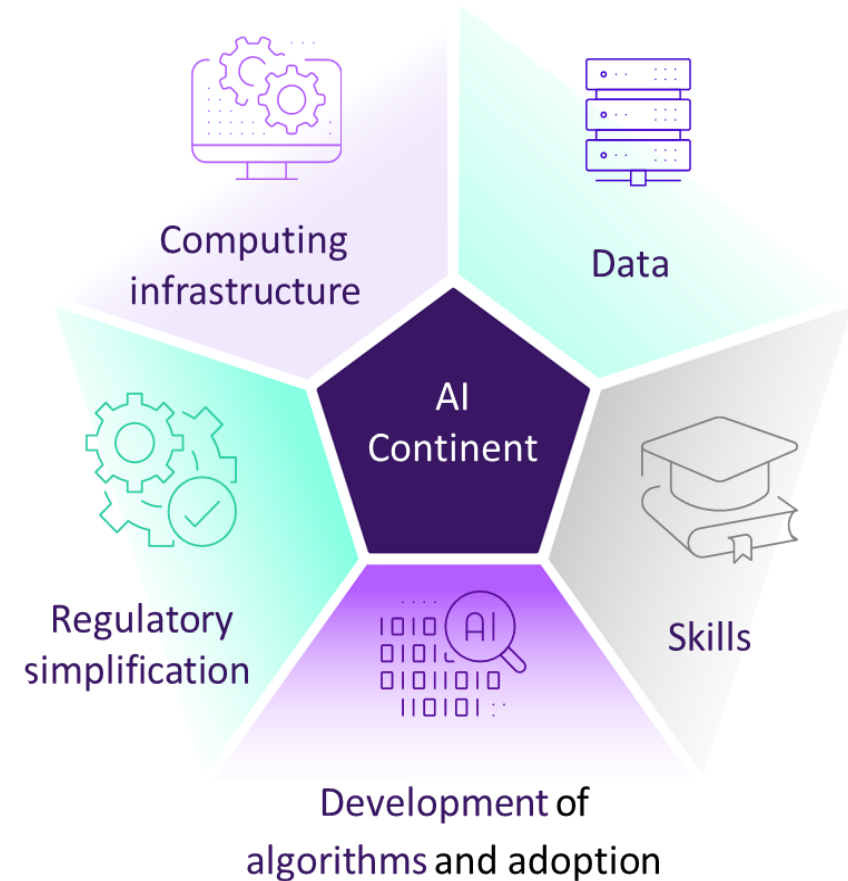
all major data initiatives, in particular the development of **Common European Data Spaces** modular and interoperable way.

AI Continent: the policy imperative

The **AI Continent Action plan** will transform Europe's strong traditional industries and its exceptional talent pool into powerful engines of AI innovation and acceleration.

"The Commission is supporting these efforts by developing Simpl, a shared cloud software to make it easier to manage and connect data spaces"

- 1 Building a large-scale AI data and computing infrastructure**
AI Factories and Gigafactories; Cloud and AI Development Act;
- 2 Increasing access to large and high-quality data**
*Data Union Strategy; Data Labs; Common European Data Spaces; **Simpl**;*
- 3 Developing algorithms and fostering AI adoption in strategic EU sectors**
Apply AI Strategy, European Digital Innovation Hubs; GenAI4EU, Resource for AI Science in Europe;
- 4 Strengthening AI skills and talents**
AI Skills Academy; AI Literacy; Mobility of non-EU workers in the AI Sector;
- 5 Regulatory simplification**
AI Act Service Desk, ongoing Stakeholder consultation.



Digital Package including Simpl

Digital package

Simpler EU digital rules and new digital wallets to save billions for businesses and boost innovation.



1. DIGITAL OMNIBUS
simplifying rules on
data, cyber and AI



2. DATA UNION STRATEGY
unlocking more,
high-quality data for AI



3. EU BUSINESS WALLETS
cutting paperwork and
ease regulatory burdens



2. DATA UNION STRATEGY



Scales up access to high
quality data for AI.



Streamlines and simplifies
data rules, while protecting
fundamental rights.



Protects Europe's data
sovereignty.

“Simpl cloud middleware will enable interoperability across initiatives through an open-source, modular, and secure set of components. This lowers barriers for SMEs and creates faster links between ecosystems.

The data spaces support centre will reinforce uptake, especially among SMEs, by raising awareness and practical guidance.”

Simpl-Open is the core open-source software

Simpl-Open

Simpl-Open

- Open-source
- Middleware
- Cloud to edge federations
- Common engine behind data spaces



Core features

Next Major release in December 25

Ending: December 2026

Extension

New Simpl-Open AI and ML capabilities

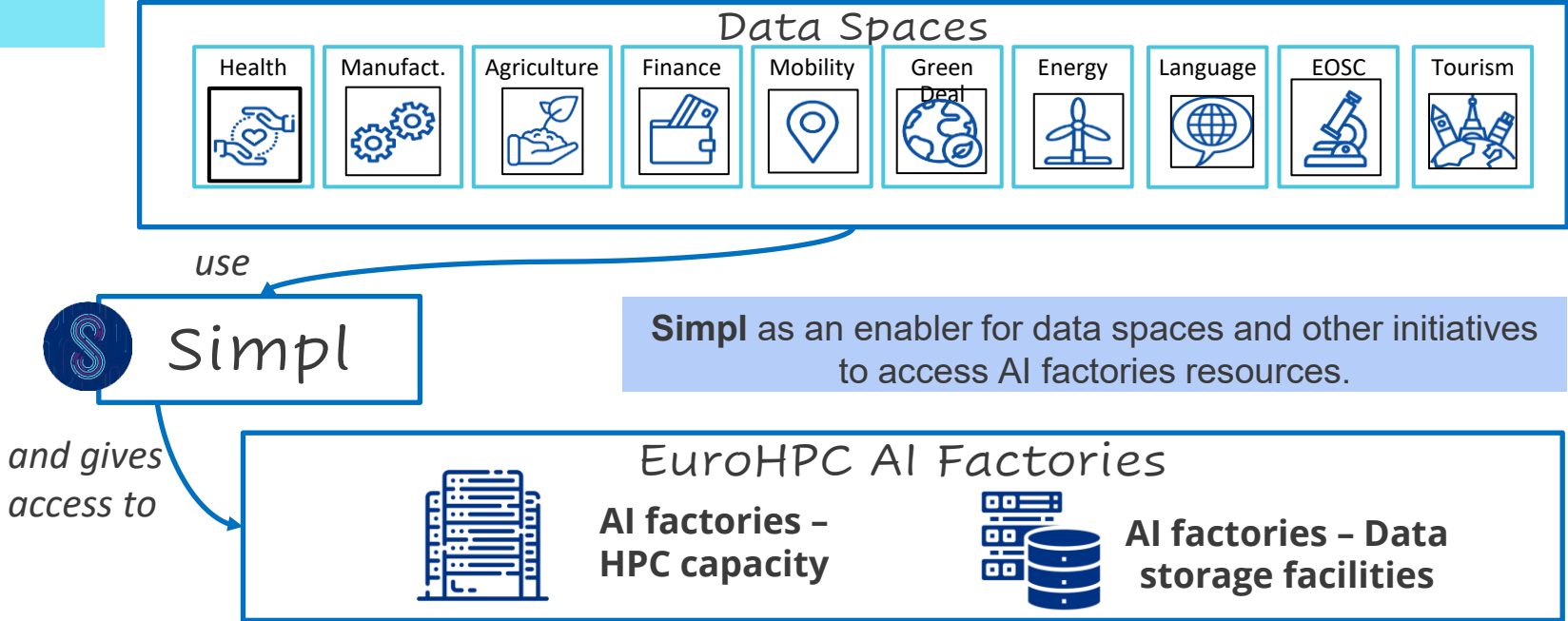
Simpl and DOME Marketplace catalogue connection

Monetisation

Simpl-Open – AI enablement, AI factories and DOME integration

1) New Simpl-Open AI and ML capabilities

Simpl-open AI and ML services:
Extensions to PaaS services ML provisioning.
New layer of **AI services** to be added
Simpl-open, as **built-in AI services**
for **Data spaces**.



Simpl-open Infrastructure connectors to connect to **AI Factories** using **EuroHPC federation services**

Simpl-open Data services to **make use of Data facilities** and **data services** provided by **AI Factories**

2) Simpl and DOME Marketplace catalogue connection



Simpl-Live are instances of Simpl-Open deployed for specific data spaces


Simpl-Live

- **distinct instances** of Simpl-Open
- deployed for **specific sectoral data spaces/ initiatives**



 **Public Procurement Data Space (PPDS)**

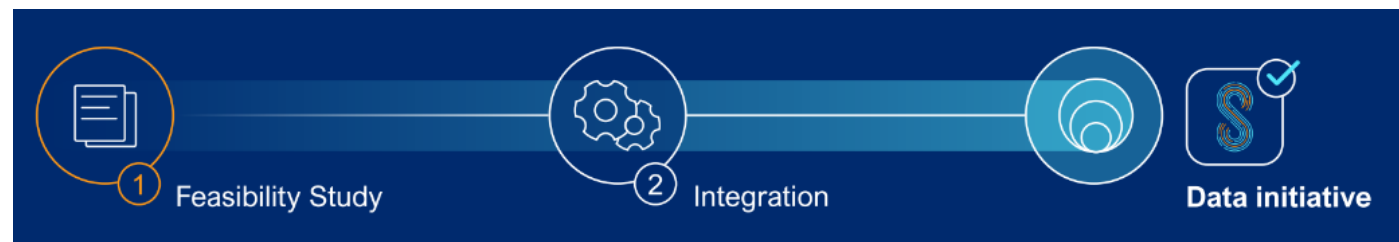
 **European Open Science Cloud (EOSC)**

 **Destination Earth (DestinE)**

 **Language Data Space (LDS)**

 **Smart Communities Data Space (SCDS)**

 **European Health Data Space of Secondary Data (EHDS2)**



Simpl-Live are instances of Simpl-Open deployed for specific data spaces

Simpl-Live

- **distinct instances** of Simpl-Open
- deployed for **specific sectoral data spaces/ initiatives**





Mark the date!

Simpl Annual Community Event

29 January 2026

Get involved and participate!

COMING UP

Simpl Annual Community Event

📅 29 January 2026

📍 Hybrid, Brussels

[Register here!](#)



Webinars & Workshops

Join technical and business sessions, online and in person.



Website

Visit our website for Simpl documentation, requirements and latest news.



Social Media

Join and engage with our growing community!



Forum

Keep a look out for Simpl's forum launch! Coming soon!



Simpl Newsletter

[Subscribe](#) to stay up-to-date with Simpl!

NEW



Code Repository

Check out and review the code!



Scan me for more information about Simpl



The background is a dark blue field filled with a complex pattern of thin, colorful lines. These lines are primarily vertical, with many featuring U-shaped or hook-like curves at the top or bottom. The colors of the lines include light blue, teal, orange, and magenta. Some lines have small dots at their ends. The overall effect is a dense, rhythmic, and modern abstract design.

Thank you

Orchestrating Sovereign Data Exchange

Yannick Meinberg

Gaia-X Summit 2025, Porto



Inspire great minds to shape a sustainable future

Agenda

- 1 CONTACT Software: Who we are
- 2 Dataspaces Integration
- 3 Use Case: Product Carbon Footprints
- 4 The Internal Process
- 5 How to enable Trust



Company profile



Focus

Innovations for digital product processes for more than 30 years



Mission

Strengthening employee collaboration and making companies more agile



Industries

Customers with challenging processes
Mechanical and plant engineering
Automotive
High-tech & Medical
Consumer



~ 600 Employees

More than 27% R&D investments



Global Ecosystem

Community with **2000** customer locations in 40 countries
60 partners

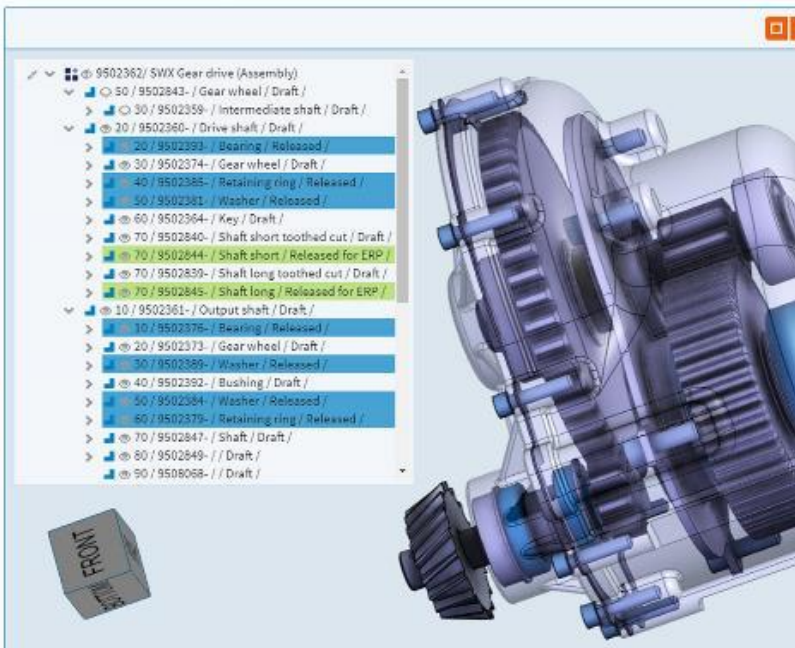
Products & services

CIM Database

Search through CIM Database ...

3D Cockpit / 9502362/ SWX Gear drive (Assembly)

Collaborate Transform Inform Analyze Measure



CONTACT Elements for IoT

Search through Elements for IoT ...

Environment
Kaiserslautern plant, production section G3/4 [E000008]

ID: E000008
Name (en): Kaiserslautern plant, production section G3/4
Tenant: Dlink Technologies Int., Werk Kaiserslautern
Responsible (en): Cordes, Paul

Dashboard Data Sheet Properties 3D Model Activities Digital Twins Documents Events Processes Diagrams Settings

Operating Condition Yellow Bottle Filling Line SC 4007...	Boxes per day 56	Errors per day 0	Connectivity faults total time 93.87min	Downtime per day 89.77min	Overall equipment efficiency 49.86%
--	----------------------------	----------------------------	---	-------------------------------------	---

Activities

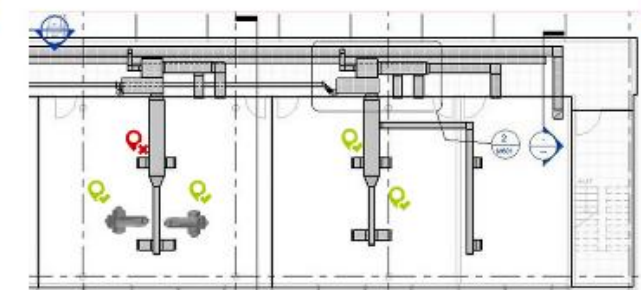
Create new Posting: Kaiserslautern plant, production s

Enver, Julia Today at 9:52 AM

- Bottle Filling Line ...
- Kaiserslautern plant...
- Kaiserslautern plant...
- Kaiserslautern plant...
- Error Messages
- Bottle Filling Line S...

No data has been received from the system for 5 minutes

Shopfloor plan



Events

- New filling process started
- Filling process in progress
- Filling process failed
- no data for 5 minutes
- New filling process started
- Filling process aborted
- no data for 30 seconds
- New filling process started

Our Research Areas



Green Technology & Sustainability

„Shape sustainability in the product life cycle” – The resources of our planet are limited. That is why we at CONTACT Research are researching digital methods, processes and solutions to put the relationship between nature and society on a permanently sustainable footing by means of technological-industrial innovation and reorganization.



Digital Lifecycle Management

„Go digital or go home” – We work on strengthening and future-proofing collaboration and interoperability between a wide variety of systems, organizations or industries. The focus of our research is on use cases along the entire product lifecycle. We do not limit ourselves to the classic branches of engineering, but systematically open up new fields of competence.



Data & Service Ecosystems

„Data sovereignty in a world of distributed services” – We are working on solutions for innovative data and service ecosystems to help shape the digital transformation in industry and society. We take global availability into account just as much as the ever-growing need for sovereignty over one's own data.



Artificial Intelligence

„Bringing artificial intelligence into the engineering domains” – With CONTACT Research, we want to bring artificial intelligence (AI) into the engineering domains. Our research focuses on use cases from all phases of the product lifecycle. This puts a broad spectrum of technologies, methods and processes at the center of our work.



User Centered Approach

„Embrace the user as the most important and exciting part of the system” – Human Factors in software development support social sustainability by ensuring software is accessible, inclusive, and improves quality of work for all users.

*Our **industrial research** embodies CONTACT's commitment to **long-term action** and **sustained investment**.*

Our Research Areas

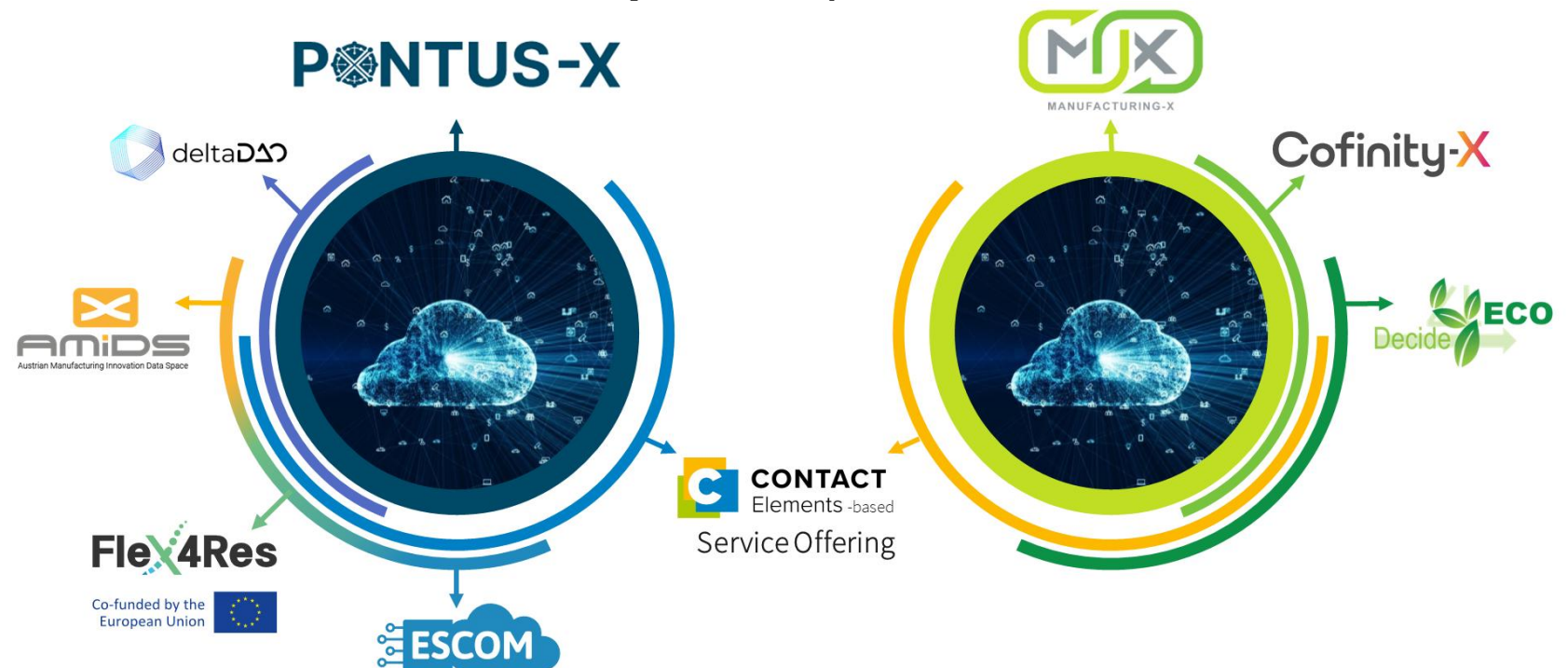


Data & Service Ecosystems

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Connecting Data Management Systems to Gaia-X based Data Spaces

“Always one Data Space ahead”



Our **industrial research** embodies CONTACT's commitment to **long-term action** and **sustained investment**.

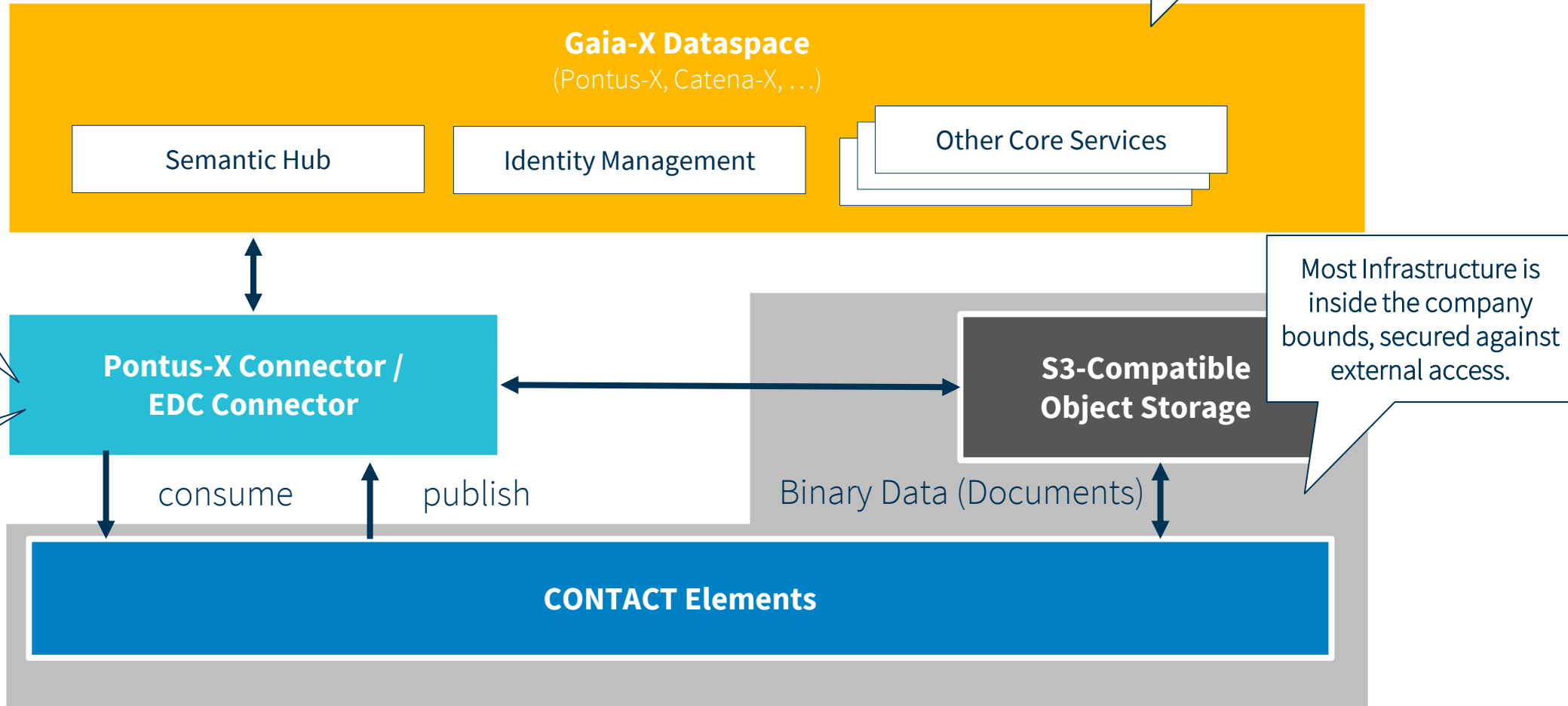
Agenda

- 1 CONTACT Software: Who we are
- 2 Dataspaces Integration
- 3 Use Case: Product Carbon Footprints
- 4 The Internal Process
- 5 How to enable Trust



CONTACT Elements in Dataspaces

A Simple Data Exchange



CONTACT Elements in Dataspaces

The screenshot displays the CIM Database interface. On the left, a blue sidebar contains a 'Dataspace' menu with the following items: My Start Page, Activities, My Tasks, Task Boards, Documents, Products, Projects, Quality, Specifications, Dataspace (selected), Workflows, Organizations, Administration & Configuration, License Dashboard, and Close Menu. The main content area shows a search results page for 'EGMD000076/ Tutorial: CDB Cloud Overview (Tra...'. The results list includes items like 'EGMD000076/ Tutorial: CDB Cloud Overvie...', 'EGMP000002 3D Printer', 'EGMP000003 Industrial Robot', and 'EGM-BICYCLE'. A table on the right shows search results with columns for Object ID, Status, Location, and Document Name. The table lists 16 items, each with a checkbox, a status icon (green or red), and a document name starting with 'EGM000000'.

Search Results Table:

Obj	Sta	Loc	Document N
<input type="checkbox"/>			D000000
<input type="checkbox"/>			EGM000122
<input type="checkbox"/>			EGM000123
<input type="checkbox"/>			EGM000124
<input type="checkbox"/>			EGM000125
<input type="checkbox"/>			EGM000126
<input type="checkbox"/>			EGM000127
<input type="checkbox"/>			EGM000128
<input type="checkbox"/>			EGM000129
<input type="checkbox"/>			EGM000130
<input type="checkbox"/>			EGM000131
<input type="checkbox"/>			EGM000132
<input type="checkbox"/>			EGM000133
<input type="checkbox"/>			EGM000134
<input type="checkbox"/>			EGM000135
<input type="checkbox"/>			EGM000136



CONTACT Elements in Dataspaces

The screenshot displays the 'CIM Database' interface. At the top, there's a search bar with the placeholder 'Enter Search Term(s) ...'. Below this, the 'Dataspace Identity' section is active, showing a search bar with 'Select Sear...' and a 'Search' button. The search results are displayed in a table with 3 results. The table has columns for 'Organization', 'DID', and 'Verifiable Credential'. The organizations listed are 'CONTACT Software', 'GMN PAUL MÜLLER INDUSTRIE GMBH & CO. KG', and 'deltaDAO'. The 'Verifiable Credential' column shows URLs for each organization. A sidebar on the left contains various icons for navigation. The top right corner has a '+ New' button and a 'Details' link.

CIM Database

Enter Search Term(s) ...

Dataspace Identity + New

Search Favorites History New Search All

Select Sear... Search

3 Search Results Refresh

Enter Filter Text Here Table (edited)

Drag column headers here to group

Organization	DID	Verifiable Credential
<input type="checkbox"/> CONTACT Software	did:web:dataspaces.cloud.contact-software.c...	https://dataspaces.cloud.contact-software.com/.well
<input type="checkbox"/> GMN PAUL MÜLLER INDUSTRIE GMBH & CO. KG	did:web:gmneuprogigant.io	https://www.delta-dao.com/.well-known/participant
<input type="checkbox"/> deltaDAO	did:web:delta-dao.com	https://www.delta-dao.com/.well-known/2210_gx_p

Details

CONTACT Elements in Dataspaces

The screenshot shows a web application titled 'CIM Database' with a sidebar on the left containing various icons. The main area displays 'Dataspace Identity' with search and filter options. A modal dialog titled 'CONTACT Software (Modify) (csds_dataspace_identity_CDB_Modify)' is open in the center. The dialog contains several input fields for modifying a contact's data. The fields are: Organization (filled with 'CONTACT Software'), DID (filled with 'did:web:dataspaces.cloud.contact-software.com'), Verifiable Credential (filled with 'https://dataspaces.cloud.contact-software.com/.well-known/participantCONTACT.json'), Ethereum Address (filled with '0x3560626F234eD181E807E4e31ded56D9aca1ac58'), Business Partner Number (BPN) (empty), and DSP Endpoint (empty). At the bottom right of the dialog are 'Modify' and 'Cancel' buttons. The background is dimmed, showing a table of data with columns like 'Table (edited)' and 'Details'.

CONTACT Software (Modify) (csds_dataspace_identity_CDB_Modify)

Organization
CONTACT Software

DID ⓘ
did:web:dataspaces.cloud.contact-software.com

Verifiable Credential
https://dataspaces.cloud.contact-software.com/.well-known/participantCONTACT.json

Ethereum Address
0x3560626F234eD181E807E4e31ded56D9aca1ac58

Business Partner Number (BPN)

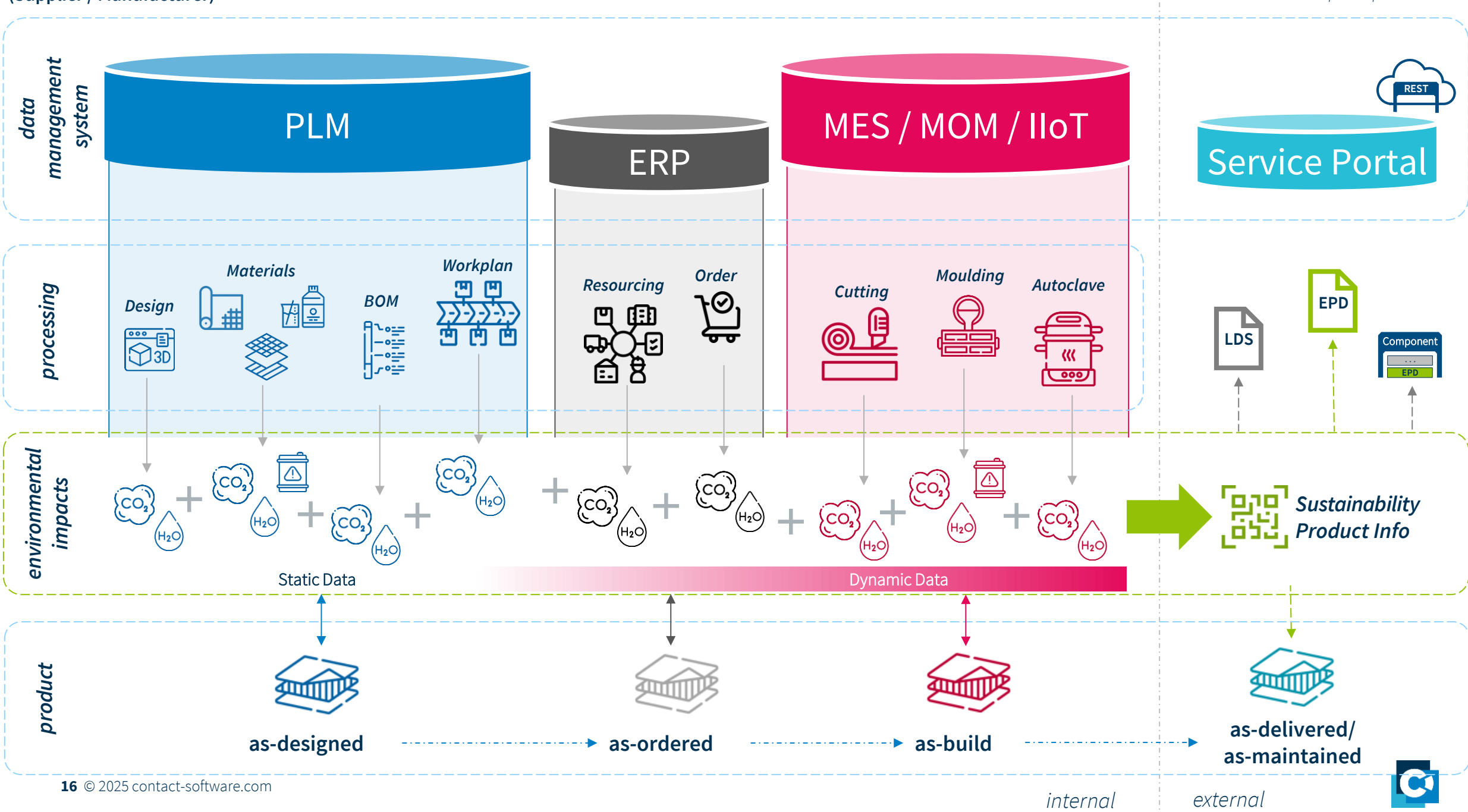
DSP Endpoint ⓘ

Modify Cancel

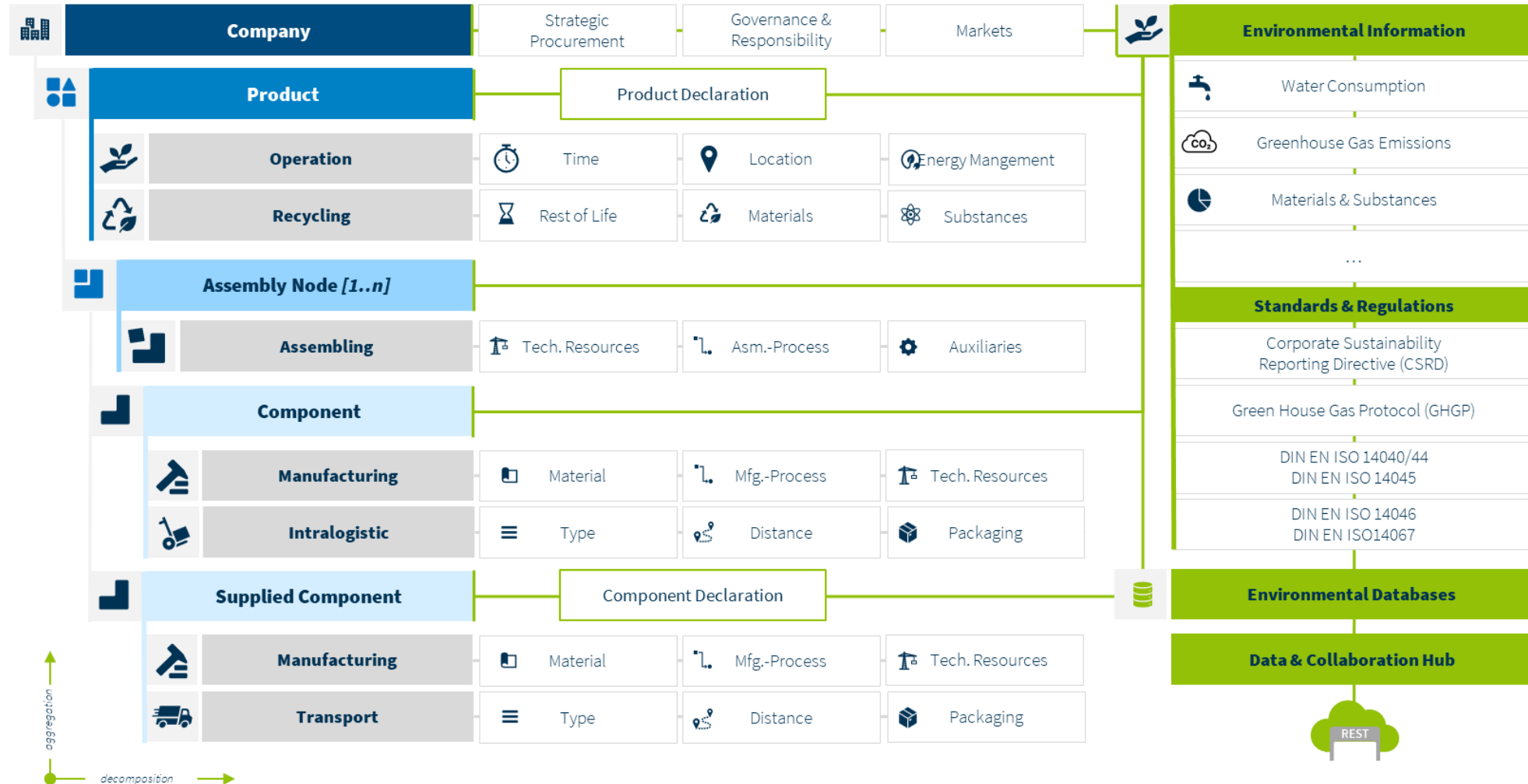
Agenda

- 1 CONTACT Software: Who we are
- 2 Dataspaces Integration
- 3 Use Case: Product Carbon Footprints
- 4 The Internal Process
- 5 How to enable Trust



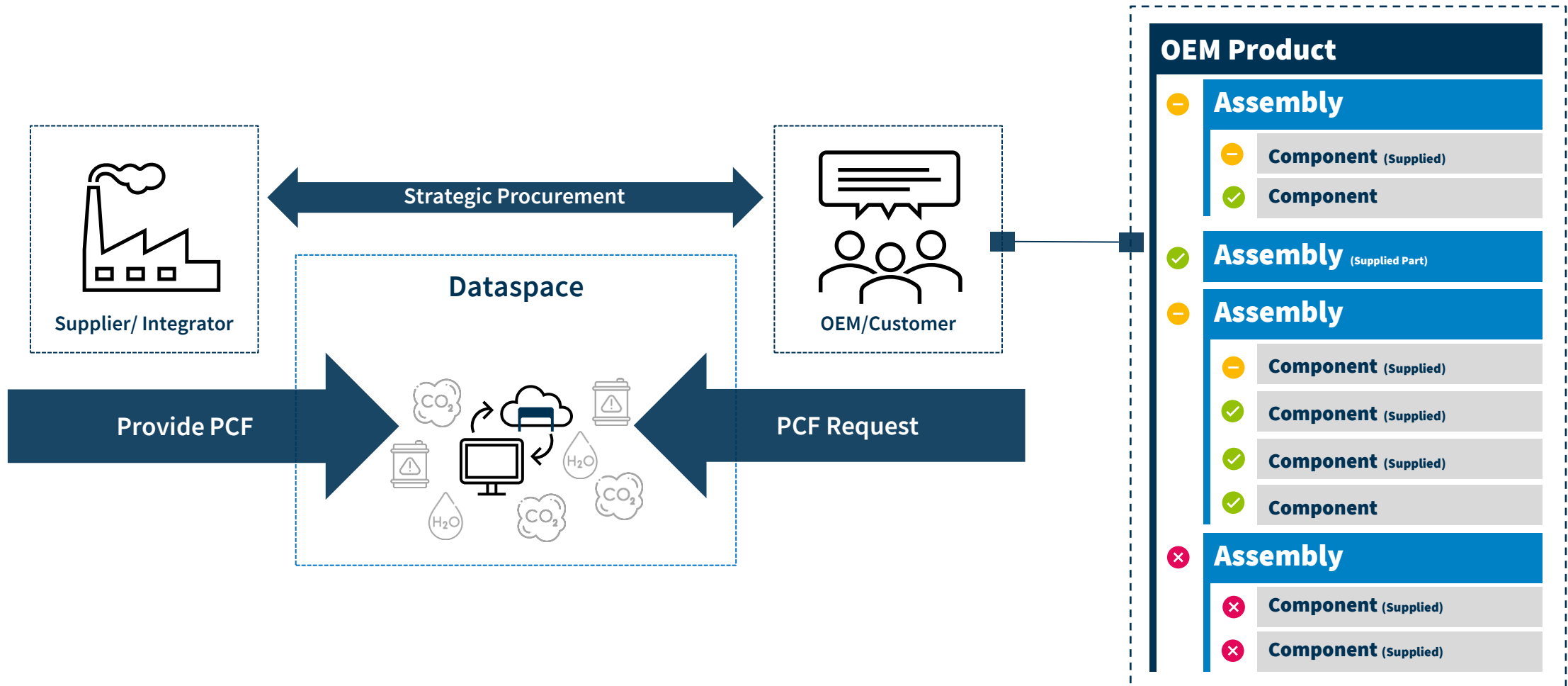


Environmental factors along the Product Structure



Calculation of product environmental performance

with PCF data support

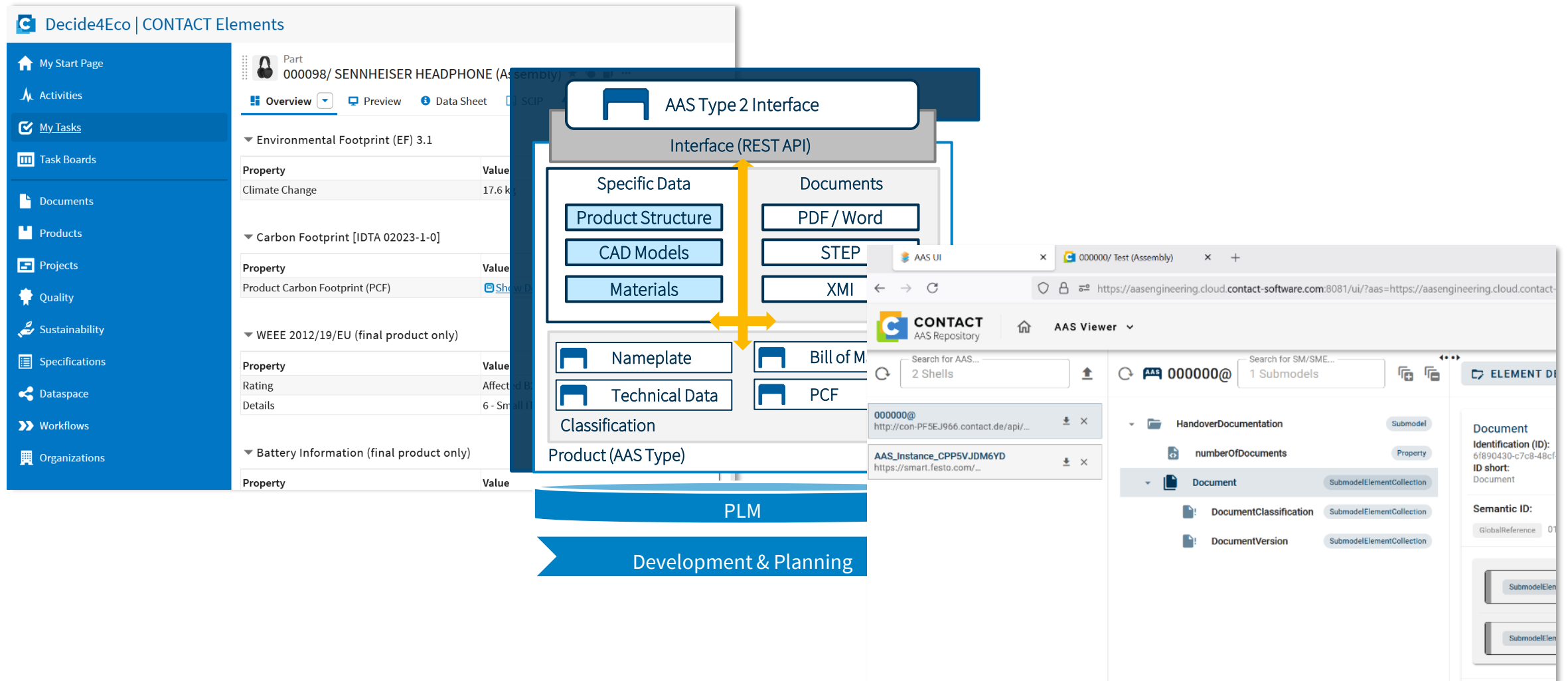


Agenda

- 1 CONTACT Software: Who we are
- 2 Dataspaces Integration
- 3 Use Case: Product Carbon Footprints
- 4 The Internal Process
- 5 How to enable Trust



AAS in CDB and the Digital Twin Registry



From PCF Calculation into Dataspace

Perform PCF-Calculation in CIM Database

The screenshot displays the CONTACT Elements software interface. The main window is titled "CONTACT Elements" and shows a "PCF Calculation" for "PcF Calculation Bicycle/0". The interface includes a sidebar with navigation icons and a main content area with a tree view of components. The tree view shows a hierarchy of components, including "EGM000259 / Bicycle (Assembly) (x1)", "EGM000309 / Frame (Single Part) (x1)", "EGM000303 / Fork (Single Part) (x1)", "EGM000311 / Rear Wheel (Assembly) (x1)", "EGM000305 / Front Wheel (Ass)", "EGM000308 / Electric Drive (Ex", "EGM000307 / Battery (External", and "EGM000312 / Bike Computer (Single Part) (x1)". The "EGM000311 / Rear Wheel (Assembly) (x1)" component is selected, and a context menu is open, showing options like "Above", "Below", "Energy Component", "Material Component", "Part Component", "Step Component", "Supplier Component", "Transport Component", and "Waste Component". The "Part Master" section is visible at the bottom.

CONTACT Elements

PCF Calculation
PcF Calculation Bicycle/0 ☆ ...

Calculate Result(s) Modify Create PcF Dataset Share

Category (en): Cradle to Gate Product: EGM-BICYCLE Project: xBike Evolution 8
Plant: EGM Solutions (Own Organization) Responsible (en): Calculation Part No.: EGM000259
Scheme: Basic PCF Calculation/0 Status (en): New Index:

Data Sheet Product Components Data Quality Audit Trail Results

Enter Filter Text Here

EGM000259 / Bicycle (Assembly) (x1) >

Calculation (EGM000311 / Rear Wheel (Assembly) (x1))

PCF Calculation

Name (en) *

Wheel (Assembly)

Energy Component
Material Component
Part Component
Step Component
Supplier Component
Transport Component
Waste Component

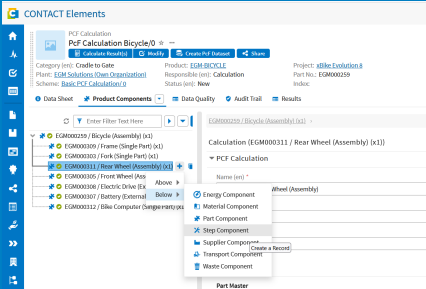
Create a Record

Part Master

From PCF Calculation into Dataspace

Create PCF Dataset from result for administrative information

Perform PCF-Calculation in
CIM Database



Env-000003 / Bicycle Calculation / 0 Dataset (Modify) (lca_profile_comp_CDB_Mo... - ✕

▼ Data Sheet ⓘ

Number: Env-000003 Short name *: Bicycle Calculation / 0 Dataset Status (en): Draft ⓘ

Part No.: EGM000259 ⓘ Index: ⓘ

Method *: Environmental Footprint (EF) 3.1 used Standard *: Catena-X Rulebook v4

Reference Unit (en) *: Piece ⓘ Quantity of Measure *: 1

Created on *: 10/11/2025 ⓘ Validity until *: 10/20/2025 ⓘ

Geographical Validity: ⓘ Confidentiality: ⓘ

Reporting Organization: EGM Solutions ⓘ Department: Engineering ⓘ

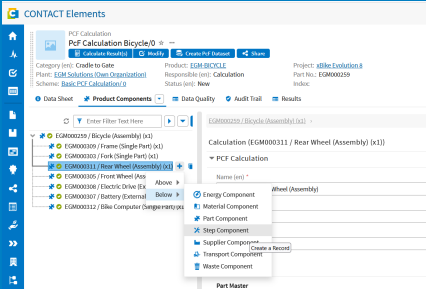
2026
October

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
40	28	29	30	1	2	3	4
41	5	6	7	8	9	10	11
42	12	13	14	15	16	17	18
43	19	20	21	22	23	24	25
44	26	27	28	29	30	31	1
45	2	3	4	5	6	7	8

From PCF Calculation into Dataspace

Data becomes available as an AAS

Perform PCF-Calculation in
CIM Database



CONTACT Elements

Sustainability Dataset
Env-000003/Bicycle Calculation / 0 Dataset ☆ ...

Status Change Publish on Digital Twin Registry

Data Sheet Activities Classification Impacts Offerings Material Lifecycle Phases Overview

Classes

- Asset Administration Shell (AAS)
 - Product (Carbon) Footprint

Properties

Product (Carbon) Footprint

Asset Administration Shell (AAS) / [Product \(Carbon\) Footprint](#)

PCF ID 41833637-a8d8-11f0-9acc-c4efbb8f83ea

Product Footprint Specification Version

1

Partial Or Full PCF (Product Carbon Footprint) Cradle-to-gate

Previous PCF (Product Carbon Footprint) Identifiers

1

Creation of the Product (Carbon) Footprint 10/14/2025 00:00:00

Status

Validity Period Start 10/14/2025 00:00:00

Validity Period End 10/14/2026 00:00:00

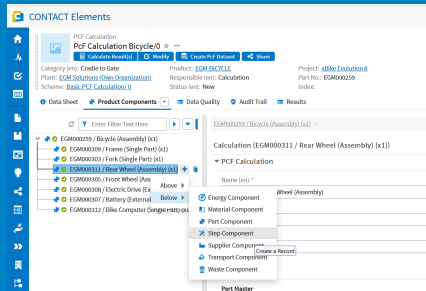
PCF (Product Carbon Footprint) Legal Statem...

Company Name CONTACT Software

From PCF Calculation into Dataspace

Create data-offering with metadata and policies

Perform PCF-Calculation in
CIM Database



EDC (New) (csds_edc_offering_CDB_Create)

Title
Env-000003/Bicycle Calculation / 0 Dataset

Description

Version
License

Author
Creator Name
EGM Solutions
Creator Homepage
<http://www.egm-solutions.biz>

Publisher Name
EGM Solutions
Publisher Homepage
<http://www.egm-solutions.biz>

Connector
Connector
Provider (Catena-X)

Access Policy * ⓘ
expires-2025

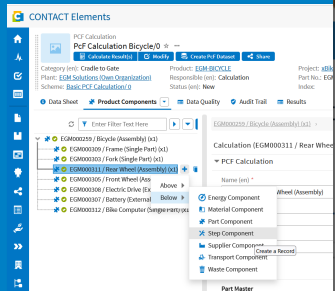
Contract Policy * ⓘ
expires-2025

New Cancel

From PCF Calculation into Dataspace

Make the offering available in the dataspace

Perform PCF-Calculation
in the
CIM Database



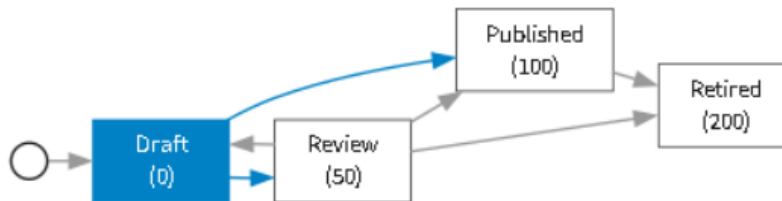
Env-000003/Bicycle Calculation / 0 Dataset (Status Change) (csds_offering_state_...

Object ID

[Env-000003/Bicycle Calculation / 0 Dataset](#)

Target Status *

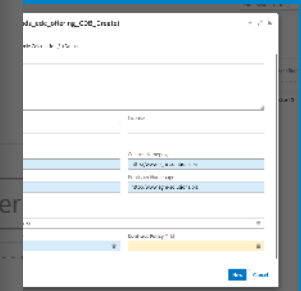
Published



Status Change

Cancel

data-offering with
data and policies



From PCF Calculation into Dataspace

Data is synced to your digital twin registry

The screenshot displays the CONTACT AAS Repository AAS Viewer interface. The top navigation bar includes the CONTACT logo, AAS Repository, AAS Viewer, and a search bar. The main content area is divided into three panels: a left sidebar with a tree view of AAS elements, a central panel showing a list of AAS elements, and a right panel showing the details of a selected AAS element.

Left Panel (AAS Elements): Displays a list of AAS elements. The selected element is **Env-000003@Bicycle~20Calculation** with the URL <http://con-PF5EJ966.contact.de/api/...>. Below it, there are two other elements: **000000@** and **000002@**, both with the same URL.

Central Panel (AAS En...): Displays a list of AAS elements. The selected element is **pcf** (SubmodelElementCollection). Below it, there are several properties: **declaredUnitAmount**, **declaredUnitOfMeasurement**, **exemptedEmissionsPercent**, **fossilGhgEmissions** (highlighted), **geographyCountry**, **geographyCountrySubdivision**, **geographyRegionOrSubregion**, and **packagingEmissionsIncluded**.

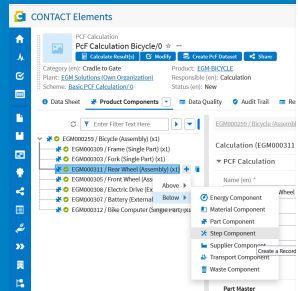
Right Panel (ELEMENT DETAILS): Displays the details of the selected AAS element **fossilGhgEmissions**. The details include: **ID short:** fossilGhgEmissions, **Semantic ID:** urn:samm:io.catenax.pcf:8.0.0#fossilGhgEmissions, and **Value:** 42.3 (Value Type: xs.float). The last sync time is 2025-10-14 12:35:21.



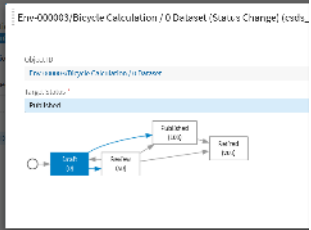
From PCF Calculation into Dataspace

The dataset becomes available through the EDC

Perform PCF-Calculation in the
CIM Database



Make the offering
in the dataspace



Dashboard

Contracts

Transfer History

Catalog Browser

New Data Offer

Data Offers

Policies

Assets

Env-000003/Bicycle Calculation / 0 Dataset
6bf2ca24-a8ea-11f0-9acc-c4efbb8f83ea

Overview

Properties

Properties

Id

6bf2ca24-a8ea-11f0-9acc-c4efbb8f83ea

Participant ID

BPN0002

Connector Endpoint

http://provider.catenax.contact.de/api/dsp

Publisher

http://www.egm-solutions.biz

Organization

EGM Solutions

Additional Properties

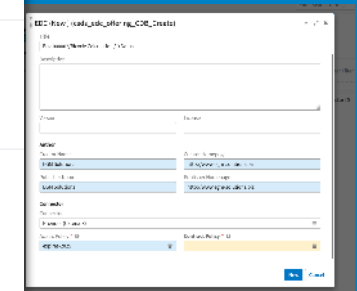
Data Samples

Show Data Samples

Reference Files

Show Reference Files

Create data-offering with
metadata and policies



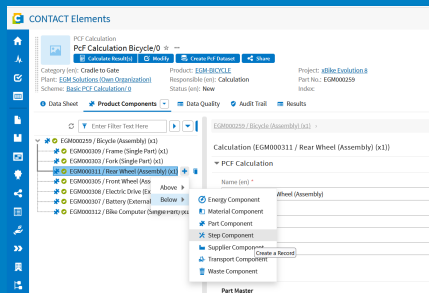
From PCF Calculation into Dataspace

Supplier data can be imported through the EDC as AAS

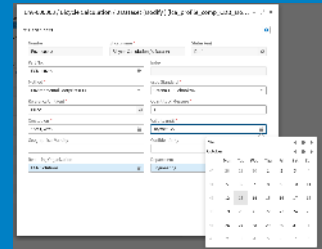
The screenshot displays the CONTACT Elements web application. In the background, the main interface shows a sidebar with navigation icons and a central panel for a 'Sustainability Data Sheet' for 'Env-000021/PcF Calculation Bicycle 2'. The data sheet includes fields for ID, Part (EGM000259), Used Standard (ISO 14067), Reference Unit (en), Quantity of Measure (1), Created On (10/16/2025), Valid Until (10/09/2026), and Confidentiality. Overlaid on this is a modal window titled 'Env-000021 / PcF Calculation Bicycle 2 (Import Submodel) (aas_import_submode...'. The modal contains two input options: 'JSON File' with a dashed box and a 'Drag file here to add' prompt, and 'URL to JSON' with a text input field. At the bottom right of the modal are 'Import Submodel' and 'Cancel' buttons.

From PCF Calculation into Dataspace

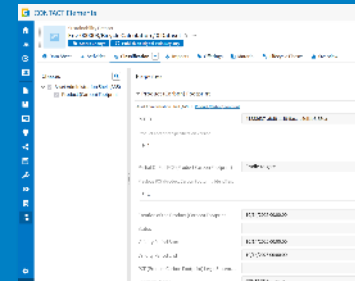
Perform PCF-Calculation in
CIM Database



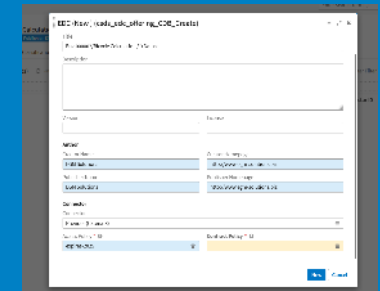
Create PCF Dataset from
result for administrative
information



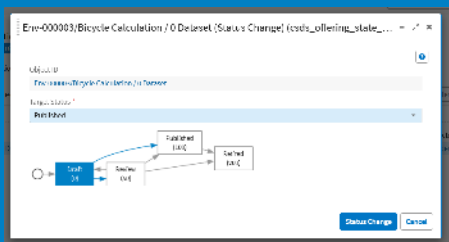
Data becomes available as
an AAS



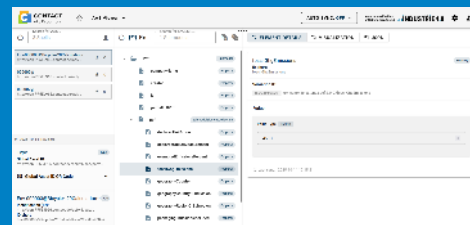
Create data-offering with
metadata and policies



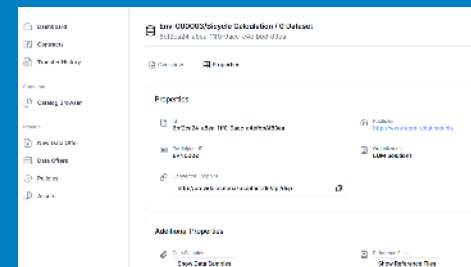
Make the offering available
in the dataspace



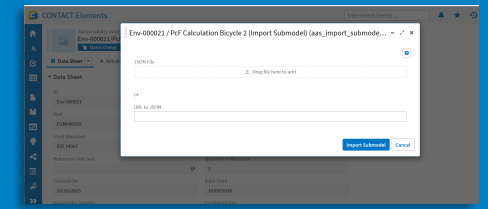
Data is synced to your
digital twin registry



The dataset becomes
available through the EDC



Supplier data can be
imported through the EDC
or as AAS



Agenda

- 1 CONTACT Software: Who we are
- 2 Dataspaces Integration
- 3 Use Case: Product Carbon Footprints
- 4 The Internal Process
- 5 How to enable Trust



How to enable external Trust

CONTACT Software (Modify) (csds_dataspace_identity_CDB_Modify)

Organization
CONTACT Software

DID ⓘ
did:web:dataspaces.cloud.contact-software.com

Verifiable Credential
https://dataspaces.cloud.contact-software.com/.well-known/participantCONTACT.json

Ethereum Address
0x3560626F234eD181E807E4e31ded56D9aca1ac58

Business Partner Number (BPN)

DSP Endpoint ⓘ

Modify **Cancel**

How to enable external Trust

The screenshot displays the CIM Database interface. At the top, there is a search bar labeled "Enter Search Term(s) ..." and a navigation bar with icons for home, search, and other functions. The main content area shows a list of offerings, with the selected entry being "Experiment Laufschiene Download" under the "Pontus-X Offering" category. The entry details include:

- Status: Published
- Title: Experiment Laufschiene Download
- Dataset: [Experiment Laufschiene](#)
- Connector: [gRPC @ dataspaces \(Pontus-X\)](#)

Below the entry details, there are three buttons: "Data Sheet", "Allowlist", and "Denylist". These buttons are highlighted with a red box. The "Data Sheet" button is currently selected. The right side of the interface shows a sidebar with a search bar and a list of filters.



How to enable external Trust

CIM Database Enter Search Term(s) ... 🔔 ★ 🔄 ℹ️ A

Pontus-X Offering
Experiment Laufschienen Download ☆ ...

Status: ● Published Title: Experiment Laufschienen Download
Dataset: [Experiment Laufschienen](#) Connector: [gRPC @ dataspaces \(Pontus-X\)](#)

ℹ️ Data Sheet 👤 Allowlist 👤 Denylist All ▾

👤 Allowlist (2 Search Results) 🔄 Refresh Enter Filter Text Here ⚙️ Table (edited) ▾ + Add ▾

Drag column headers here to group

<input type="checkbox"/> Organization	DID	Verifiable Credential
<input type="checkbox"/> CONTACT Software	did:web:dataspaces.cloud.contact-software.c...	https://dataspaces.cloud.contact-software.com/.well-known/participantCONTACT.json
<input type="checkbox"/> GMN Paul Müller Industrie GmbH & Co. KG	did:web:gmneuprogigant.io	https://www.delta-dao.com/.well-known/participantGMN.json

How to enable external Trust

EDC (New) (csds_edc_offering_CDB_Create)

Title
Env-000003/Bicycle Calculation / 0 Dataset

Description

Version License

Author
Creator Name
EGM Solutions
Creator Homepage
http://www.egm-solutions.biz
Publisher Name
EGM Solutions
Publisher Homepage
http://www.egm-solutions.biz

Connector
Connector
Provider/Connector

Access Policy * ⓘ
expires-2025

Contract Policy * ⓘ

New Cancel

How to enable external Trust

Access Policy

(2 Search Results)

Enter Filter Text Here

ID	Created At	Policy
▶ always-true	2025-07-17T11:51	{"@context": {"@vocab": "http://www.w3.org/ns/odrl/2/"}, "odrl": "http://w
expires-2025	2025-07-17T13:00	{"@context": {"@vocab": "http://www.w3.org/ns/odrl/2/"}, "odrl": "http://w

Select

Clear Field

Cancel



How to enable internal Trust

- Who is allowed to manage Identities?
- Who is allowed to create Offerings?
- Who is allowed to publish Offerings?



How to enable internal Trust

- Wh
- Wh
- Wh

Experiment Laufschiene Download (Status Change) (csds_offering_state_CDB_... - ↗ ✕

?

Object ID

Experiment Laufschiene Download

Target Status *

Review

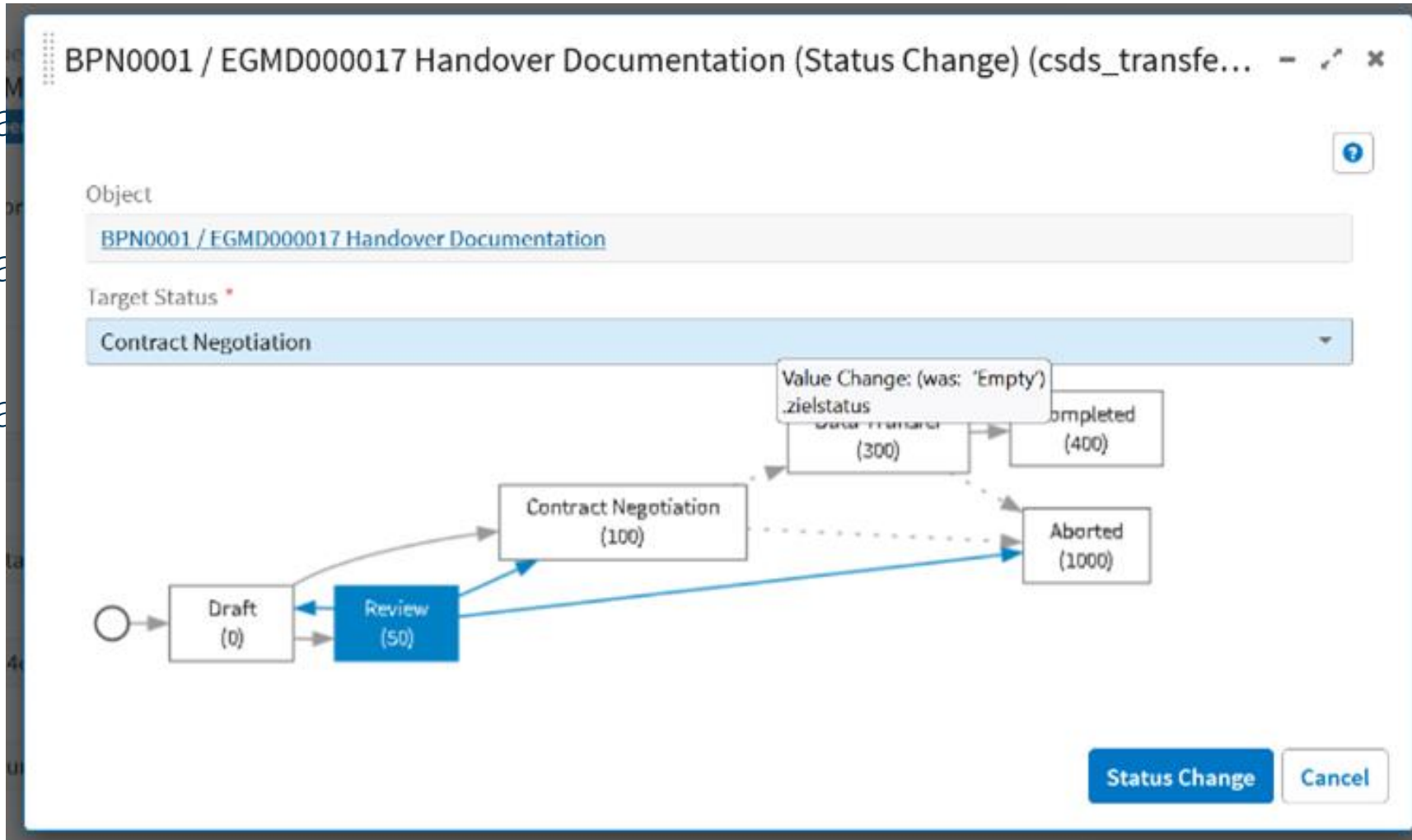
```
graph LR; Start(( )) --> Draft["Draft (0)"]; Draft --> Review["Review (50)"]; Draft --> Published["Published (100)"];
```

Status Change

Cancel

How to enable internal Trust

- Who is a
- Who is a
- Who is a



Key Messages



Contact

Yannick Meinberg



linkedin.com/in/yannick-meinberg/
Yannick.Meinberg@contact-software.com
www.contact-software.com

energizing great minds

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MYRTUS & Gaia-X: Shaping a Trusted and Interoperable Digital Continuum

Giulia Biagioni, Coen Leeuwen & Bart Driessen



MYRTUS Overview



Financed by: Horizon Europe (Grant No. 101135183),

Topic: HORIZON-CL4-2023-DATA-01-04 – Cognitive Computing Continuum

Duration: 1 January 2024 – 31 December 2026

Creates a solution to orchestrate the cloud–fog–edge continuum
– in a **sustainable** and **secure** way

Uses the Gaia-X Trust Framework to:

- ensure **trusted and transparent service interactions**
- support **secure and sovereign** data handling



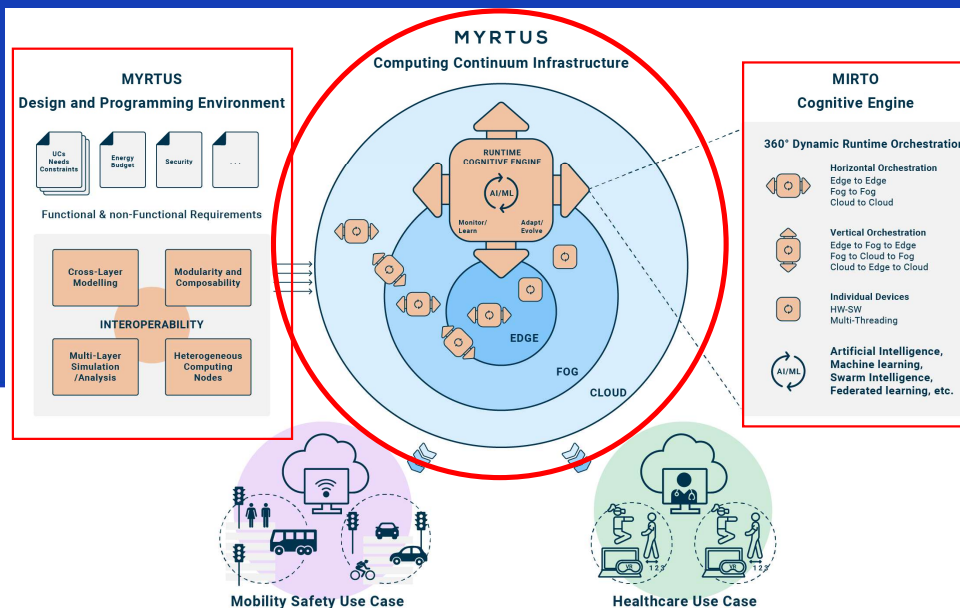
Myrtus Partners



UNIVERSIDAD
POLITÉCNICA
DE MADRID



The Three Pillars of MYRTUS



1. Reference Infrastructure

A unified cloud-fog-edge continuum supporting scalable, low-latency, and heterogeneous cyber-physical systems.

2. MIRTO Cognitive Engine

An AI-driven engine enabling dynamic orchestration, optimization, and autonomous decision-making across the continuum.

3. Design & Programming Environment (DPE)

Tools and methods for modelling, analysis, code generation, and interoperability across distributed systems.

Myrtus Ecosystem: Expanding and Managing New Entities



MYRTUS creates an ecosystem of entities that collaborate and operate together through an **AI-driven** orchestration across the cloud–fog–edge continuum



This raises an important question: **What happens when a new entity wants to join the ecosystem?**



Key challenges we explored:

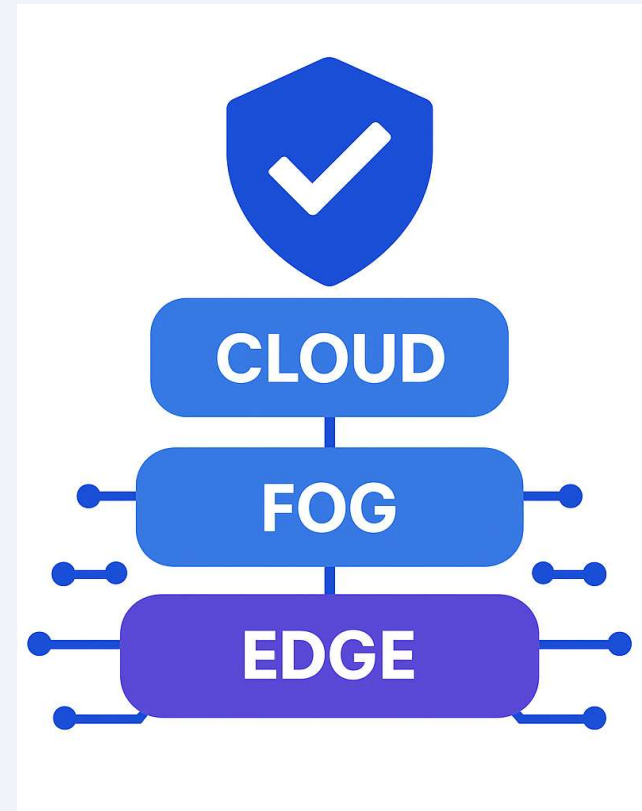
- 1- **Can this onboarding process be automated?**
- 2- **Can we continuously verify the conditions** required for trust, security, and interoperability?
- 3- **Can the system ensure compliance dynamically**, as entities evolve over time?

The Gaia-X Trust Framework

We found the solution in the **Gaia-X Trust Framework**, which provides a structured way to manage trust in dynamic ecosystems.

The design principles of Gaia-X give MYRTUS a foundation to automate:

- **entity onboarding**
- **continuous verification** within the cloud-fog-edge continuum



TRUST FRAMEWORK



Myrtus uses **GAIA-X Verifiable Presentations** embedding **Verifiable Credentials** to verify entities and automatically check whether they meet specific constraints required to join the Myrtus ecosystem.

How Myrtus Verifies a Verifiable Presentation

Step	Description
Retrieve	The system uses the Kubernetes configuration file of the entity aiming to join the Myrtus cluster to establish a connection and retrieve a secret containing the Gaia-X Verifiable Presentation (JWT).
Verify	Verify authenticity using the issuer's did:web public key.
Check	Check temporal validity (not expired).
Validate	The system validates the embedded Verifiable Credentials (VCs) against Myrtus-defined constraints represented as SHACL shapes to confirm Gaia-X compliance and ensure alignment with EU digital sovereignty requirements.
Return	Return a transparent verification report with decoded header, payload, and validation results.
Peer	If all verification steps succeed, the system initiates peering of the Kubernetes cluster via Ligo, enabling the entity to join the Myrtus ecosystem.

Myrtus PoC Rules

Purpose:

To validate that entities represented in Gaia-X Verifiable Presentations comply with **jurisdictional** and **organizational** constraints required to join the Myrtus ecosystem. The constraints focus on verifying the entity's **EU/EEA jurisdiction**.

The Shapes Verify:

- The **legal entity** is registered in an **EU Member State** (based on headquarters and legal address country codes).
- The entity holds a **valid LEI code**: a 20-character uppercase alphanumeric identifier (ISO 17442).
- The entity has **accepted the Gaia-X Terms and Conditions**.

Entities meeting all constraints are eligible to join the Myrtus ecosystem.

```
ex:leiCodeSubjectShape
  a sh:NodeShape ;

  # must have an LEI code (20 uppercase alnum per ISO 17442)
  sh:property [
    sh:path schema:leiCode ;
    sh:minCount 1 ;
    sh:datatype xsd:string ;
    sh:pattern "[A-Z0-9]{20}$" ;
    sh:message "schema:leiCode must be a 20-character uppercase alphanumeric code." ;
  ] ;

  # country code must be an EU member code
  sh:property [
    sh:path gx:countryCode ;
    sh:minCount 1 ;
    sh:datatype xsd:string ;
    sh:in ("AT" "BE" "BG" "HR" "CY" "CZ" "DK" "EE" "FI" "FR" "DE" "GR" "EL" "HU" "IE"
          "IT" "LV" "LT" "LU" "MT" "NL" "PL" "PT" "RO" "SK" "SI" "ES" "SE") ;
    sh:message "gx:countryCode must be an EU country code." ;
  ] ;

  # headquarters address with EU country code
  sh:property [
    sh:path gx:headquartersAddress ;
    sh:minCount 1 ;
    sh:message "Missing gx:headquartersAddress on credentialSubject" ;
    sh:node [
      a sh:NodeShape ;
      sh:property [
        sh:path gx:countryCode ;
        sh:minCount 1 ;
        sh:in ("AT" "BE" "BG" "HR" "CY" "CZ" "DK" "EE" "FI" "FR" "DE" "GR" "EL" "HU" "IE"
              "IT" "LV" "LT" "LU" "MT" "NL" "PL" "PT" "RO" "SK" "SI" "ES" "SE") ;
        sh:message "gx:headquartersAddress/gx:countryCode must be EU" ;
      ] ;
    ] ;
  ] ;

  # legal address with EU country code
  sh:property [
    sh:path gx:legalAddress ;
    sh:minCount 1 ;
    sh:message "Missing gx:legalAddress on credentialSubject" ;
    sh:node [
      a sh:NodeShape ;
      sh:property [
        sh:path gx:countryCode ;
        sh:minCount 1 ;
        sh:in ("AT" "BE" "BG" "HR" "CY" "CZ" "DK" "EE" "FI" "FR" "DE" "GR" "EL" "HU" "IE"
              "IT" "LV" "LT" "LU" "MT" "NL" "PL" "PT" "RO" "SK" "SI" "ES" "SE") ;
        sh:message "gx:legalAddress/gx:countryCode must be EU" ;
      ] ;
    ] ;
  ] ;

  # only requirement: credentialSubject must contain gaiaxTermsAndConditions as a non-empty string
ex:TermsAndConditionsSubjectShape
  a sh:NodeShape ;
  sh:property [
    sh:path <https://w3id.org/gaia-x/development#gaiaxTermsAndConditions> ;
    sh:minCount 1 ;
    sh:datatype xsd:string ;
    sh:minLength 1 ;
    sh:message "credentialSubject.gaiaxTermsAndConditions must be present and non-empty." ;
  ] ;
```

Our framework leverages **Gaia-X Verifiable Presentations (VPs)** as the basis for automated compliance checks. This approach allows us to automatically **validate the stricter European jurisdiction and data-sovereignty requirements** (such as exclusive EEA) **defined for Gaia-X Trust Label Level 2 and Level 3**



DEMONSTRATION



MYRTUS Cluster Admission

Verify your identity and join the MYRTUS cluster.

[How it works](#)

How it works



To be admitted into the Myrtus cluster, you must successfully complete **all** of the following checks:

1. **Upload your local cluster kubernetes config file** — Using the kubernetes configuration, a connection is made, that will retrieve a kubernetes secret named `vc` from the `mirto` namespace. This secret must contain the Gaia-X Verifiable Presentation (JWT).
2. **Verify the Gaia-X Verifiable Presentation (JWT)** — Verified against the issuer's `did:web` public key; validity period is checked (e.g., not expired). We display the decoded header, payload, and any embedded Verifiable Credentials (VCs).
3. **Validate embedded credentials** — If VCs include *Legal Entity*, *Terms & Conditions*, and *Registration Number*, they must pass validation using **SHACL Shapes**.
4. **Confirm Gaia-X and EU compliance** — The issuer must be a recognized **Gaia-X** entity with authority to sign and validate claims, and the legal entity must operate within the **EU framework**.
5. **Peer Liqo cluster** — If the Verifiable Presentation pass all mandatory checks, you can proceed and peer the cluster via liqo.

[Got it](#)

SUBMIT

From Credential Payload to SHACL Validation

VC Payload

```
{
  "@context": [
    "https://www.w3.org/ns/credentials/v2",
    "https://w3id.org/gaia-x/development#",
    {
      "schema": "https://schema.org/",
      "vcard": "http://www.w3.org/2006/vcard/ns#"
    }
  ],
  "credentialSubject": {
    "gx:headquartersAddress": {
      "gx:countryCode": "DE",
      "type": "gx:Address",
      "vcard:locality": "Hamburg",
      "vcard:postal-code": "20457",
      "vcard:street-address": "Katharinenstraße 30a"
    },
    "gx:legalAddress": {
      "gx:countryCode": "DE",
      "type": "gx:Address",
      "vcard:locality": "Hamburg",
      "vcard:postal-code": "20457",
      "vcard:street-address": "Katharinenstraße 30a"
    }
  },
}
```

Myrtus SHACL rule verifying that the headquarters address is located in an EU country

```
sh:property [
  sh:path gx:headquartersAddress ;
  sh:minCount 1 ;
  sh:message "Missing gx:headquartersAddress on credentialSubject" ;
  sh:node [
    a sh:NodeShape ;
    sh:property [
      sh:path gx:countryCode ;
      sh:minCount 1 ;
      sh:in ("AT" "BE" "BG" "HR" "CY" "CZ" "DK" "EE" "FI" "FR" "DE" "GR" "EL" "HU" "IE"
            "IT" "LV" "LT" "LU" "MT" "NL" "PL" "PT" "RO" "SK" "SI" "ES" "SE") ;
      sh:message "gx:headquartersAddress/gx:countryCode must be EU" ;
    ] ;
  ] ;
]
```

SHACL Validation: When a Country Is No Longer Authorized

The screenshot shows a VS Code editor with a project named 'trust_framework' open. The file explorer on the left shows the project structure, including a 'shapes' directory containing 'gaiax_legalperson.ttl', 'gaiax_leicode.ttl', and 'gaiax_terms.ttl'. The main editor area displays the content of 'gaiax_legalperson.ttl', which is a REST client file using the 'sh:' (Swagger) syntax. The file defines a path 'gx:headquartersAddress' and a message 'Missing gx:headquartersAddress on credentialSubject'. The terminal window at the bottom shows the output of the REST client, including the URL 'http://127.0.0.1:8000' and the response 'INFO:werkzeug:Press CTRL+C to quit'.

```
Project
├── trust_framework
│   ├── shapes
│   │   ├── gaiax_legalperson.ttl
│   │   ├── gaiax_leicode.ttl
│   │   └── gaiax_terms.ttl
│   ├── ui
│   └── venv
│       ├── .gitignore
│       ├── main.py
│       ├── README.md
│       ├── requirements.txt
│       └── utils.py
├── External Libraries
└── Scratches and Consoles
```

```
App.vue x gaiax_legalperson.ttl x main.js x gaiax_leicode.ttl x gaiax_terms.ttl x
Plugins supporting *.ttl files found.
33 sh:property [
34   sh:path gx:headquartersAddress ;
35   sh:minCount 1 ;
36   sh:message "Missing gx:headquartersAddress on credentialSubject" ;
37   sh:node [
38     a sh:NodeShape ;
39     sh:property [
40       sh:path gx:countryCode ;
41       sh:minCount 1 ;
42       sh:in ("AT" "BE" "BG" "HR" "CY" "CZ" "DK" "EE" "FI" "FR" "DE" "GR" "EL" "HU" "IE"
43         "IT" "LV" "LT" "LU" "MT" "NL" "PL" "PT" "RO" "SK" "SI" "ES" "SE") ;
44       sh:message "gx:headquartersAddress/gx:countryCode must be EU" ;
45     ] ;
46   ] ;
47 ] ;
48
49 # legal address with EU country code
50 sh:property [
51   sh:path gx:legalAddress ;
```

Terminal: Local x + v

```
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:8000
* Running on http://139.63.195.119:8000
INFO:werkzeug:Press CTRL+C to quit
INFO:werkzeug: * Restarting with stat
WARNING:werkzeug: * Debugger is active!
INFO:werkzeug: * Debugger PIN: 161-586-308
(venv) PS C:\Users\biagioni\Documents\GitHub\trust_framework>
```


Key Takeaways

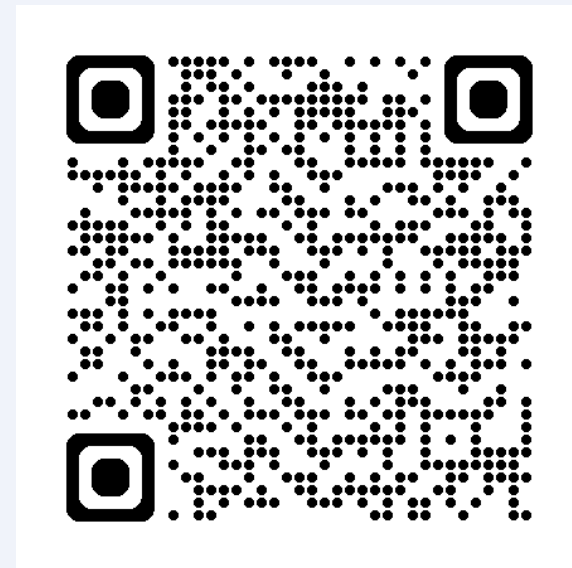
- **Trust by design:** Myrtus embeds trust at the core of its architecture.
- **Gaia-X aligned:** We use the Gaia-X Trust Framework to ensure secure, transparent, and sovereign interactions.
- **Automated compliance:** Verifiable Presentations and SHACL rules let us verify entities and enforce EU/EEA jurisdiction automatically

Thank you!!



MYRTUS

Multi-layer 360° dYnamic orchestration
and interopeRable design environment
for compute-continUum Systems





TNO innovation
for life

Gaia-X SUMMIT 2025



DIGITAL ECOSYSTEMS IN ACTION

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Gaia-X Data Exchange Services



Updates and roadmap

Frédéric Bellaiche, PhD

Lead of the Gaia-X Data Exchange Services WG
Dawex VP Technology & Research

#GaiaXSummit25

Data Exchange Services Document 25.07



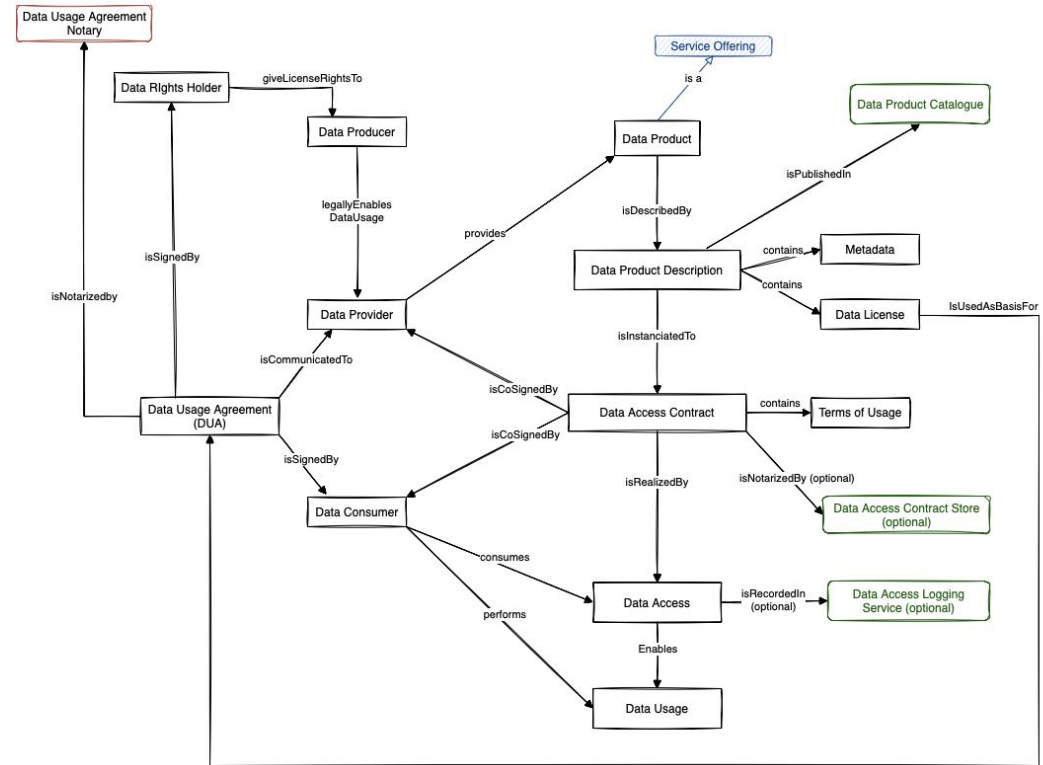
The 25.07 is **non-breaking** update to Gaia-X specifications for Data Exchanges Services:

- **Alignment** with ongoing **standardisation** efforts
 - **CEN/CENELEC** Workshop on **Trusted Data Transaction**
 - **JTC 25** technical committee on Data management, **Data Spaces**, Cloud and Edge
- **First round of updates** on the description of
 - **Data Products Catalog**
 - **Data Access Logging**
- **Update** on the **Data Product Conceptual Model**
- **Introduction** of the **Data Usage Agreement** process
- **Update** on Gaia-X **ontologies** (single source of truth)

Data Exchange Services Document 25.07

Data Product Conceptual Model

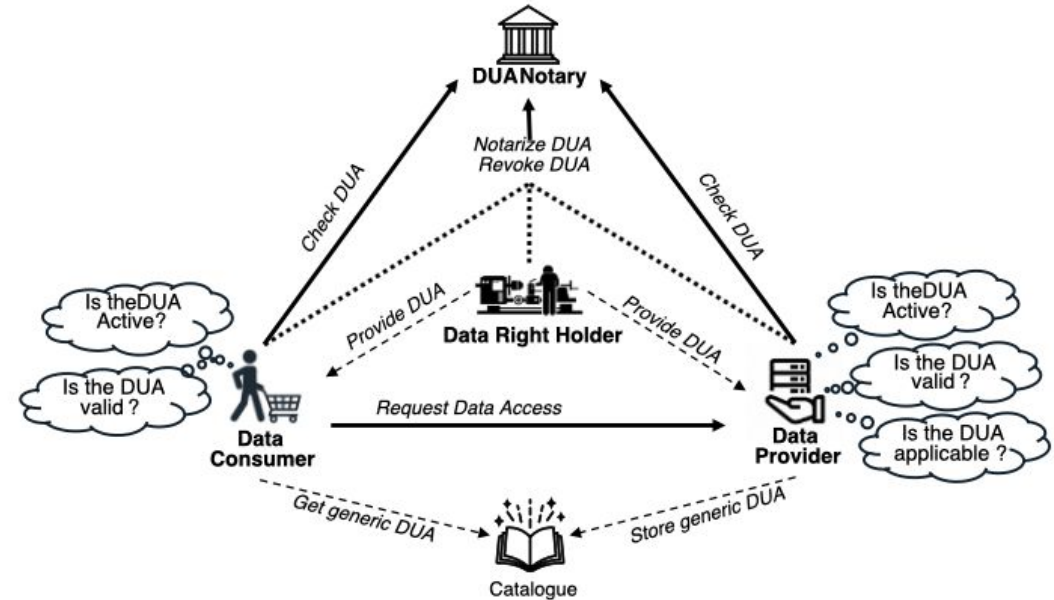
- **Alignment** with **Architecture** WG and **ICAM** WG
- **Alignment** with **Trusted Data Transactions**
- **Specification** of DUA (Data Usage Agreement)



Data Exchange Services Document 25.07

Data Usage Agreement

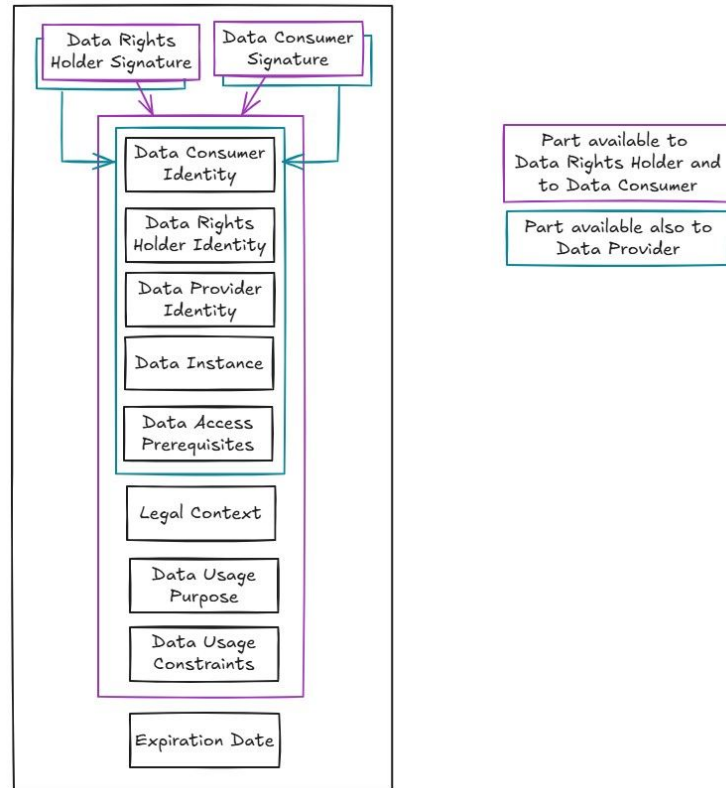
- **Data Usage Agreement (DUA)** enables **Data Rights Holders** to **control** by **whom**, **how** and **when** their data is **used**
- It gives the **Data Consumer** the formal **authorization** to use the data in accordance with the **constraints** specified by the **Data Rights Holder**



Data Exchange Services Document 25.07


Data Usage Agreement

- **Data Usage Agreement (DUA)** enables **Data Rights Holders** to **control** by **whom, how** and **when** their data is **used**
- It gives the **Data Consumer** the formal **authorization** to use the data in accordance with the **constraints** specified by the **Data Rights Holder**
- The **DUA protocol** is **specified** into the Data Exchange Services Document (structure, life cycle and primitives)




Data Exchange Services Document 25.07

Gaia-X Ontologies for Data Exchange

 Gaia-X Service Characteristics

Search

 Gaia-X Service Characteristi...
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Classes

Enums

Slots

Types

Classes

CustomerInstructions

DataAccessPrerequisite

DataAccountExport

DataLicense

DataPortability

DataProduct

Inheritance

Slots

Identifier and Mapping Information

Schema Source

LinkML Source

Direct

Induced

DataProductCatalogue

DataProductConfigurationPara...

DataProductDescription

DataProtectionPolicy

DataProtectionRegulationMeas...

DataRate

DataTransfer


DataUsageAgreement

DataUsageConstraint

DataProduct

A collection of data which is packaged by a Data Provider and made ready for Data Access.

URI: [gx:class/DataProduct](https://gaia-x.eu/ontology/gaia-x-classes/DataProduct)



Inheritance

- GaiaXEntity
 - DigitalServiceOffering
 - **DataProduct**

Slot

2026 Roadmap



The next release will be **focused** on **implementing outcomes form** standard **Trusted Data Transaction / JTC 25**

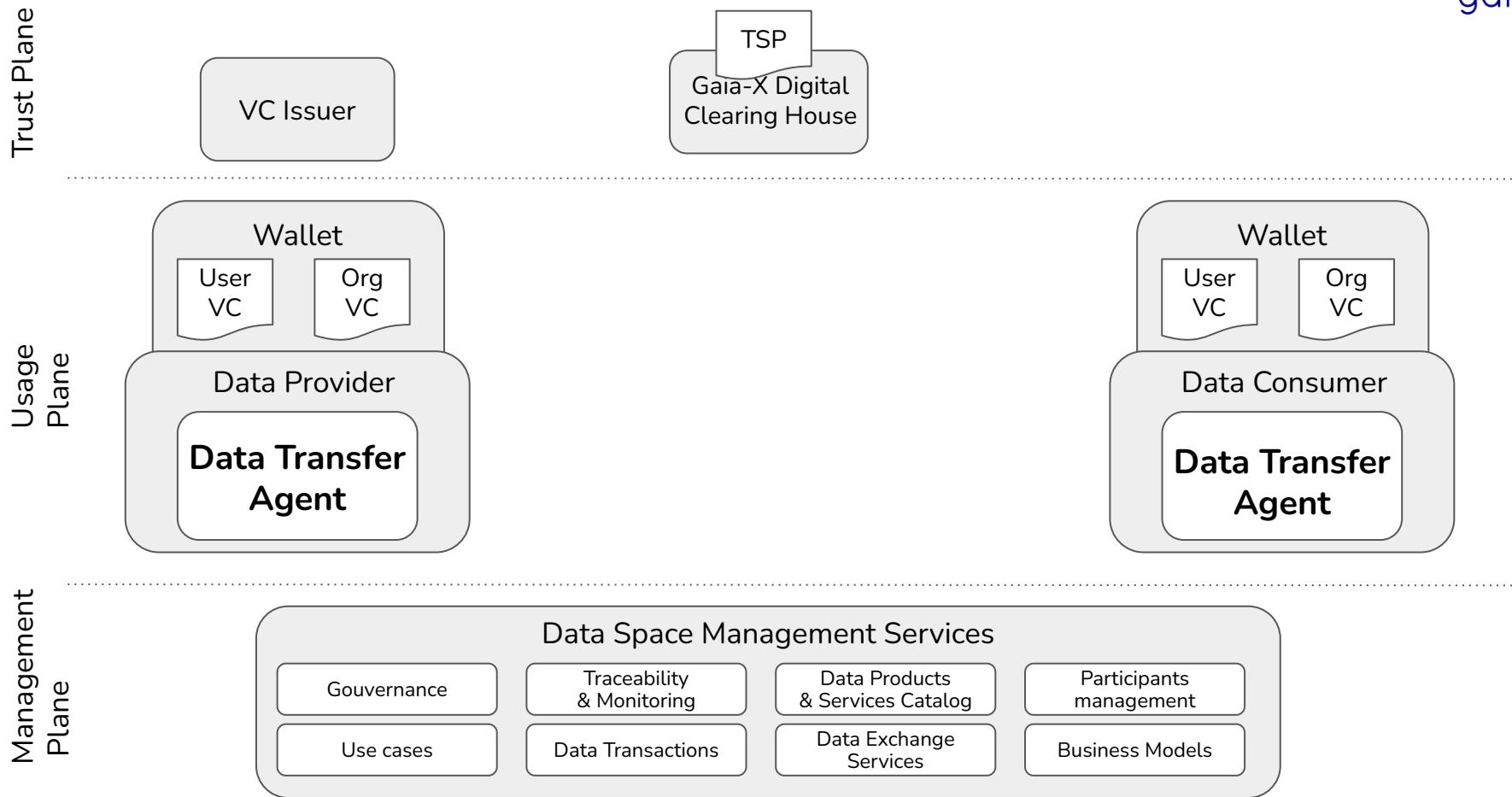
- **Formalisation of Data Transaction into the Gaia-X conceptual model**
- **Update** chapter on **Data Products**
- **Update** chapter on **Data Observability**

Sprint on Data Observability has **started**

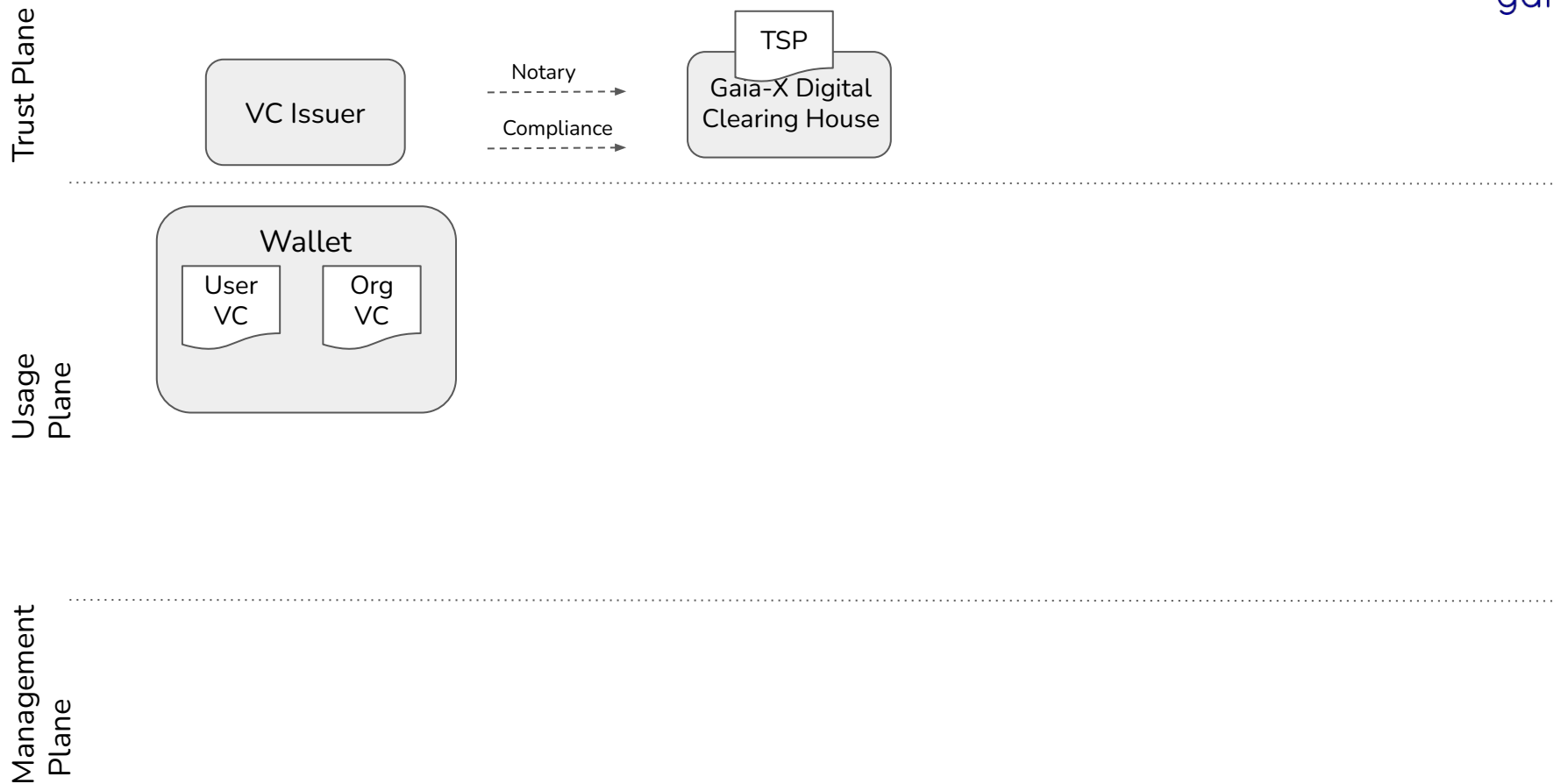
- **Need** to update the Data Product conceptual **model** (Data Transaction)
- **Need** to formalize **participants** roles (via **party credentials**) such as
 - Data Consumer, Data Producer
 - Orchestrator

It shows that **identity management**, **digital wallets**, and **data transfer agents** are **essential** pillars for establishing **trust**, **accountability**, and **transparency**

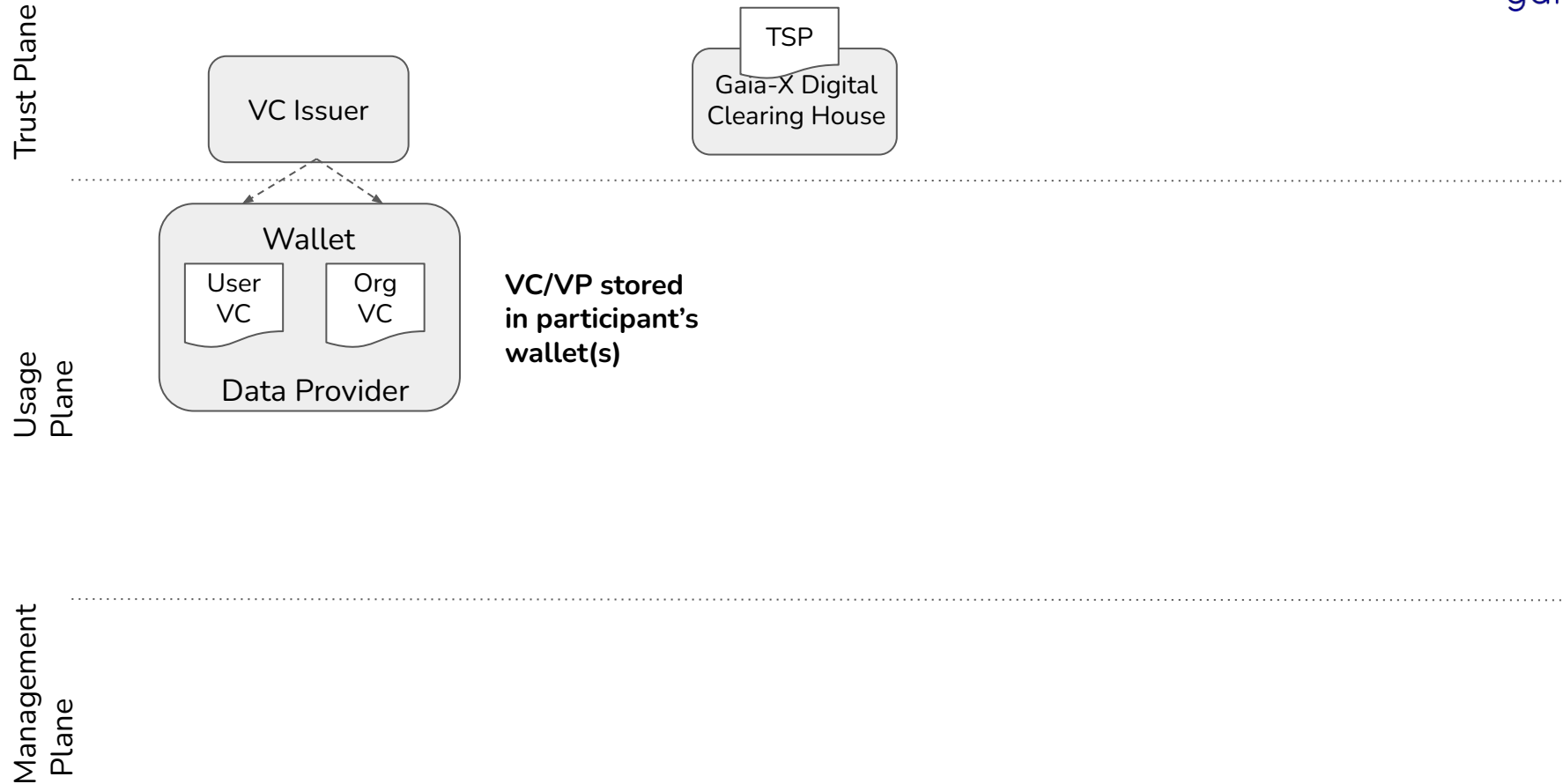
Key components for Trusted Data Transactions



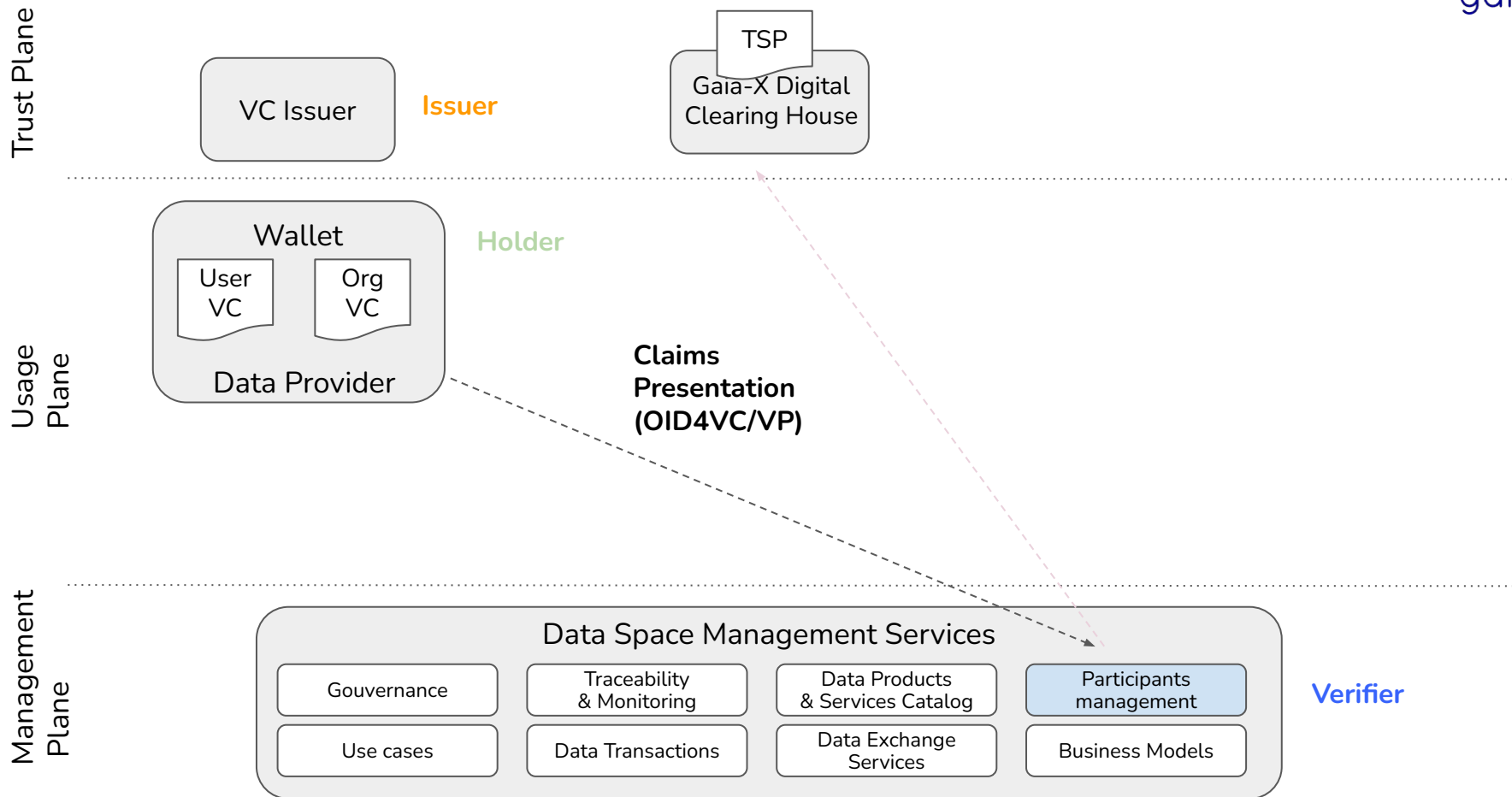
Key components for Trusted Data Transactions



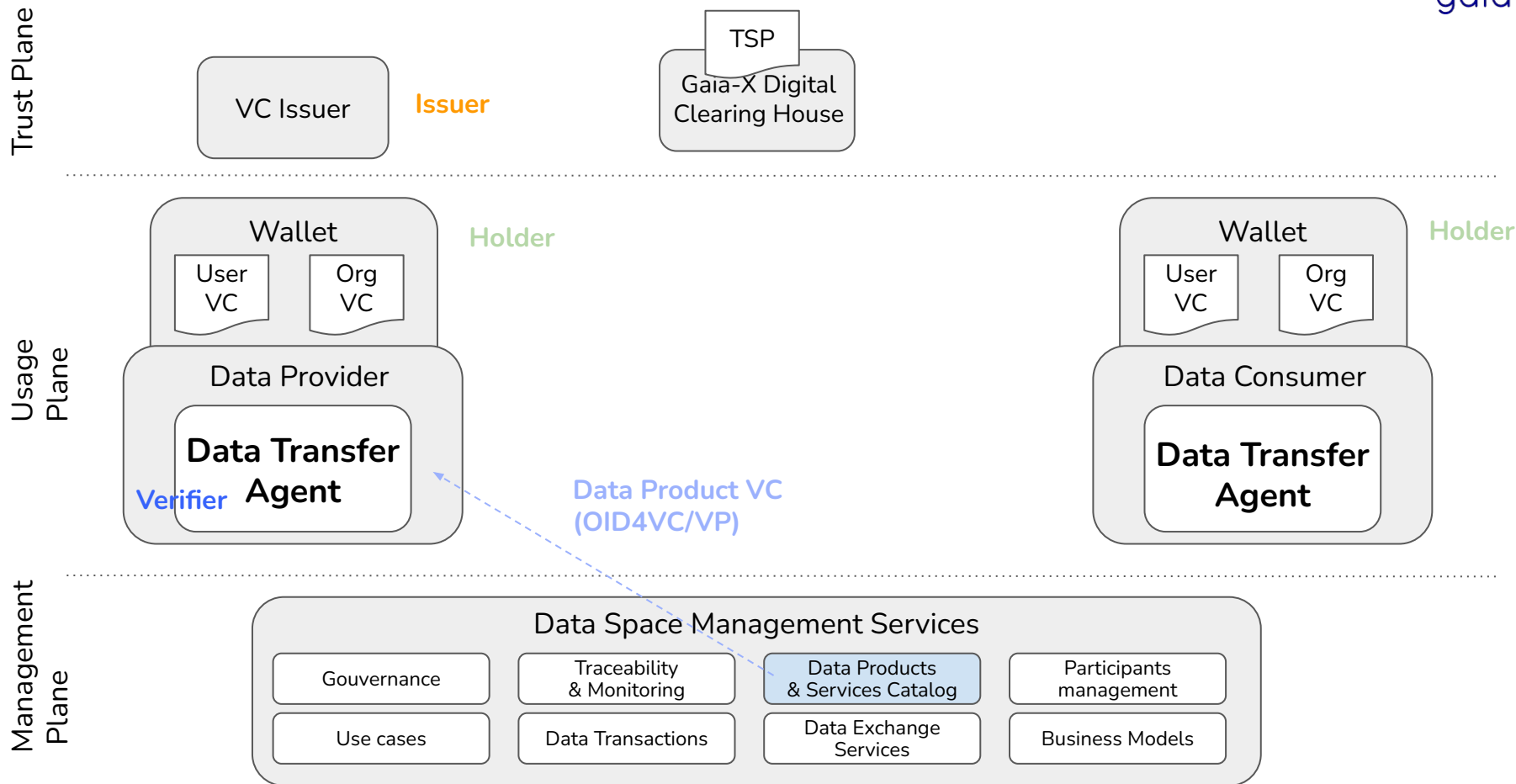
Key components for Trusted Data Transactions



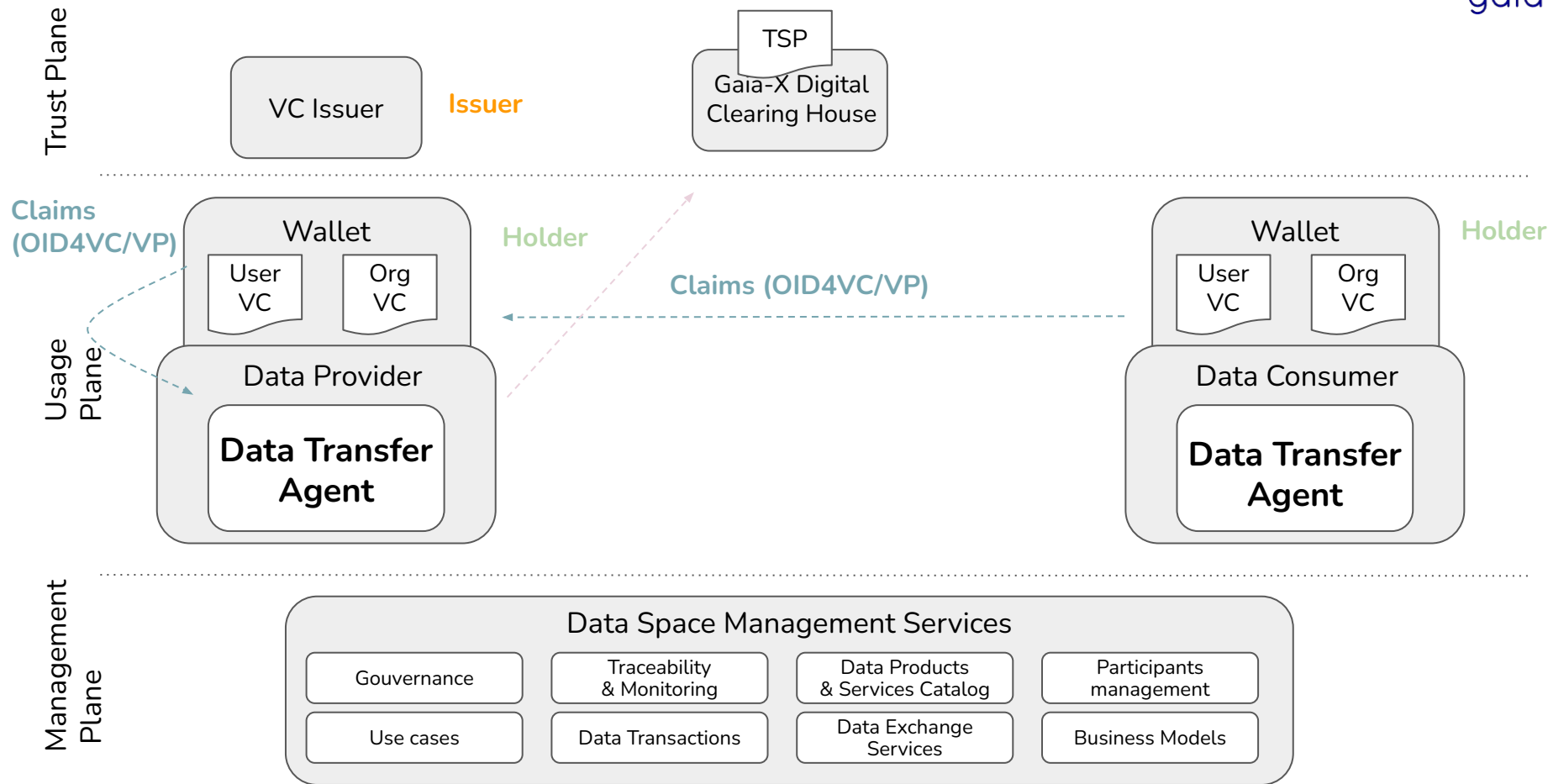
Key components for Trusted Data Transactions



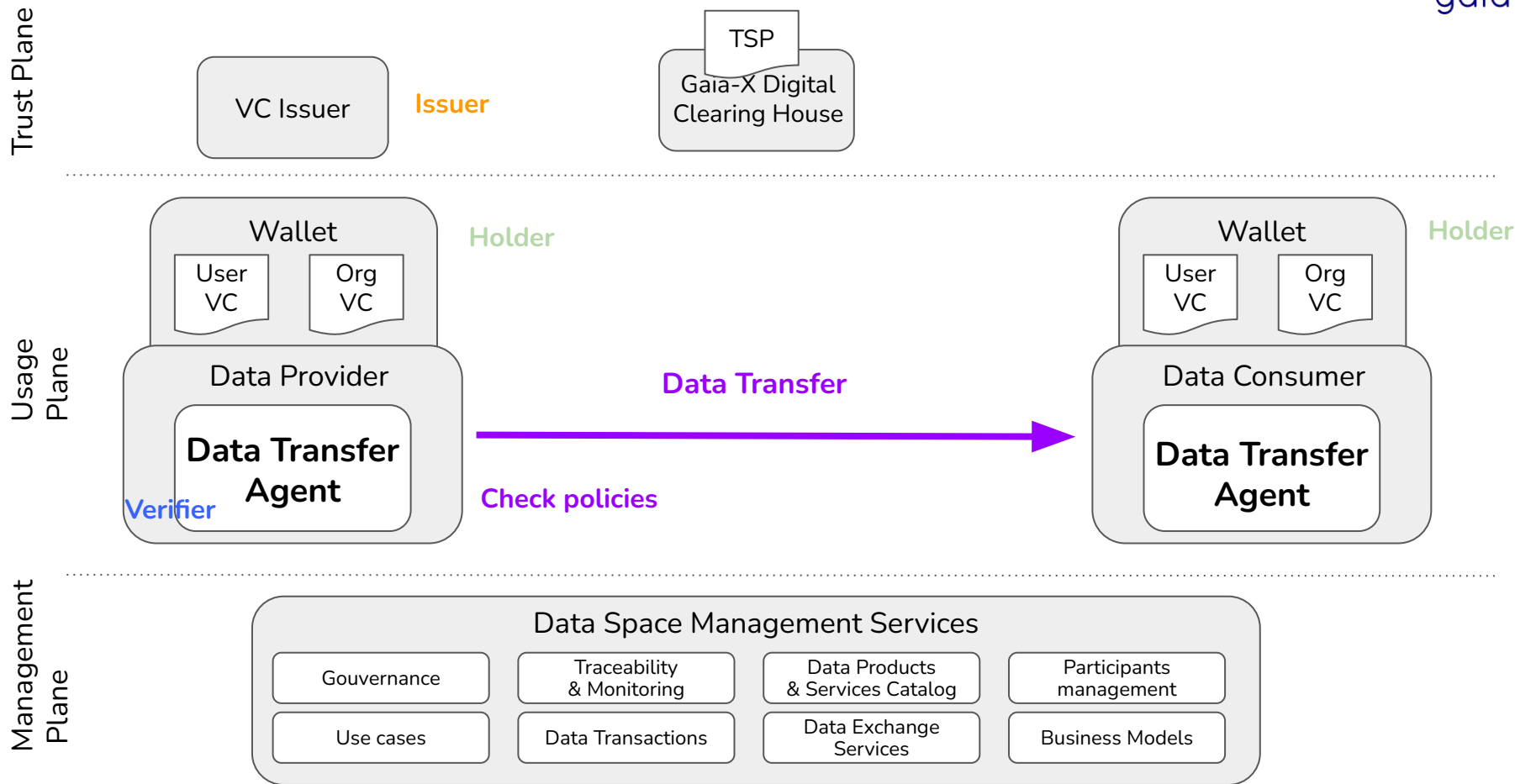
Key components for Trusted Data Transactions



Key components for Trusted Data Transactions



Key components for Trusted Data Transactions



Thank you!

Frédéric Bellaiche

Vice President Technology & Research

Dawex

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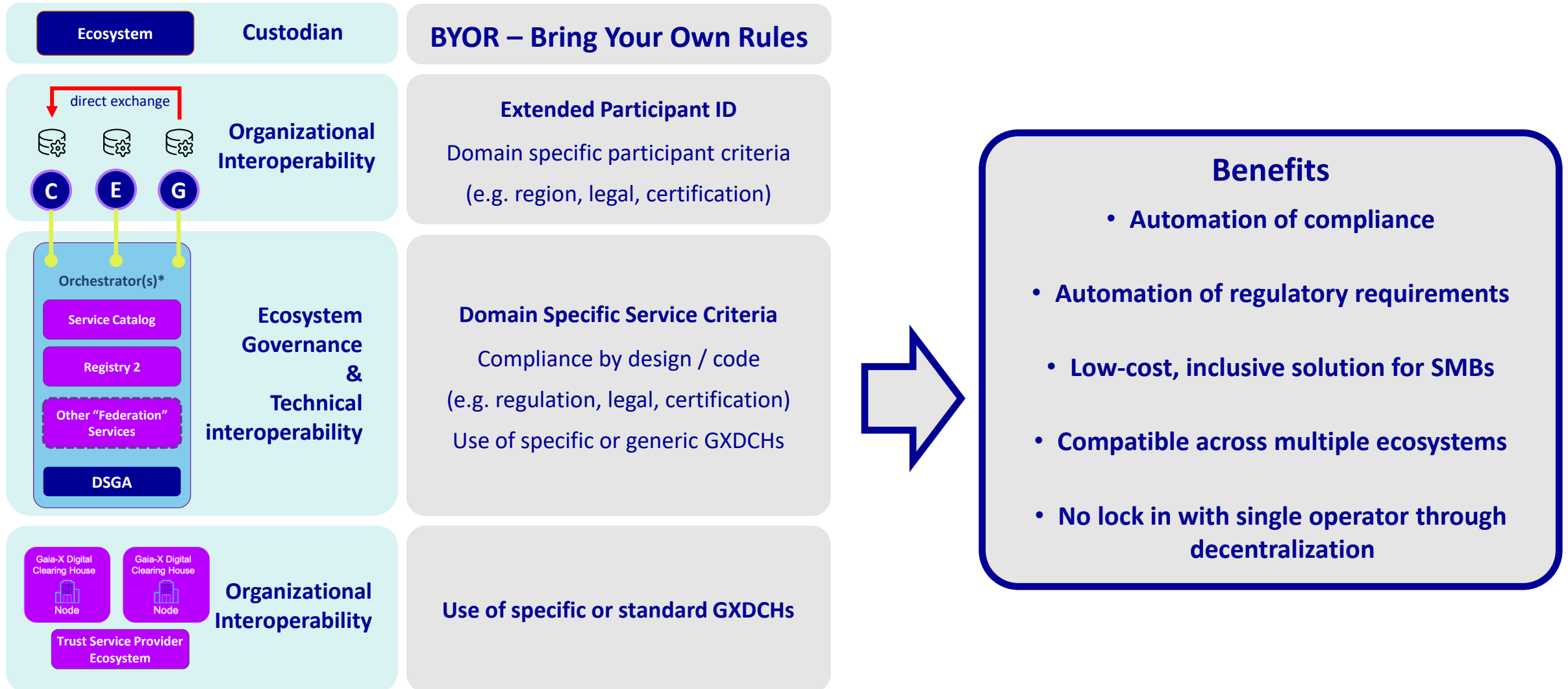
Geography & Domain Extensions



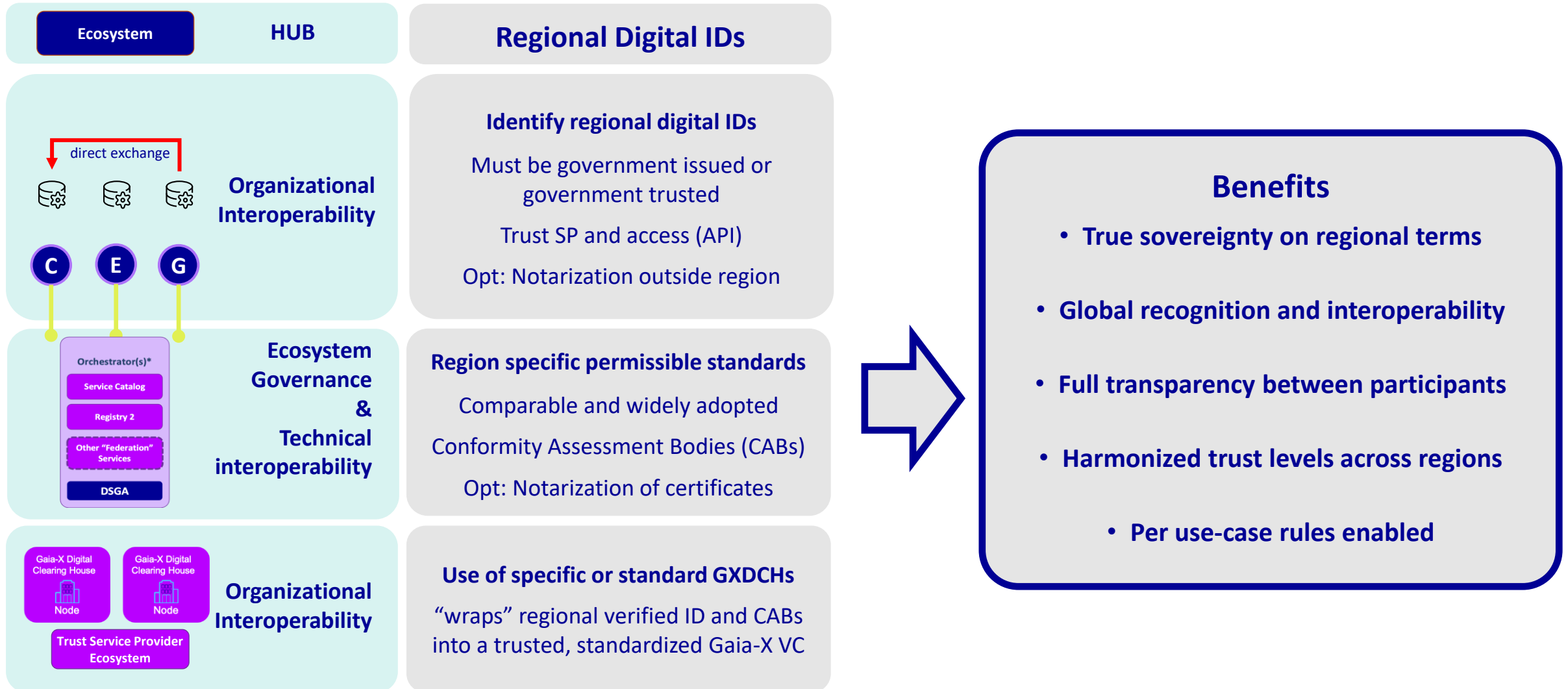
Catherine Simonnin – Orange

Bert Verdonck – Luxembourg National Data Service

Domain Extensions – BYOR (Bring Your Own Rules)



Geographical Extensions – enable trust across regions



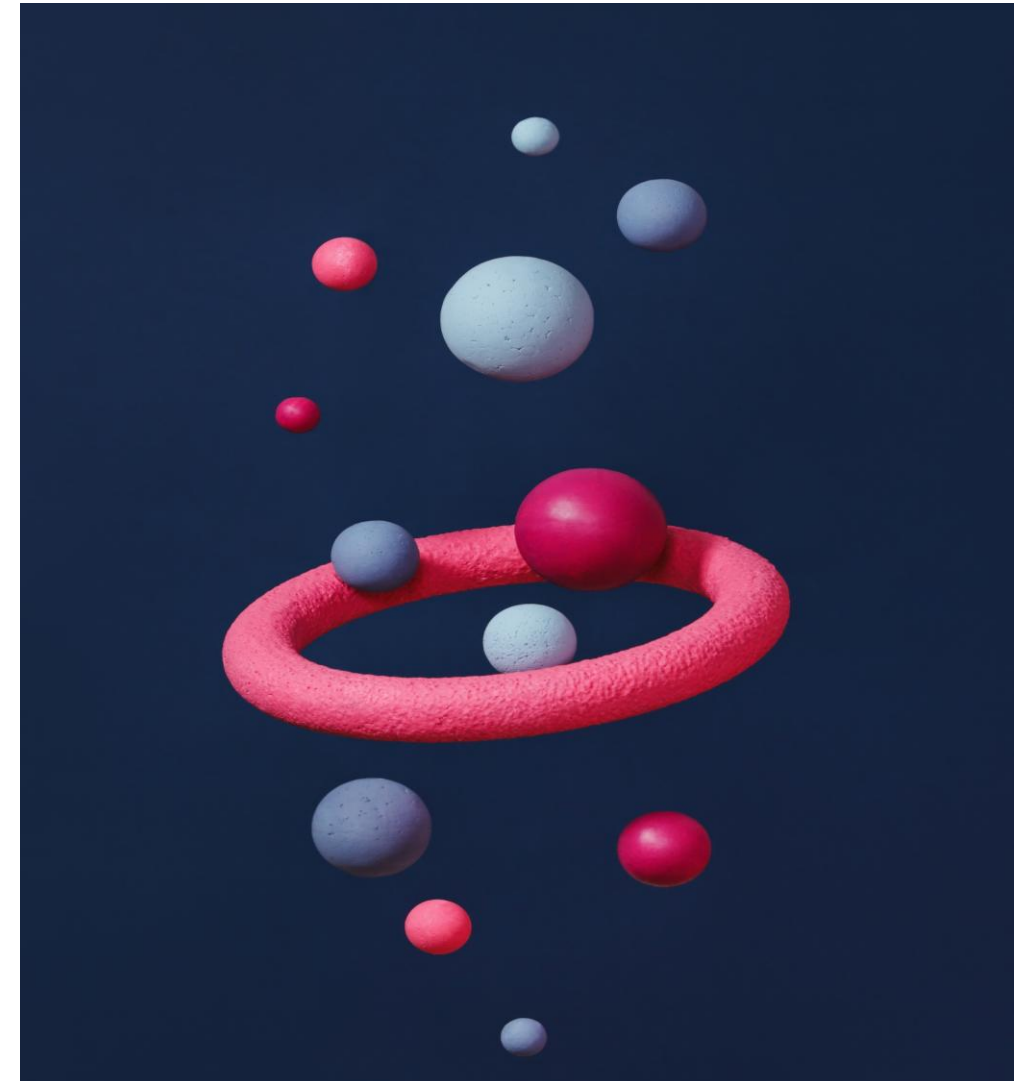


Are you interested by domain extension ?
Are you interested by geographical extension ?

4 Scenarios for geographical & domain extension



- Scenario 1 : controlled by a Custodian
- Scenario 2 : controlled by Gaia-X
- Scenario 3 : Custodian-proposed, Gaia-X validated, and GXDCH-certified,
- Scenario 4 : Custodian-proposed and validated, and GXDCH-certified



Scenario 1 : controlled by Custodian

- Reuse Gaia-X open source code
- Full autonomy and choices made by Custodian, allowed to fork the code
- Of course, possibility to re-use parts of Gaia-X trust Frameworks including GXDCH code
- No check from Gaia-X (compliance or technical compatibility)
- Technical compatibility possible but not guaranteed

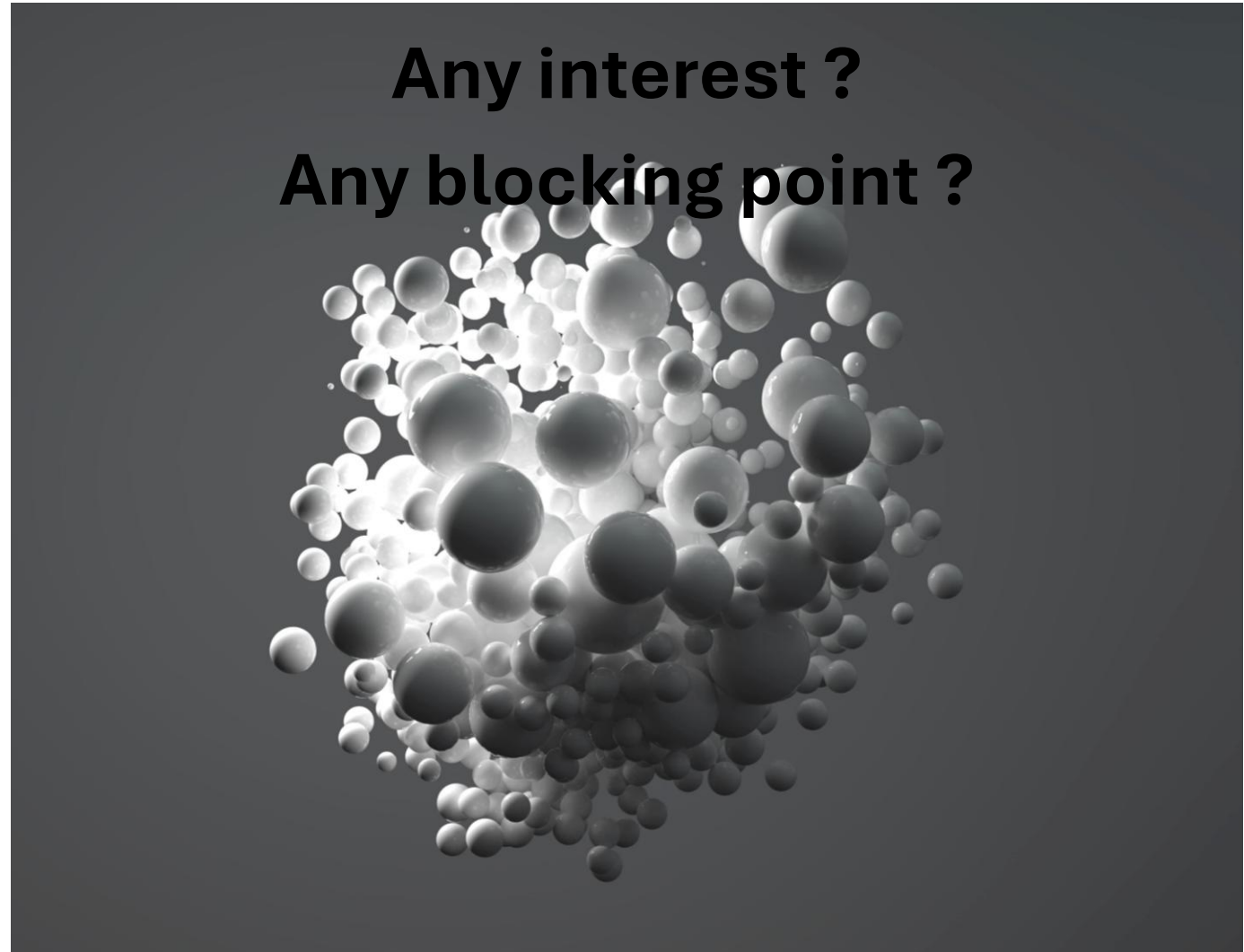
Any interest ?
Any blocking point ?



Scenario 2 : controlled by Gaia-X – the model used so far



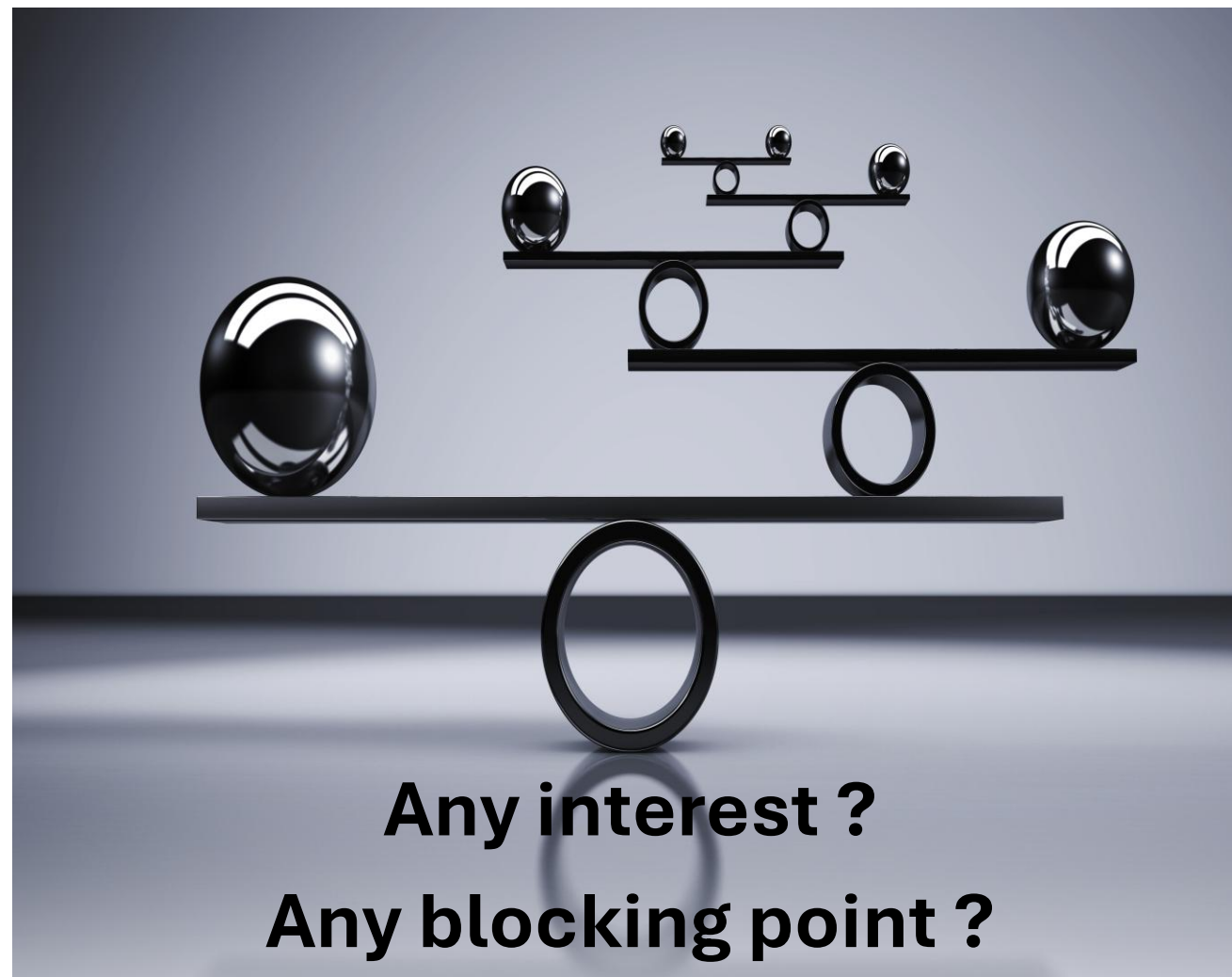
- The extension is managed like today for the Gaia-X Trust Framework
- Criteria are discussed and agreed in the PRC, with final validation by the Gaia-X Board of Directors
- The GXDCH corresponding code is provided by Gaia-X tech team
- The extension is provided to all GXDCH providers with Gaia-X tech team support
- Technical compatibility guaranteed



Scenario 3 : Custodian-proposed, Gaia-X validated, and GXDCH-certified



- Criteria are discussed and agreed by the extension Custodian
- After checking alignment with Gaia-X values, the extension is validated by the Gaia-X Board of Directors
- The GXDCH corresponding code is provided by Gaia-X tech team
- The extension is provided to all GXDCH providers with Gaia-X tech team support
- Technical compatibility guaranteed



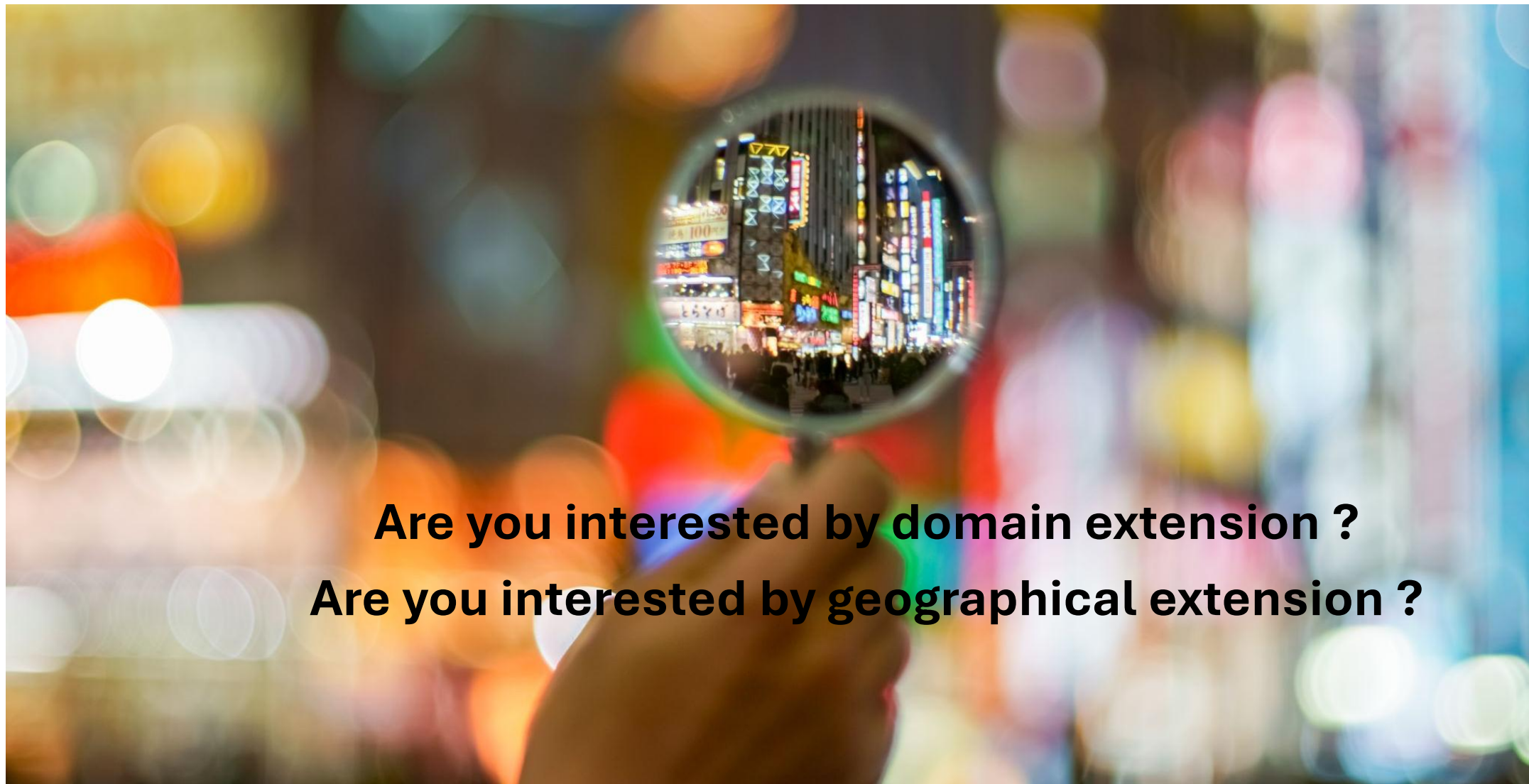
Scenario 4 : Custodian-proposed and validated, and GXDCH-certified

- Criteria are discussed and agreed by the extension Custodian
- The extension is validated by the Custodian
- No checking of alignment with Gaia-X values
- The GXDCH corresponding code is provided by Gaia-X tech team
- The extension is provided to all GXDCH providers with Gaia-X tech team support.
- Technical compatibility guaranteed

Any interest ?
Any blocking point ?



Questions

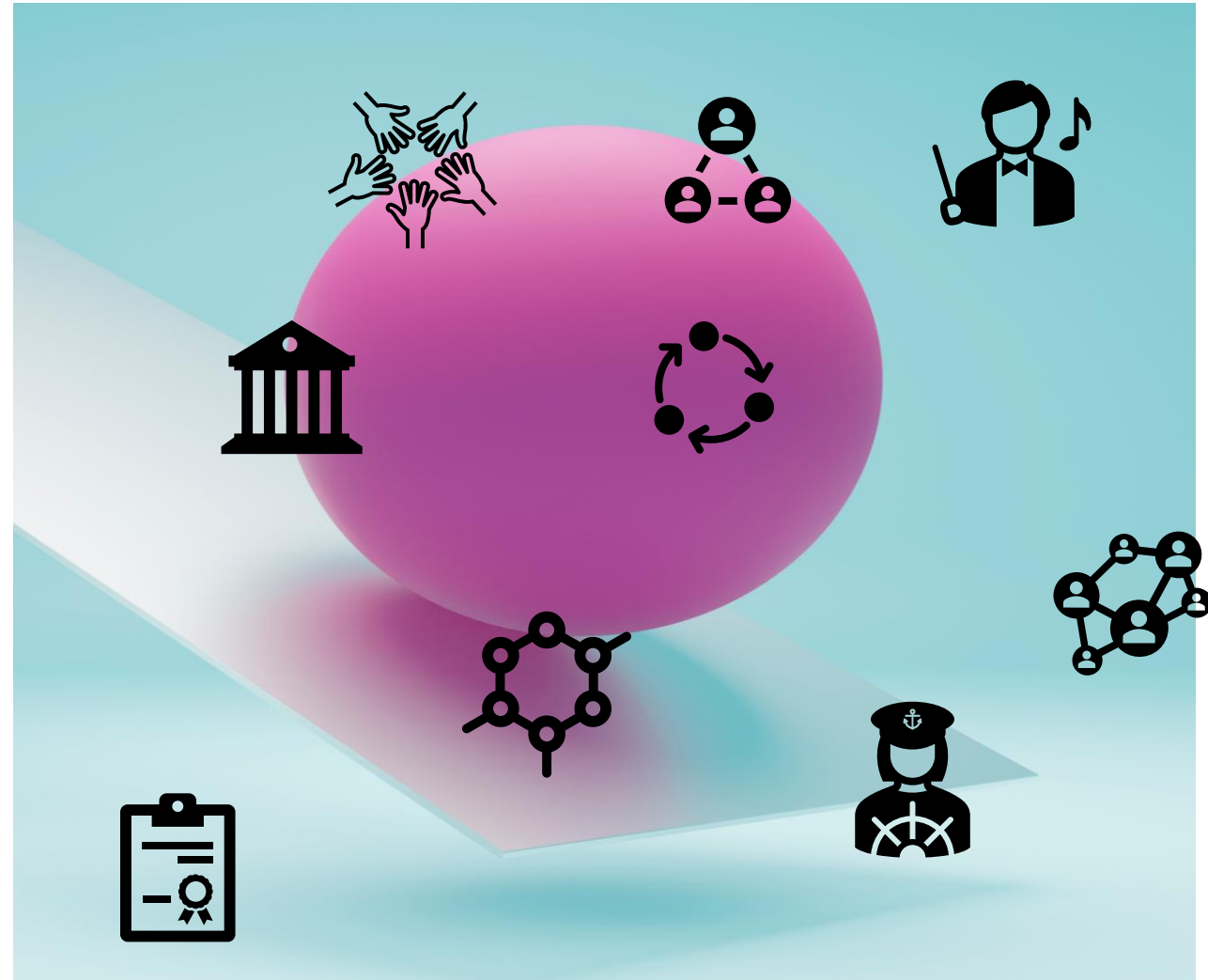


Are you interested by domain extension ?
Are you interested by geographical extension ?

Geographical & domain extension governance

How to start?

- Starting points :
 - Use cases / business needs
 - Autonomy / sovereignty needs
 - Legal / regulatory needs
- Questions to start :
 - Custodian already existing?
 - Levels of compliance required
 - Sponsors and budget
 - Shared use cases



Catherine Simonnin – Orange

Bert Verdonck – Luxembourg National Data Service

Thank you!

**To go deeper join the GXDCH Danube presentation ...
tomorrow**