The Future of e-Infrastructures

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Dataspaces

To build a Dataspaces, we need:

- A governance which can be operationalised.
- Infrastructures adopting the governance.
- Parties adopting the governance, using the infrastructures “to access and use data in a fair, transparent, proportionate and non-discriminatory manner with clear and trustworthy data governance mechanisms.”[1]

Problems/Opportunities:

- Sharing data is not new and there are 1000’s of existing setups that could qualify as “dataspaces”
- They are not discoverable
- Governance and infrastructure interoperabilities are hard - if not impossible - to assess
- Scaling is expensive

Gaia-X proposals

- Federated catalogues 📚 for Services and Products.
- A worldwide-ready 🗺️ governance based on European values 🇪🇺.
- Easy customisation and extension 🧰 of the governance per domains, verticals, local markets, …
- Interoperability measurement across dataspaces \( d = \text{distance}(D1, D2) \)

Do we share the same rules?

Are our services interoperable?

Do you have data/services of interest?
Gaia-X solutions

The use of linked-data to describe parties, products, services and their associated policies, encapsulated into Verifiable Credentials to build a decentralized knowledge graph.

The use of an ontology for implementing the governance and the semantic interoperability of the descriptions.

Minimalistic technical requirements to implement the exchange of credentials in and across dataspaces and federations.

[1]: policy rules developed by Gaia-X association members in line with other EU initiatives (iShare, X-Road)
[2]: NIST SP. 500-332: Cloud Federation Reference Architecture
The use of linked-data to describe parties, products, services and their associated policies, encapsulated into Verifiable Credentials to build a decentralized knowledge graph.

The use of an ontology for implementing the governance, its lineage and the semantic interoperability of the descriptions.

Minimalistic technical requirements to implement the exchange of credentials in and across dataspaces and federations.
Example of integration

Federations

Issue, request, present Verifiable Credentials

Dataspaces

Issue, request, present Verifiable Credentials

Gaia-X Digital Clearing Houses

Issue, request, present Verifiable Credentials

Example of integration
Data Spaces Business Alliance
Technical Convergence document

BDVA
Providing advice
general consultation
and
endorsing results

Gaia-X
Cross Data Space Governance

IDSA
Dataspace
Connectors
supporting
contract
negotiations

FIWARE
Open Source
implementation of
components for
Data spaces
QUESTIONS?

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