DSSC Insight Series

# The Data Spaces Blueprint Version 0.5

## 12 October 2023 | 16:00 to 17:30 CEST | online

DATA SPACES SUPPORT CENTRE

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The Data Spaces Support Centre receives funding from the European Union Digital Europe Programme under grant agreement n° 101083412.

DATA SPACES SUPPORT CENTRE

# Introduction

By Boris Otto

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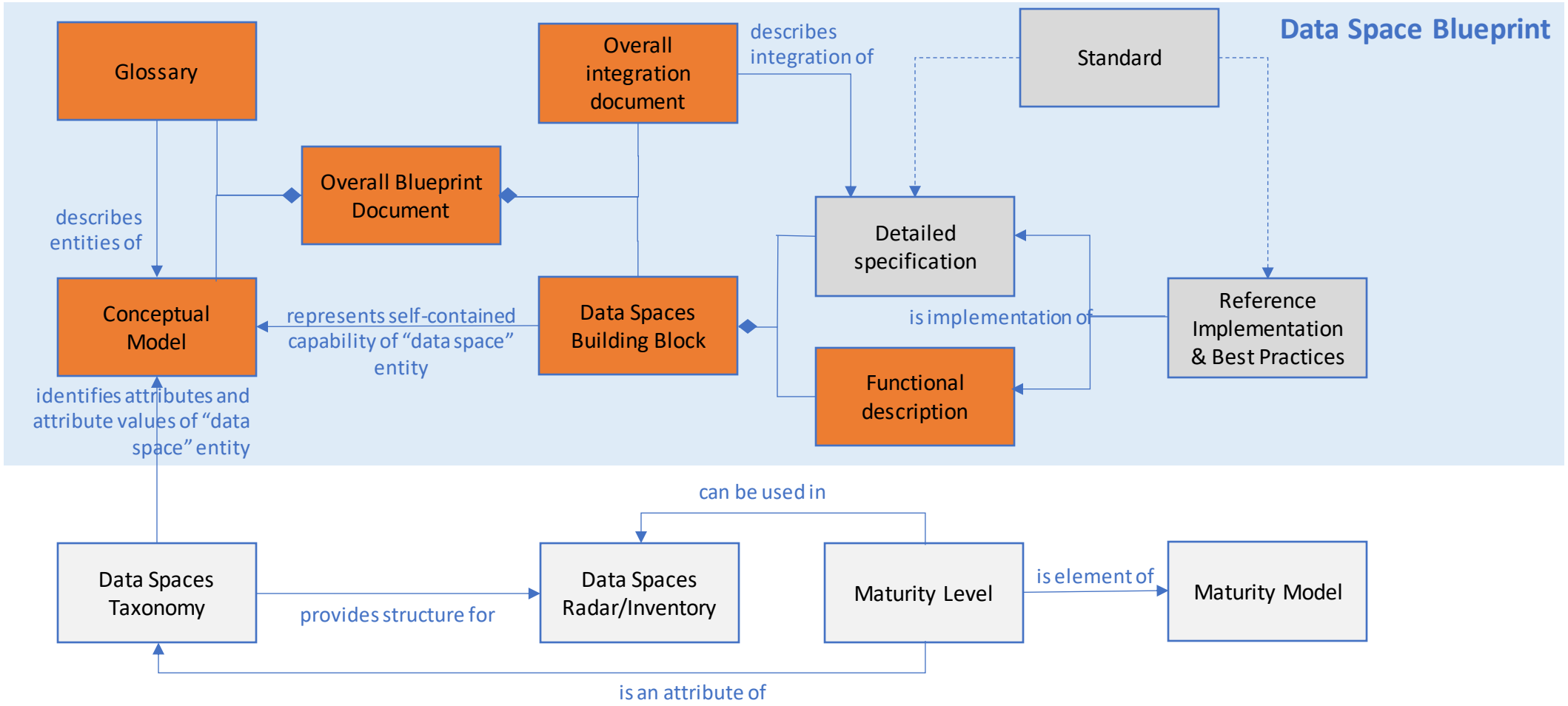
# DSSC Asset Model

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# Blueprint Benefits

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- Shorter Time-to-Value
- Reduced Project Risks
- Common Language

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# Blueprint for Data Spaces

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# Get to a higher flight level

DATA SPACES SUPPORT CENTRE

- Enable data space initiatives to focus on their business & societal objectives
- Build on common standards which are applicable for all data spaces
- Provide options/templates to choose from

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# Create a bigger market


- Provide technology providers with a bigger market
- Economies of scale through standardisation
- Network effects & additional value

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# Enable collaboration

- Enable data space initiatives to work together
- Enable organisations to easily join multiple data spaces
- Maintain data sovereignty

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# How did we do this?

DATA SPACES SUPPORT CENTRE

- Work with sectorial data space initiatives in the Digital Europe programme through our Community of Practice
- Work with key technology & standardisation initiatives in Europe (IDSA, FIWARE, Gaia-X, MyData, BDVA, …)
- Expert groups, thematic groups
- Bring together needs, available solutions & best practices
- Build on existing materials (e.g. OpenDEI)

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# How will we move forward?

DATA SPACES SUPPORT CENTRE

- Work with sectorial data space initiatives in the Digital Europe programme through our Community of Practice
- Work with key technology & standardisation initiatives in Europe (IDSA, FIWARE, Gaia-X, MyData, BDVA, …)
- Expert groups, thematic groups
- Bring together needs, available solutions & best practices
- Build on existing materials (e.g. OpenDEI)

- **Identify further needs, gaps and solutions in a dialogue with you**
- **Working from 0.5 (today) → 1.0 (March 2024)**

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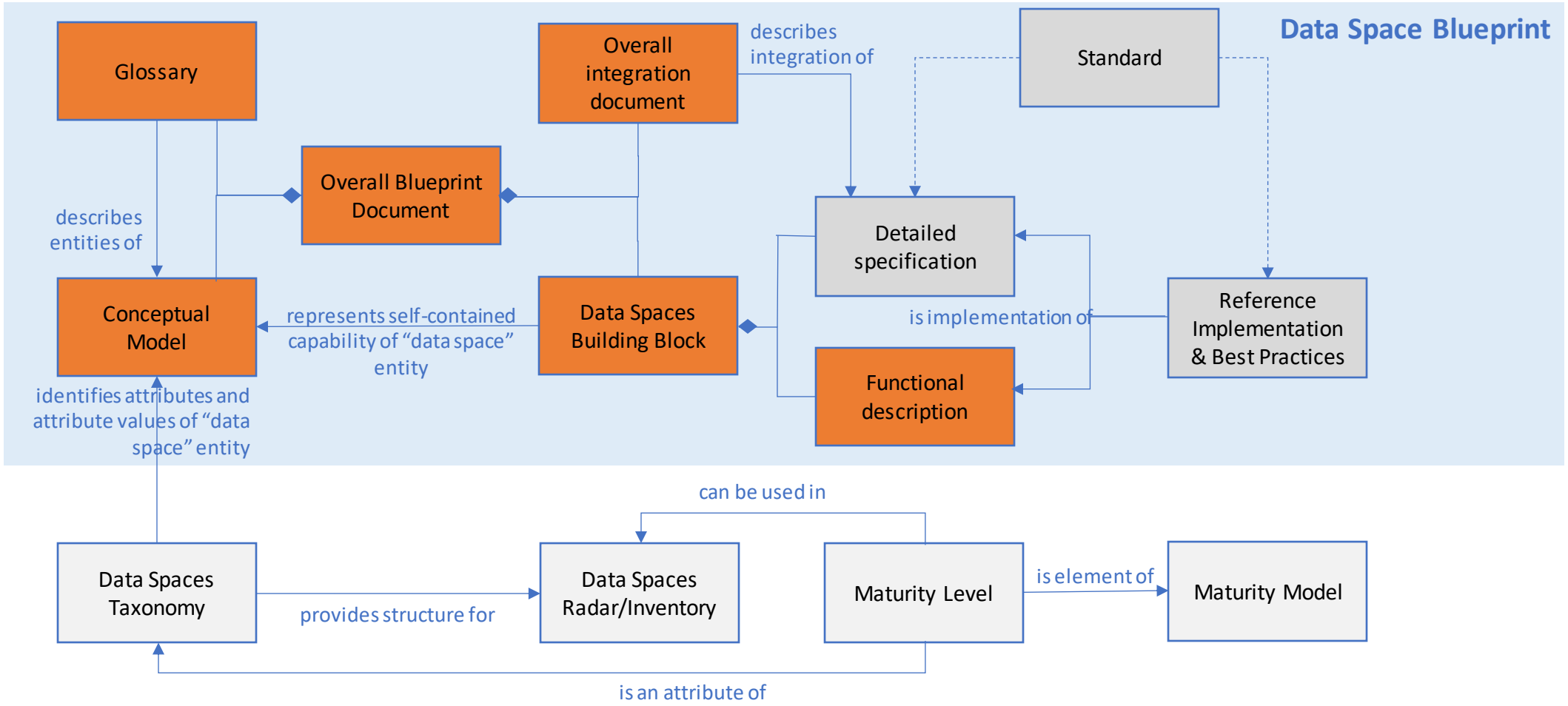
# DSSC Asset Model

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# Glossary & Conceptual Model

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# Glossary – Core Concepts

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Glossary

- DSSC Glossary | Version 2.0 | September 2023
  - Introduction
  - 1. Foundation of the European data economy concepts
  - 2. Core Concepts
  - 3. Data space use cases and business model
  - 4. Evolution of data space initiatives
  - 5. Data space intermediaries and services
  - 6. Data products and services
  - 7. Interoperability
  - 8. Data policies and contracts
  - 9. Identity and trust
  - 10. DSSC-specific terms
- DSSC Glossary | Version 1.0 | March 2023

## 2. Core Concepts

Last updated 12 days ago

This section contains the most essential terms to express what data spaces are, and it offers a starting point for defining the governance frameworks for data space initiatives. A common understanding of these core concepts is critical for the convergence and interoperability of different data space architectures and -initiatives. The list of core concepts is intentionally limited to the minimum. The relationships between the concepts are displayed in the DSSCs conceptual model of data spaces.

The parties engaged in **data sharing** need reassurance that their data is used in ways they can accept and that the data they need from others will have the promised qualities. To practically enable such trustworthy **data transactions**, groups of **parties** may organise themselves **as a data space initiative** (see section 4. Evolution of data space initiatives) and start deploying and maintaining a **data space**. A data space is defined by a **data space governance framework** and implemented by one or more interlinked **data space infrastructures**. The **data space governance authority** creates and maintains the **governance framework** that all **data space participants** must commit to. The data space creates value for its participants (and for the economy, society and environment) through data **space use cases** by enabling easy, secure and trustworthy data transactions.

| Term | Description |
|---|---|
| **Data space** | A distributed system defined by a **governance framework** that enables secure and trustworthy **data transactions** between **participants** while supporting trust and **data sovereignty**. A data space is implemented by one or more **infrastructures** and enables one or more **use cases**. |
| **Data space participant** | A party that has committed to the **governance framework** of a particular **data space** and may have one or more **roles** in it. |
| **Data space role** | A distinct and logically consistent set of responsibilities within a **data space**, that encompass associated rights and duties required to perform specific tasks, and that are designed to be fulfilled by one or more **participants**. |

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# Conceptual Model 1 – Base Level

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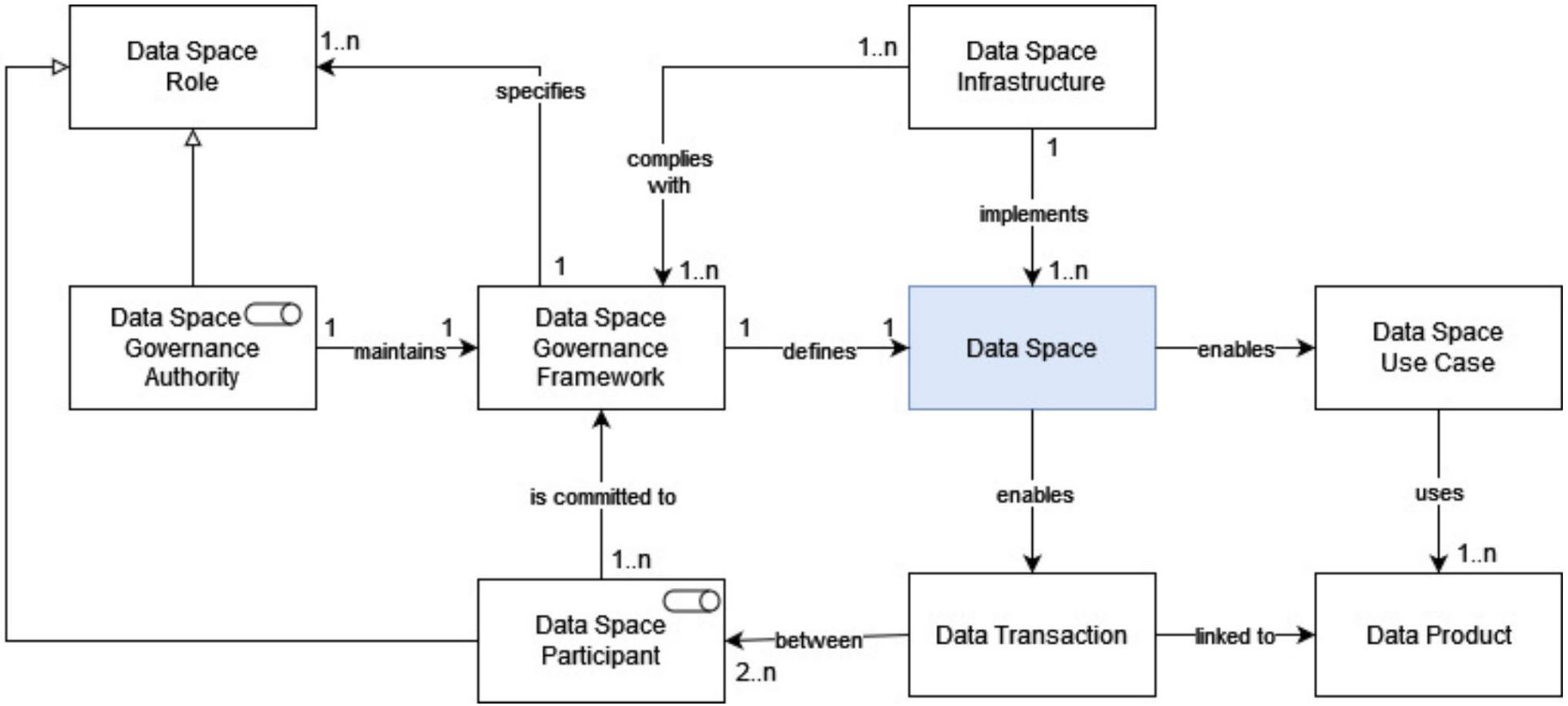


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# Conceptual Model 2 - Outlook

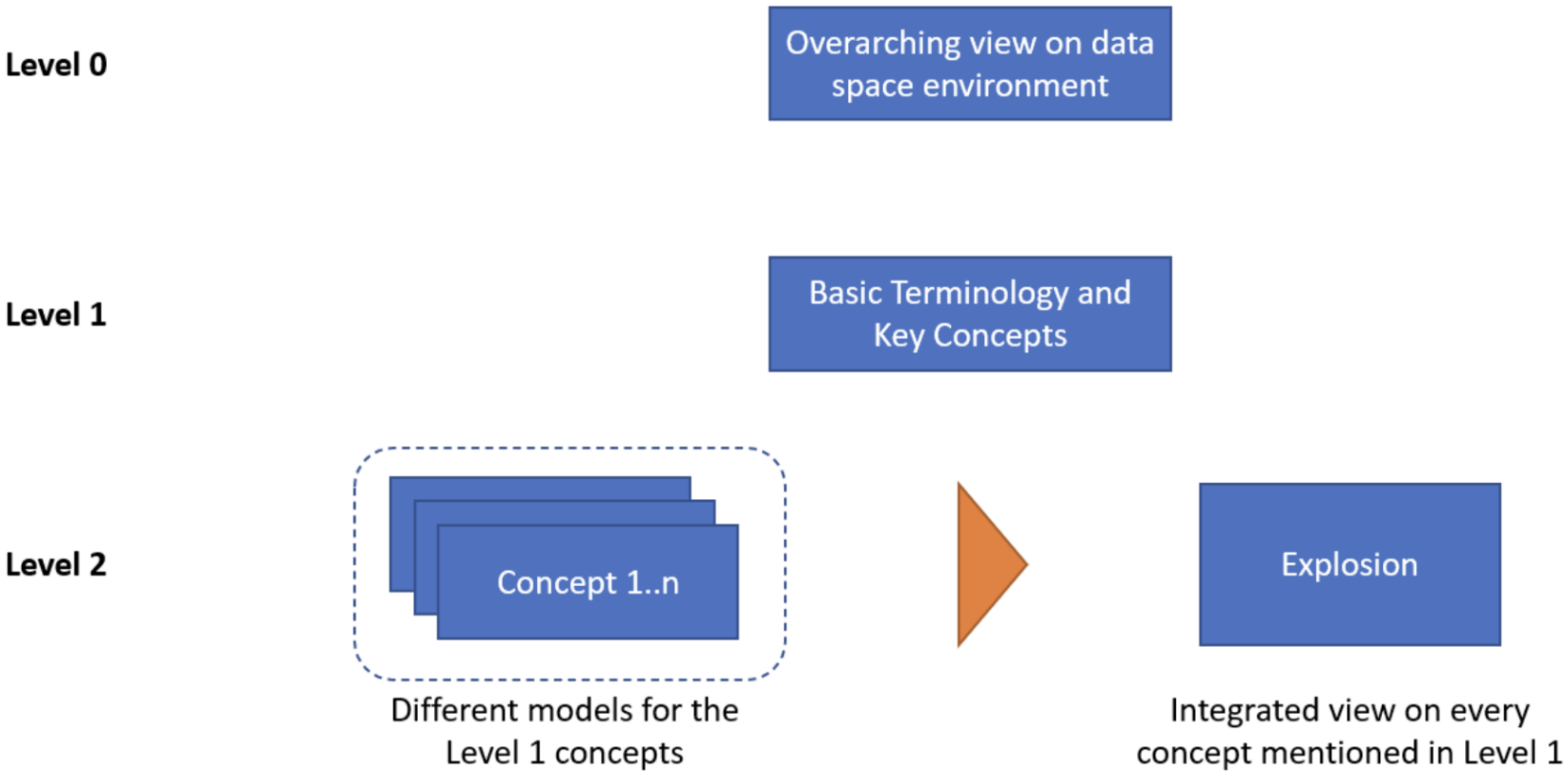


Figure A.5 Structure of the conceptual model of data spaces.

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# Data Spaces Building Blocks

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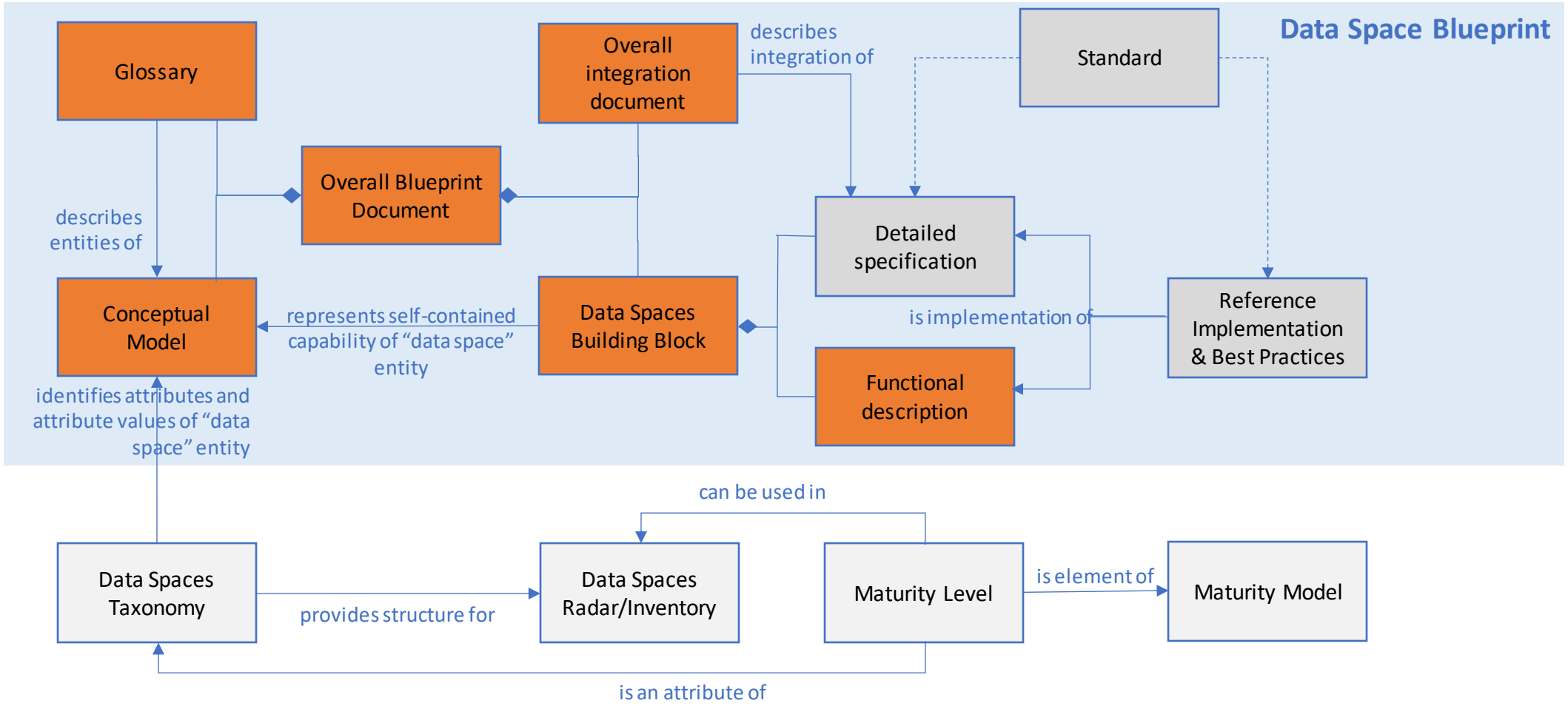
# DSSC Asset Model

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# Building Blocks for Data Spaces

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- **“A basic unit or component that can be implemented or a capability that can be deployed and combined with other building blocks to achieve the functionality of a data space“**
- Key capabilities needed in data spaces
- Not (just) a software-component that you can download and install!
- Two categories of building blocks:
  (1) business, governance and legal
  (2) technical

*) Source: DSSC Glossary

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# Building Blocks (BBs)

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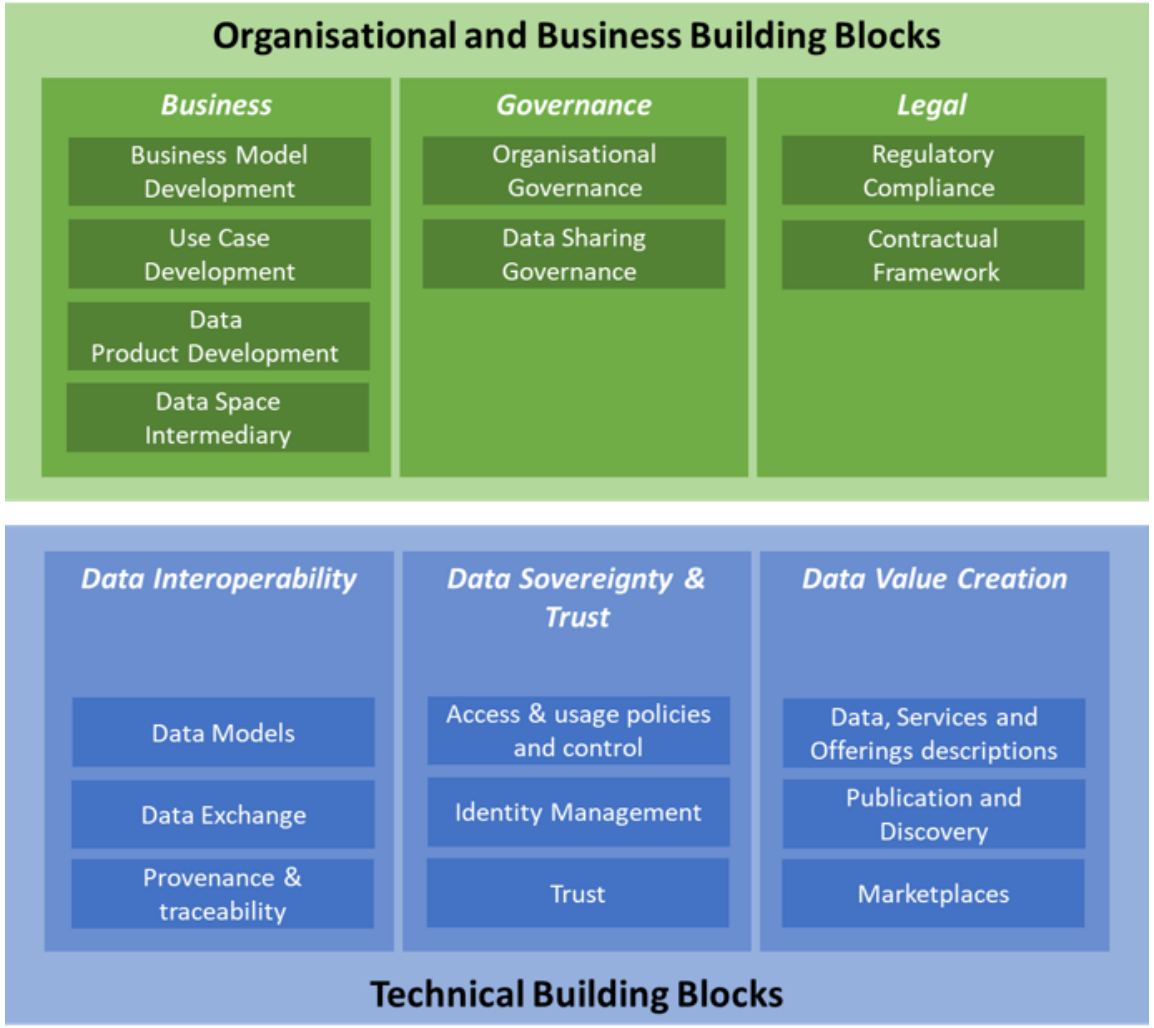
## Organisational & business building blocks

Describe capabilities on a business, governance and legal level.

## Technical Building Blocks

Describe capabilities on a technical level about:

Data Interoperability
Data Sovereignty & Trust
Data Value Creation

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# Organisational and Business BBs - Business

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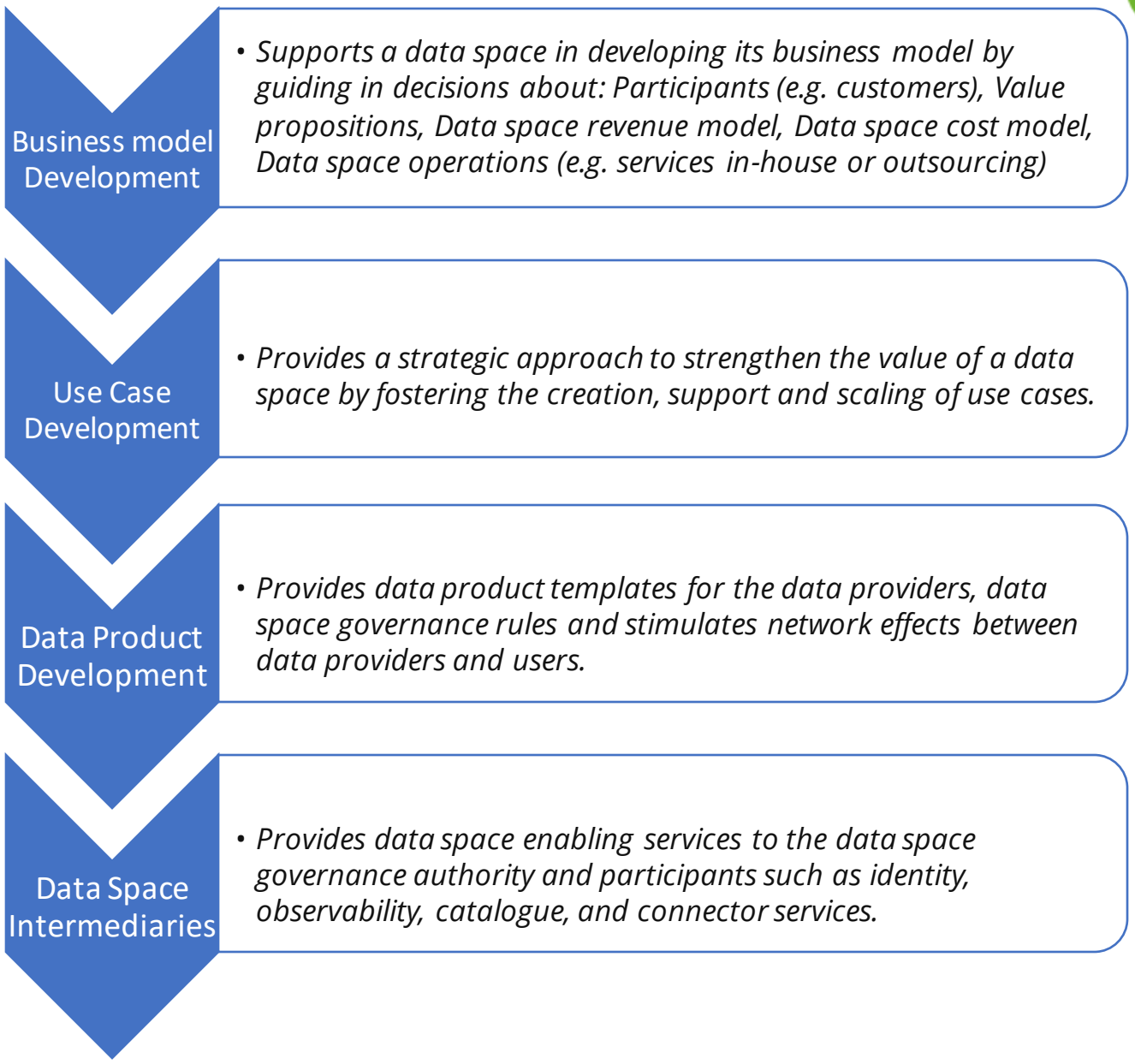
## Essential concepts in Data Space Business modelling

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# Organisational and Business BBs - Governance

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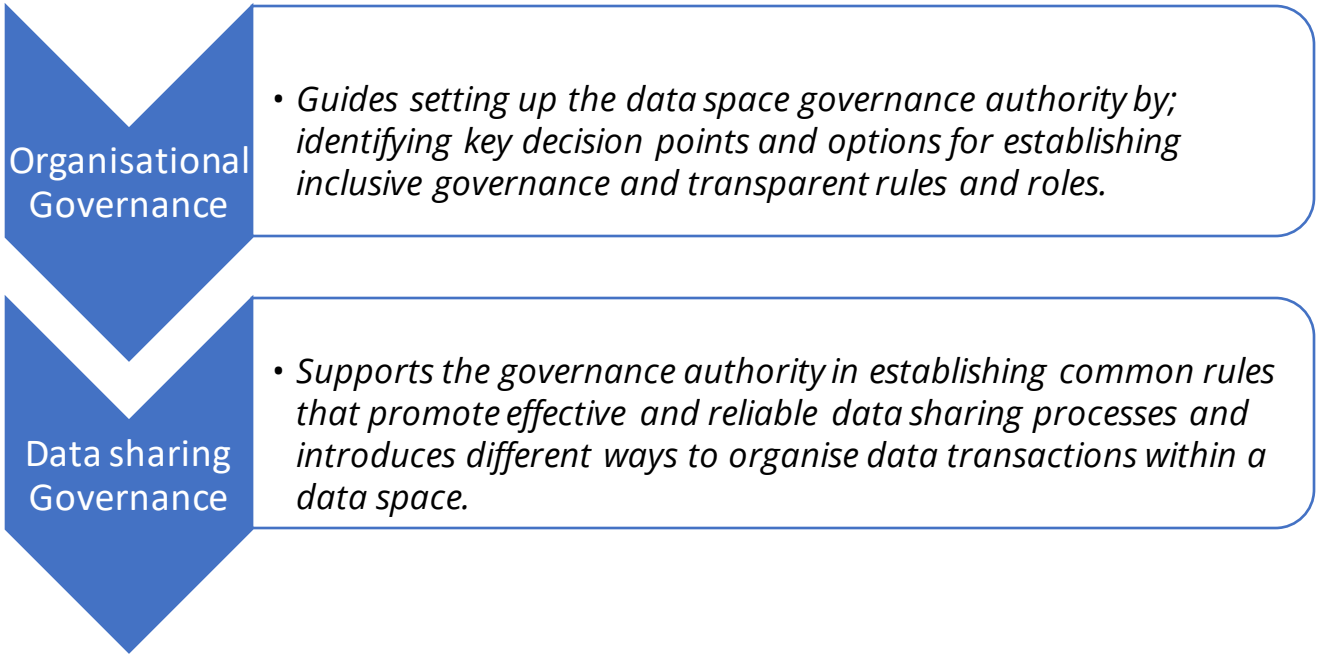
Data space-level governance

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# Organisational and Business BBs - Legal

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Guidance and resources to ensure legal compliance & a robust contractual framework

**Regulatory Compliance**

- *Provides awareness of the legal landscape and an assesses regulatory requirements to ensure legal compliance and alignment with EU values.*

**Contractual Framework**

- *Establish clear and enforceable rights and obligations for data space participants and provides contractual resources for data space participants to regulate their data transactions.*

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# Building Blocks (BBs)

DATA SPACES SUPPORT CENTRE

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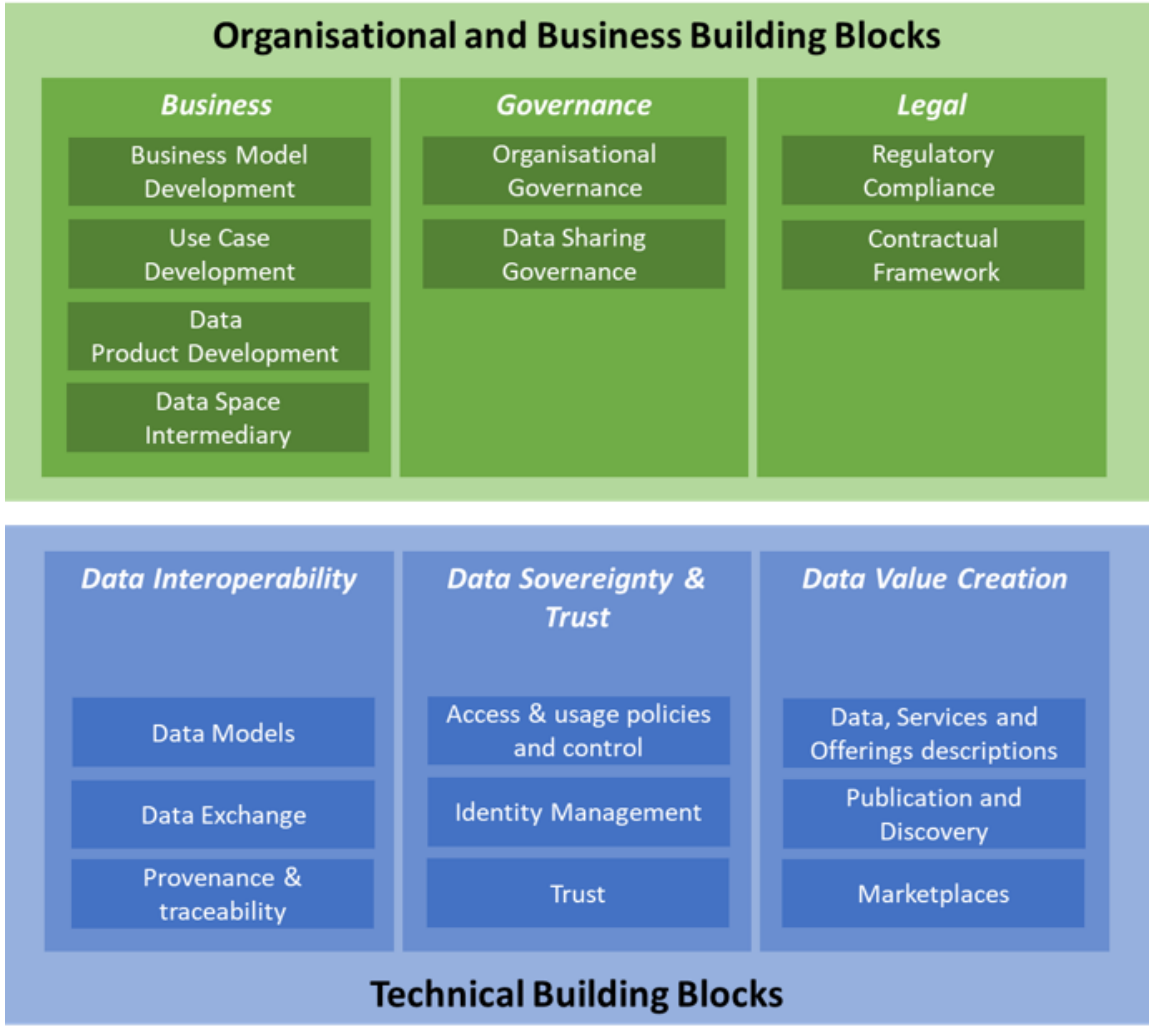


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# Technical building blocks

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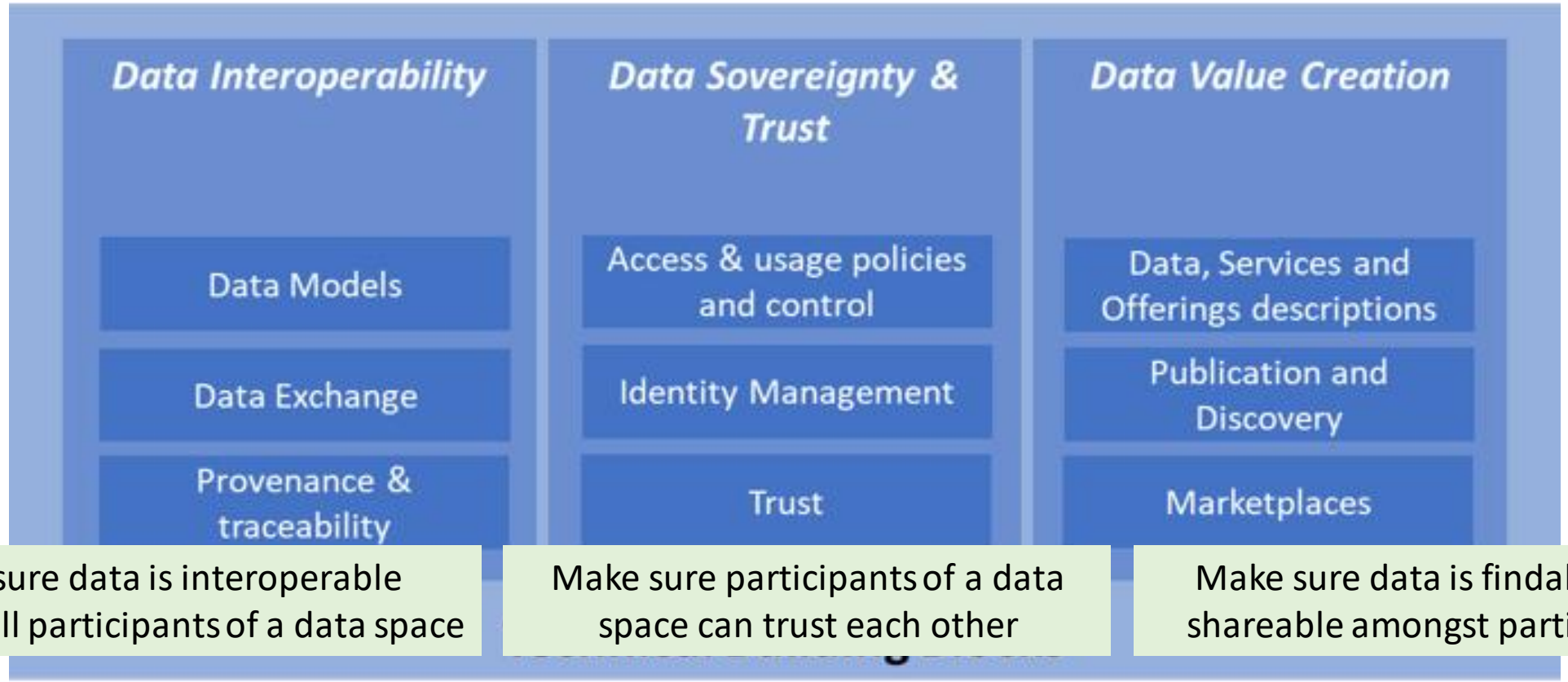


Make sure data is interoperable between all participants of a data space

Make sure participants of a data space can trust each other

Make sure data is findable and shareable amongst participants

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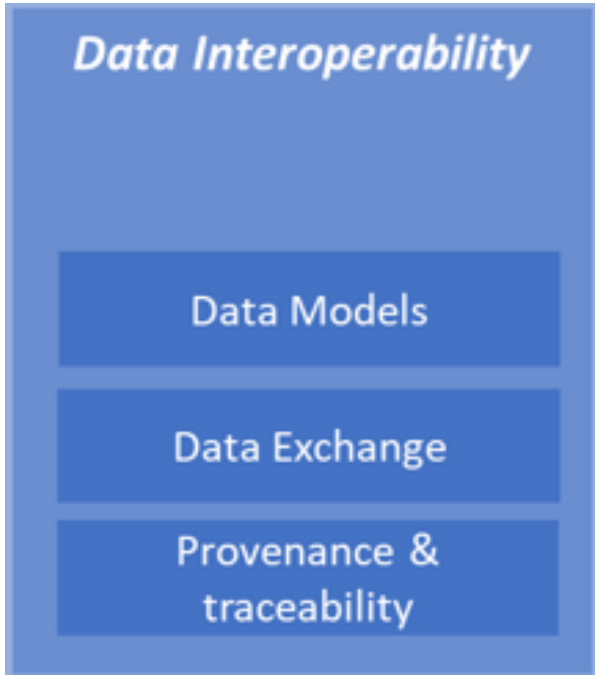
# Technology - Data Interoperability




- Capabilities needed for the exchange of data: (semantic) models, data formats and interfaces (APIs)

- DSSC will not prescribe these (→ domain specific)
- Focus on approaches to set this up

- *Vocabularies*
- *Vocabulary hub*
- *Mapping data models → formats + APIs for data exchange*

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# Technology - Data Sovereignty & Trust


- Capabilities needed for
  - the identification of participants and assets
  - the establishment of trust
  - defining and enforcing policies for access and usage control

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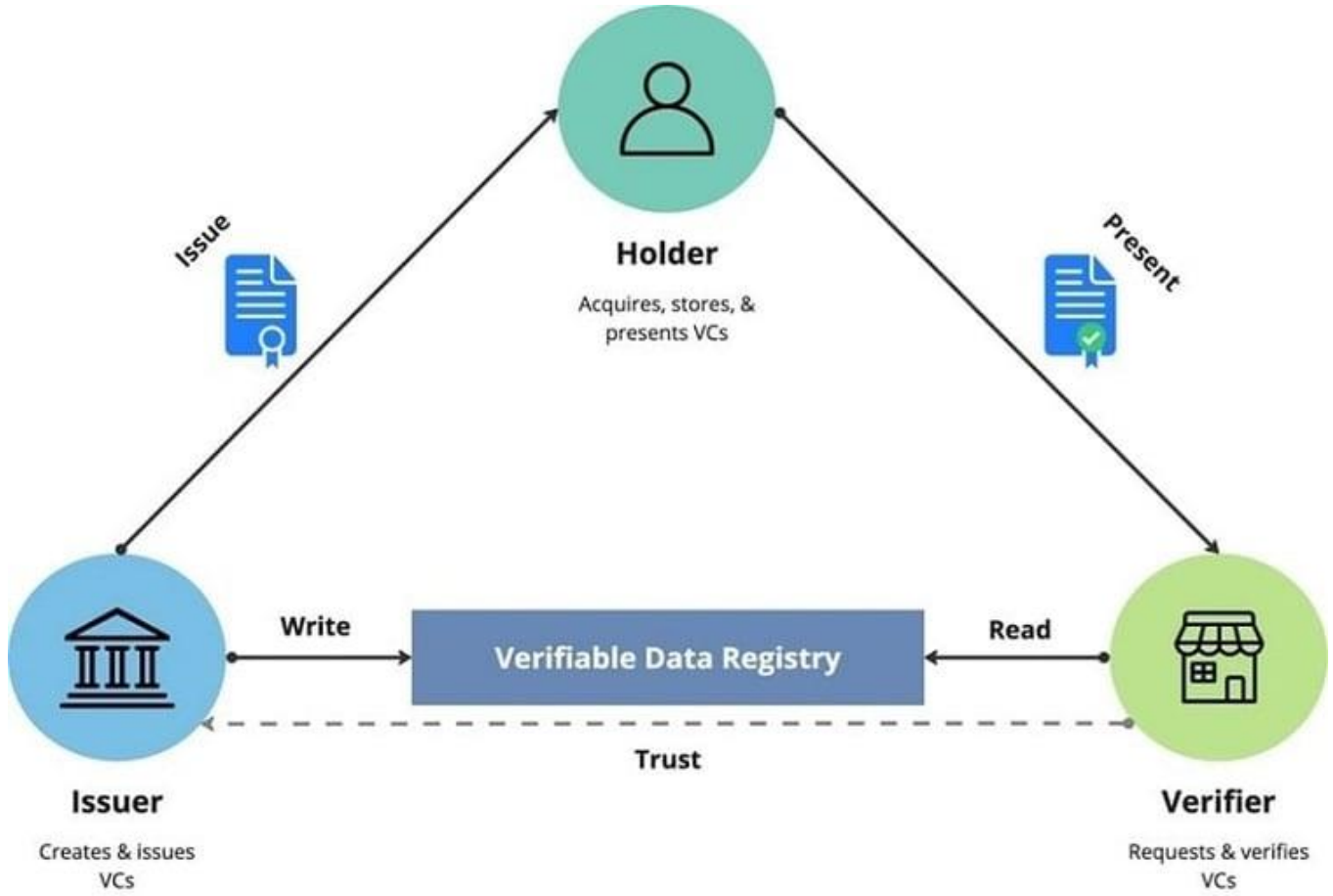
# Leveraging W3C Verifiable Credentials

Data Space Participants




Trust Anchor

- Using W3C VC/VP for identification of data space participants
- Using W3C VC/VP for validating claims
- *Provide more examples and architectural guidance*
- *Link to business & organisation building blocks*
- *Link to conceptual model*

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# Leveraging ODRL for data access & usage policies


```
{
    "@context": "http://www.w3.org/ns/odrl.jsonld",
    "@type": "Agreement",
    "uid": "http://example.com/policy:1012",
    "profile": "http://example.com/odrl:profile:01",
    "permission": [{
        "target": "http://example.com/asset:9898.movie",
        "assigner": "http://example.com/party:org:abc",
        "assignee": "http://example.com/party:person:billie",
        "action": "play"
    }]
}
```

- W3C standard for
expressing digital rights

structure

SSC
for use in

ing blocks

erational

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# Technology - Data Value Creation


- Enable value-creation in a data space
- Register and discover data offerings or services
- Provide marketplace functionality
- Enable monetisation of data sharing

- Capabilities will depend on data space specific business & governance models

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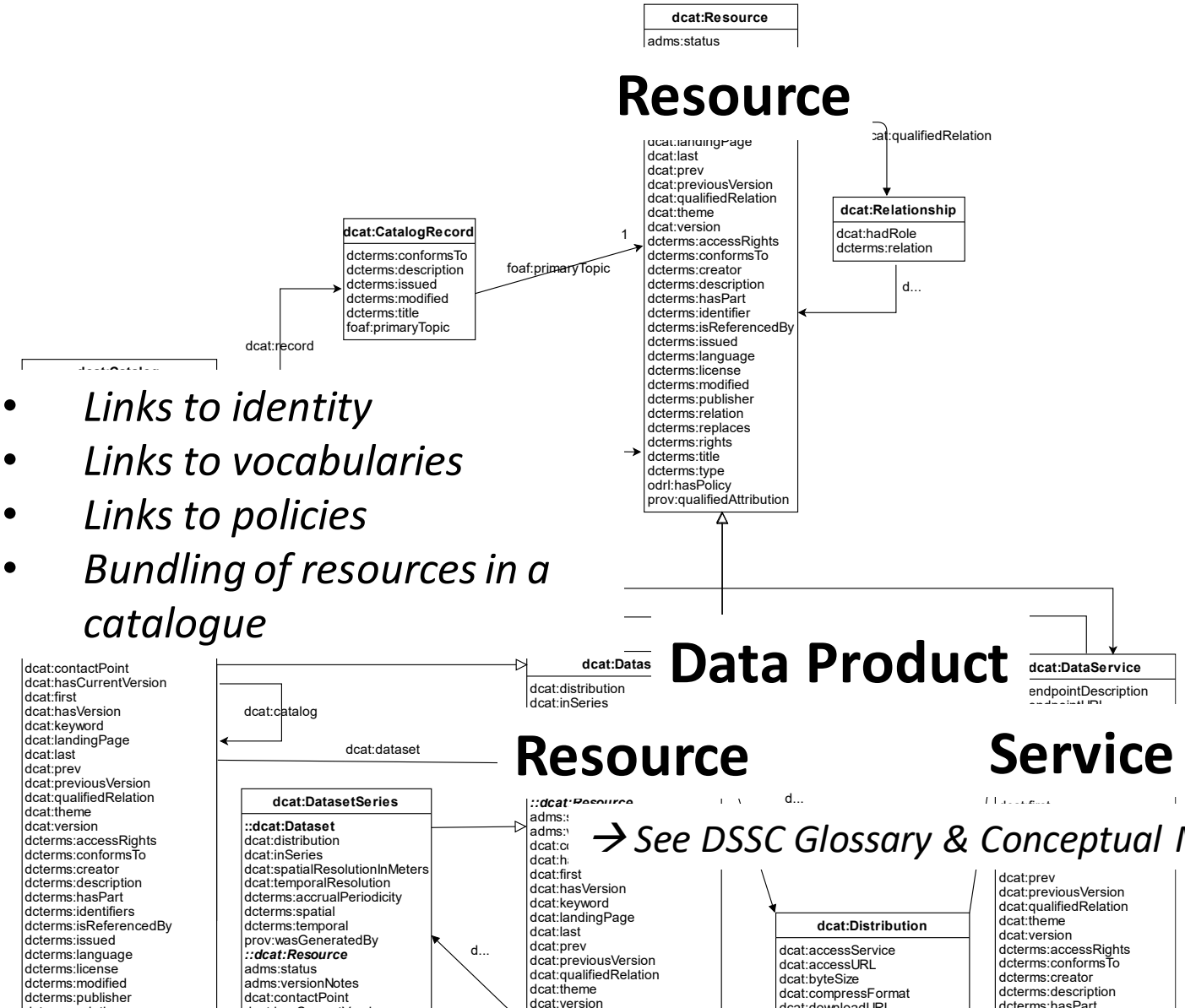
# Leveraging DCAT v3




- *Links to identity*
- *Links to vocabularies*
- *Links to policies*
- *Bundling of resources in a catalogue*

→ *See DSSC Glossary & Conceptual Model*

- W3C standard for data catalogues
- Building on EU open data experience
- Already integrated in several technology initiatives

# Implementing technical building blocks

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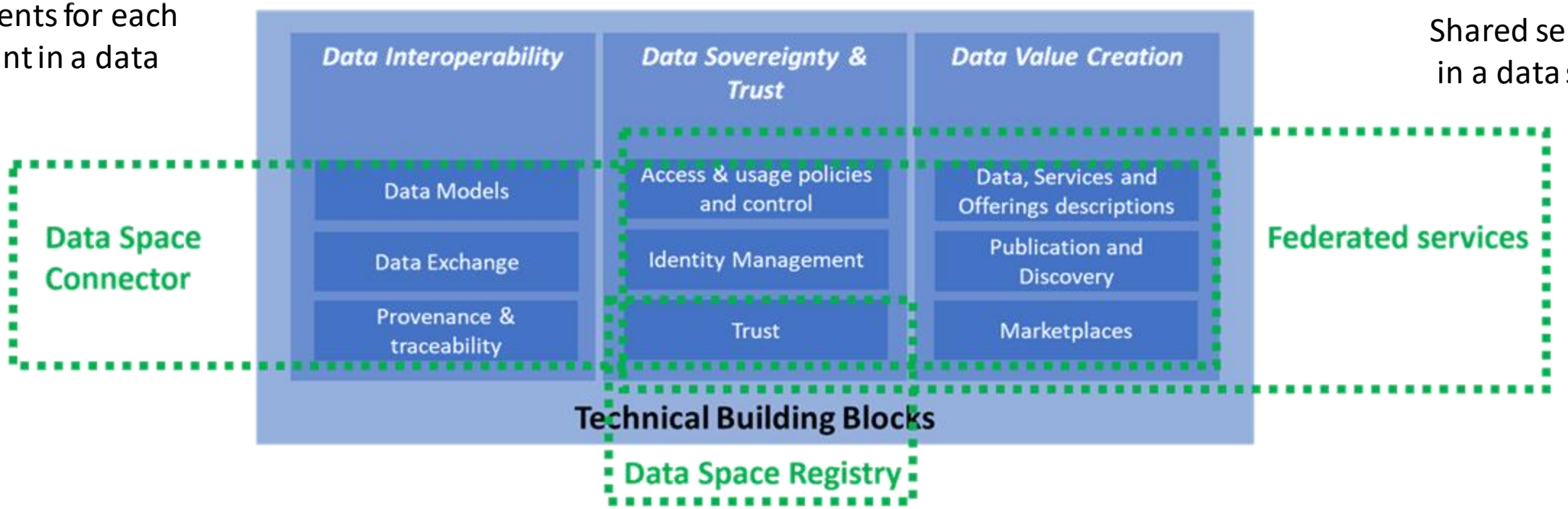
Components for each participant in a data space

Shared services in a data space




Registries for identifying participants & claims

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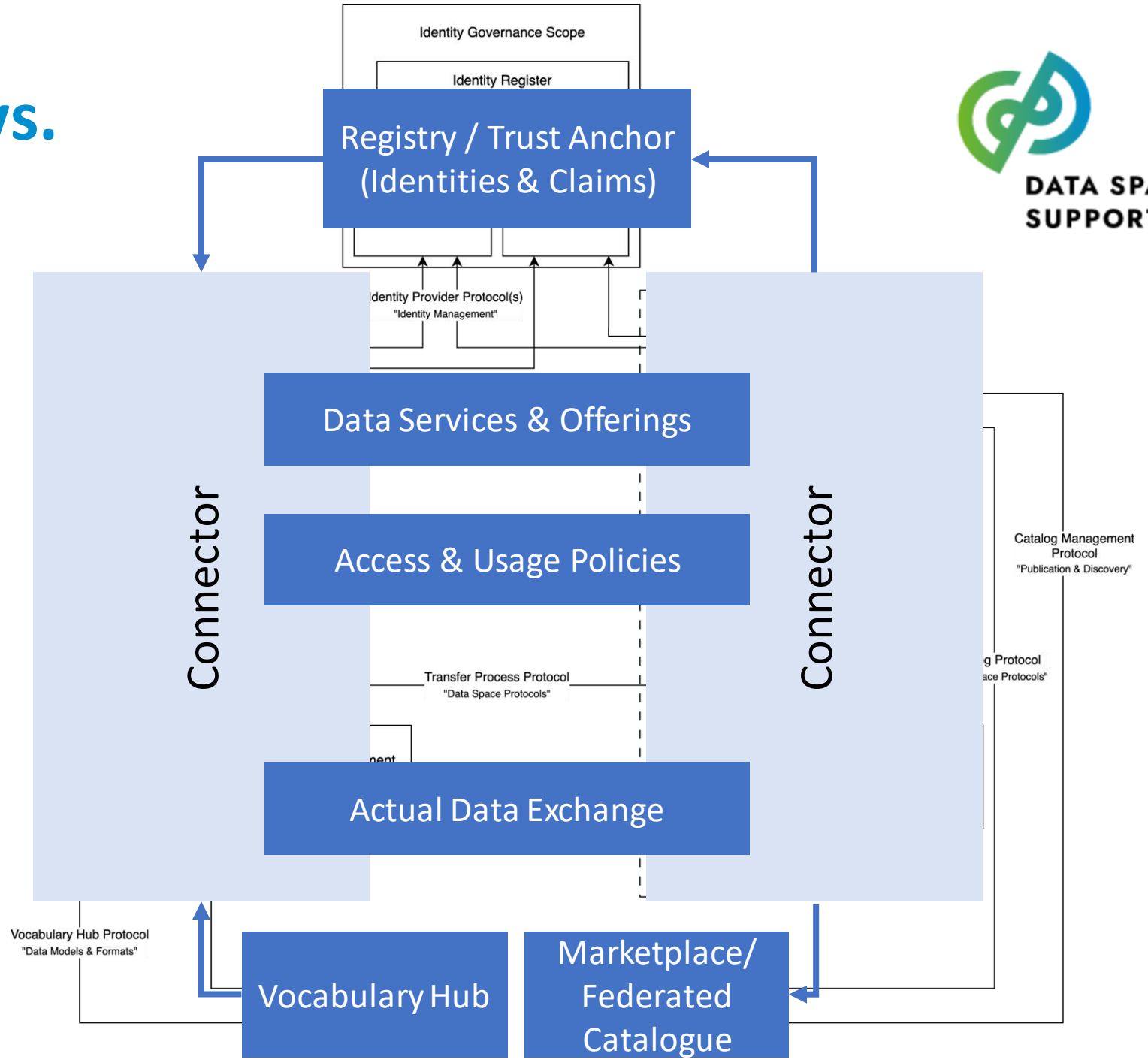
# Control plane vs. Data plane

Control plane

Data plane

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# Moving forward

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- Continuous dialogue with our Community of Practice & Strategic Stakeholder Forum
- Extending specifications, providing best practices
- Working with industry partners (e.g. Data Spaces Business Alliance) on technological convergence
- Building a toolbox

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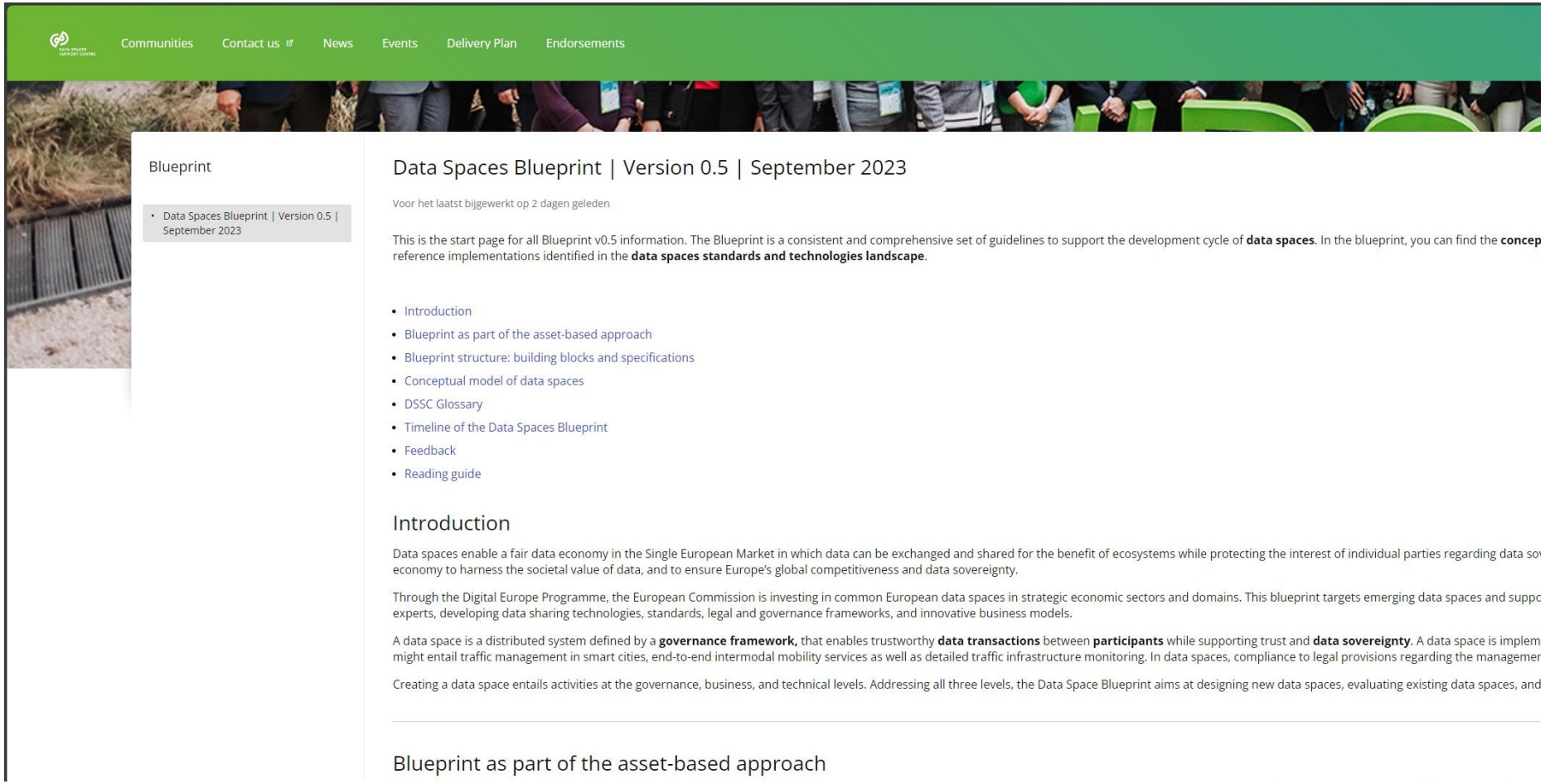
# www.dssc.eu → knowledge base → blueprint

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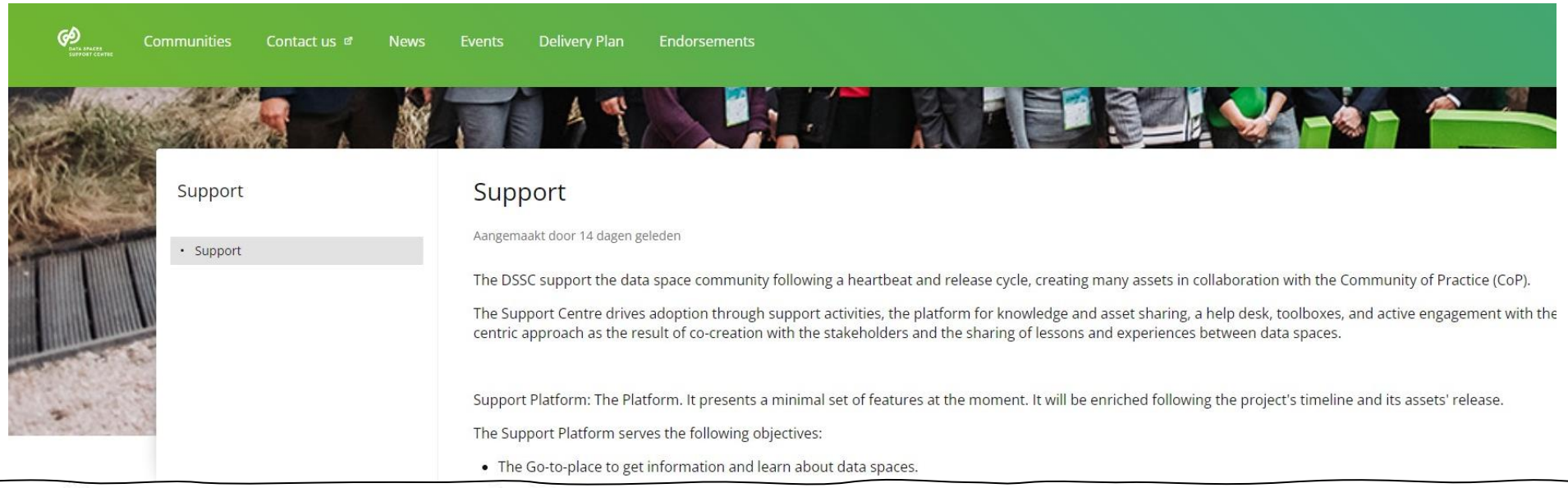
# www.dssc.eu → support




- The Go-to-place to get information and learn about data spaces.
- Access point to join the co-creation process of the data spaces blueprint and other assets supporting the realization of data spaces.
- An entry point to organize the support by data spaces experts (in priority for data spaces funded under the Digital Europe Programme).
- For support requests please reach out via the Help Desk https://dataspacessupportcentre.atlassian.net/servicedesk/customer/portal/5

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# Q&A

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