Data Spaces Symposium

15:30

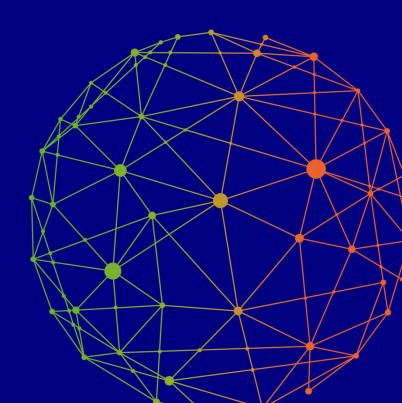
Designing and delivering the European single market for data

Data space tech [facilitated by the DSSC]

Designing and delivering the European single market for data (Part 2 of 2)

Questions? Use the QR-Code





Blueprint for European Data Spaces

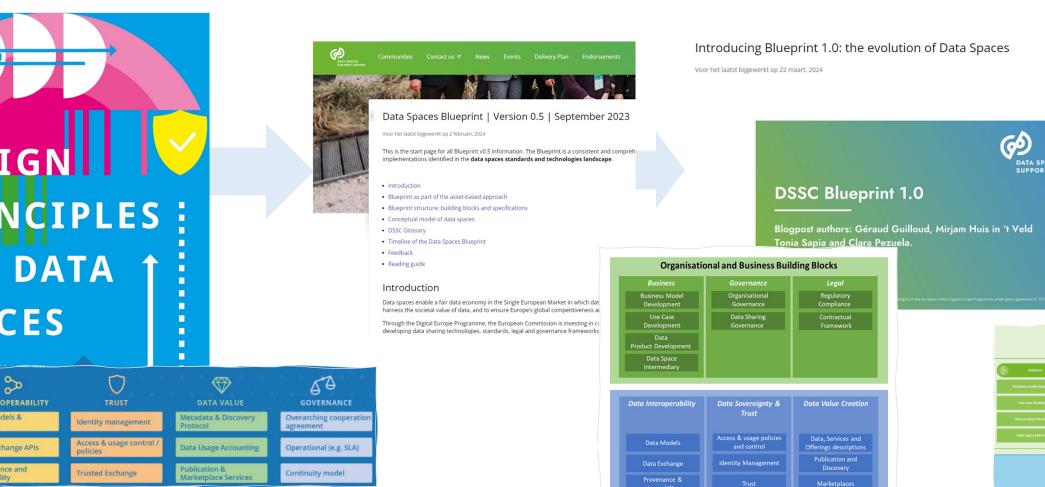






Evolution





Technical Building Blocks

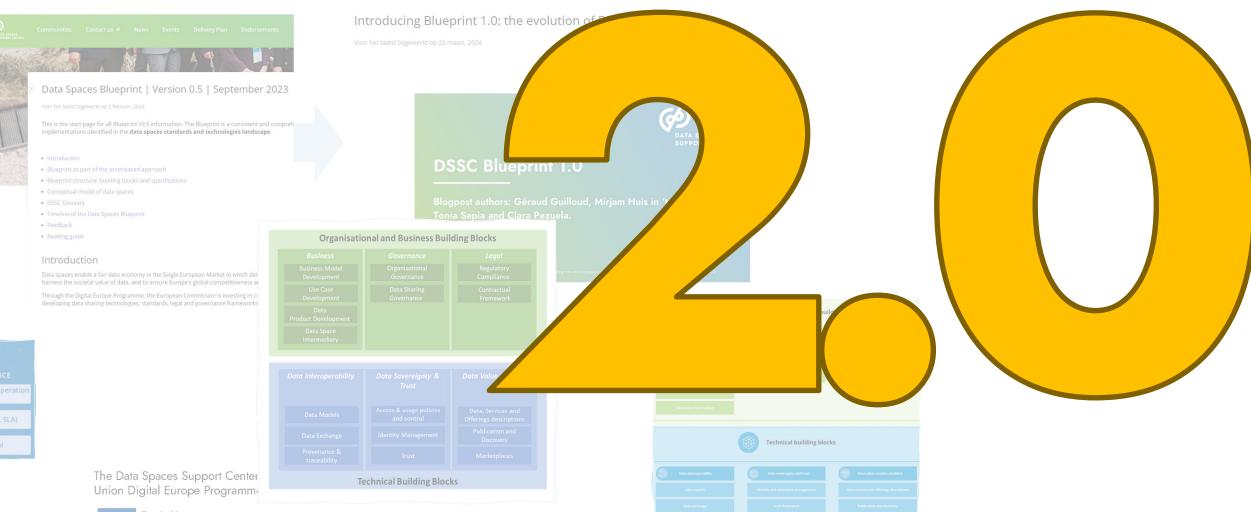




Evolution

the European Union





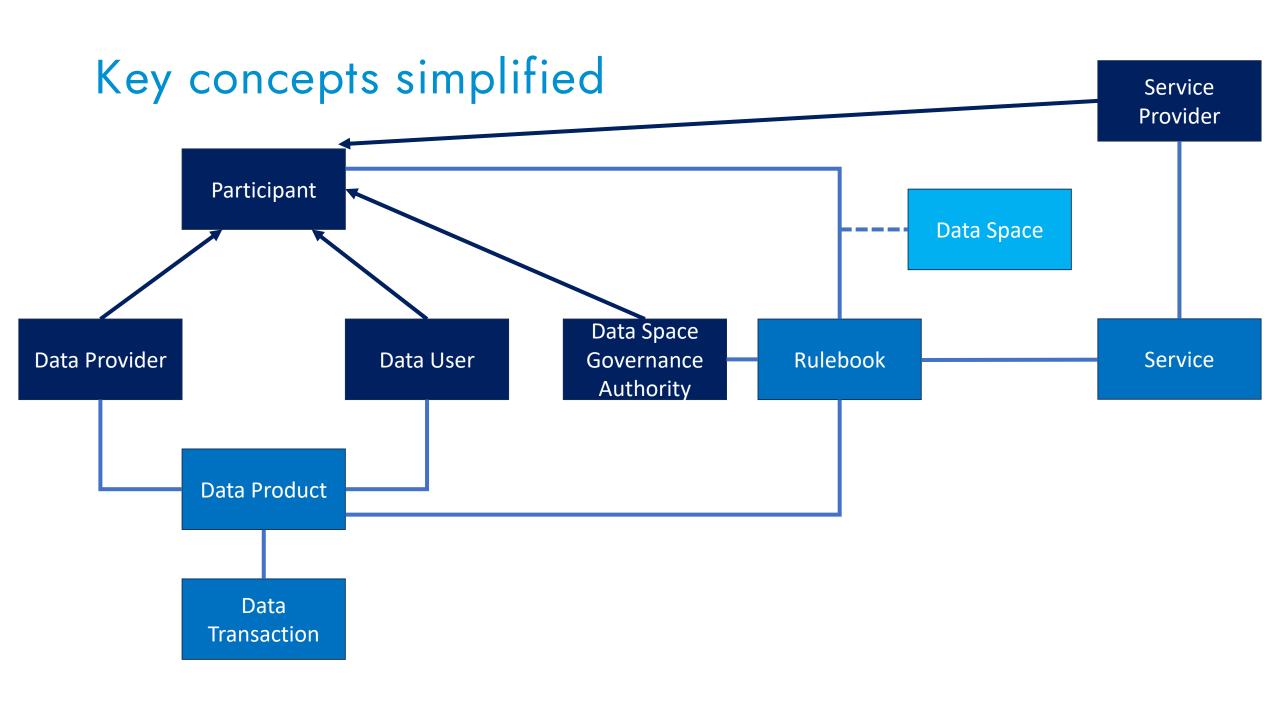
Evolution





- ✓ Alignment with regulatory & standardisation developments
- ✓ New content in various building blocks
- ✓ Convergence of technical standards & services
- √ Cross-dataspace interoperability
- ✓Input & validation by our Community of Practice





Key concepts simplified Service **DATA SPACES SUPPORT CENTRE** Provider Data Space Data Space Rulebook Governance Services Authority Participant Value-creation Federation **Agent Services** Services Service

The Glossary

Designing and delivering the European single market for data

Data Spaces Symposium 2025



Bert Verdonck LNDS

Our Guest:

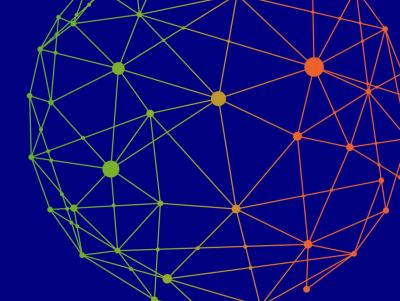


Malte Beyer-Katzenberger EC DG Connect









What are we talking about?



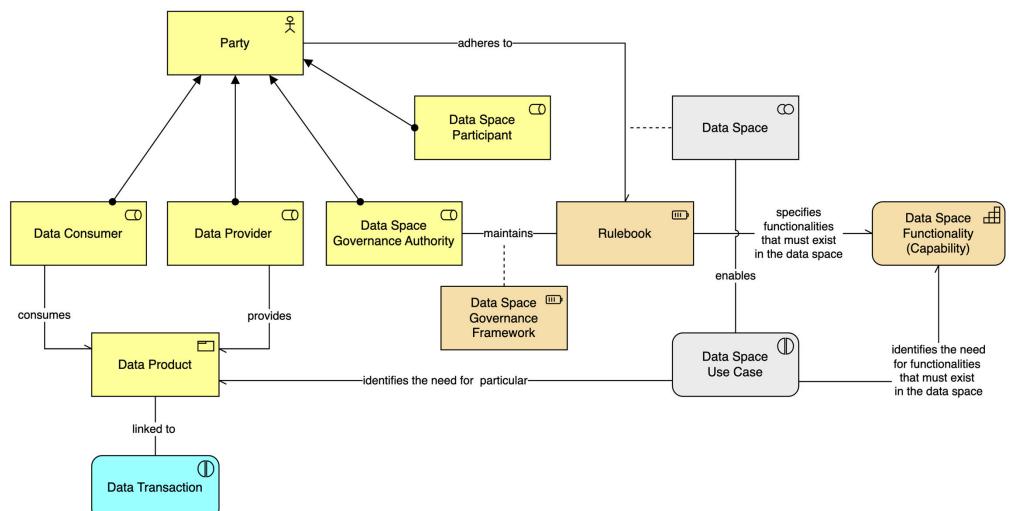


Data Space

Interoperable framework, based on common governance principles, standards, practices and enabling services, that enables trusted data transactions between participants.

Conceptual model





How does it fly?

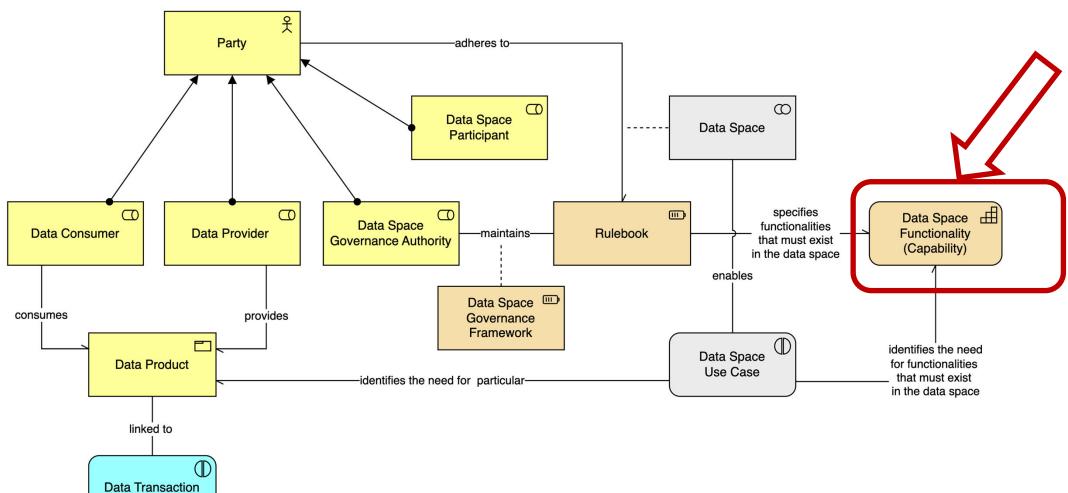






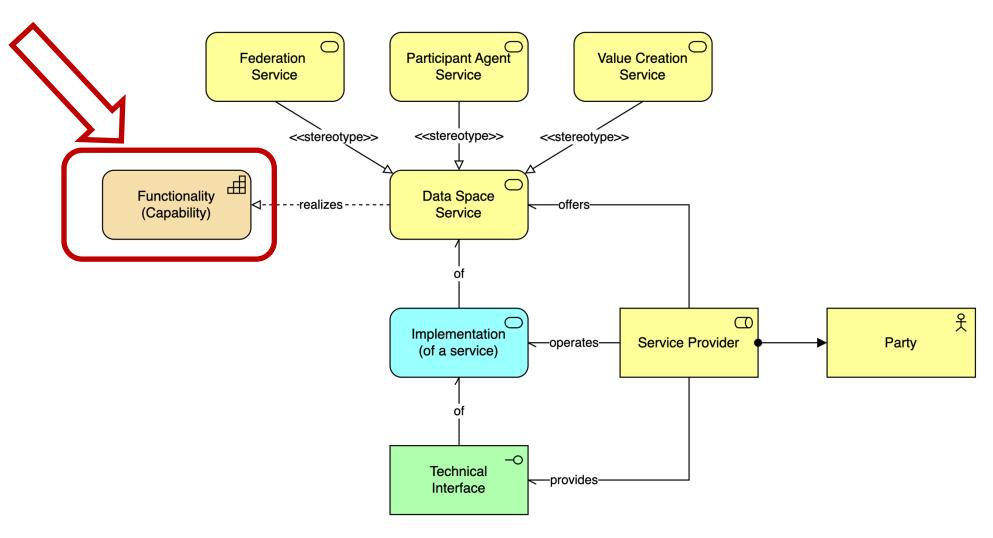
Conceptual model





Conceptual model – drilling down





What has changed in the glossary from v1.5 to v2.0?

DATA SPACES
SUPPORT CENTRE

- Not much! Reaching stable ground.
- Data Product → Data Offering
- Data Transaction
- Customer → Consumer → User
- Data Space Rulebook
- Intermediary/Operator provides enablir
- Cross-data space interoperability





We drive alignment

DATA SPACES
SUPPORT CENTRE

- Consistent language and concepts across the Blueprint
- Aligned with EU regulations
- Aligned with standardisation initiatives
- Be clear and practical for data space initiatives



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The Blueprint

Designing and delivering the European single market for data

Data Spaces Symposium 2025



Heidi Korhonen VTT / DSSC



Matthijs Punter TNO / DSSC

Our Guests:



Luiza Brandao Acatech / TEMS



















What is a blueprint?



- Building block = required capability for a data space
 - Business & organisational
 - Technical
- Common specifications
- Co-Creation Method: design decisions for individual data spaces

Business and organisational

Business

Governance

Organisational form & governance authority

Participation management

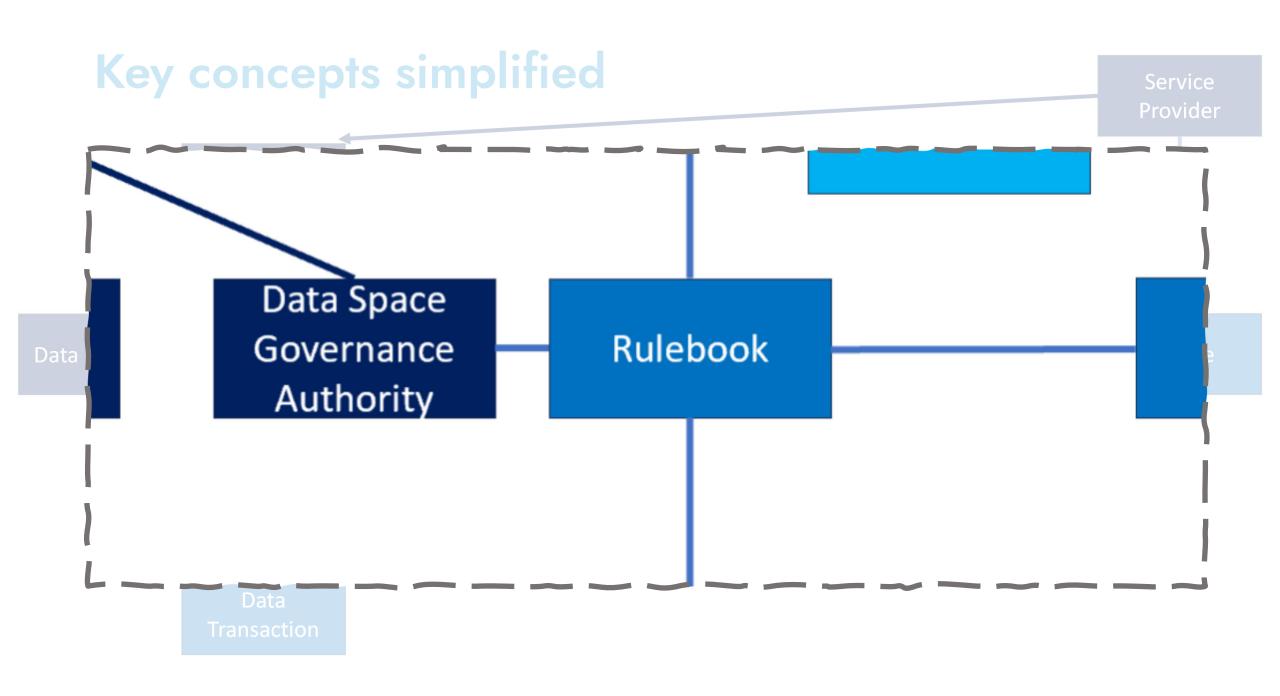
Data Space Offering

Intermediaries & operators

Data Space Offering

Technical		
Data interoperability	Data sovereignty & trust	Data value creation enablers
Data models	Identity & attestation management	Data, services & offering descriptions
Data exchange	Trust framework	Publication & discovery
Provenance & traceability	Access & usage policies enforcement	Value creation services





Building blocks feed into governance framework and rulebook

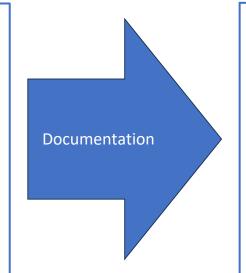




Principles, processes, standards, protocols, rules and practices

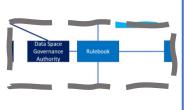
Governance Framework

Internal rules and policies applicable to all data space participants



Rulebook

Documentation of the Governance Framework



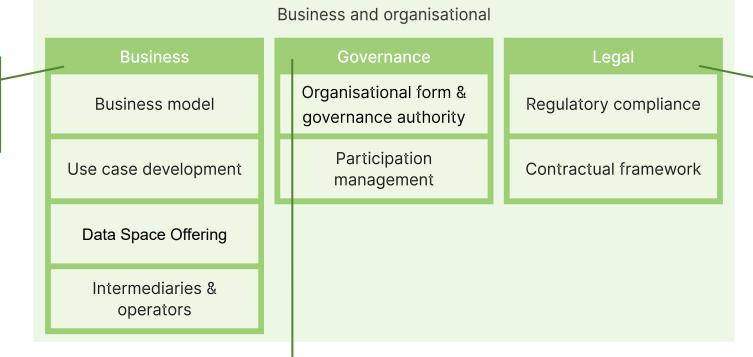
Co-Creation Method



Business & organisational building blocks



Value creation and financial sustainability



Regulation, contracts, and agreements

Good governance



Data Space Offering



Value creation and financial sustainability

Data space offering
building block supports
data spaces with the
services and data products
that are offered through a
catalogue.

Rusiness

Business model

Use case development

Data Space Offering

Intermediaries & operators

Business and organisational

Governance

Organisational form & governance authority

Participation management

Legal

Regulatory compliance

Contr

Data Product

Data Space Offering

Resource(s)

Service

Offering description

License terms

Other information

23

Description of the

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



Intermediaries and Operators



Value creation and financial sustainability

Business

Business model

Use case development

Data Space Offering

Intermediaries & operators

Business and organisational

Governance

Organisational form & governance authority

Participation management

Legal

Regulatory compliance

Contractual framework

Characteristics of intermediaries, related to

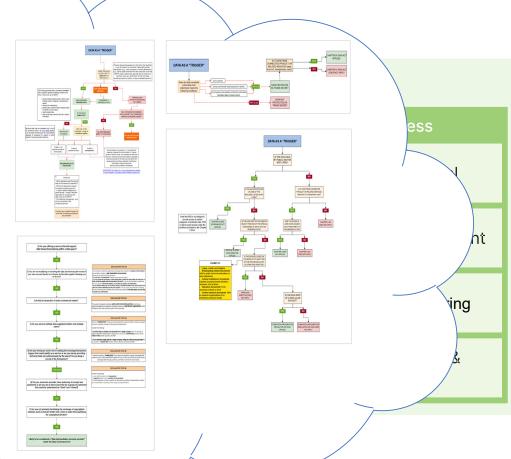
- data space service model
- governance
- intermediary business and revenue model
- regulatory compliance
- risk management

Intermediaries and operators building block helps data spaces to think of their options for using different kinds of intermediaries.



Regulatory Compliance





Business and organisational

Organisational form & governance authority

Governance

Participation management

Legal

Regulatory compliance

Contractual framework

Data-related

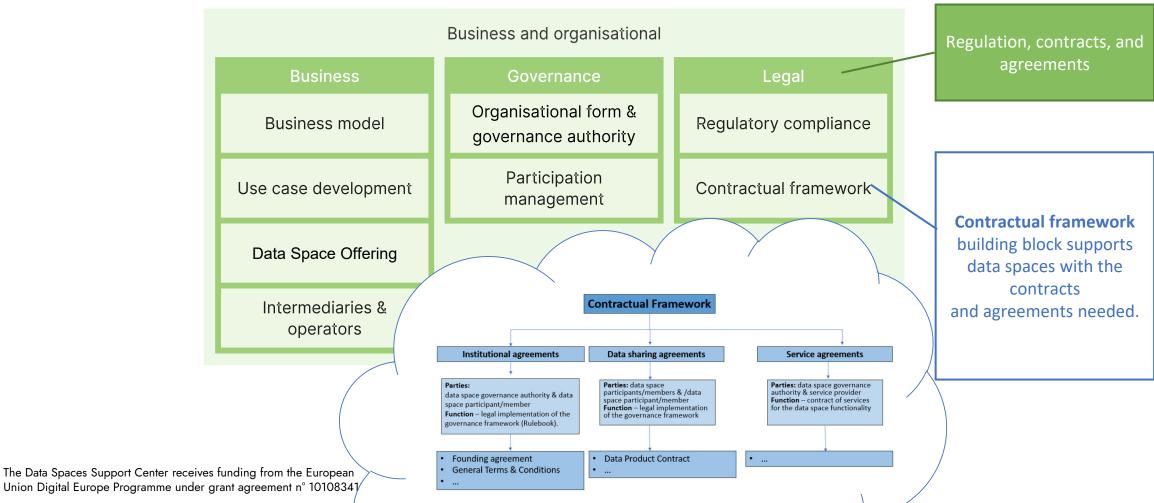
EU Legal

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

Funded by the European Union

Contractual Framework





Funded by the European Union

Business & organisational building blocks



Value creation and financial sustainability

Business and organisational

Business

Business model

Use case development

Data Space Offering

Intermediaries & operators

Organisational form & governance authority

Participation management

Contractual framework

Regulation, contracts, and agreements

Good governance





Semantics, technical interfaces (APIs), observability

Technical

Data interoperability

Data models

Data exchange

Provenance & traceability

Data sovereignty & trust

Identity & attestation management

Trust framework

Access & usage policies enforcement

Data value creation enablers

Data, services & offering descriptions

Publication & discovery

Value creation services

Publication, discovery, valueadded services

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





Publication,

discovery, value-

added services

Semantics, technical interfaces (APIs), observability

Technical

Data interoperability

Data models

Data exchange

Provenance & traceability

Data sovereignty & trust

Identity & attestation management

Trust framework

Access & usage policies enforcement

Data value creation enablers

Data, services & offering descriptions

Publication & discovery

Value creation services

Each domain should specify its own, however we promote interoperability (e.g article 33 Data Act)



DATA SPACES
SUPPORT CENTRE

Semantics, technical interfaces (APIs), observability

Common technical standards (based on W3C VCs), but governance mechanisms will differ per data space

Technical

Data interoperability

Data models

Data exchange

Provenance & traceability

Data sovereignty & trust

Identity & attestation management

Trust framework

Access & usage policies enforcement

Data value creation enablers

Data, services & offering descriptions

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Publication, discovery, valueadded services

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Publication,

discovery, value-

added services

Semantics, technical interfaces (APIs), observability

Technical

Data interoperability

Data models

Data exchange

Provenance & traceability

Data sovereignty & trust

Identity & attestation management

Trust framework

Access & usage policies enforcement Data value creation enablers

Data, services & offering descriptions

Publication & discovery

Value creation services

Identification, trust, access & usage

policies

Promote the use of ODRL for expressing policies





Semantics, technical interfaces (APIs), observability

Technical

Data interoperability

Data models

Data exchange

Provenance & traceability

Data sovereignty & trust

Identity & attestation management

Trust framework

Access & usage policies enforcement

Data value creation enablers

Data, services & offering descriptions

Publication & discovery

Value creation services

Publication, discovery, valueadded services

DCAT for expressing metadata

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



Global & European Standards



Foundational (global) technical standards

- W3C DCAT → for describing your datasets and services
- W3C ODRL → for defining (technical) access and usage policies
- W3C VC/VP → for the exchange of identities and attestations
- W3C RDF
 → for specifying semantic models



Protocols

- Dataspace Protocol (DCAT/ODRL)
- Identity/Claims Protocols (VC/VP)
- Conformity Assessment Policy and Credential Profile (VC/VP)

(IDSA, Gaia-X, Eclipse and others)



Key technical specifications for data space services



Legal requirements

- Data Act (e.g. article 33)
- eIDAS
- Data Governance Act



Harmonised EU Standards

- CEN/CENELEC + ETSI
- JTC25
- Data Act standardisation request



Domain specific choices

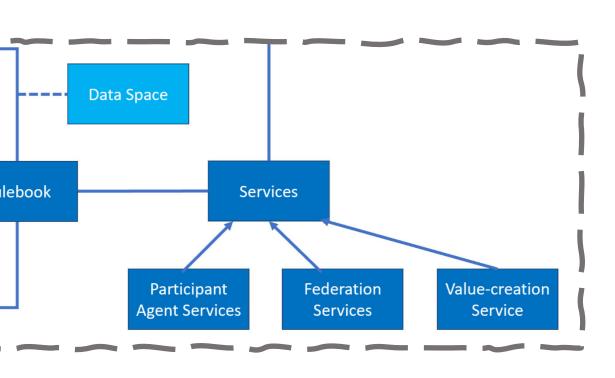
- Policies
- Data Models
- APIs



Technical rulebook for your data space initiative

Implemented using technical services





 Participant Agent Services → for participants to join a Data Space

■ Federation Services → to support the interplay of participants

 Value Creation Services → services 'on top of' the Data Space



The Toolbox

Designing and delivering the European single market for data

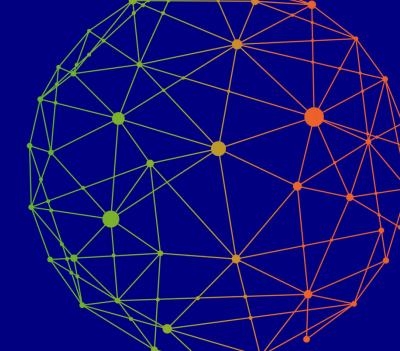
Michiel Stornebrink, TNO

Data Spaces Symposium 2025





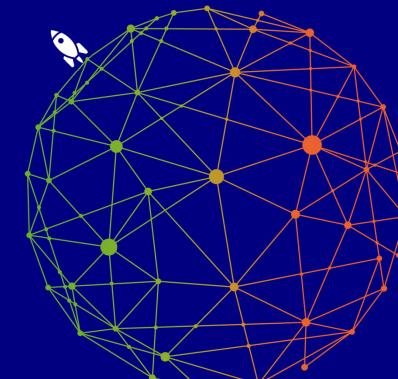




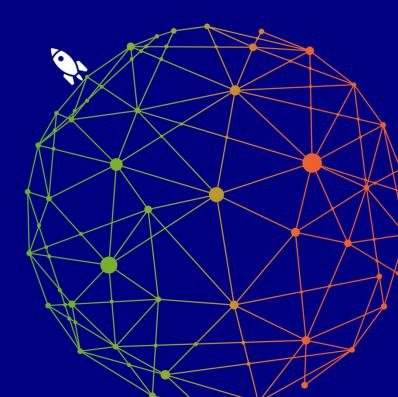
DSS 2024 | Announcing the DSSC Toolbox





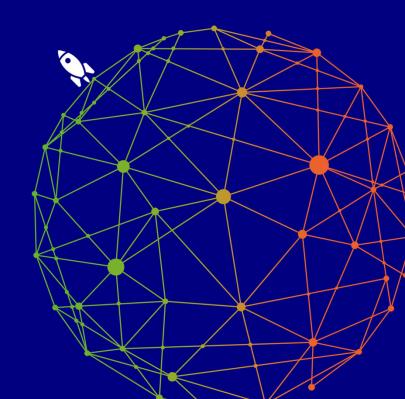


DSS <u>2025</u> | Launching the DSSC Toolbox



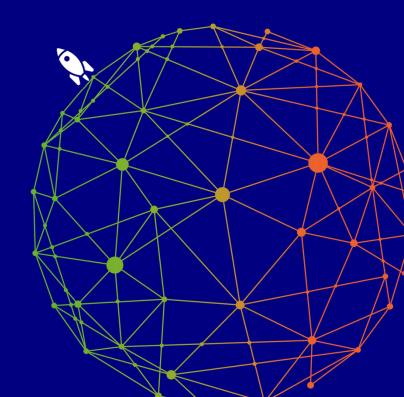
DSS <u>2025</u> | Launching the DSSC Toolbox

3



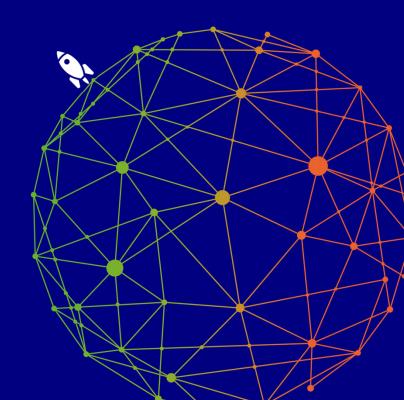
DSS <u>2025</u> | Launching the DSSC Toolbox

2



DSS <u>2025</u> | Launching the DSSC Toolbox

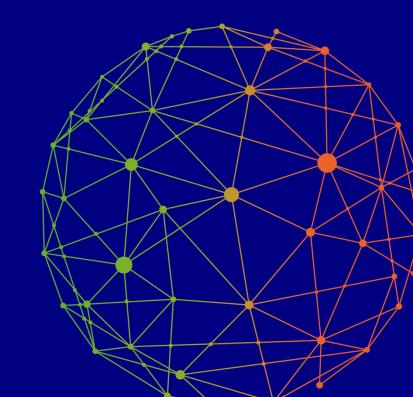
1







toolbox.dssc.eu



Tool overview



@ DSS

Search Filter **Explore**

※ Data Spaces Toolbox Submit a tool Filter 7 matching tools Search **Data Space Innovation** Ocean Enterprise Provider **Nautilus Participant Agent** Lab Connector Q Participant Agent Participant Agent Participant Agent Service The Ocean Enterprise Provider, As a Data Space Participant Agent IDSA complient certified IDS Federation Nautilus for Ocean Enterprise alternatively named the connector "Connector" or "Access provides Data Space Participants ✓ Participant Agent Controller" is a REST API with the ability to publish, manage, Value Creation specifically designed for the... discover, and consume data... Catalogue Vocabulary Observability TNO Security Gateway (TSG) **Tekniker Dataspace** Data Space Registry **FIWARE Data Space** Connector Validation and Verification Participant Agent Participant Agent Participant Agent Policy Information The TSG components allows you The FIWARE Data Space Modular solution that, deployed in Point to participate in an IDS dataspace Framework FDF is an integrated any organization, allows to Business and to exchange information with suite of components implementing establish a single point of entry for organisational other organizations with data **DSBA Technical Convergence** multiple data sources either support tools sovereignty in mind. You will be... recommendations, every... proprietary in the role of the Dat... Control Plane Data Plane Credential Store sovity EDC Community Edition (EDC CE) Participant Agent The sovity EDC Community Edition extends the Eclipse Dataspace Connector (EDC) with

https://toolbox.dssc.eu/?f%5Bservice%5D%5B%5D=2



Tool details



View Explore Learn

https://toolbox.dssc.eu/?tool=semantic-treehouse&tool-details=semantic-treehouse

Semantic Treehouse

Systems need to use a common data model to communicate. Semantic Treehouse helps you and your community to agree on, define and improve these models



☑ View website Compare

General information

Blueprint versions

V1.5

V3.x

Maintainer
Links to relevant documents
https://www.semantic-treehouse.nl/
https://www.semantic-treehouse.nl/docs
https://gitlab.com/semantic-treehouse



Tool comparison



Select Compare Decide

☼ Compare tools **Data Space Innovation Lab** TNO Security Gateway (TSG) sovity EDC C Connector (EDC CE) **General information** Blueprint v1.5 v1.5 v1.5 versions Url https://www.vttresearch.com/en/news-andhttps://tsg.dataspac.es/ https://github.co ideas/vtt-paving-way-data-sharing-2ndcertified-data-space-connector-world Version 1.0.12 10.5.0 v0.6 Maintainer VTT Technical Research Center of Finland Ltd TNO sovity GmbH Licence Closed source Apache 2.0 Apache-2.0 licen https://github.co ce/blob/main/LIC Application domain **Functional** Connector is a mandatory component on This implemental application area participating and accessing IDSA based data sovereign data e space. DSIL connector is a certified component applications.

https://toolbox.dssc.eu/tools/compare



Relation to Blueprint



Service definitions
Building blocks
Co-creation method

https://toolbox.dssc.eu/?tool=data-space-innovation-lab-connector&f%5Bsen Toolbox Service d... Building b... Co-creation ## ## Business Mo... Align Stakehold... Business and... Business mo... Data Space In... FIWARE Data ... Gaia-X Compl... Develop Use Ca... Participant A... Use Case De... Gaia-X registry iSHARE Satell... Data Product Establish Organi... Control Plane Nautilus Parti... Ocean Enterp... Data Plane Intermediarie... Functional Anal... Ocean Enterp... Ocean Enterp... Credential St... Organisation... Establish Data S... Semantic Tre... Smart Data M... 雨 sovity EDC C... Participation ... Federation Tekniker Data...



Submit your tool!



You can submit your solution via the DSSC support system.

Click on <u>Submit a tool</u> and follow the steps.

We'll continue to process submissions, also after the Symposium.



lbox	Submit a tool
	14 matching tools
	Help Center / DSSC Support
	DSSC Support
	Welcome! You can raise a request among the following options.
1	What can we help you with?
	Submission to the Toolbox Submit a request to list implementations in the DSSC Toolbox.
	Submit a request to list implementations in the DSSC Toolbox.
	Required fields are marked with an asterisk *
	Email confirmation to *
	First Name*
	Last Name *
	Organization *
	Submit to the DSSC Toolbox
	The DSSC Toolbox is a curated catalogue of data space solutions (tools), like connectors / participant agents and federated services like catalogues, vocabulary hubs, contract templates and many more components you need to set up, participate in and operate a data space. Read more about the DSSC Toolbox.
	The first release of the Toolbox is scheduled for autumn 2024 . You can submit your tools now!
	4 Steps
	There are 4 steps to submit your tool:

Data Spaces Symposium

Share data. Unlock value. Boost impact.

Day 2 | track 3 | 13h

Pitch presentations of tools in the DSSC Toolbox



Participant Agent

Modular solution that, deployed in any organization, allows to establish a single point of entry for multiple data sources either proprietary in the role of the Dat...

Tekniker Dataspace Connetor Gonzalo Gil Tekniker



Business Model Radar David Regeczi TNO



Rulebook tool Viivi Lähteenoja My Data





Data Spaces Symposium

Share data. Unlock value. Boost impact.

Day 2 | track 3 | 13h

Panel session on data space tools



Valentina Staveris SIMPL



Gianfranco Cecconi DSSC



Viivi Lähteenoja My Data



Matthias De Bièvre Prometheus-X



Moderated by Michiel Stornebrink TNO for DSSC

Data Spaces' Synergies

Designing and delivering the European single market for data

Data Spaces Symposium 2025



Gabriella Laatikainen VTT

Our Guest:



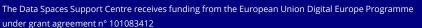
Mark Dietrich EGI Foundation

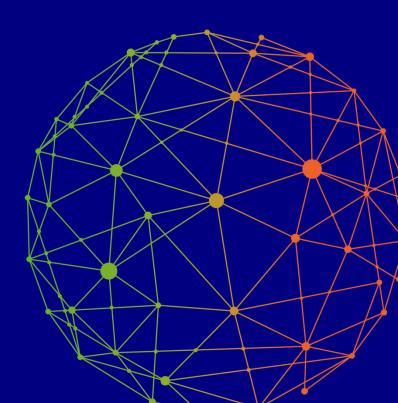












Synergies and interoperability between data spaces

DATA SPACES
SUPPORT CENTRE

DATA SPACE

DATA SPACE

ORGANISATION

ORGANISATION

ORGANISATION

ORGANISATION

LEGEND

The interoperability challenge

Rulebook compliance

Data transactions

Cross-data space interoperability

enables

Synergies

The ability of participants to seamlessly access and/or exchange data across two or more data spaces

The mutual benefits, gained efficiency or increased impact of two or more data spaces working together

Why should we care about cross-data space interoperability?



- Innovations typically span the boundaries of a single data space
- Many users need to interact with and participate in multiple data spaces
- Cross-data space interoperability is a cornerstone of the digital single market

Health Health **SCHOOL SPORTS Education Agrifood** The quality of our life events can be improved through innovations based on data from multiple **CHILD BIRTH TRIPS** sources Health Tourism **Public** administration

WEDDING

Agrifood

Tourism



How to achieve cross-data space interoperability?

DATA SPACES
SUPPORT CENTRE

Interoperability-by-design

Interoperability governance

Co-development of common rules between the data spaces, and potentially solving the interoperability challenges

Recommended Contribution to the protocols

Common terminology, models and practices

nteroperabilityby-design quality, security and other requirements

Legal, governance and business templates and guidelines



Read more in the DSSC Assets...



Data Spaces' Synergies

Synergies of data spaces

What: Discussion paper on the importance of synergies of data spaces

Who: Data space builders, policy makers, business managers, data space participants

Why: To understand synergies from multiple perspectives and to explore the role of synergies at different stages of data space development

Data Spaces' Synergies

Cross-data space interoperability considerations in data space design and operation

- 1. Why do we need interoperable data spaces?
- 2. What is cross-data space interoperability and how to achieve that?
- 3. Collaboration between data spaces starts with a shared objective: a need for cross-data space use case(s)
- 4. Business considerations of collaborating data spaces
- 5. Technical considerations of collaborating data spaces
- 6. Legal aspects of collaborating data spaces
- 7. Future work
- 8. Conclusions



Available in the DSSC Knowledge base

Part of Blueprint v2.0

... and work with us on this topic!



cosc Beyonds Cross DS Interoperability

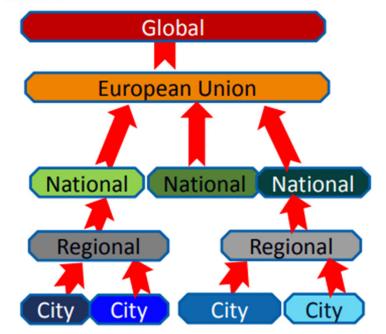


SAGE | The Data Space for a Sustainable Green Europe

Needed Data, Services Sit in Many Places, Possibly Duplicated.

And/Or

1 item of data must be exchanged many times with partners in a value chain.



Let's learn from the Web: build different kinds of businesses on top of well-defined technical foundation:

> **Data Ecosystem Business Model Governance Rules**

Dataspace Protocols, Standards, Technical Compliance

Let's NOT overdo DSGAs!

There might be 1000s millions of data spaces: we don't want DSGAs everywhere. Instead transparently define the rules for each data space. (DSaC*)

Meanwhile, let's build a solid technical foundation for data spaces.

For example, where are the connectors that can connect to multiple DS? Why is this not part of the MVP of SIMPL?

Dissemination and communications

Designing and delivering the European single market for data



Lydia Montandon FIWARE Foundation

Our Guests:



Marcin Baryn **European Commission**



Valentina Staveris **European Commission**













Contents



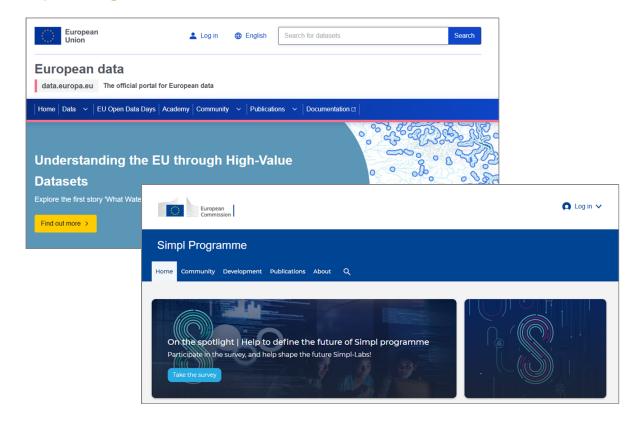
DSSC Main Channels

- Website
- Newsletters
- LinkedIn
- Events & Webinars

DSSC Relevant Materials

- Presentations & Publications
- Videos
- Visuals

Synergies with EC initiatives



Website (dssc.eu)

Communities V



Blogs & News Newsletters

Events ~

News ~

Resources V

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Feedback @

Get Information

Get Support

Get Involved





Community of Practice Strategic Stakeholder Forum Liaisons & Collaborations

SUPPORT CENTRE





DSSC Toolbox

About ~

Find here our curated catalogue of data space solutions

Publications Deliverables Multimedia

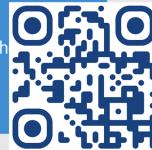




Offering

Blueprint 2.0

Dive directly into the latest version of the Blueprint h



Newsletters (every 2 months)







LinkedIn (follow us)





Data Spaces Support Centre 3.371 followers 1mo • Edited • 🕟

No better way than starting the new year with great opportunities, like becoming a partner at the Data Spaces Symposium 2025! 🞉 ...more





Articles

Get Internal Insights from the DSSC Insight Series: Road to the Data Spaces Symposium







February 28, 2025

In preparation for the upcoming Data Spaces Symposium in Warsaw on March 11th and 12th, the Data Spaces Support Centre (DSSC) hosted an insightful Insight Series webinar. This session provided a glimpse into what attendees can expect from the symposium, as well as the exciting developments in the world of data



Events & Insight Series Webinars

















Presentations & Publications









Publications

Last updated 2 days ago



Generative AI and Data Spaces - White Paper

The "Generative AI and Data Spaces" white paper of the DSSC's Strategic Stakeholder Forum (SSF) explores the intersection of generative artificial intelligence (AI) and data spaces. It focuses on how combining these two fields can support innovative data-sharing ecosystems while adhering to principles, such as data sovereignty, trust, and interoperability. The white paper outlines key recommendations to enable more effective integration of generative AI into data spaces, fostering collaboration, transparency, and sustainable data management strategies within the European framework. (November 2024).

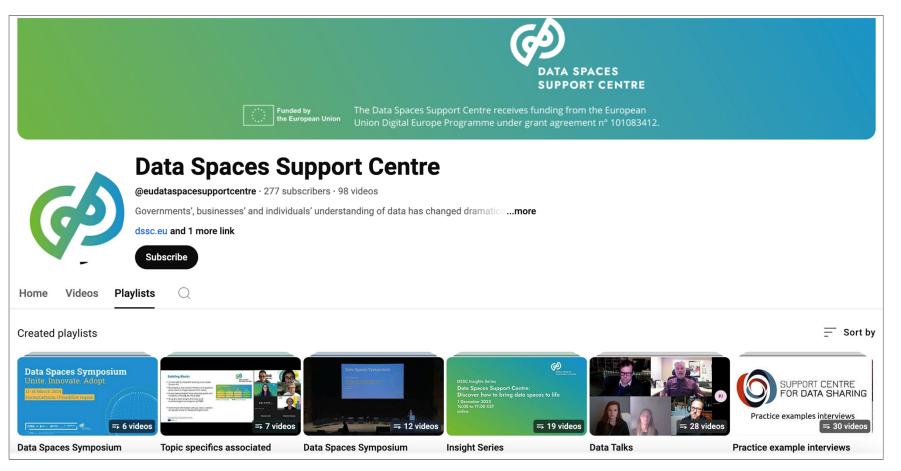


Why data spaces? A business and user's perspective – Discussion Paper

first collaborative discussion paper produced by Data Spaces Support Centre (DSSC) in collaboration with its Strategic Stakeholder Forum (SSF). The main target audience of this paper are organisations and initiatives enabling or implementing data spaces, and for the recommendations, also the DSSC team. Taking as a starting point existing bibliography, this paper reflects on outcomes of several workshops, interviews, individual and collective feedback gathering sessions with SSF members and DSSC partners. (October 2023).

Videos (YouTube)



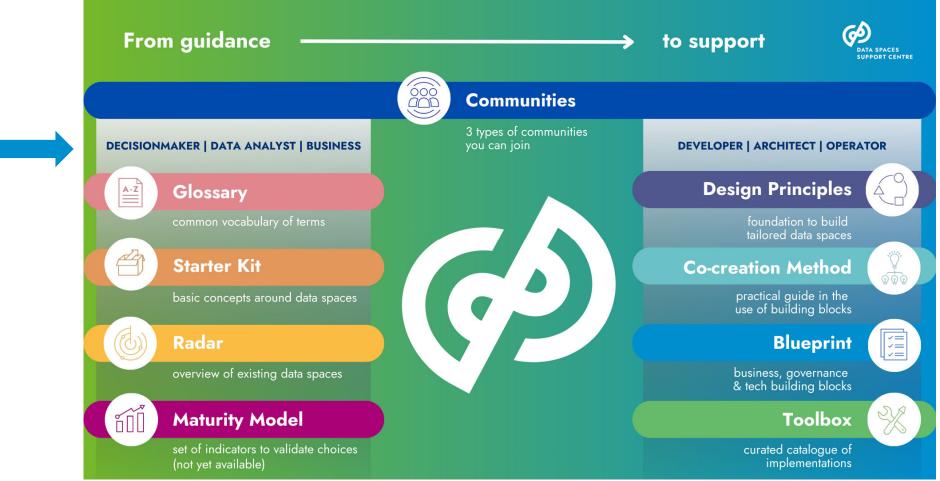


- Insight Series
- Data Talk
- Blueprint, Toolbox
- DSS'24



Visuals (coming soon)





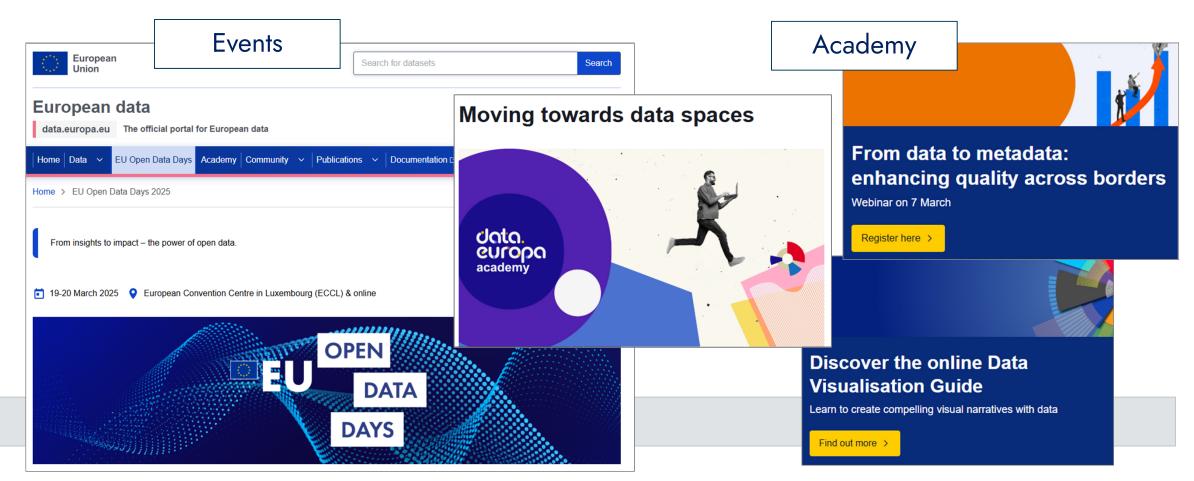


Synergies

With other EC initiatives

European data The official portal for European data





European data The official portal for European data







Communication & Community Engagement

DSS Symposium

Get involved and participate

It's Simpl!



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!



Webinars & Workshops

Join technical and business sessions, online and in person.



Code Repository

Check out and review the code!



Surveys

Help us improve!



Scan me for more information about Simpl

