

WEBINAR 1:

Introduktion til data spaces og standardisering

Dansk Standard, 17. aug. 2023





Dansk Standard

Velkommen

Hvorfor laver vi dette sammen

Hvordan deltager man undervejs

Det bliver optaget og gjort offentligt tilgængeligt

Slides deles

Godkendt til at omsætte forskning til vækst

Godkendt Teknologisk Service
Institut siden 2006

Baserer vores arbejde på den nyeste
it-forskning og udbreder teknologisk
viden i Danmark

Eneste GTS-institut med fokus på it



Satsningsområder i ny strategi



SUNDHED OG VELFÆRD

Sundhed og velfærd



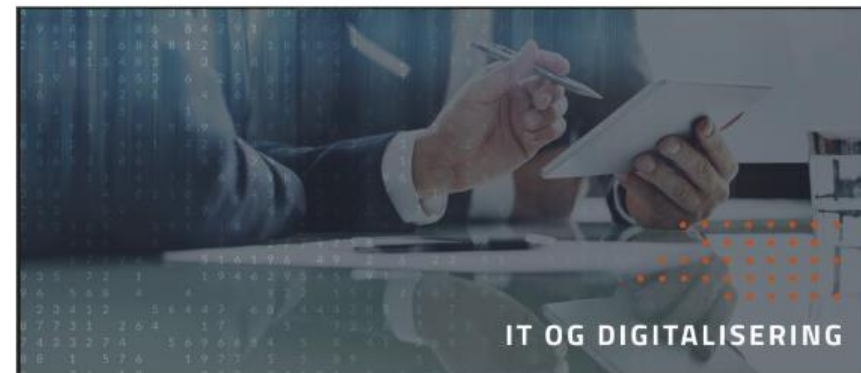
ENERGI OG FORSYNING

Energi og forsyning



INDUSTRI OG PRODUKTION

Industri og produktion



IT OG DIGITALISERING

IT og digitalisering

Webinarrække om data spaces

17. AUGUST 2023

WEBINAR: INTRODUKTION TIL DATA SPACES OG STANDARDER

[Læs mere og tilmeld dig her](#)

4. SEPTEMBER 2023

WEBINAR: ENERGI DATA SPACES

[Læs mere og tilmeld dig her](#)

28. SEPTEMBER 2023

WEBINAR: GOVERNANCE OG LOVGIVNING INDEN FOR DATA SPACES

[Læs mere](#)

25. OKTOBER 2023

WEBINAR: TEKNISKE KOMPONENTER TIL DATA SPACES

[Læs mere](#)

7. DECEMBER 2023

WEBINAR: EKSPERTPANELETS ANBEFALINGER

[Læs mere](#)

3. OKTOBER 2023

EKSPERTPANEL 1/2

Et udvalgt ekspertpanel arbejder i dybden med energi data spaces. Ekspertpanelet er arrangeret i samarbejde med Digital Energy Hub.

2. NOVEMBER 2023

EKSPERTPANEL 2/2

Et udvalgt ekspertpanel arbejder i dybden med energi data spaces. Ekspertpanelet er arrangeret i samarbejde med Digital Energy Hub.





Agenda

- **Velkommen** v. Dansk Standard og Alexandra Instituttet
- **Introduktion til data spaces, og hvordan der arbejdes med emnet i Danmark** v. Lea Schick, Alexandra Instituttet
- **Standardisering og data spaces** v. Bjørn Nørrekjær Hvidtfeldt, Dansk Standard
- **Introduktion til europæiske data spaces, igangværende indsatser og behovet for samarbejde** v. Heidi Korhonen, VTT og EU Data Space Support Centre
- **Behov for standardisering** v. Sebastian Steinbuss, International Data Spaces Association
- **Regeringens indsatser og ny EU-lovgivning** v. Tobias Panduro, Kontorchef, Kontor for Analyse og Strategi, Digitaliseringsministeriet
- **Opsamling og tak for i dag**

Introduktion til data spaces, og hvordan der arbejdes med emnet i Danmark

Lea Schick, Alexandra Instituttet, Insight Lab

Dansk Standard, 17. aug. 2023

Sammen kommer vi #**ForanDigitalt**



Agenda

- Hvorfor data spaces
- EU's indsatser
- Hvad er data spaces og hvad består de af?
- Centrale aktører indenfor data spaces
- Danske aktører der arbejder med dataspaces



https://alexandra.dk/wp-content/uploads/2023/01/Data_Spaces_kortlaegning_aktorer_initiativer.pdf

Baggrund for data spaces

Den grønne dagsorden



[Eco Design Directive](#)

[Renewable Energy Directive](#)

[Fit for 55-programmerne](#)

[REPowerEU](#)

Den digitale dagsorden



"Den europæiske datastrategi har til formål at gøre EU førende i et datadrevet samfund. Et indre marked for data vil gøre det muligt for data at bevæge sig frit inden for EU og på tværs af sektorer til gavn for virksomheder, forskere og offentlige forvaltninger."

Udfordringerne der ligger til grund for EU's indsats med data spaces



70% af verdens data ejes af 5 tech giganter – udenfor EU

Data er kritisk infrastruktur

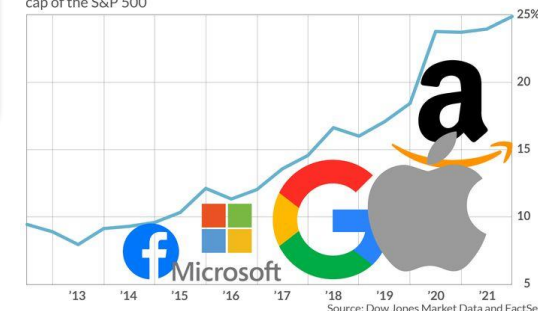


Datafragmentering: data ligger spredt og er svært at få fat på

Booste EU's tech industry

It's a Big Tech market

The five Big Tech companies now account for nearly 25% of the total market cap of the S&P 500



EU's massive indsatser for dataspaces

Lovgivning:



Konsolidering og udvikling:



Funding:

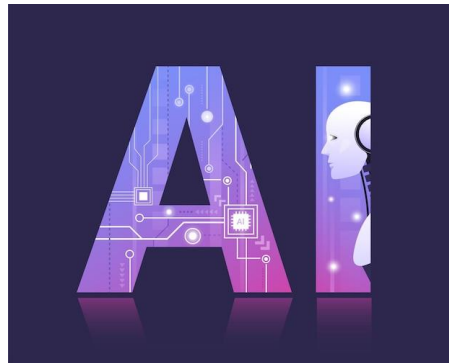


Forbundne digitale dagsordener

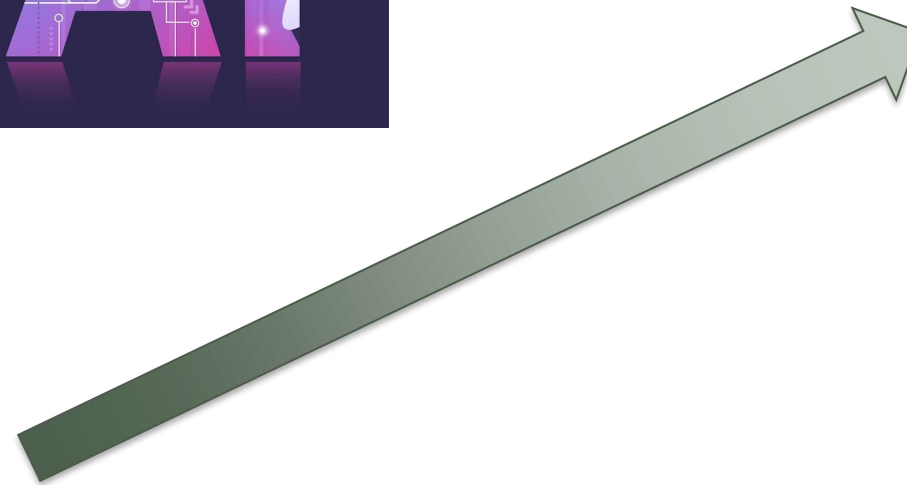
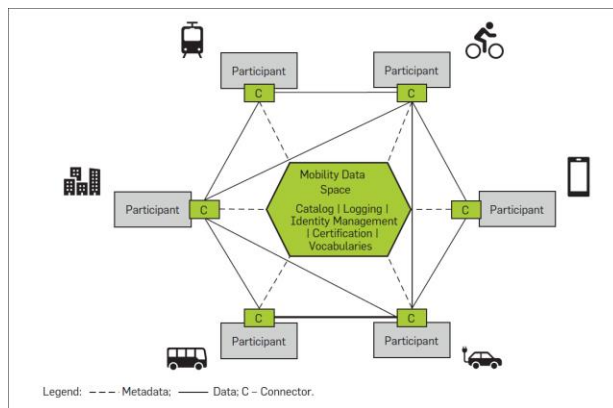
Digital Tvilling: Det fulde potentiale for data spaces og AI



AI: databehandling kræver store datamængder



Data spaces: adgang til data





Et nyt paradigme for datadeling

”Here is the vision: Five years from now, the EU Strategy for Data will have been fully implemented, multiple data spaces will have been widely adopted across Europe, and European individuals and organisations will have regained the possibility of control over their data and, with that, their rightful and balanced place in the digital world. [...] Ten years from now, this is mainstream and the larger audience wouldn’t accept it any other way”

(Design Principles for data spaces, p. 8)

Hvad er data spaces?

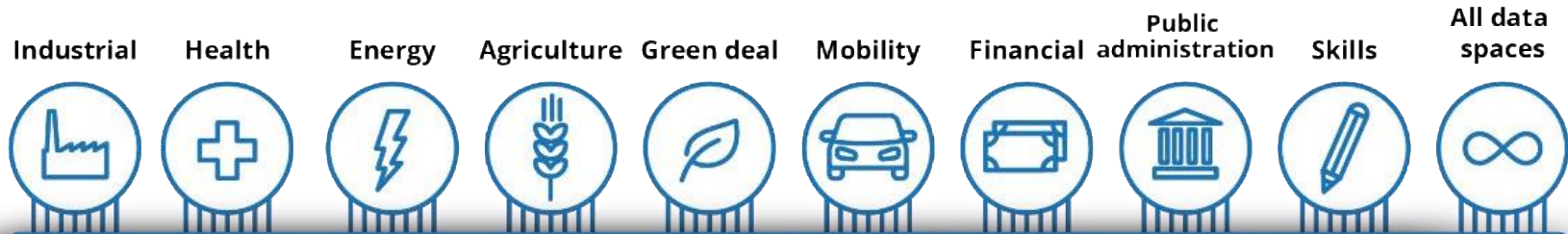
A data space is defined as a decentralised infrastructure for trustworthy data sharing and exchange in data ecosystems based on commonly agreed principles.

- Skal skabe en ny dataøkonomi, hvor virksomheder har nem og sikker adgang til at dele og handle data.
- Skal sikre juridiske subjekter (individer, virksomheder og organisationers) suverænitet over data
- Skal sikre teknologineutral, decentraliseret (ikke monopol) og standardiseret deling af data på tværs af sektorer og lande



<https://design-principles-for-data-spaces.org/>

Data spaces er interoperable/standardiserede økosystemer med fælles spilleregler

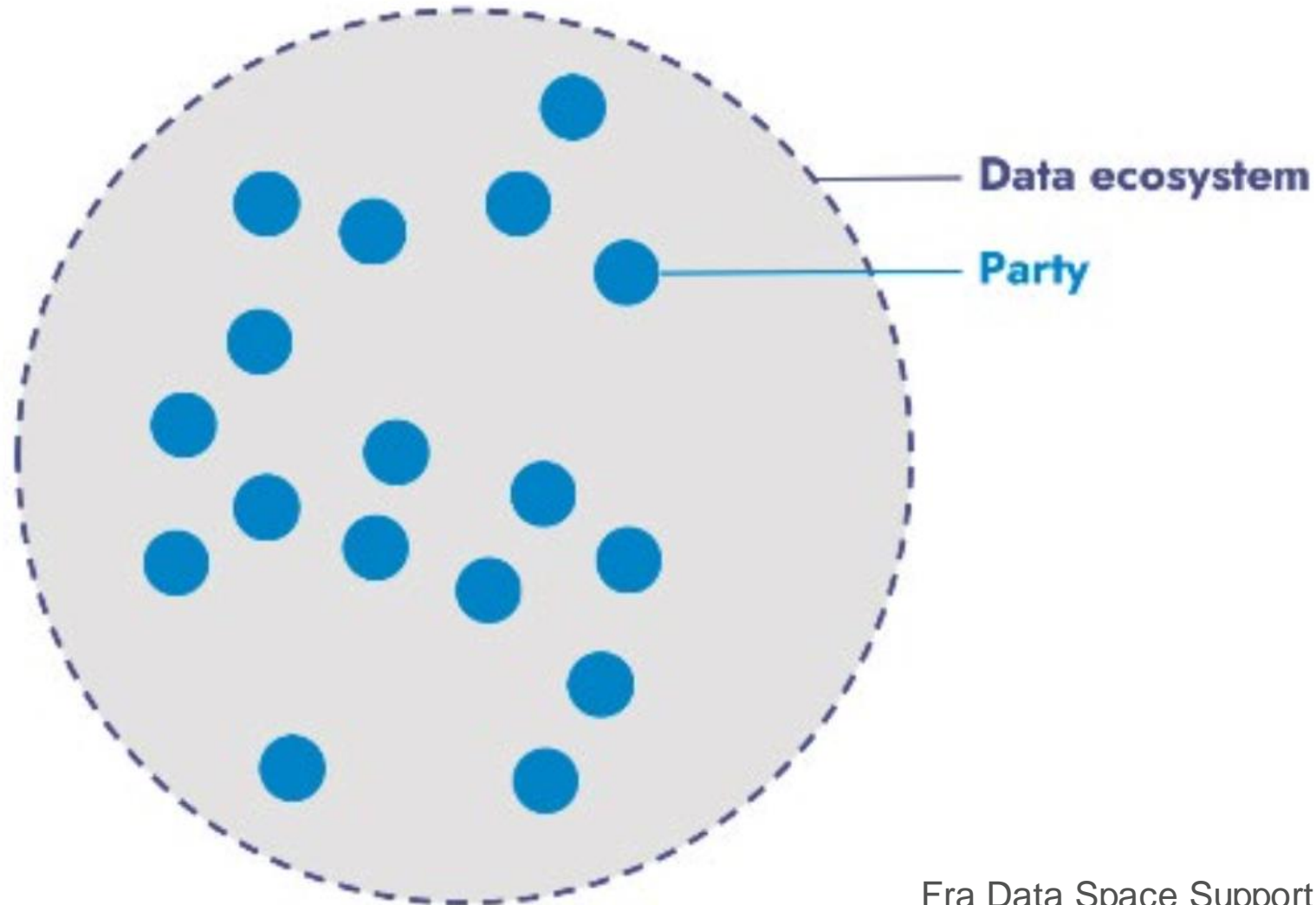


Data spaces as ecosystem

Data spaces based on common design principles enable a dynamic, secure and seamless flow of data/information between parties and domains as well as entirely new services for users, based on enhanced transparency and data sovereignty. A new user behavior and digital culture arises, as users learn to play by the rules and use data (both their own and other users' data) in an ethical way. Data spaces as federation enable multiple participants to discover data resources across underlying platforms and their administrative domains.

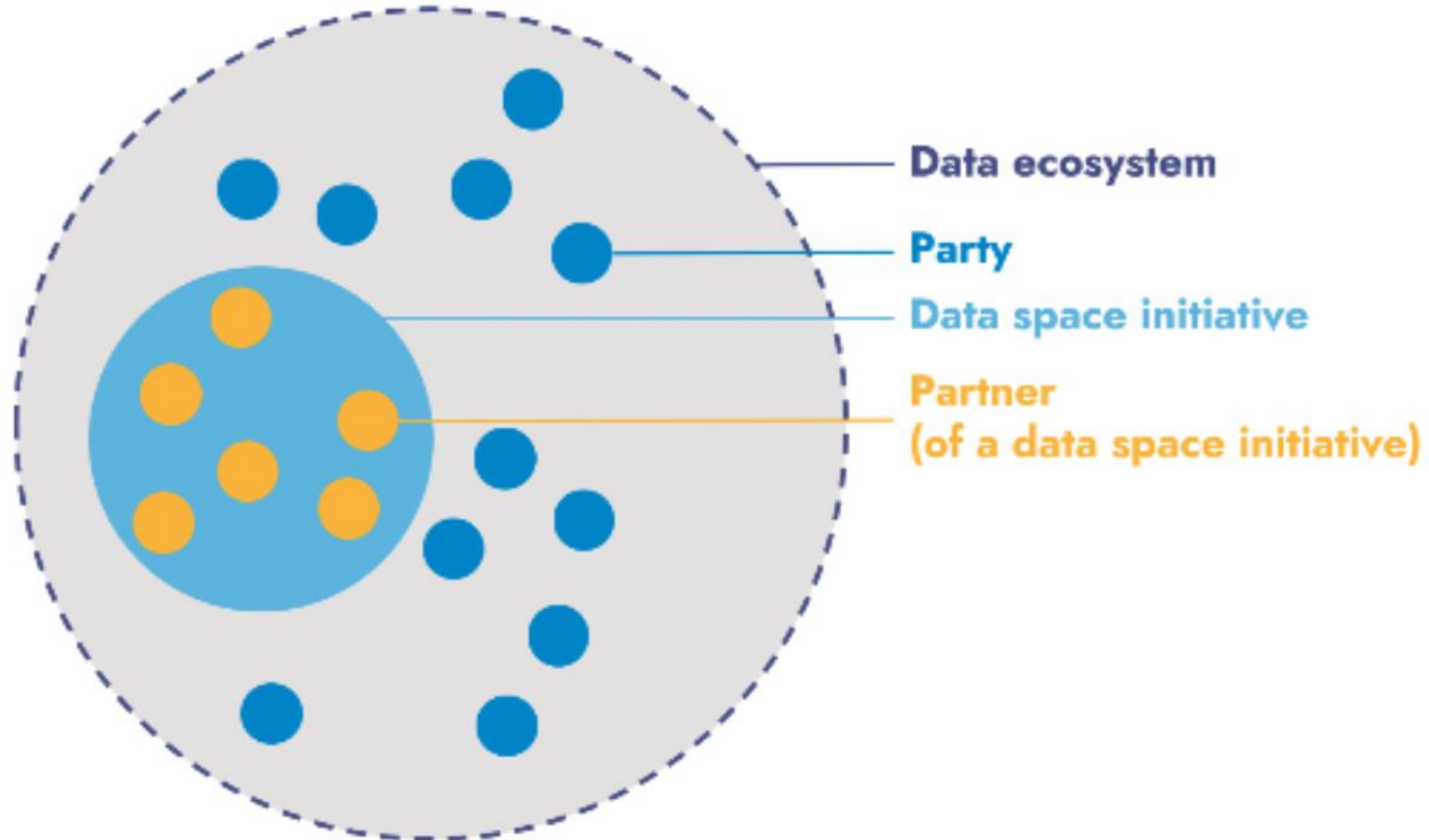


Hvad er et dataspace?



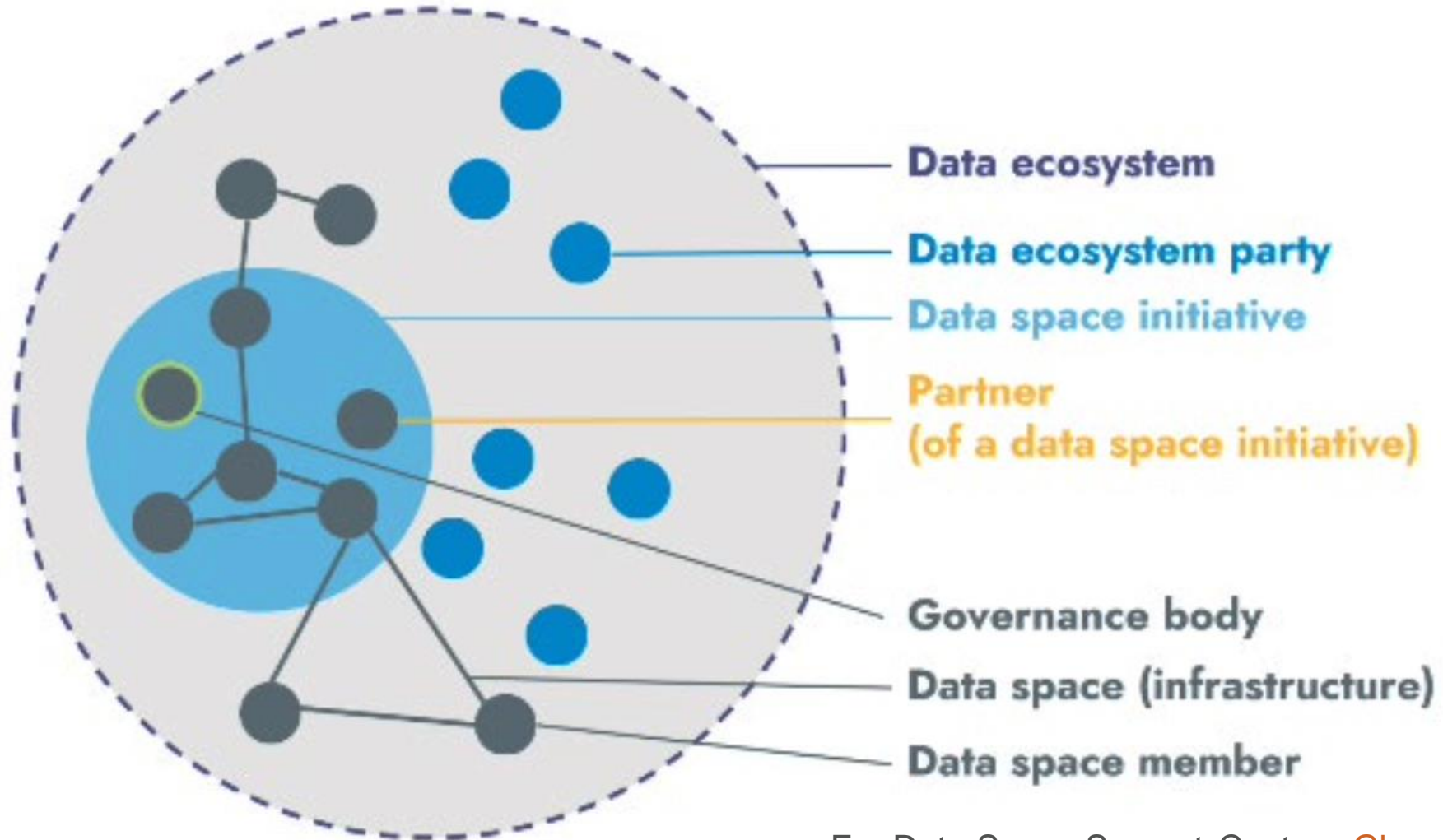
Fra Data Space Support Centres [Glossary](#) side 4

Hvad er et dataspace?



Fra Data Space Support Centres [Glossary](#) side 4

Hvad er et dataspace?



Fra Data Space Support Centres [Glossary](#) side 4

Fælles spilleregler: BLOFT

Data Spaces Start-up Checklist



- Business
 - How does the data space create value?
 - Who are the active stakeholders or participants of the data space?
 - What is the business and governance model of the data space?
 - What are the individual and collaborative business models (Incentives) for actors in the data space?
- Legal
 - What legal aspects are relevant to navigate when setting up a data space?
 - What are the legal requirements and challenges?
 - What are the legal dimensions of data governance?
 - How can data spaces ensure the full uptake of EU values?
- Operational
 - What is the operational governance framework for the data space?
 - What day-to-day activities and processes are essential for sustaining a data space?
- Functional
 - What core functionality should a data space offer?
 - What are the essential building blocks that make up each functionality?
- Technical
 - What are the formal and de-facto standards that should be followed when deploying a data space?
 - What software requirement specifications to use as references when implementing a data space?
 - Which open source software implementations are compliant with the recommended standards and specifications?

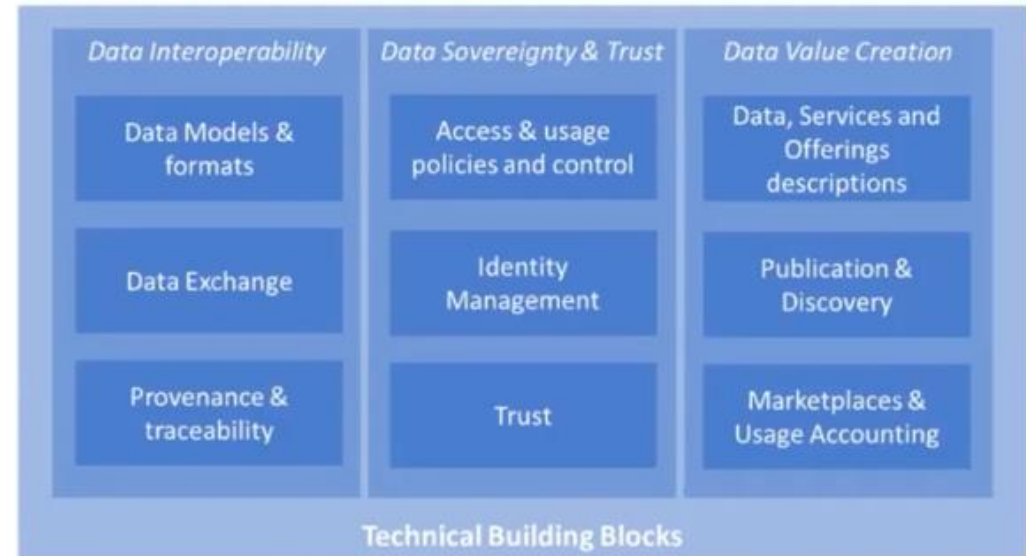
Figure 1: Data spaces start-up checklist according to the BLOFT framework. <https://dssc.eu/navigating-the-challenges-of-creating-a-data-space/>

Data Space Byggeklodser

Business, Governance and Legal Building blocks



Technical Building Blocks



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



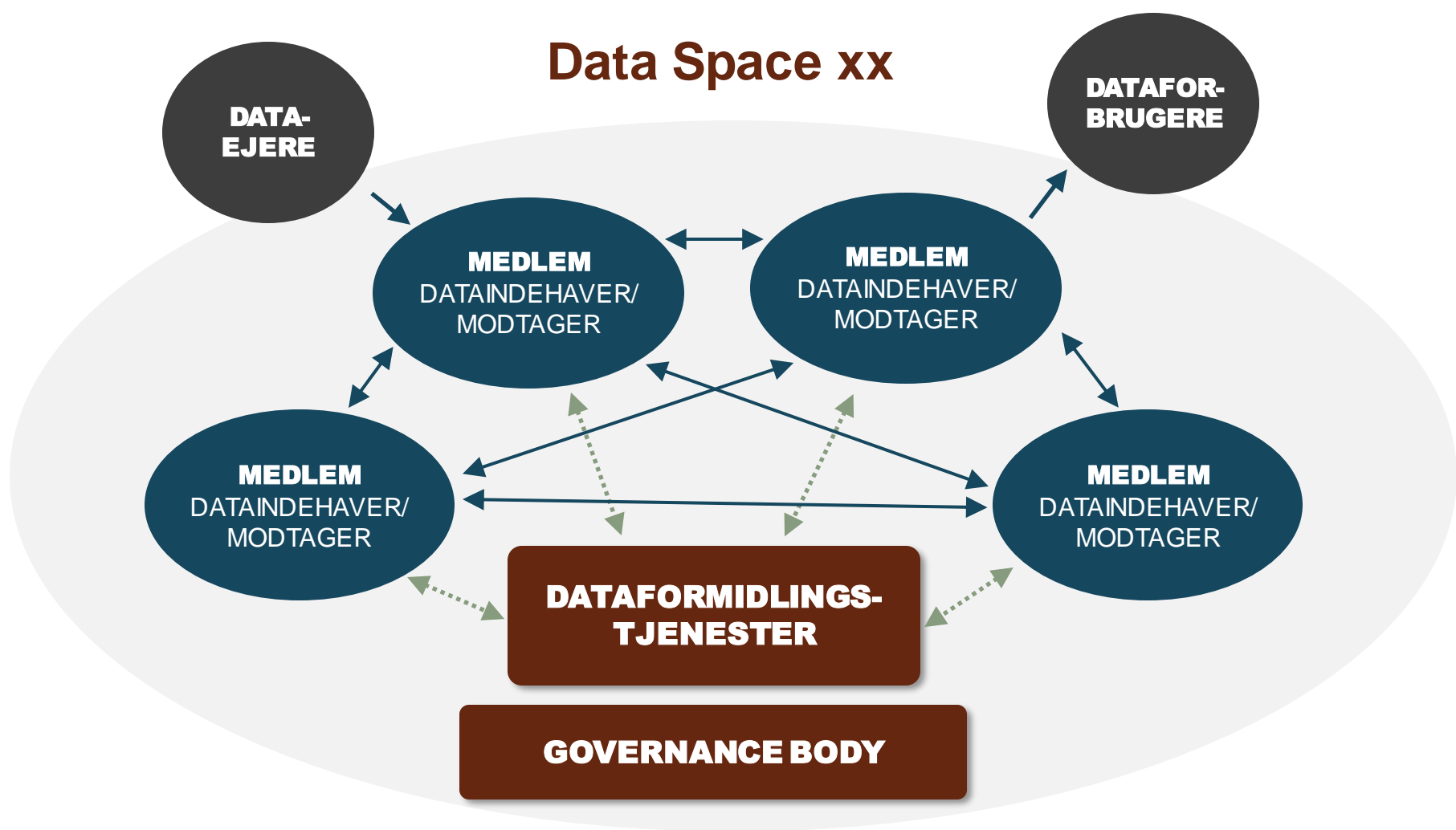


European Data
Innovation Board

Nationale
myndigheder

Standardiserings-
og certificerings-
organer

Data Space xx



Udvalg af data spaces

- Smart Connected Supplier Network SCSN (Live)
- Mobility Data Space (Live – Funded af German Bundestag)
- Catena-X (Funded af German Bundestag)
- Manufacturing-X (Funded af German Bundestag)
- Data space for skills DS4Skills (EU projekt)
- Agri Data Space (EU projekt)
- European Data space for Tourism (EU projekt)

Cross sector

- Green Deal Data Space (EU Project Live)
- Data Space for Smart and Sustainable Cities and Communities DS4SCC (EU projekt - DTU Lead)

Energi DS - Horizon projekter:

- DATACELLAR
- ENERSHARE
- OMEGA-X (incl. Aarhus Uni)
- SYNERGIES (Incl. DTU, BEOF, TREFOR)
- EDDIE: Europeand Distributed Data Infrastructure for Energy (CBS og Energinet)
- int:net – Interoperability Network for the Energy Transition

Centrale aktører indenfor data spaces

INTERNATIONAL DATA SPACES ASSOCIATION

<https://internationaldataspaces.org/>



<https://gaia-x.eu/>



https://www.fiware.org/wp-content/uploads/FF_PositionPaper_FIWARE4DataSpaces.pdf

Data Spaces Business Alliance
Unleashing the Data Economy



<https://data-spaces-business-alliance.eu/>



<https://www.dataspaces.fraunhofer.de/en/InternationalDataSpaces.html>



OPEN & AGILE SMART CITIES

<https://oascities.org/>

Centrale aktører indenfor data spaces



Mission

The Data Spaces Support Centre will explore the needs of data space initiatives, define common requirements and establish best practices to accelerate the formation of sovereign data spaces as a crucial element of digital transformation in all areas.

We are here to help you with your data space endeavor!

<https://dssc.eu/>

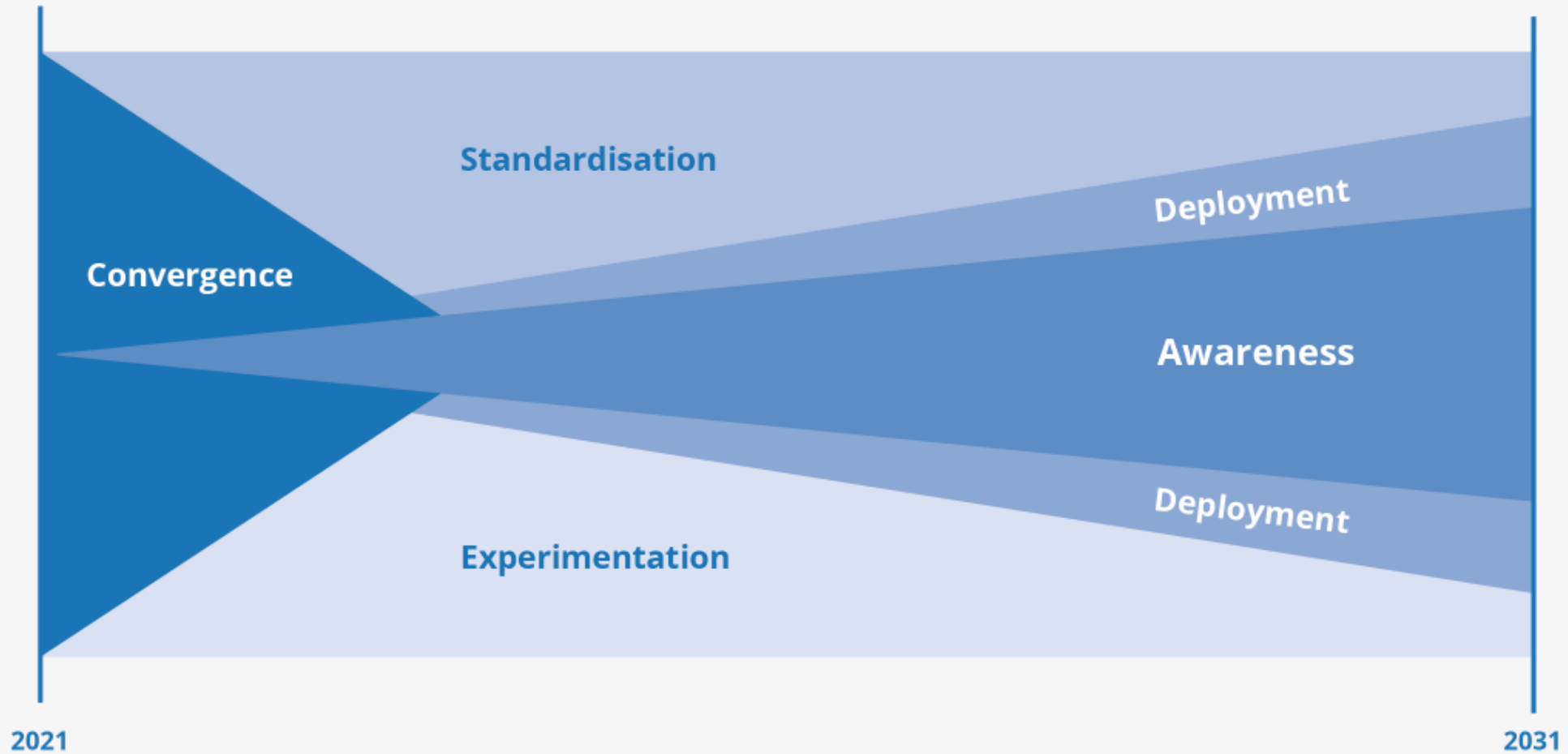
Gode ressourcer:

- [Starter Kit](#)
- [Glossary](#)
- [Data Space Support Centre Insights](#) på Youtube
- Nyhedsbrev
- **September 2023: levere blue print for data spaces**

Hvor langt er vi?

Approach to realise the potential of data spaces

10-15 år
1,5-2 billion €



Danske aktører

DTU, Brynskov er projektleder for 'Data Space for Smart Cities and Communities' Digital Europe



AARHUS UNIVERSITET

Med i Horizon Europe projekt, Omega-X



WATER VALLEY DENMARK

15 mio projekt om Water Data Space

ENERGINET



SUNDHEDSDATA-STYRELSEN

Med i to Europæiske sundhedsdataspaces



Med i et Europæiske meteorologisk data space projekt



DIGITALISERINGSSTYRELSEN



Energistyrelsen



Styrelsen for Dataforsyning og Infrastruktur

Danmarks Miljøportal
Data om miljøet i Danmark



ALEXANDRA INSTITUTTET



An NEC Company

Åben for dialog

Lea Schick

Senior Research and Innovation Specialist



Lea.schick@Alexandra.dk



27265479



[Lea Schick](#)



ALEXANDRA
INSTITUTTET

Dansk Standard



Om Dansk Standard

Hvem er Dansk Standard

- Danmarks officielle standardiseringsorganisation
- Erhvervsdrivende fond, grundlagt i 1926
- 182 medarbejdere (april 2022)
- Erhvervspolitisk partnerskab med Erhvervsministeriet

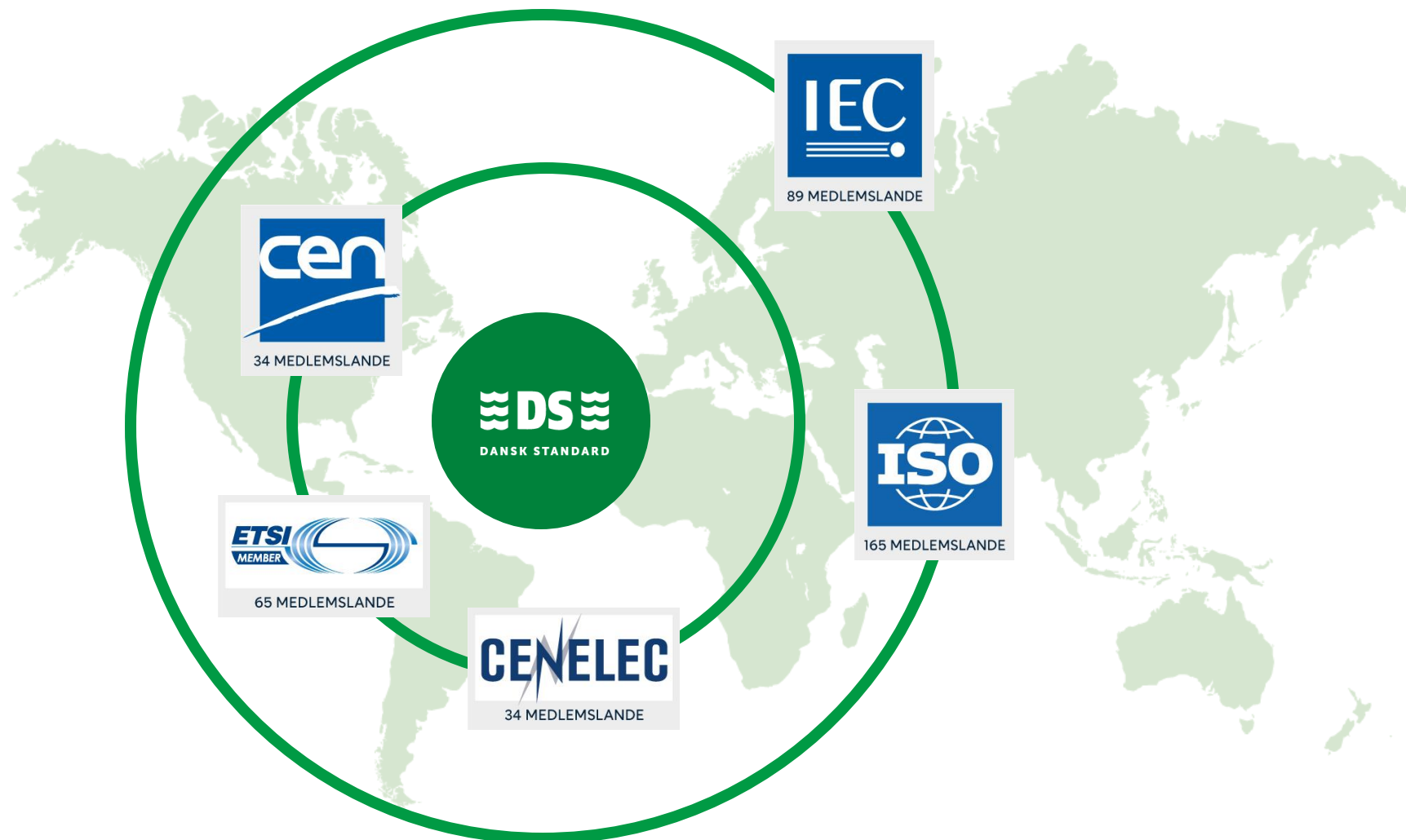
Vi er medlem af:



En stærk platform af solide brands:



Dansk Standard er indgangen til standardisering – både europæisk og internationalt



Om standarder

Hvad er en standard?

Standarder er:

1. Et frivilligt markedsinstrument
2. Konsensusdrevet
3. Vedtaget af anerkendt organ

Standarder kan stille krav til:

Konstruktion

Fx papirformater, gevind, dataformater

Systemer

Fx kvalitetsstyring, risikoanalyse, miljøledelse

Ydeevne

Fx brudstyrke, sikkerhed, ergonomi, støj og stråling

Symboler

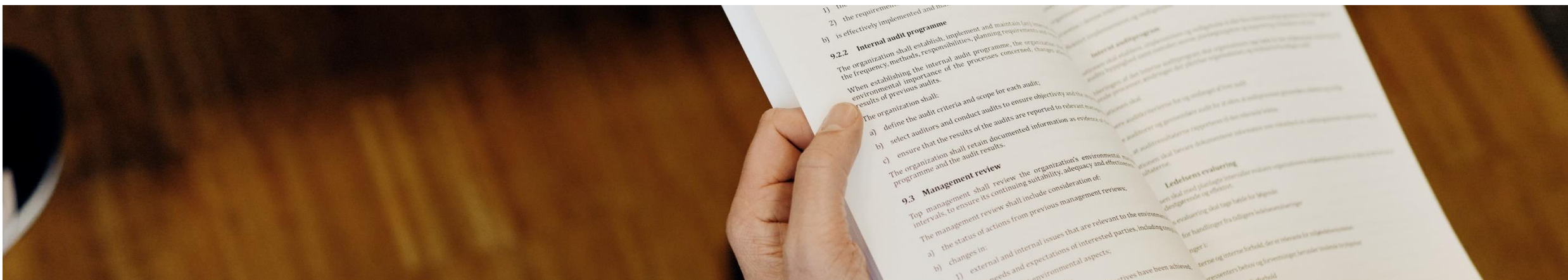
Fx piktogrammer for toilet, nødudgang, rygeforbud

Terminologi

Fx korrekt definition af en elektrode eller et statistisk begreb

Metoder

Fx til kemiske analyser eller prøvning og dokumentation af teknologier.



Standarder er frivillige, indtil nogen gør dem bindende

Standarder kan blive bindende på 3 måder:

- Aftale mellem 2 parter
- Love, bekendtgørelser, regler
- EU-lovgivning



Fra EU-lovgivning til standard



Varslet standardiseringsanmodning i 2023



REFERENCE

Dataforordningen
(COM/2022/68 final)



FORMÅL

Udvikle standarder,
specifikationer og
retningslinjer for
interoperabilitet af data
og datadeling.

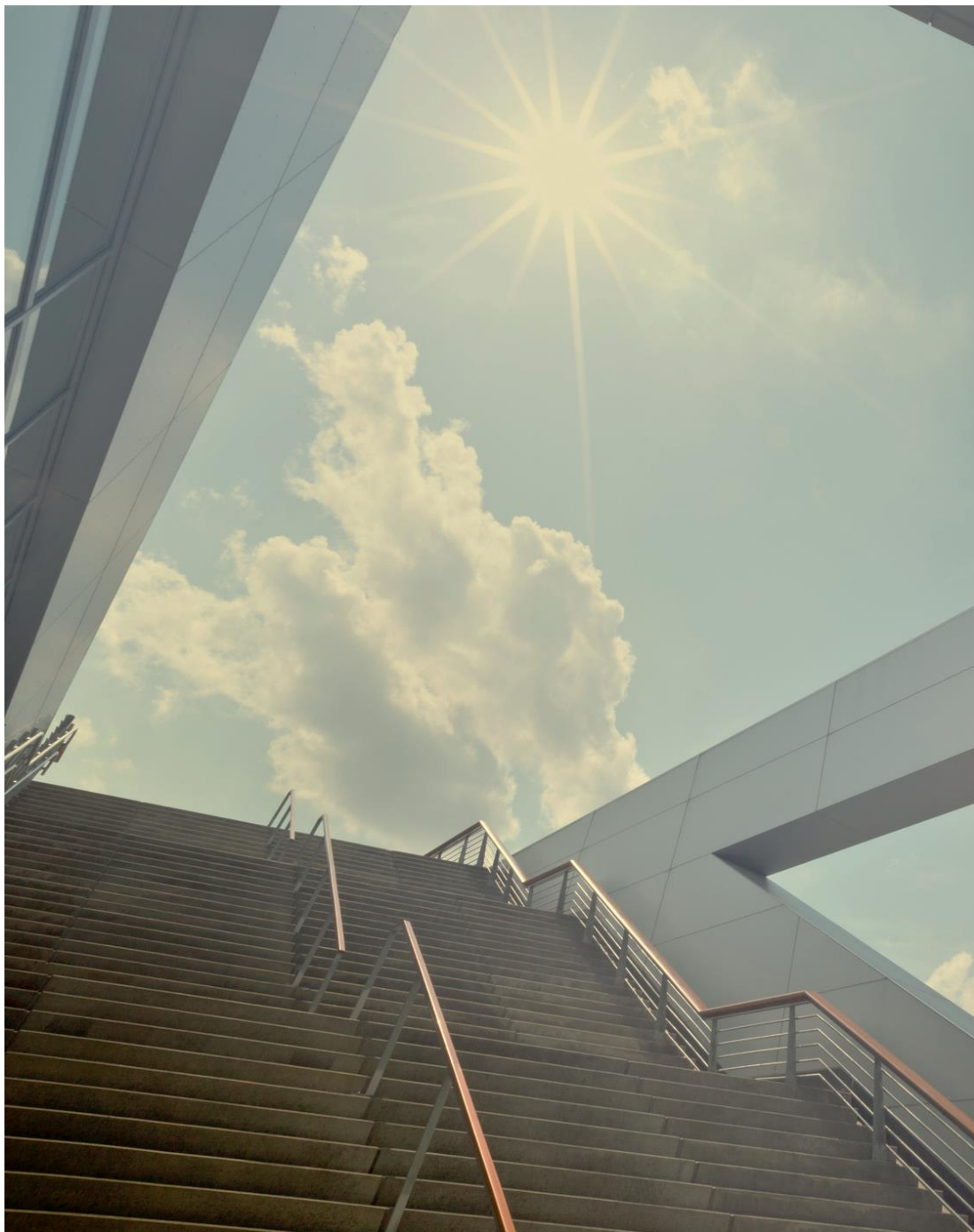
Fra dansk side kan vi:

- Oprette et dansk standardiseringsudvalg
- Følge og kommentere det igangværende arbejde
- Aktivt være pennefører på standarder og/eller hjemtage europæiske og internationale sekretariater.



Næste skridt

- Vi afventer standardiseringsanmodning og mulig etablering af en tilsvarende ny teknisk komité.
- Hvis du er interesseret i at følge arbejdet så kontakt os i Dansk Standard.



Kontaktinfo



Bjørn Nørrekjær Hvidtfeldt

Seniorkonsulent

Sekretariater, udvalg og netværk II

E: bnh@ds.dk

T: [39 96 61 54](tel:39966154)

DATA SPACES SUPPORT CENTRE

Introduction to European Data Spaces, Ongoing Efforts and the Need for Cooperation

Heidi Korhonen @ VTT



<https://dssc.eu>

Data Spaces – Definition and aims



The DSSC defines data spaces as:

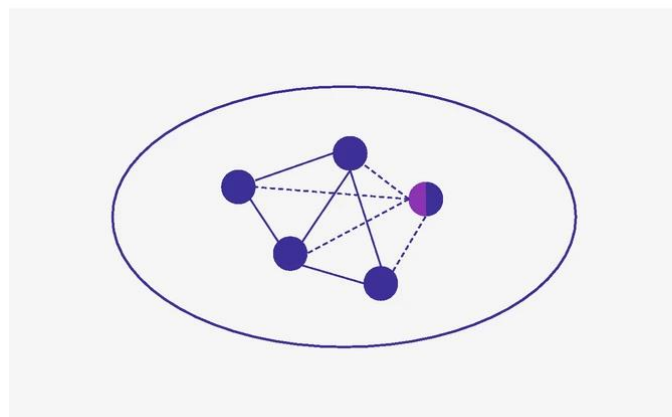
“A framework of shared trust that enables data exchange and sharing”

Aims

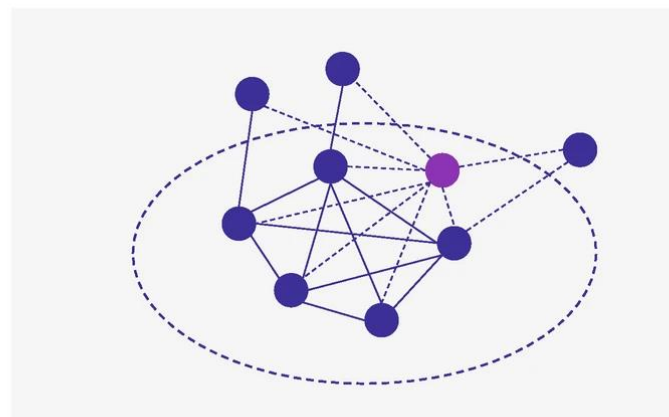
- Getting rid of data silos (much data unused)
- Trust in data sharing between parties
- Finding a way to operationalize EU data strategy and boost Digital Single Market
- Offer alternatives to data platform economy as it now is (hyper-scalers)
- Push for interoperability between data holders in a domain (interop *within* data spaces), but also across domains (interop *between* data spaces).

From Simple to More Complex Ecosystems of Exchanging Data

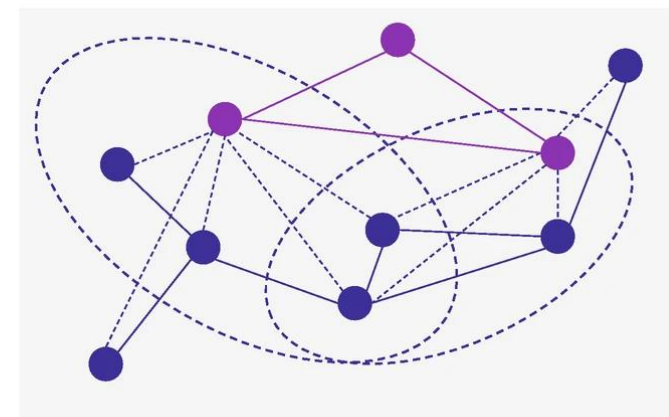
I Closed Ecosystem



II Open Ecosystem



III Federation of Ecosystems



Legend:

Roles: ● Participant (Data Provider | Data Consumer); ● Federator.

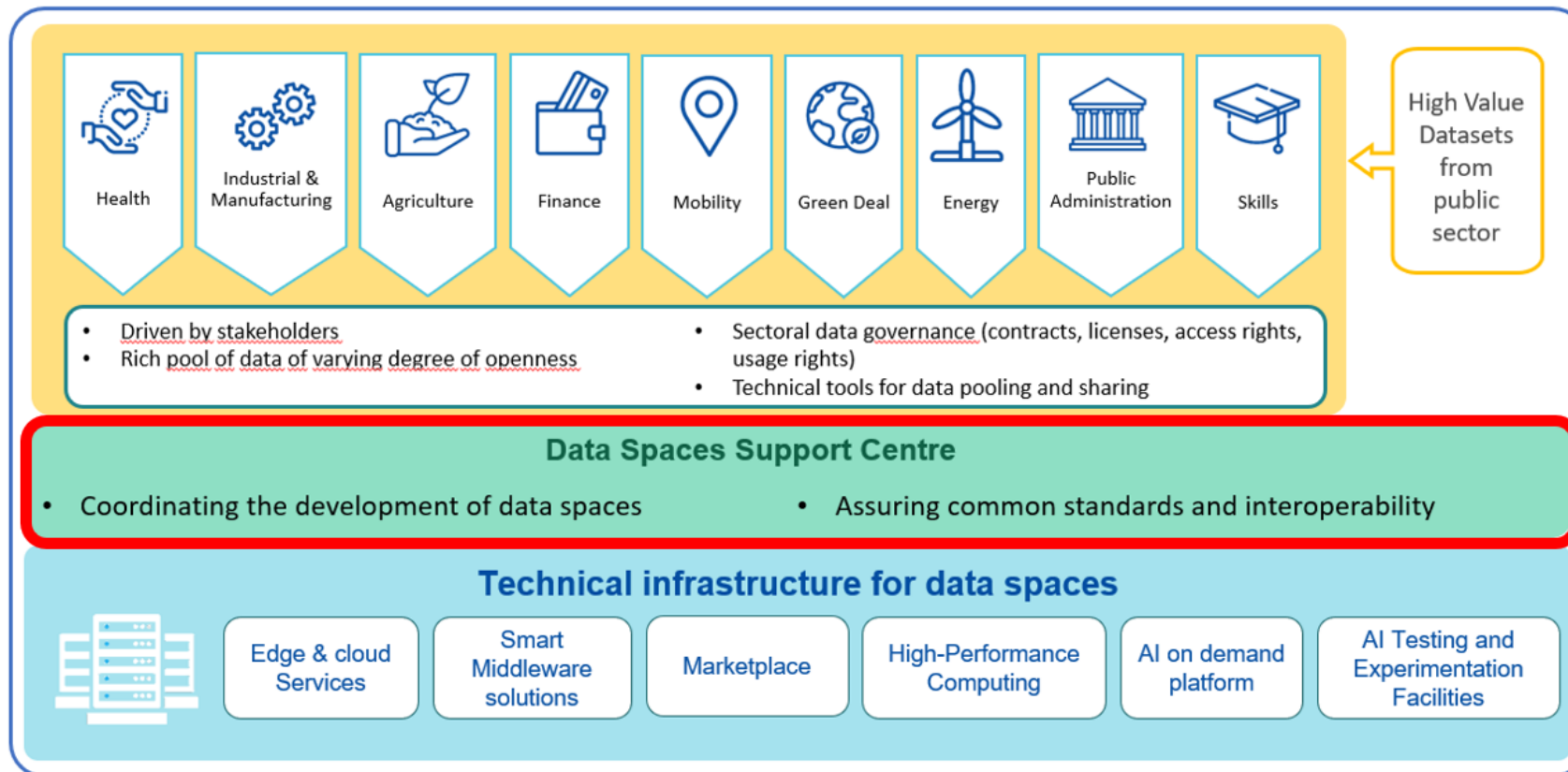
Data Exchanges: — Payload data incl. metadata between participants; - - - Metadata between participant and federator; — Metadata between federators.

Ecosystems: ○ Closed; ○ Open.

[Source: Fraunhofer]

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

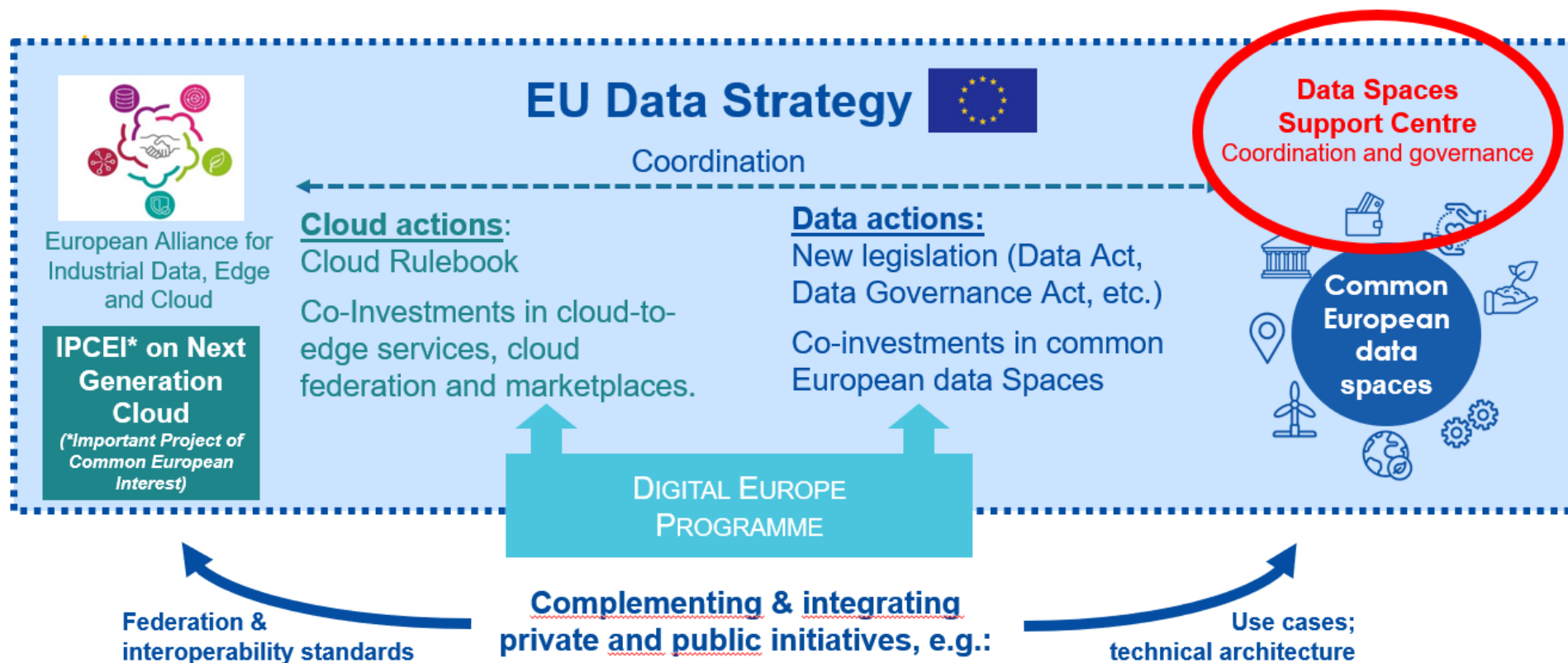
Common European data spaces



[Source: EC, DG Connect]

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

The European Data strategy

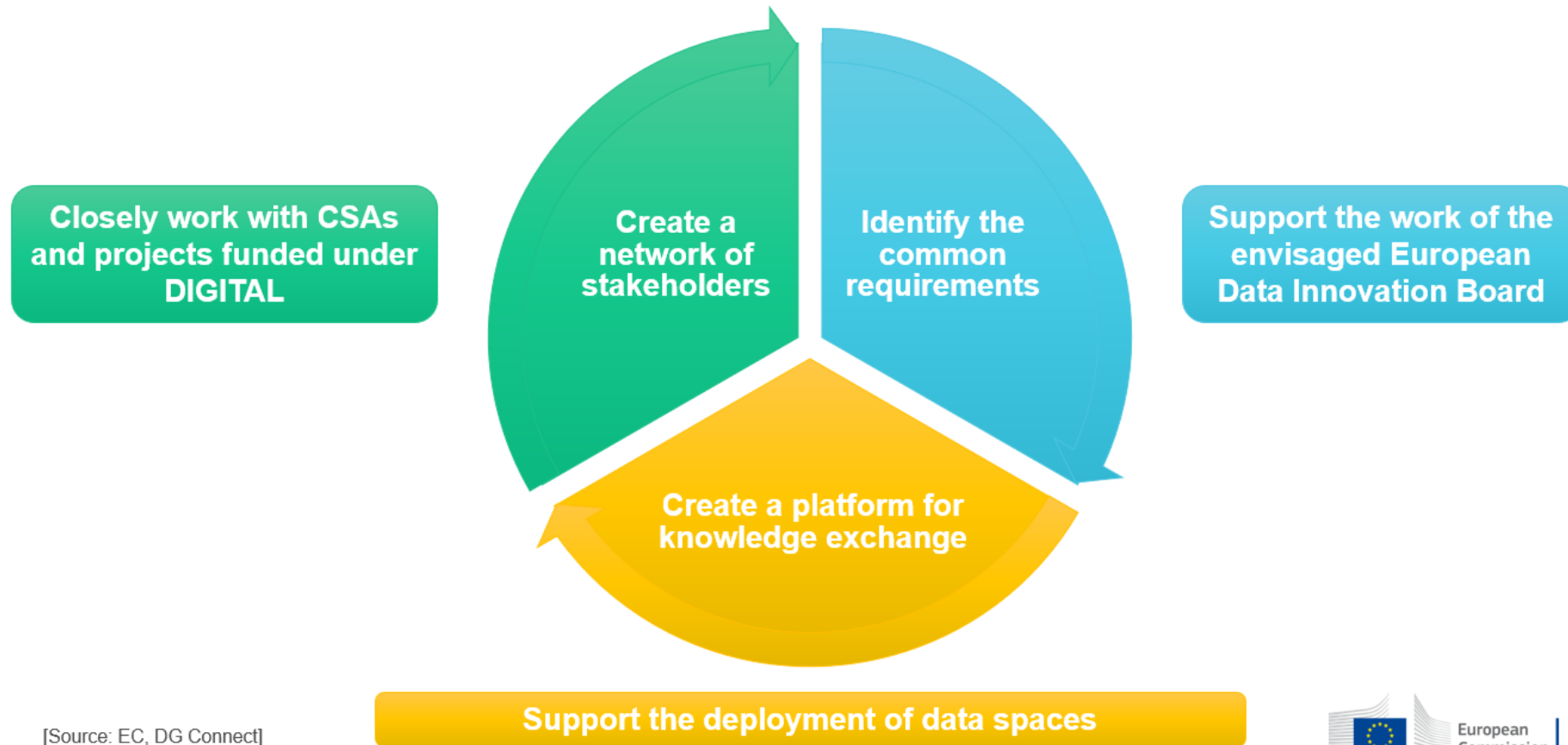


[Source: EC, DG Connect]



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

Data Spaces Support Centre



[Source: EC, DG Connect]

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Data Spaces Support Centre

Community and Stakeholder Engagement

Strategic Stakeholder Forum

- Think-and-do-tank to continuously deliver on the policy objectives and market needs

Community of Practice

- DEP Data Space initiatives
- Simpl / Building blocks implementers

Collaboration with relevant initiatives and Stakeholders

- Public Sector Open Data for AI and Open Data Platform, the Cloud-to-Edge infrastructure and services projects, AI initiatives, EDIHs, Hubs, Advanced Digital Skill initiatives, EuroHPC, Research projects (H2020, HE), space programmes, partnerships, Standardisation Bodies and organisations, National initiatives, Industry and SME associations, international initiatives, etc

Collaboration with EDIB and Policymakers

- EDIB (European Data Innovation Board) as anchored in the DGA
- Relevant policymakers and establishes a co-creation approach with them to enable a steadily and potentially iteratively evolving regulatory and policy environment for the data spaces

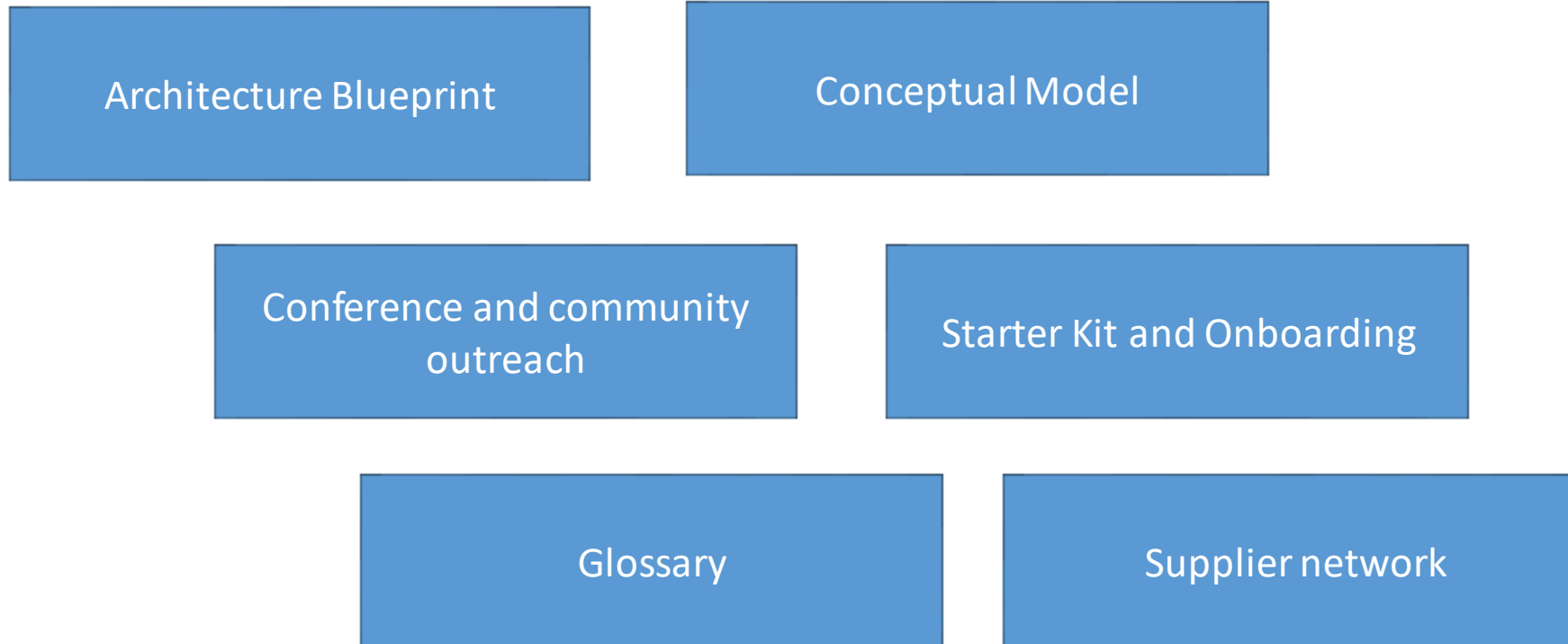
Impact monitoring, evaluation & reporting

- Evaluation of outcomes/impact of EU-funded data spaces
- KPIs on DSSC outputs, processes and community impact
- Data Space Radar

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

Data Spaces Support Centre

Asset-based and collaborative approach



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

Engage with us!

For support or contributions

Visit www.dssc.eu for support and subscribing our Newsletter!

Support & newsletter

General questions about the Data Spaces Support Centre? Or need advice on data spaces?

We are here to help you! Do you have questions about the DSSC? Would you like to learn more about the concept of data spaces? Do you need advice on how to set up a data space? Are you interested in a specific asset? For these and all other questions – contact us!

First name * Last name *

Email *

Organisation/Company

Subject *

Please select the type of your request *
 Subscription to the DSSC newsletter

Your Message *

Declaration: *
 By setting the check mark I declare that my registered personal data is electronically processed and saved for the purpose of processing of my inquiry I am free to cancel this agreement at any time by means of a message to contact@dssc.eu / support@dssc.eu / newsletter@dssc.eu. For more information please see our [data privacy policy](#).




Visit the [DSSC Platform](#) for support and engagement!

Welcome to the Data Spaces Help Center




Hilfe und Services finden

Welcome! You can raise a request among the following options.

Womit können wir Ihnen weiterhelfen?

-  **Getting Information**
Looking for a document, not sure about a definition, missing an information about the DSSC?
-  **Getting Support**
Looking for practical support while setting up you data space project?
-  **Getting Involved**
Looking to collaborate with the DSSC on the co-creation of assets?

Zugehörige Ressourcen

-  **FAQ**
Take a look at our Frequently Asked Questions
-  **Knowledge Base**
Learn more about DSSC assets in our documentation
-  **DSSC Youtube Channel**
Explore best practices on DSSC platform as well as get started videos for data spaces

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

Data Spaces Support Centre

Consortium



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



Data Spaces Support Centre

Associated and collaboration partners



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Visit and follow us!



<https://dssc.eu>



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An introduction to Data Spaces

Necessity of standardization

Sebastian Steinbuss - IDSA

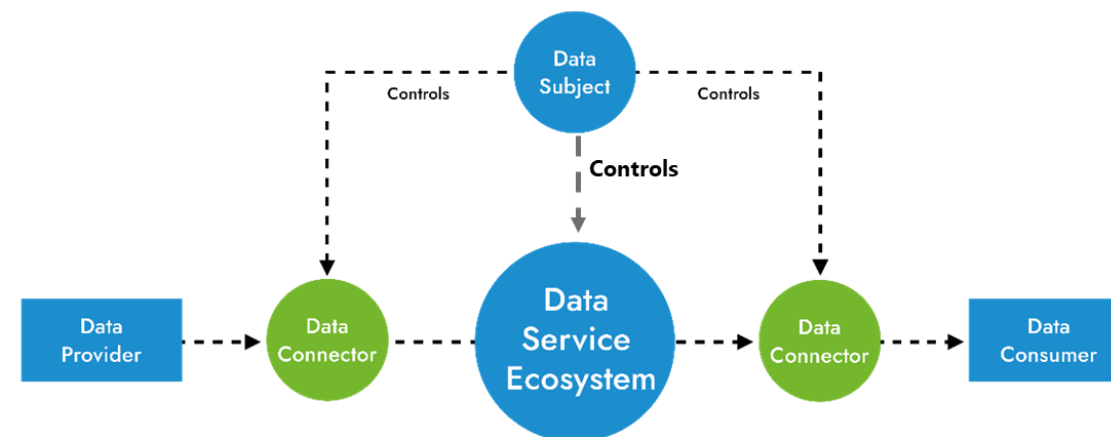
The International Data Spaces Association

A collaboration of 146 organizations from 28 countries



– Goal is the **creation of a standard for data sharing** while maintaining **data sovereignty** → **data spaces**

– We want to accelerate adoption & help speed organizations of all sizes along the **path to embrace IDS**.



Data Spaces Radar



Data Connector Report



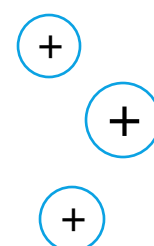
Reference Architecture Model



IDSA Rulebook



Design Principles for Data Spaces



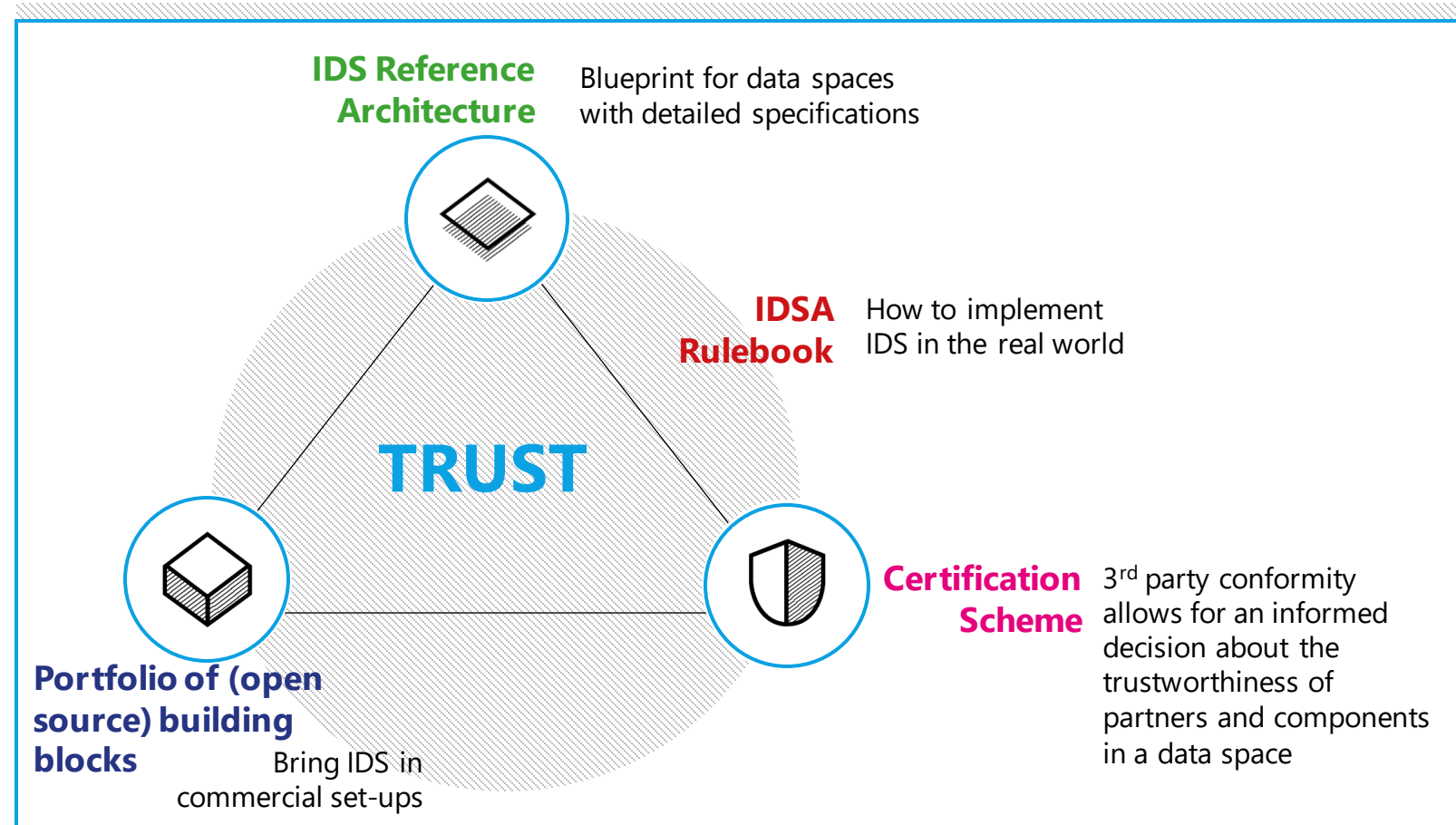
Why do we need an association like IDSA?

Closing the loop to achieve consistency and compliance for a reliable and trustworthy data economy



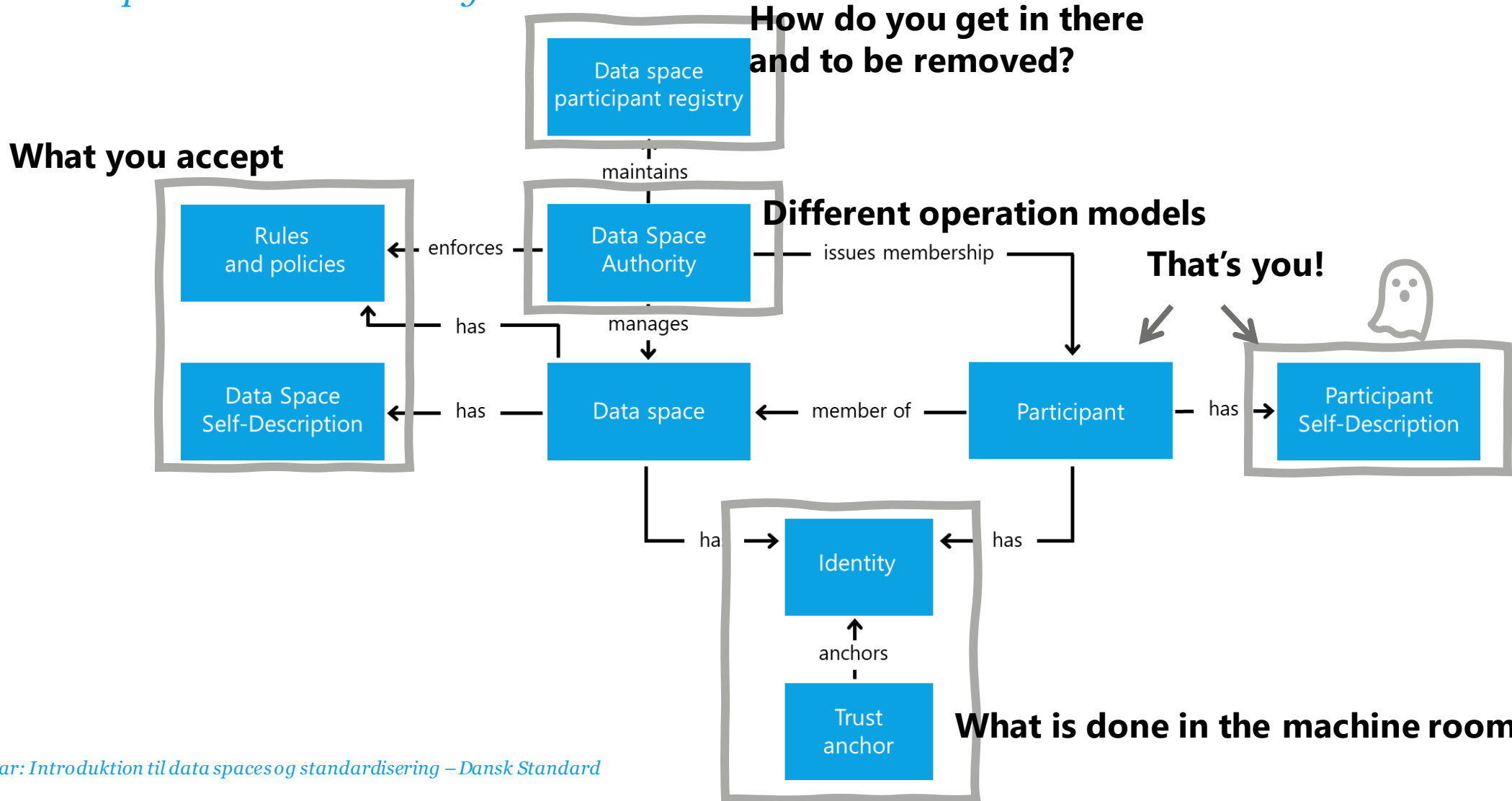
Compliance

- # Providing a general structural approach to Data Spaces in the Rulebook
- # Definition in the Reference Architecture and subsequent specifications
- # Comprehensive Certification Scheme to assess and validate compliance
 - # Trustworthiness and Cybersecurity
 - # Interoperability
- # Portfolio of Building Blocks to support commercial set-ups (**IDSA doesn't provide solutions**)
 - # As FOSS
 - # Or commercial solution

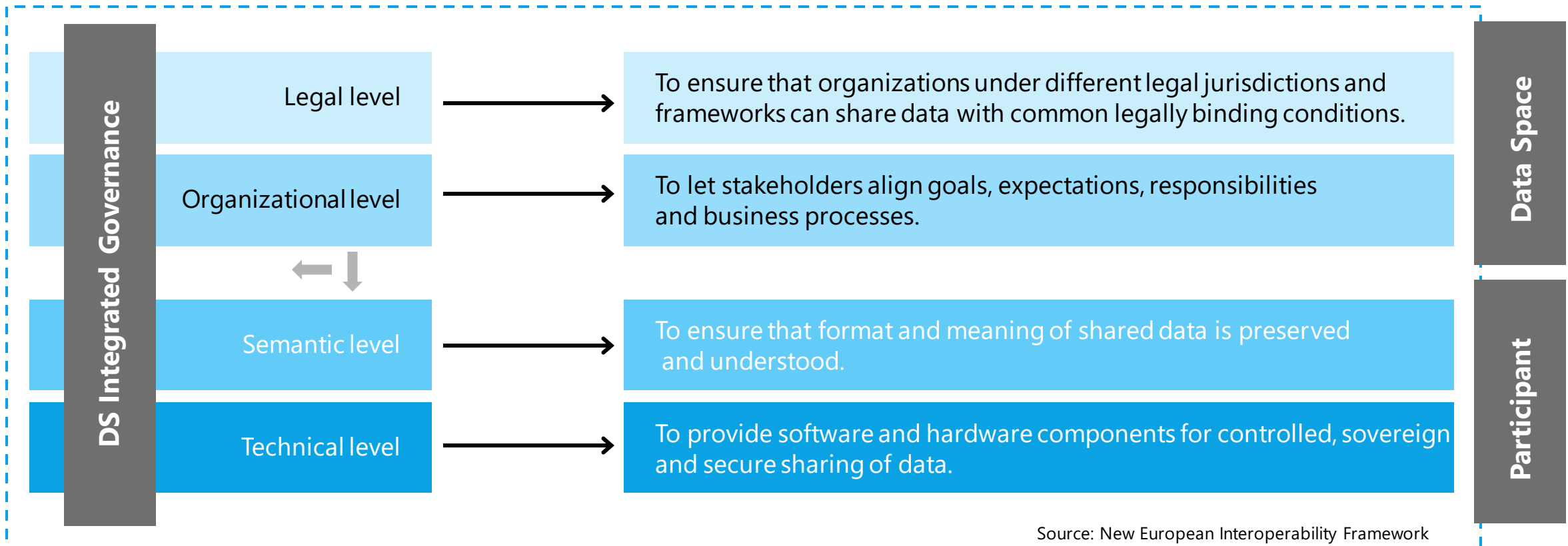


Organizational Interoperability needs to be organized

By a Data Space Governance Body



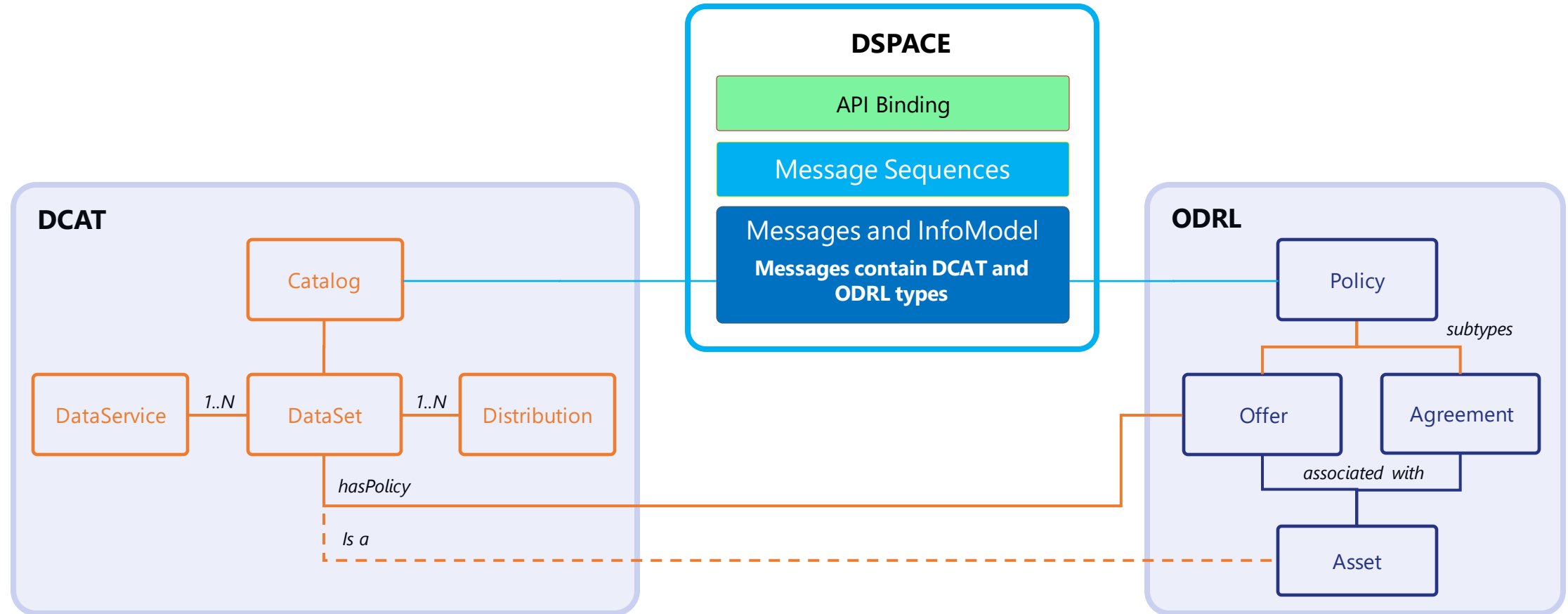
Layered model for interoperability



- **Intra data space interoperability**, between the data space authority, processing, and data sharing building blocks within a single data space instance
- **Inter data space interoperability**, between multiple data space instances at each of the functional levels

Dataspace Protocol Specification

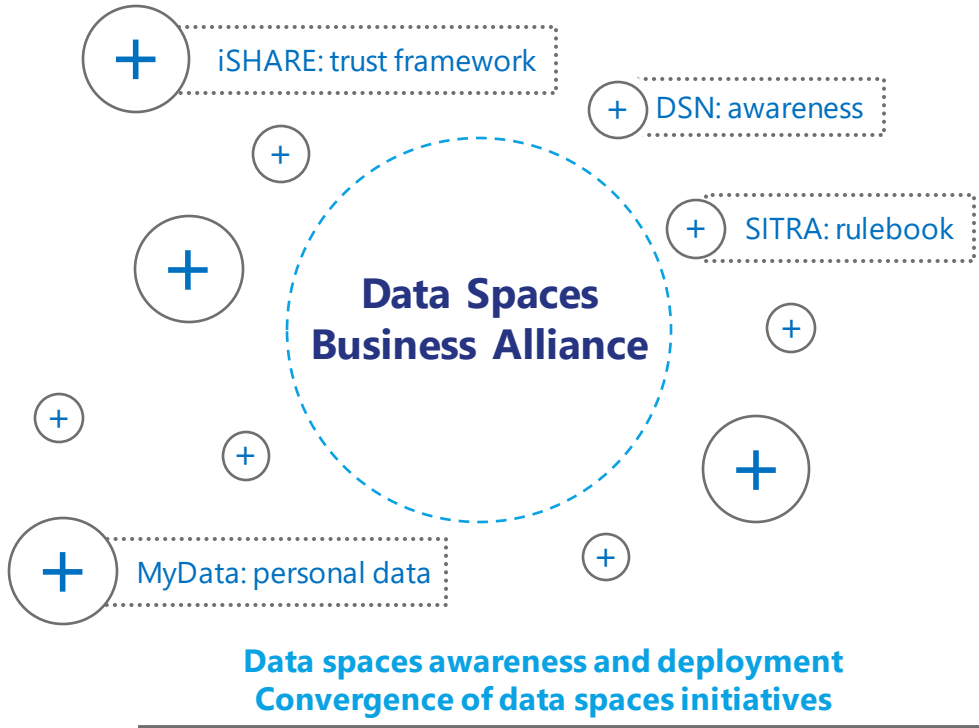
Based on W3C Standards



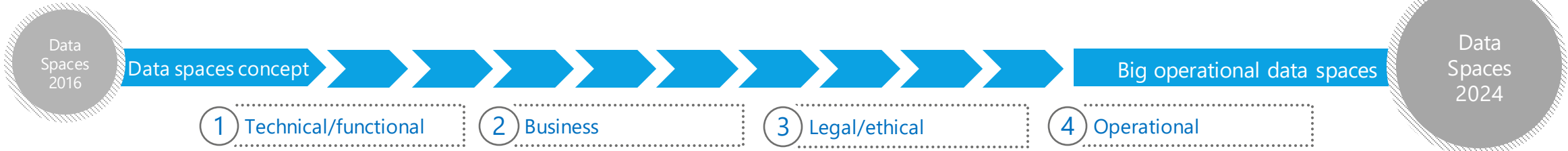
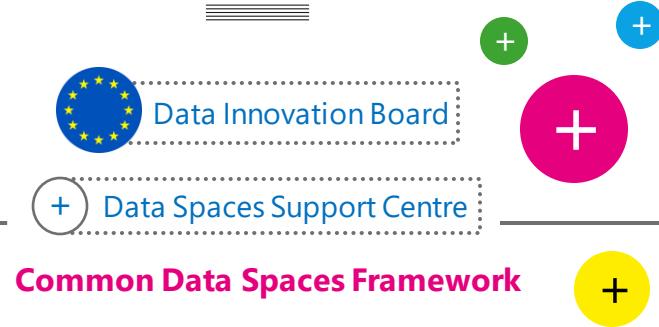
We need a common framework for data spaces

Harmonization and blueprint

INTERNATIONAL DATA SPACES ASSOCIATION



Harmonized governance for data spaces



Standardization activities

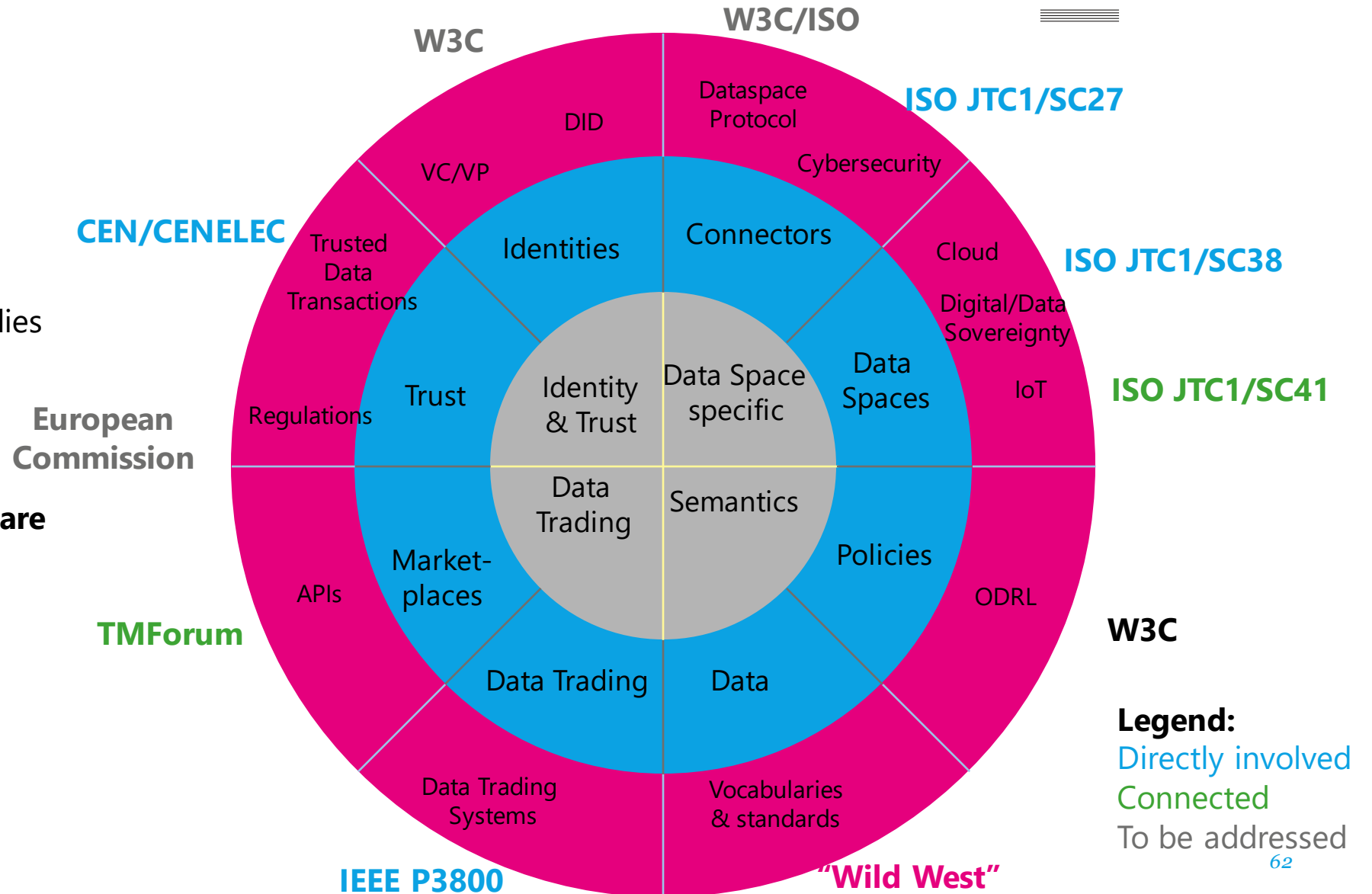
(In)complete overview

Standardization activities require resources and commitment.

Different standardization bodies provide different means for contributions.

Open Source Communities are not covered here!

(Eclipse Working Group Dataspaces, FIWARE,...)



International Standardization

Parts of



Data Space Standards are subject to **JTC1/SC38 WG 5** – Data in Cloud Computing and related technologies:

- **ISO/IEC TS 10866** Organizational Autonomy and Digital Sovereignty
- **PWI 20151** Dataspaces

IEEE P3800 “Data Trading System” is providing a series of standards for Data Trading

CEN/CENELEC CWA

Workshop on Trusted Data Transaction



INTERNATIONAL DATA SPACES ASSOCIATION



- For **digital ecosystems**, trustworthiness is key to **enable data exchanges** between stakeholders
- Objectives and scope:
 - Establish **terminology**, describe **concepts** and mechanisms in the field of data exchange to form a **foundational understanding** on which trusted data transactions can be based.
 - Identify **attribute-based criteria** for the decision-making grid that baselines **how to create trust** in data transactions
 - **Independent** of architectural choices or technical implementations.
 - Can be used in all cases where stakeholders need to establish trust for the purpose of data exchange

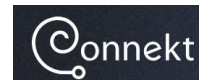
Secretariat



Proposers



Participants

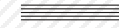


CEN/CENELEC

European Standardization activities to be addressed

- In Europe's Digital transition there are many legal initiatives, that may lead to a need for standardization. Related to Data, some important legal frameworks (new or in place) can be observed:
 - **Data Governance Act (DGA)** to provide a regulatory framework for accessing government data (B2G)
 - **Data Act (building on DGA)** to provide a business regulatory framework (B2B)
 - **GDPR** compliance with GDPR Data Protection principles for personal data privacy with a regulatory framework DPO supervision / admin in the AI Act
 - **Digital Market Acts (DMA)** focus on data interoperability to avoid monopolistic practices impacts the data act. Could have for algorithmic fairness for recommender systems.
 - **Digital Services Act (DSA)**
- These frameworks connect to and interwork with the AI Framework (AI Act, AI Product Liability directive) and the Cybersecurity Framework (NIS2, Cyber Resilience Act (CRA), Cloud Certification Scheme (EUCCS) an ENISA Cybersecurity Certification schemes, ...)

INTERNATIONAL DATA
SPACES ASSOCIATION



EU is working on trustful AI since 2018

Now industry must continue

-  2022 Discussion of the AI Act in the European Parliament, the EU Commission and the Council of Europe
-  2021 Proposal for a regulatory framework for AI
Revised coordinated plan for AI
-  2020 Public consultation
White Paper
-  2019 Ethics Guidelines for Trustworthy AI (High Level Expert Group)
-  2018 Launch of the European AI Alliance
Establishment of the High-Level Expert Group on AI

 **2023**

1 Risk Management System	2 Governance and Quality of Datasets
3 Record Keeping through Logging	4 Transparency and Information Provision to users
5 Human Oversight	6 Accuracy
7 Robustness	8 Cybersecurity
9 Quality Management System	10 Conformity assessment

10 draft standardization requests drive CEN/CENELEC

Summary

- Data Spaces satisfy a need from industry (see Data Spaces Radar)
- Industry and research provide a common framework to build Data Spaces (ongoing work)
- Data Spaces can support requirements for international collaboration and can realize European Regulations
- Standardization is required now to build a reliable foundation for industry, European organizations need to be present and contribute to the ongoing work





Sebastian Steinbuß

CTO



www.internationaldataspaces.org



+49 1621 067878



sebastian.steinbuss@internationaldataspaces.org



[Sebastian Steinbuss](#)

Udvikling af en europæisk dataøkonomi



EU Data Strategi

Formål at skabe et indre marked for data



Data Governance Act

Fastsætter bl.a. rammer for datamellemænd



Data Act

Fremmer adgang til og anvendelsen af data, og understøtter en retfærdig fordeling af den værdi, der kan udledes af data.



Data Spaces

Tværeuropæiske projekter til opbygning af fælleseuropæiske data spaces. Arkitektur, byggeblokke, governance mv.

