A Trusted Data Market

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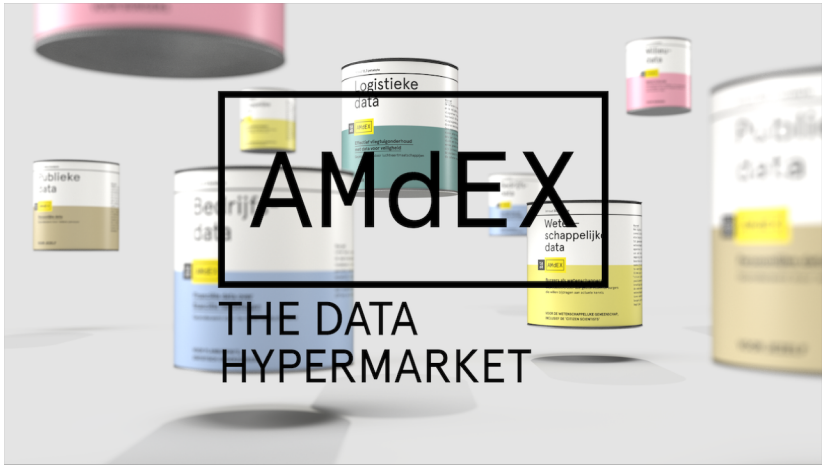
Amsterdam Economic Board &
University of Amsterdam



Amsterdam Data Exchange

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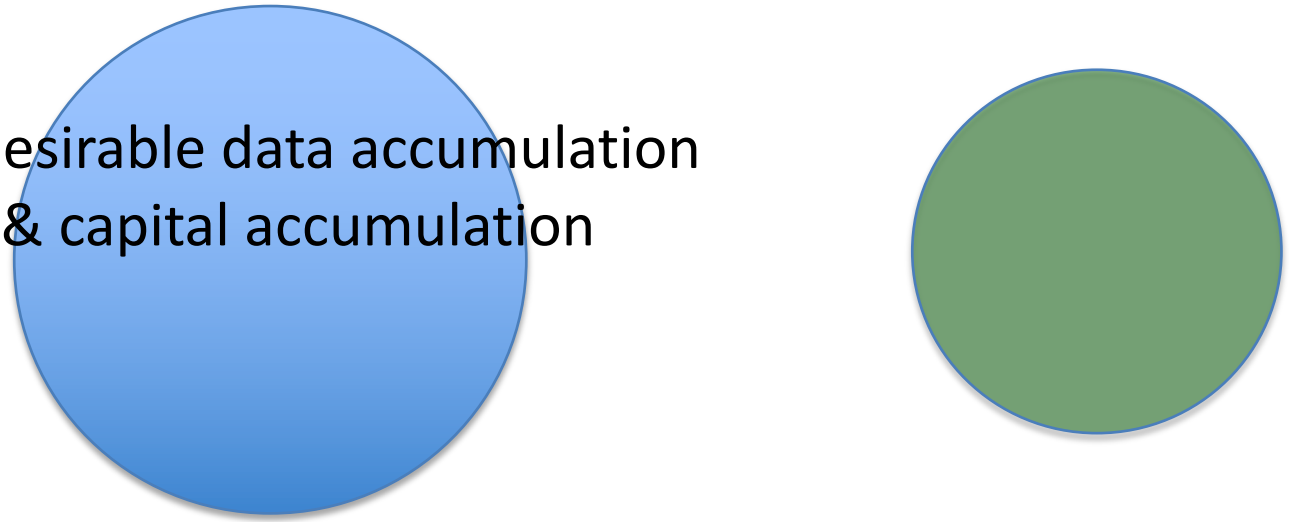
Do we have a data economy?

- New opportunities by sharing, selling, combining, and processing data.
- However, this is not yet normal practice.
- Data trade is currently done by taking over companies -> negative effects.



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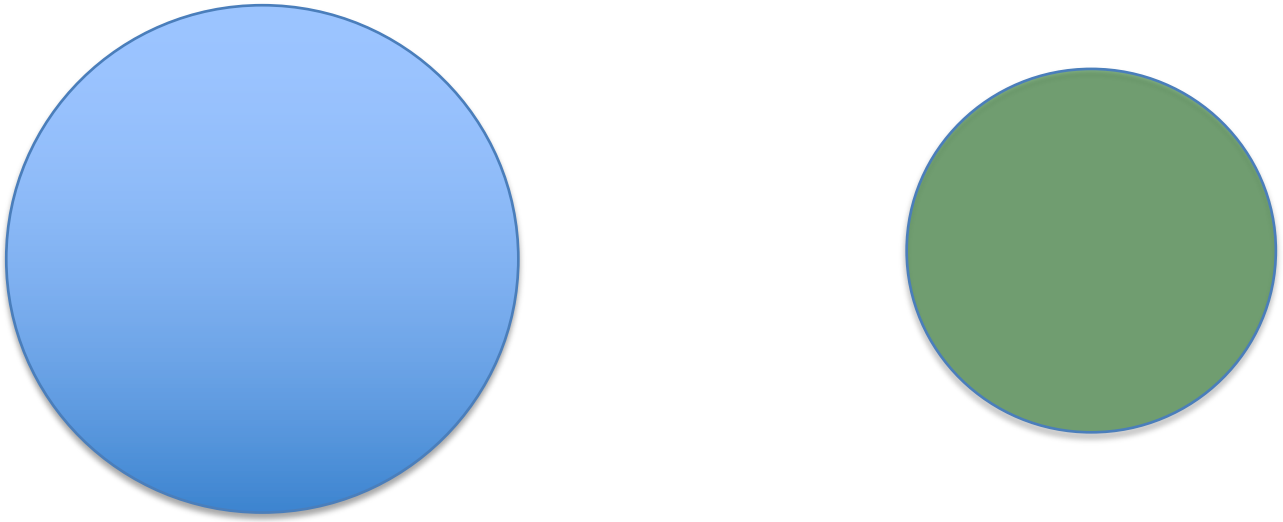
Data sharing = Data trade

- Equal playing field in a trusted market



- Keep control of your data, and on how to share data with selected partners.
- How can we move to such an open market: transparent and trusted?

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What is the problem?

- Organizations that normally compete have to bring data together in order to achieve a common goal.
- The shared data may be used for that goal but not for any other one.
- Data may have to be processed in untrusted data centers.
  - ✓ How to enforce your conditions? (using modern Cyber Infrastructure)
  - ✓ How to organize trusted alliances?
  - ✓ How to translate from strategic via tactical to operational level?
  - ✓ What are the different fundamental data infrastructure models to consider?

amsterdam economic board

connecting innovators

Digital Connectivity

The Amsterdam Metropolitan Region wants to cooperate in Europe for a data-driven economy.

AMSTERDAM SCIENCE PARK

EXCELLENT CONNECTIVITY

Amsterdam-Internet Exchange

80% of Europe reached in **50 milliseconds**

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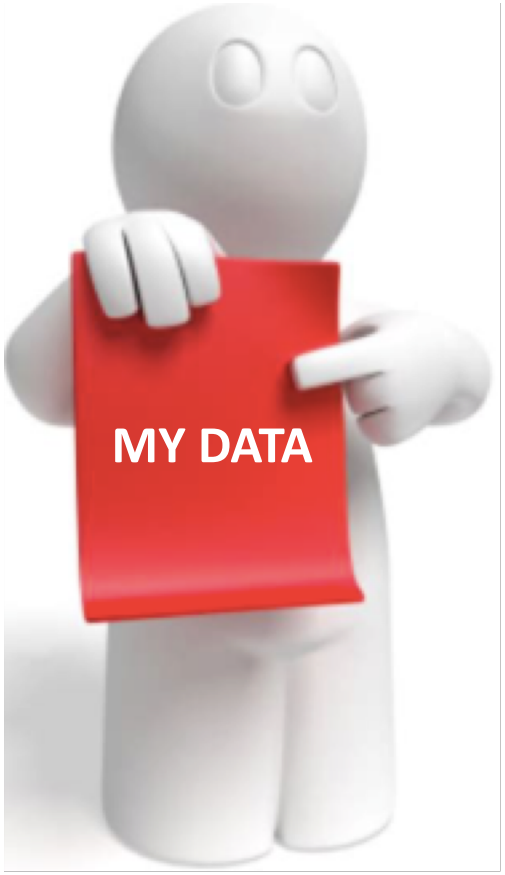
A real data economy

Promote trusted and secure market opportunities with data sovereignty.



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Keep control of your data

Collaborative agreements are based on your decisions.

Which data to share, with whom, and under what conditions.

Keep off my data!

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Digital enforcement

Generic models of data agreements (rules) should serve to accommodate different data sharing requirements.

These legal models are by design built in supporting software for securing trust and audit.

Software embedded rules

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Data Exchange Facilities

Data Exchange Facilities Market provide neutral (infrastructure and rules) mechanisms in the background for controlled, trusted and secure data transactions.

Participants accepting the market rules benefit from the exchange mechanisms and shape together an open market for data.

This is how we work together

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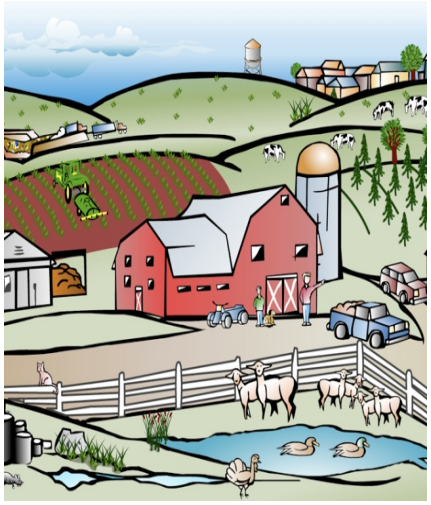
Different way of using and sharing data



Individual self-resourcing

How most organisations do it

Market, sharing and exchange

Social networks

Harvard Business Review

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ECONOMY

Managing Our Hub Economy

by Marco Iansiti and Karim R. Lakhani

FROM THE SEPTEMBER–OCTOBER 2017 ISSUE

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THOMAS M. SCHEER/EYEEM/GETTY IMAGES

I. The Problem

The global economy is coalescing around a few digital superpowers. We see unmistakable evidence that a winner-take-all world is emerging in which a small number of "hub firms"—including Alibaba, Alphabet/Google, Amazon, Apple, Baidu, Facebook, Microsoft, and Tencent—occupy central positions. While creating real value for users, these companies are also capturing a disproportionate and expanding share of the value, and that's shaping our collective economic future. The very same technologies that promised to democratize business are now threatening to make it more monopolistic.

Data platforms create monopolies

➔

Create an equal playing field

➔

Sound Market principles

https://hbr.org/2017/09/managing-our-hub-economy

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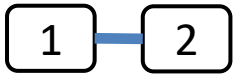
Landscape with providers of data and data products

- Market providers control their offers (data and data products)
- Users may compare products and explore how others use products.
- Cooperation to create joint opportunities that otherwise would not become reality.
- Requires infrastructure and rules.
- Open = transparent. Organise trust via market rules, with digital monitoring and enforcement.

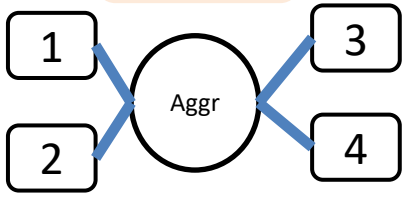
Enterprise Data Exchange Model Trends

Peer to Peer



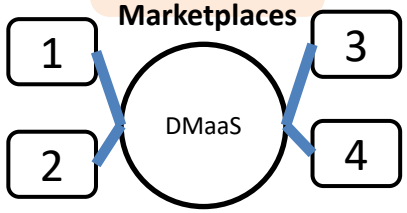
- Trusted Partners
- Data Quality is known
- Data Providers assume buyers do not re-sell data
- Data is moved to buyer

Buy/Sell to Aggregators



- Data SLA enforcement is buyer's responsibility/reputation-based
- Usually No control over data once it is with Aggregator/Broker
- Buyers get data from Broker
- Broker has his own marketplace

Participate In Decentralized Marketplaces



- Consortium determines rules of its trusted model
- Providers have control over their data
- Buyers interact compute with data, but have privacy over their code execution
- Consortium operator or 3rd party problem remediation

Credit EQUINIX

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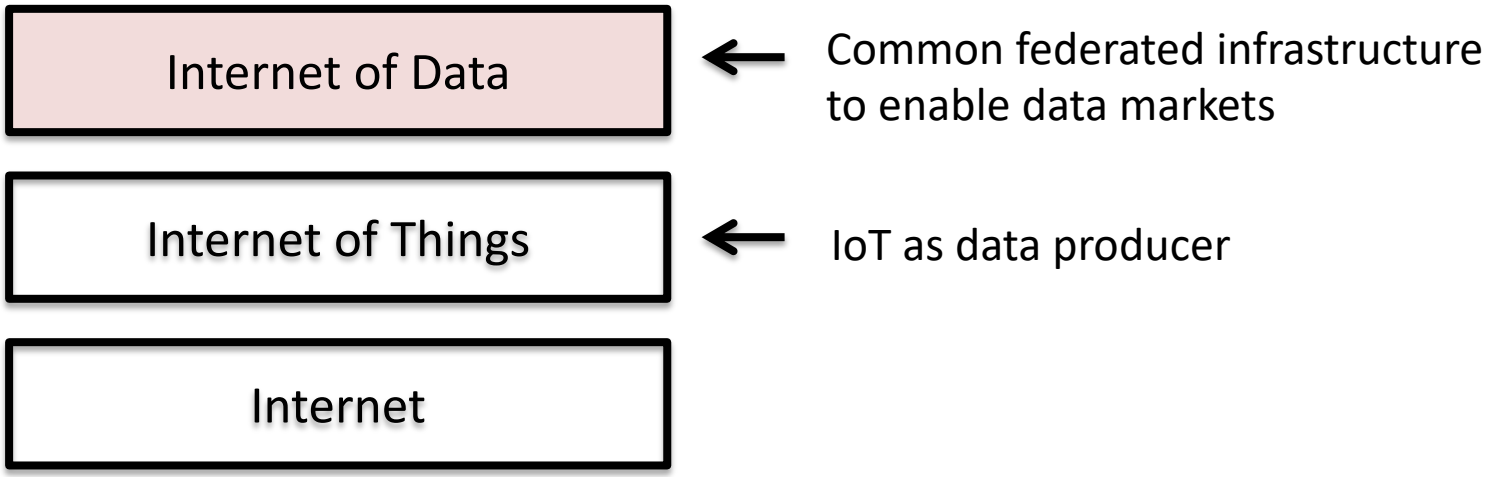
Provide the missing link



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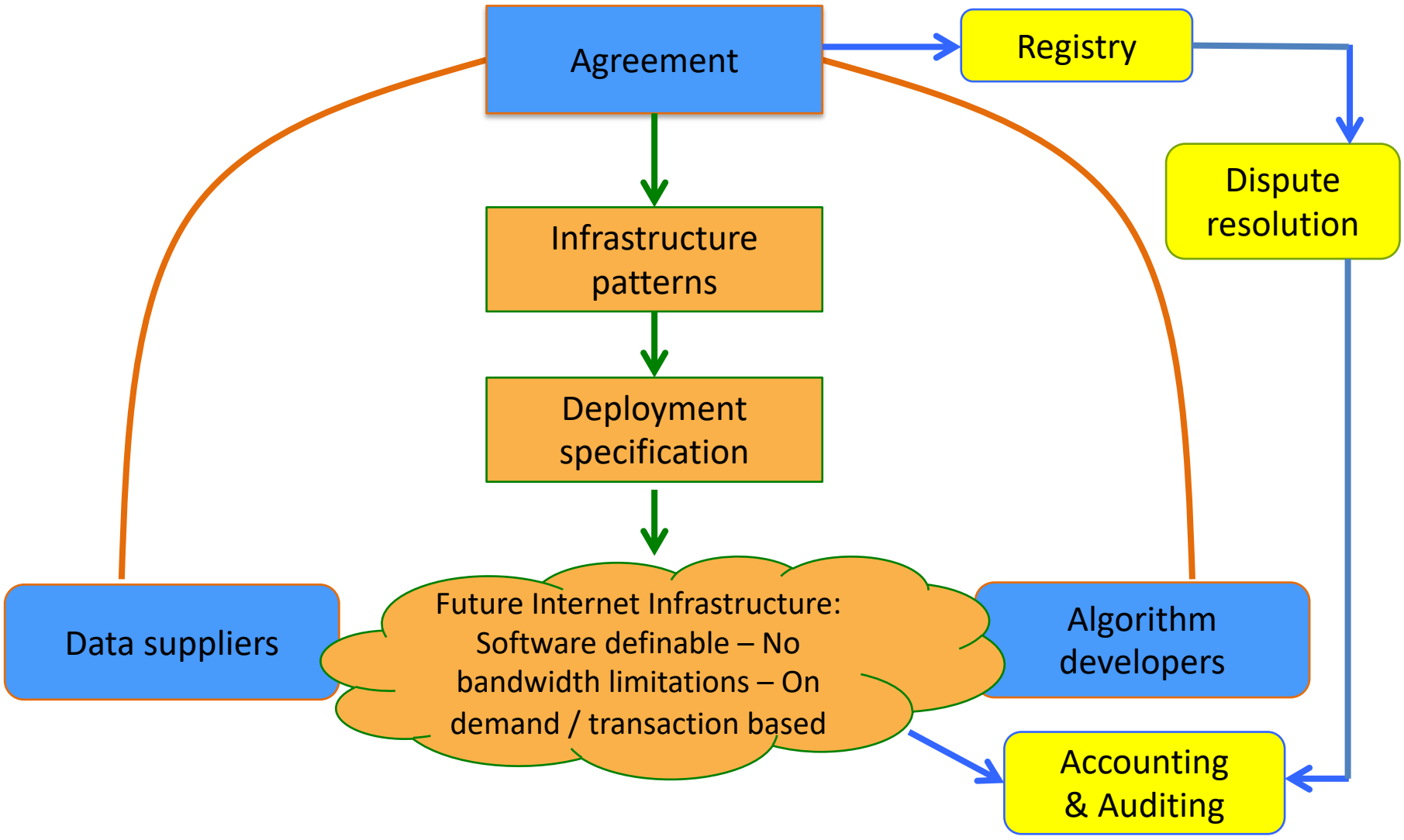
Architecture of ‘Data Market as a Service’(DMaaS)



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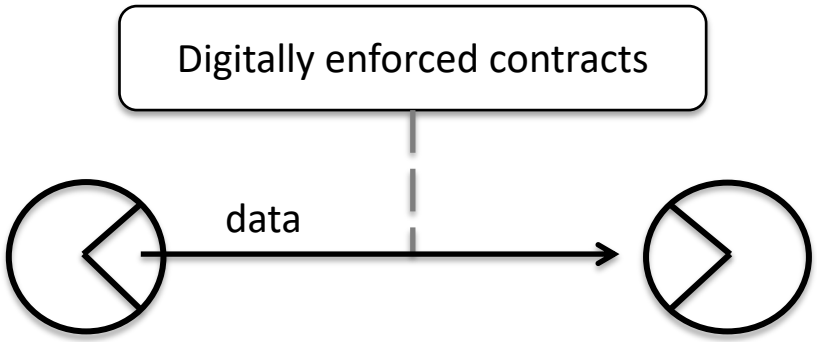
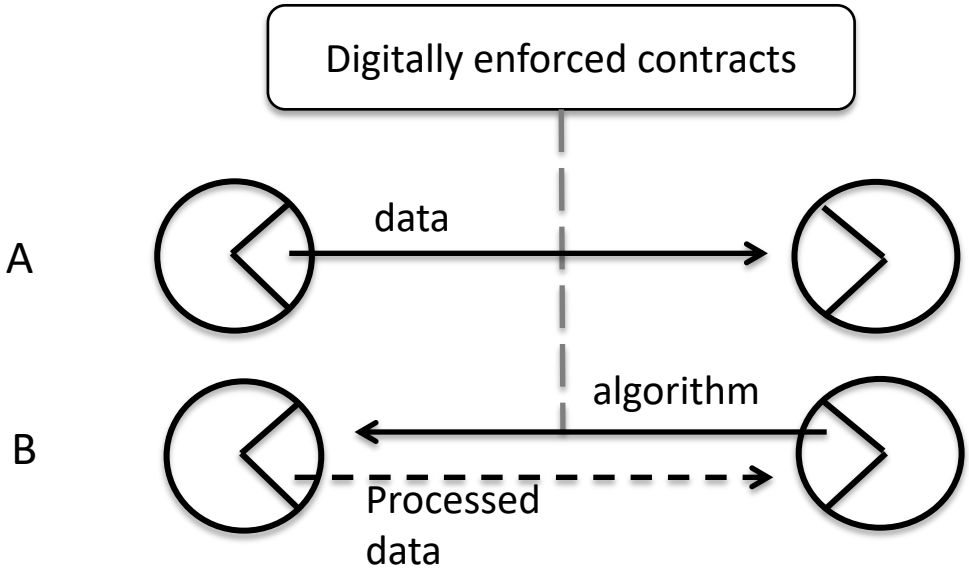
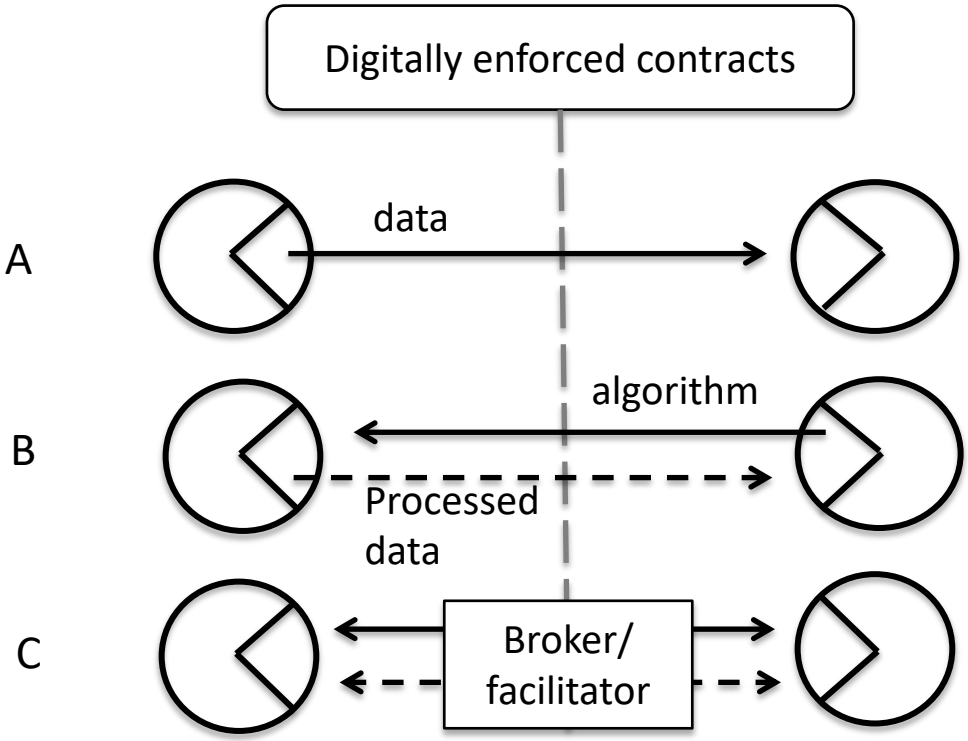
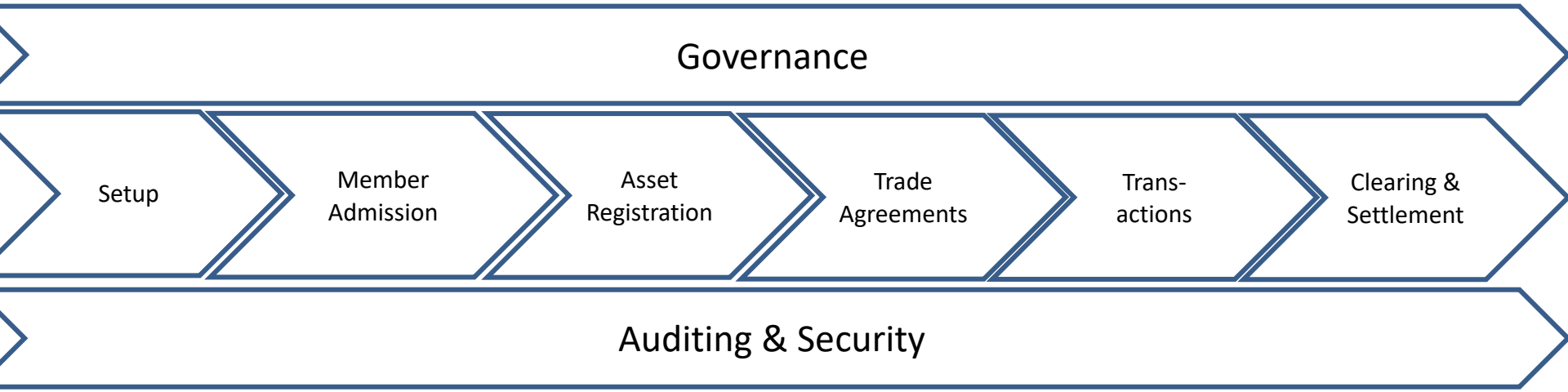



Digitally enforced contracts
A
data
algorithm
B
Processed
data


Digitally enforced contracts
A
data
B
algorithm
Processed
data
C
Broker/
facilitator

Functional view of a Digital Data Marketplace for sharing data



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Infrastructure Working Group

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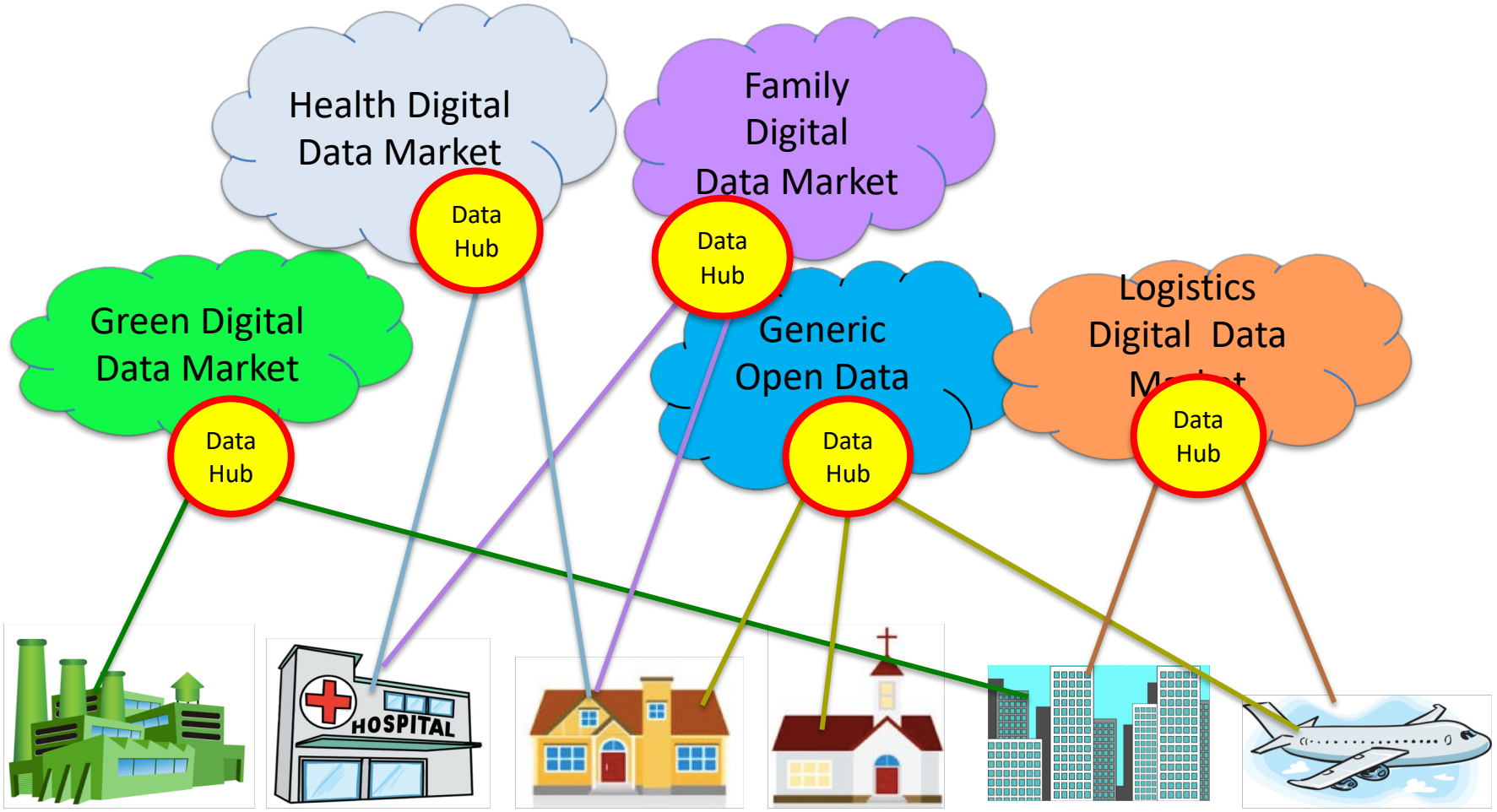
Data Market enabling trade processes using data hub services



Data producers – owners - users

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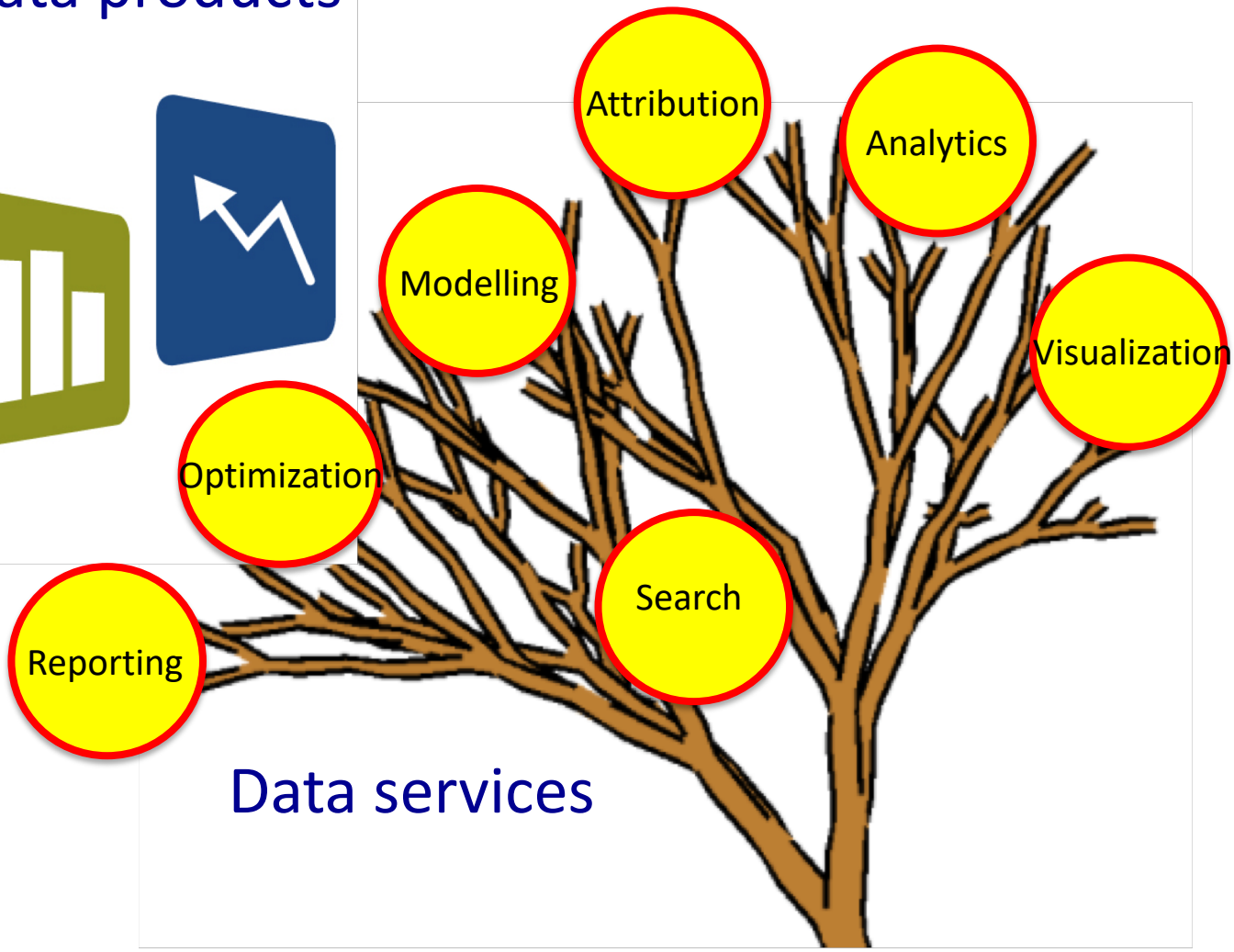
Data services and products

Credits: John Hopkins University



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Amsterdam Data Exchange (AMDEX)

- AMDEX is facilitating a neutral and trusted Digital Data Market allowing participants (supply and demand) to organise their (trading) activities.
- Offering infrastructure, generic services and frameworks for legal models. Reduce risk of market participants.
- Operating for interested communities willing to participate.
- “Community driven”: participating communities and member organizations control the Data Exchange mechanism.
- European regions are joining and connecting with their (emerging) Data Exchange facilities.

AMdEX Towards an internationally trusted exchange of data

About

Why an internationally trusted exchange of data is important

Practices

Examples that show potential and possibility of data exchange

Calendar

Important dates and scheduled events

Downloads

Reports, documentation and background information

towardsamdex.org

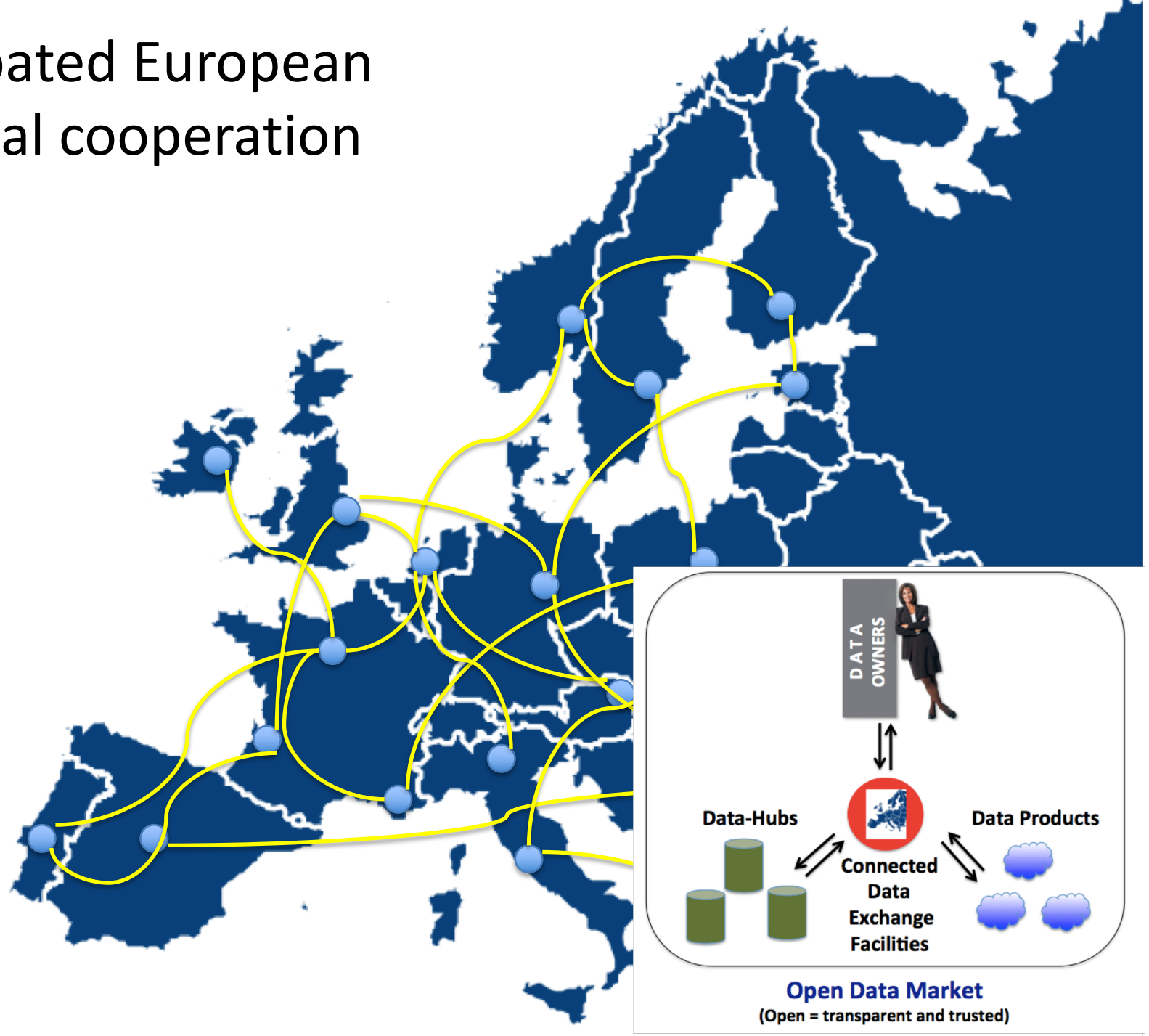
Industrial Data Space

Reference Architecture for Data Sovereignty

INDUSTRIAL DATA SPACE ASSOCIATION

Fraunhofer

Anticipated European regional cooperation



Regions want to proceed towards a Federated European Data Market

- Support all (proprietary, open and personal) data transactions.
- Federate, integrate and make interoperable the existing solutions and platforms.
- Implement common architectures for interoperability, integration, security & trust, and standards. Attention for optimising process of data to compute, and compute to data.
- Start the processes to propose and agree on required standards.
- Develop workable business models for establishing data exchange facilities and their cooperation, benefitting from established models.
- Consider implications for any required regulatory frameworks, and contribute to European and national considerations in this respect.