TRUSTS
Trusted Secure Data Sharing Space

# Operator business model options in a federated TRUSTS data ecosystem

Andreas Huber (CEO, Governance One) &
Bert Utermark (Partner, Trusted Data Analytics)

28 January 2021

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 871481

# Content of today‘s webinar

- What is the TRUSTS project and what are its objectives?
- How does TRUSTS support the European data strategy, common European data spaces and the wider economy?
- Which business model options of the TRUSTS data platform exist?
- How is business sustainability approached in TRUSTS?
- What are the next steps and how can you get involved?

| | |
|---|---|
| **1. Introduction to TRUSTS** | Recap |
| **2. Data Markets Value Creation** | Many things to many stakeholders |
| **3. Taxonomy and USPs** | Challenged or challenging business model ?! |
| **4. Business Sustainability in TRUSTS** | Exploration along 3 distinct mandates |
| **5. Getting involved** | Next steps, Q&A, contacts |

**Notes**: The webinar will be recorded. Slides and recording will be provided ~1 week after the webinar. Please ask questions in the chat of webinar tool.

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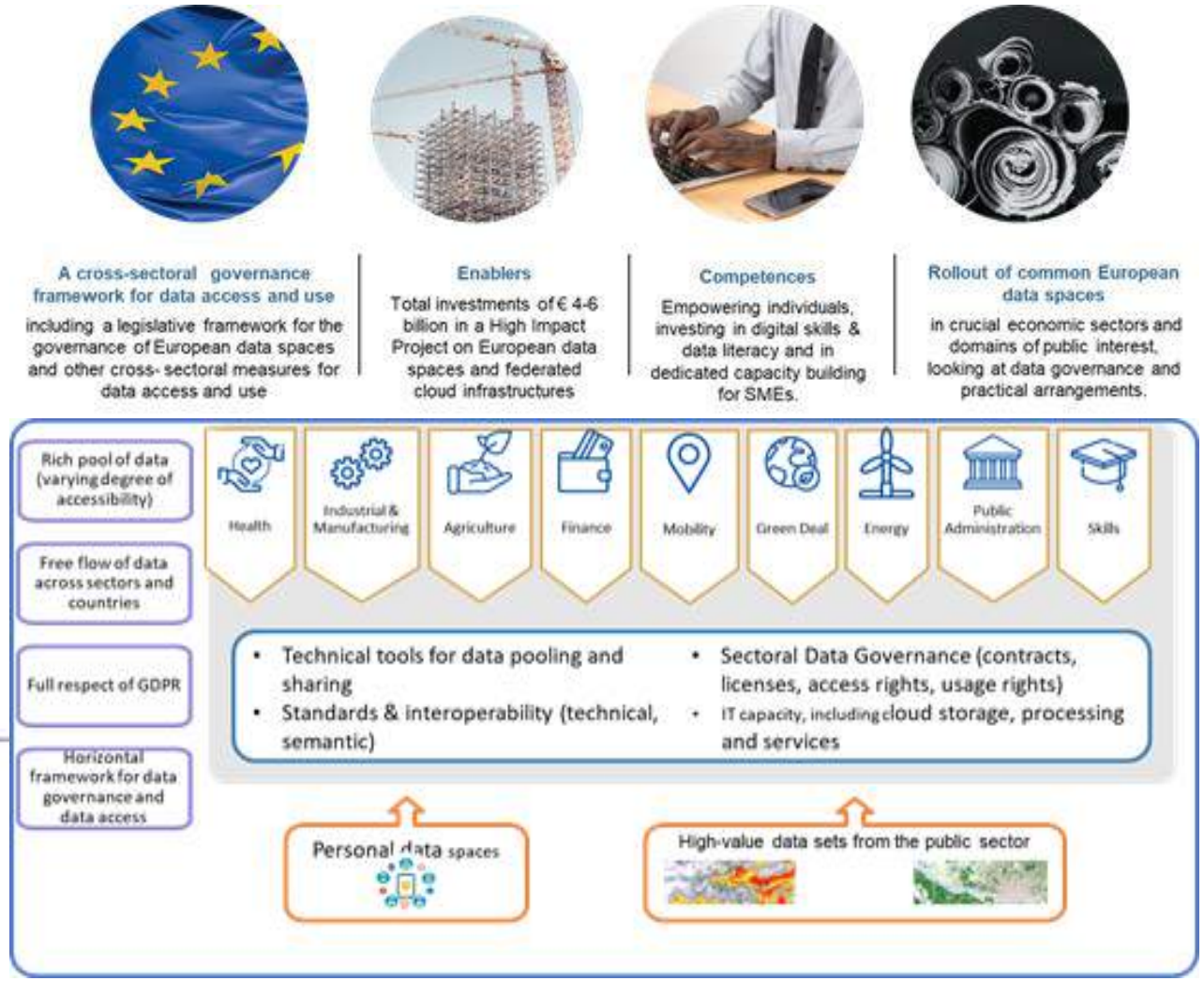
# 1. Introduction to TRUSTS

Recap

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 871481

# Deploying the European Data Strategy

***4 pillars, 9 data spaces***
***Integration via rules, regulation and technology***

# TRUSTS - Trusted Secure Data Sharing Space

- **Project Context**
  - TRUSTS brings together technology providers, data providers, research institutions, and multipliers
  - Horizon 2020 project, Grant agreement ID: 871481, 01/01/2020 – 31/12/2022
  - Based on 2 national data market projects (DMA and IDS)
  - Allows integration and adoption of future platforms in different jurisdictions

- **Project Objectives**
  - Create a secure, trustworthy, and GDPR-compliant European Data market for personal and industrial use by connecting different user groups and providing generic functionalities for innovative applications and services
  - Identify and overcome legal, ethical, and technical challenges of cross-border data markets to exploit full potential of the European data economy
    ⇨ competitive, alternative path vis-a-vis China, the US, and others

# TRUSTS Data Market Business Model Considerations

[TRUSTS Webinar on 28-Jan-2021]

Andreas Huber
CEO, Governance One

Bert Utermark
Partner, Governance One

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# 3 distinct roles of the emerging TRUSTS platform

| TRUSTS project Mandates | Differentiators | Roles of the Platform |
|---|---|---|
| "Build a data market for B2C and B2B" (with state-of-the-art technical attributes pertaining to sovereignty and security) | Sovereignty | Data Market |
| "Leverage existing data market project experience of TRUSTS partners (IDS, DMA) and interoperate with current and future data markets" | Federation | Data Market Federator (Meta-Market) |
| "Make a sustainable impact on the EU data economy supporting the European Data Strategy" | Interoperability | Ecosystem Facilitator |

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# 2. Data Markets Value Creation

Many things to many stakeholders

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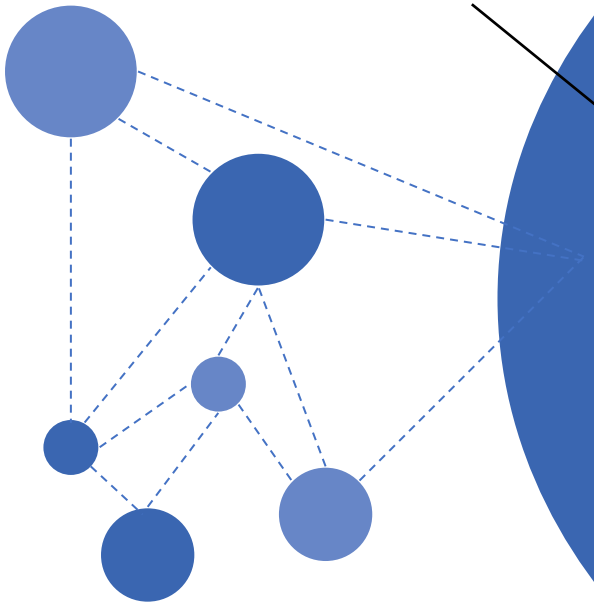
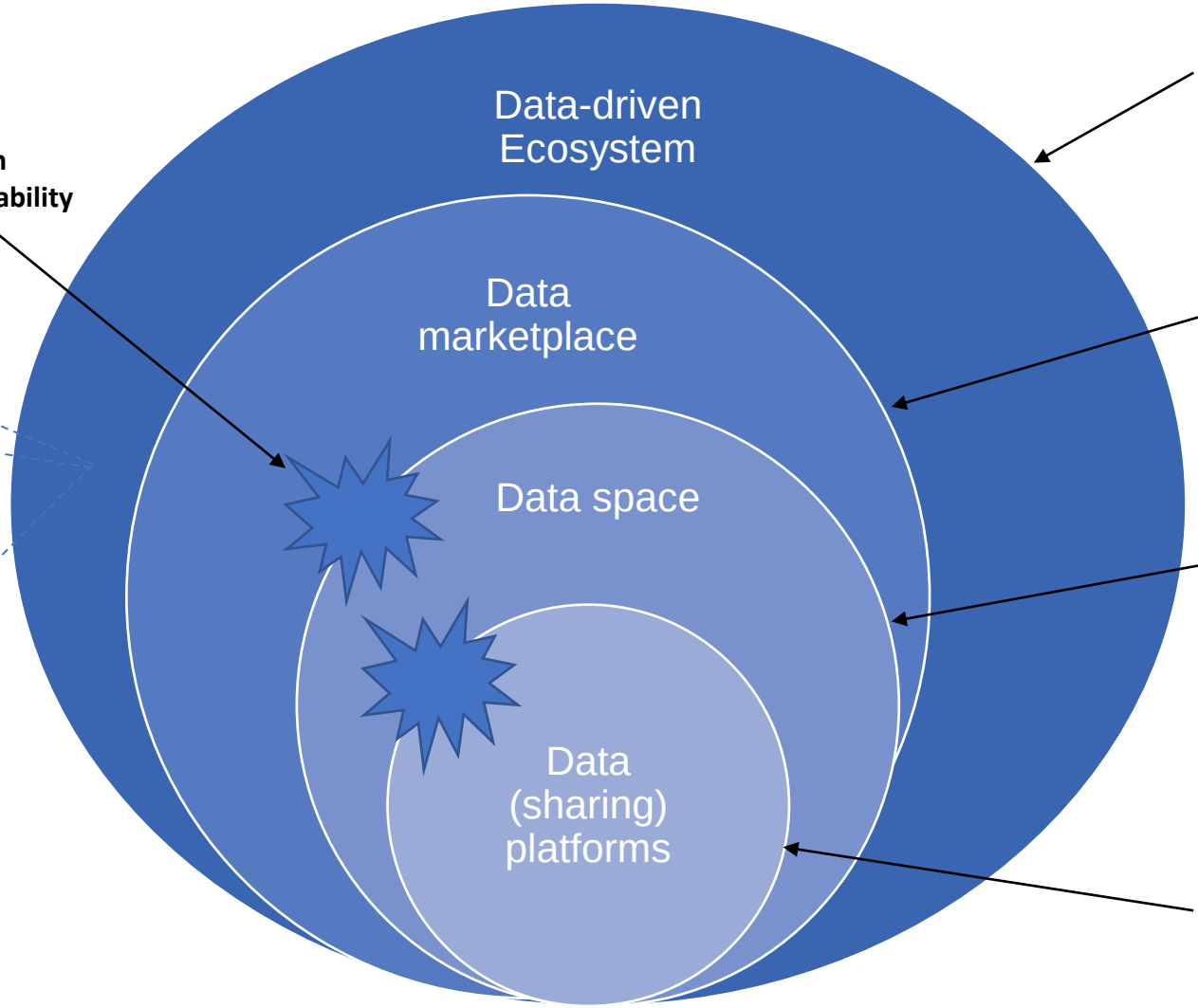
# Data markets in context: A functional perspective

Key objective: The emergence of a data–driven ecosystem

**Fragmentation and interoperability**






An ecosystem of stakeholders and services based on data-driven innovations

Connect Connects & Facilitates B2B Data Sharing and Transaction **(Value unit = DATA)**

- As access portals for sector and domain specific data…
  - manufacturing data
  - Mobility data
  - Health data
  - Financial data space
  - Energy data

Architectures and repositories of interoperable hardware/software components….

Source: IDSA

# Example data market functionalities (select blocks)

A prototypical data marketplace consists of four building blocks, 14 groups, and 36 functionalities. Functionalities in data marketplaces can be divided into two categories: mandatory or optional


*Core process*

*Technological backbone*

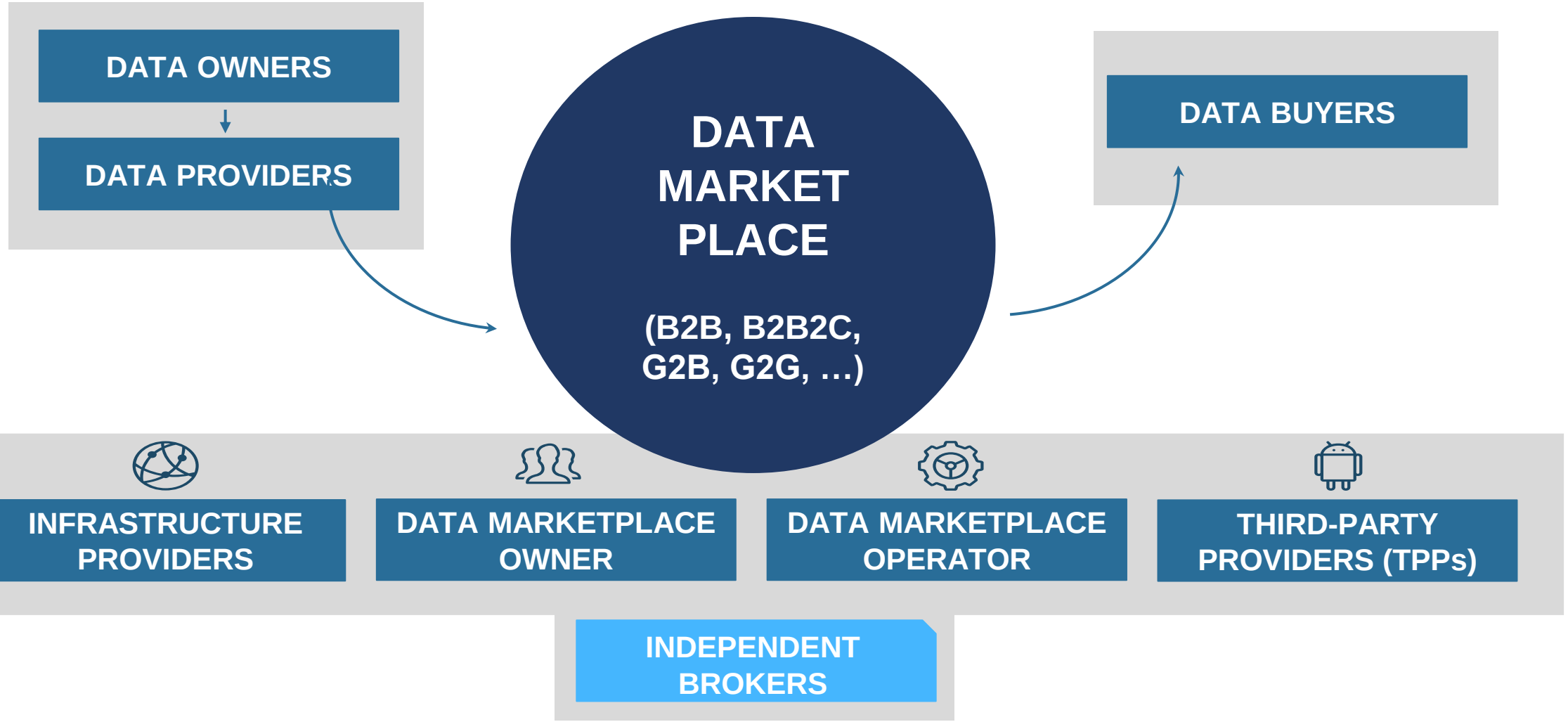
*Data service ecosystem*

*Account management*

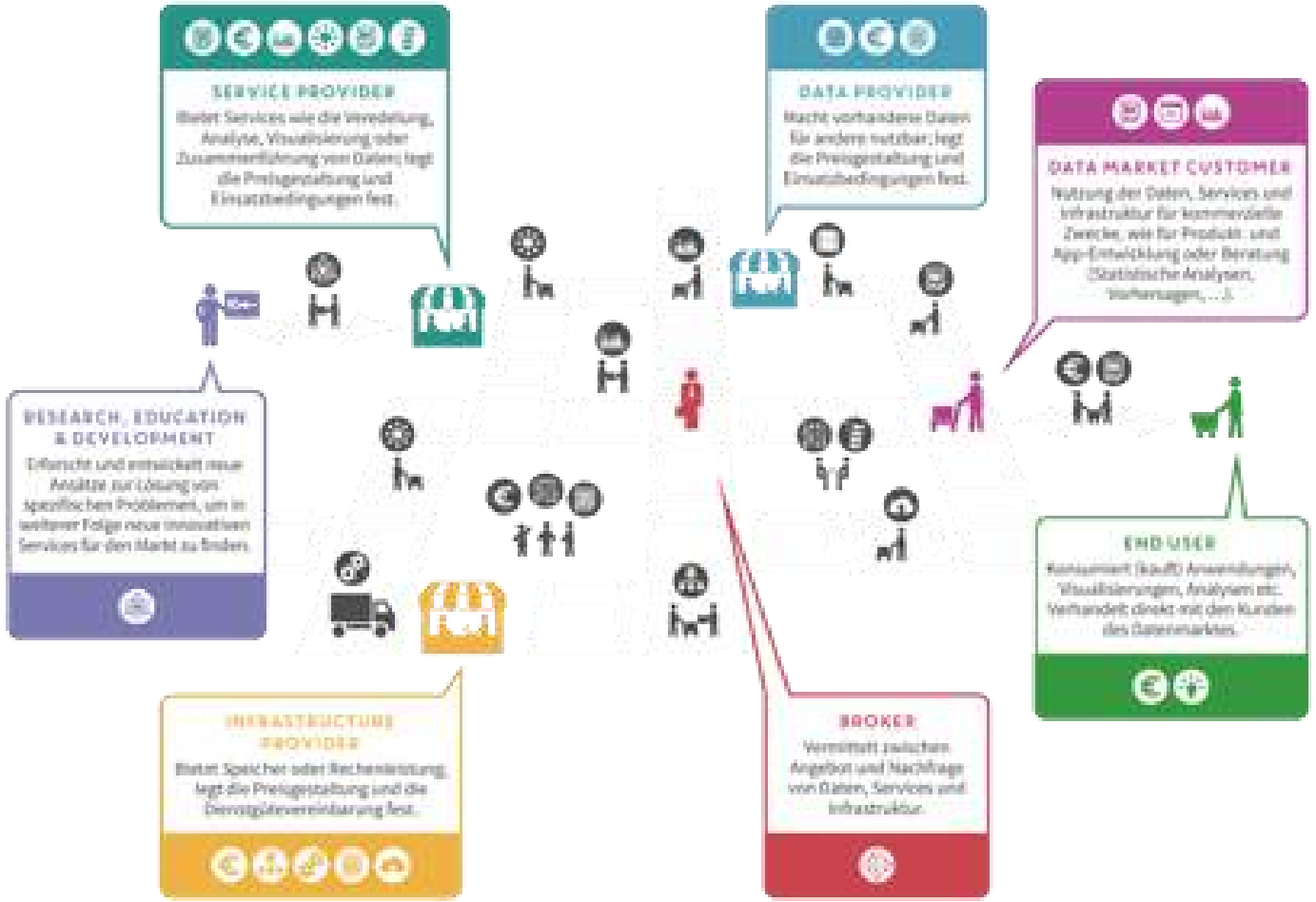
**Implied optional feature*

Source: DMA Project 2016-2019, TRUSTS Project 2020-2022

# Data market concept



# Basic data market: Roles and intermediates




- Constituents of a data market have different interests and needs
- Elevated importance of brokerage: automated (recommender systems) and as professional service (moderation of data circles)

Source: DMA Project 2016-2019

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# 3. Taxonomy and USPs

Challenged or challenging business model ?!

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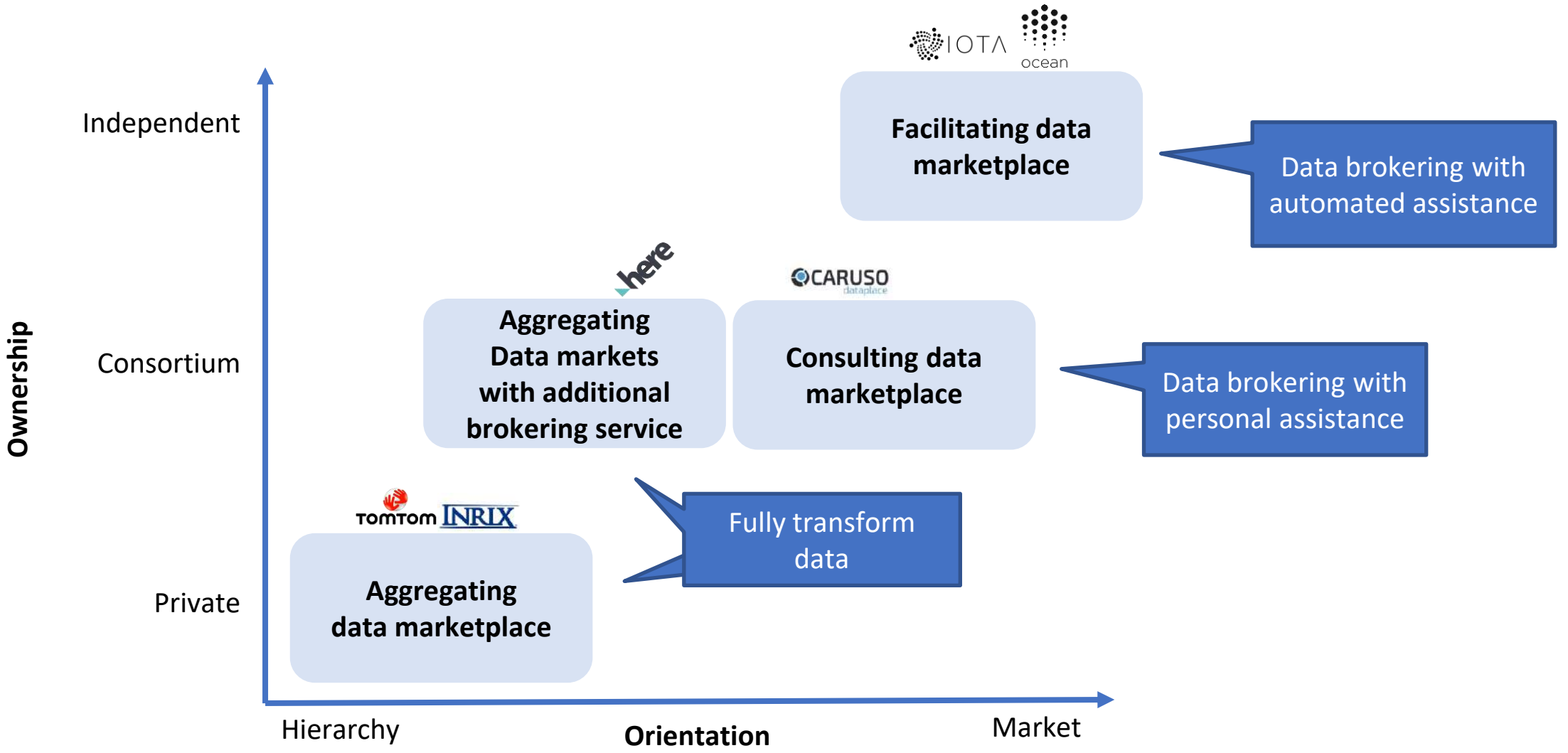
# Data marketplace patterns 1/2




Source: BERGMAN, R. 2020. A Business Model Taxonomy for Data Marketplaces. Master of Science, Delft University of Technology

# Data marketplace patterns 2/2

| | Component | Dimension | Characteristic | | | | |
|---|---|---|---|---|---|---|---|
| Value creation | Customer segment | Domain | Location (TT, IN, HE) | Automotive (CR) | All industries (IOTA, OP) | | |
| | | Participants | Data sellers, data buyers, internal & external developers (TT, IN, HE) | Data sellers, data buyers & external developers (CR, IOTA, OP) | | | |
| | Value proposition | Data service | Customized map service (TT, IN) | Data brokering service (CR, IOTA, OP) | Both (HE) | | |
| | | Data output | Aggregated data (TT, IN) | Standardized data (CR, IOTA, OP) | Both (HE) | | |
| | | Data quality | Reviews by marketplace owner (TT, IN) | User reviews (IOTA, OP) | No info (**CR, HE**) | | |
| | | Privacy | Anonymized (TT, IN, CR) | Encrypted (HE, IOTA, OP) | | | |
| | Customer relationship | Contract | Negotiated (TT, IN, CR) | Standardized (IOTA, OP) | Both (HE) | | |
| Value delivery | Key channels | Platform access | Closed (TT, IN, CR) | Open (IOTA, OP) | Both (HE) | | |
| | Key resources | Platform infrastructure | Centralized (TT, IN, **HE, CR**) | Decentralized (IOTA, OP) | | | |
| | Key activities | Data processing activities | All (TT, IN, HE) | Limited (CR, IOTA, OP) | | | |
| Value capture | Revenue | Revenue streams | Usage based (TT, IN) | Usage based & freemium (HE) | Commission (CR) | Donations (IOTA) | No info (OP) |
| | Pricing model | Data pricing mechanism | Set by data marketplace (TT, IN) | Set by seller (CR, IOTA, OP) | Both (HE) | | |
| | | Payment currency | Fiat currency (TT, IN, HE, CR) | Cryptocurrency (IOTA, OP) | | | |

Seemingly similar characteristics of TomTom and INRIX

Seeming similar characteristics of IOTA and Ocean Protocol

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Source: BERGMAN, R. 2020. A Business Model Taxonomy for Data Marketplaces. Master of Science, Delft University of Technology

# Business-centric data market taxonomy

**4 meta-characteristics**

**17 business model dimensions**

| | Dimension | Characteristics | | | | | |
|---|---|---|---|---|---|---|---|
| Service domain | Value proposition | Easy data access and/or tooling | Secure data sharing | High quality and unique data | All services in a single platform | | |
| | Enterprise data marketplace | Yes | | No | | | |
| | Data processing and/or analytics tools | Yes | | No | | | |
| | Marketplace participants | B2B | | C2B | | Any | |
| | Industry domain | Any data | Geo data | Financial & Alternative data | Health & Personal data | Audience data | Sensor & Mobility data |
| | Geographic scope | Global | | Regional | | Local | |
| | Time frame | Static | Up-to-date | (Near) real-time | Multiple | | |
| Technology domain | Platform architecture | Centralized | | Decentralized | | | |
| | Data access | API | Download | Specialized software | Multiple options | | |
| | Data source | Self-generated | Customer provided data | Acquired data | Multiple sources | | |
| Organization domain | Matching mechanism | One-to-one | One-to-many | Many-to-one | Many-to-Many | | |
| | Platform sponsor | Private | | Consortium | | Independent | |
| Finance domain | Revenue model | Commissions | Subscriptions | Usage fees | Asset sales | | |
| | Pricing model | Freemium | Pay-per-use | Flat fee tariff | Package based pricing | Multiple | |
| | Price discovery | Set by buyers | Negotiation | Set by marketplace provider | Set by external sellers | | |
| | Smart contract | Yes | | No | | | |
| | Payment currency | Fiat money | | Cryptocurrency | | | |

**59 business model characteristics**

Source: Creating a taxonomy of bus. models for DMs. VEN, M. 2020. Master of Science, Delft University of Technology.

# Data business model archetypes


## Primary Data Business Model Archetypes

| | |
|---|---|
| Product | Selling of Data |
| Service | Processing of Data |
| Trade | Connecting Data & Services Vendors & Buyers |

## Secondary Data Business Model Archetypes

| | |
|---|---|
| Brokerage | Data Trade as a Service |
| Subscription | Productized / Semi-automated Data Services |
| Marketplace | Productized Data Trade on a Platform<br>Self-Service Platform |

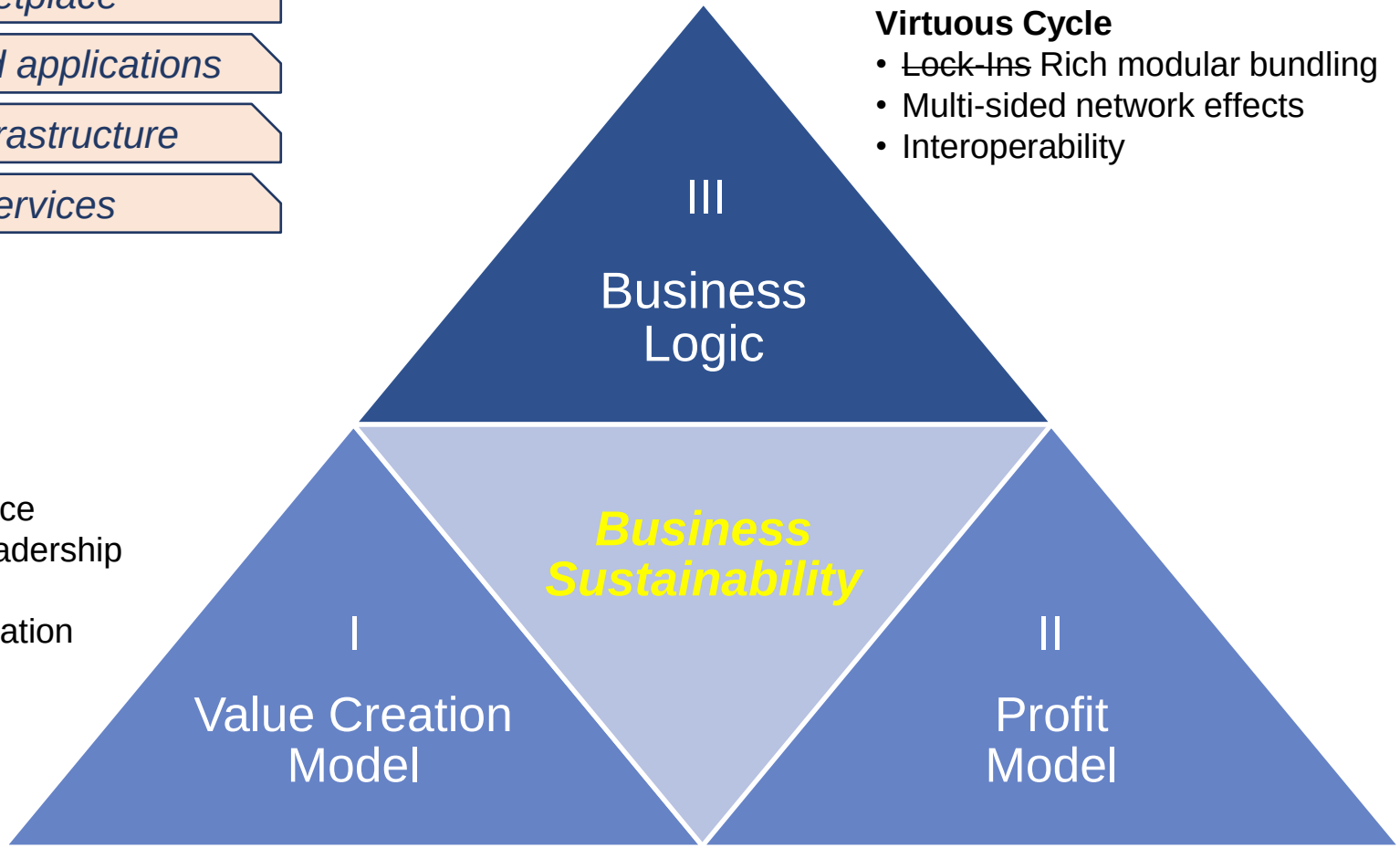
**Ecosystem** Federated platform and incubator for data & data solution businesses, combining all data business model archetypes across players

Source: DMA Project 2016-2019

# Business model architecture

- *Data marketplace*
- *Components and applications*
- *Computing infrastructure*
- *Auxiliary services*

**Virtuous Cycle**
- ~~Lock-Ins~~ Rich modular bundling
- Multi-sided network effects
- Interoperability




**Value Discipline**
- Operational Excellence
- Product / Service Leadership
- Customer Initimacy
- Value Chain Coordination

**Customers**

**Channels**

**Revenue Model**
- Transactional
- Subscription
- Licensing
- Freemium

**Cost Structure**

**Unit Economics**

# Competitive dynamics affecting data markets

What is the degree of cannibalizing competition…

1. Among existing “pure-bred” data markets?
2. Triggered by differentiating, value-added non-trading services of data markets?
3. By platforms with data market functionality as an add-on to a non data market business model (big tech ecosystems)


Talking of potential for new entrants…

1. Is the industry profit pool appealing, at all?
2. Does accelerated data monetization (primary and secondary) translate into new data markets?
3. Data and infrastructure service firms

How powerful are data buyers…

1. Being able to bypass data markets?
2. Dictating terms of trade services?
3. Influencing provision of value-added data services?

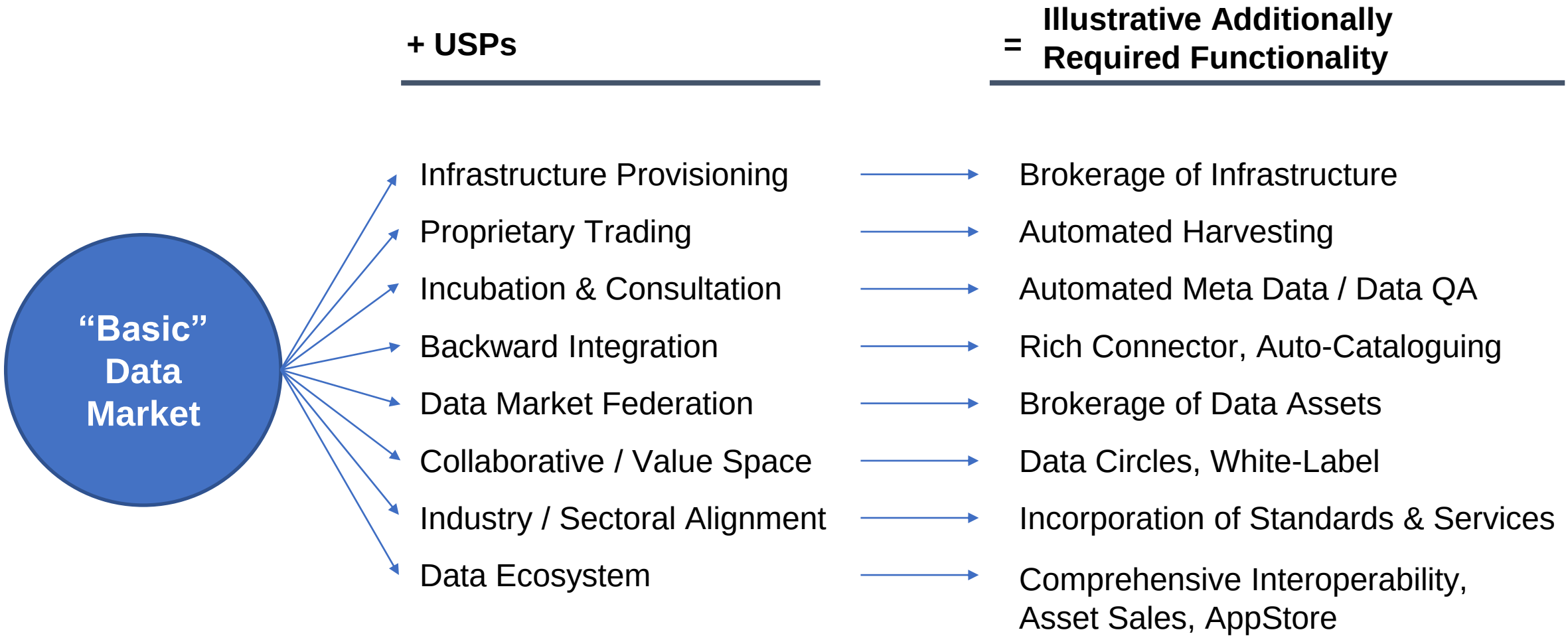
What degree of power rests with data providers…

1. Directly, by availing data only to select players?
2. Directly, on data market trade & services pricing?
3. Indirectly, on trade volume via pricing towards buyers?

What is the impact of …

1. Proliferation of data sharing technology?
2. Advent of crowd sourcing and data unions?
3. Open data movement and Open Cloud?

# Select data market USPs to achieve business sustainability



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# 4. Business Sustainability in TRUSTS

Exploration along three distinct mandates

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# 1. TRUSTS as data market

| TRUSTS project Mandates | Differentiators | Roles of the Platform |
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| **"Build a data market for B2C and B2B" (with certain technical attributes pertaining to sovereignty and security)** | **Sovereignty** | **Data Market** |
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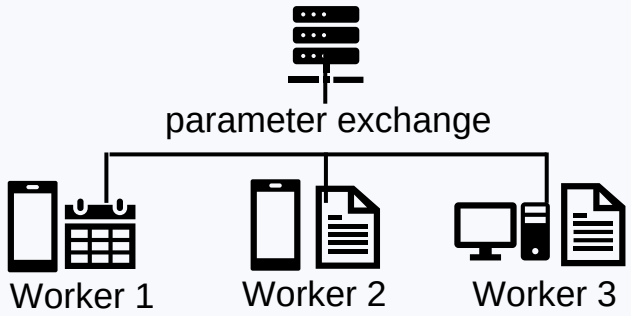
| "Make a sustainable impact on the EU data economy supporting the European Data Strategy" | Interoperability | Ecosystem Facilitator |

# TRUSTS use cases on data sovereignty and security

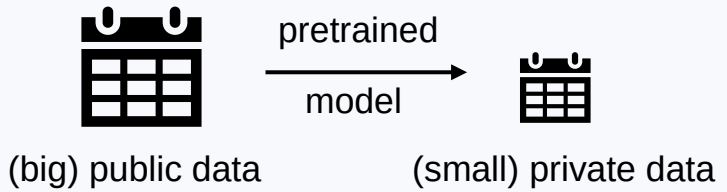
**3 use cases** in FS and Telco

- Anti-Money Laundering Compliance
- Agile Marketing through Data Correlation
- Improved Customer Support Services by Data Acquisition

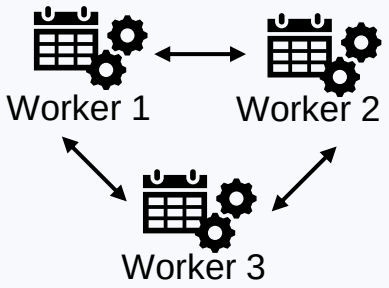
## Federated Learning



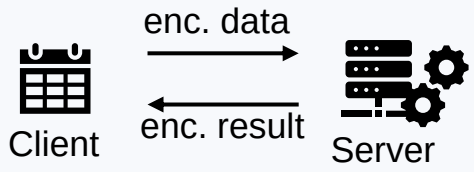

## Transfer Learning




## Multiparty Computation




## Homomorphic Encryption



# 2. TRUSTS as data market federator

| TRUSTS project Mandates | Differentiator | Roles of the Platform |
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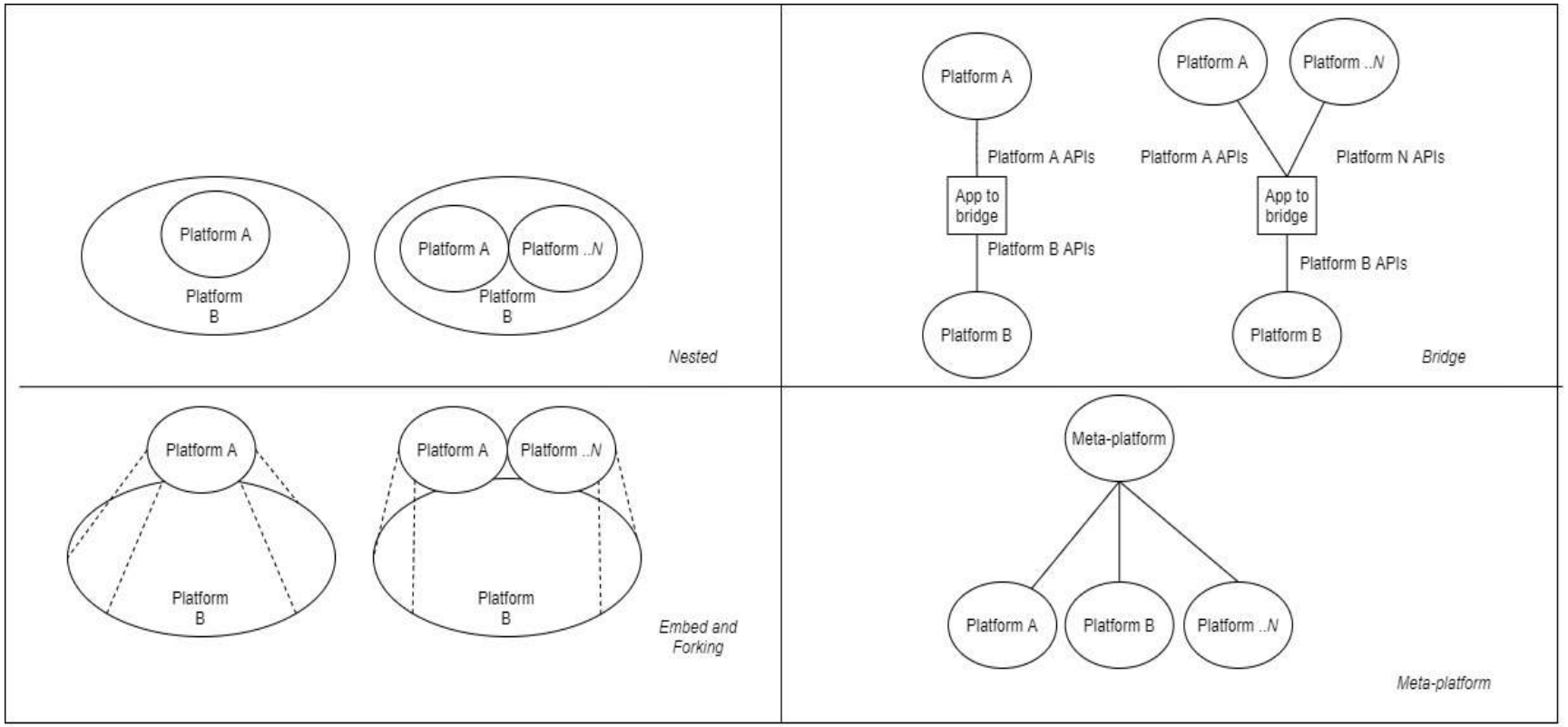
# Multi-platform data market federation

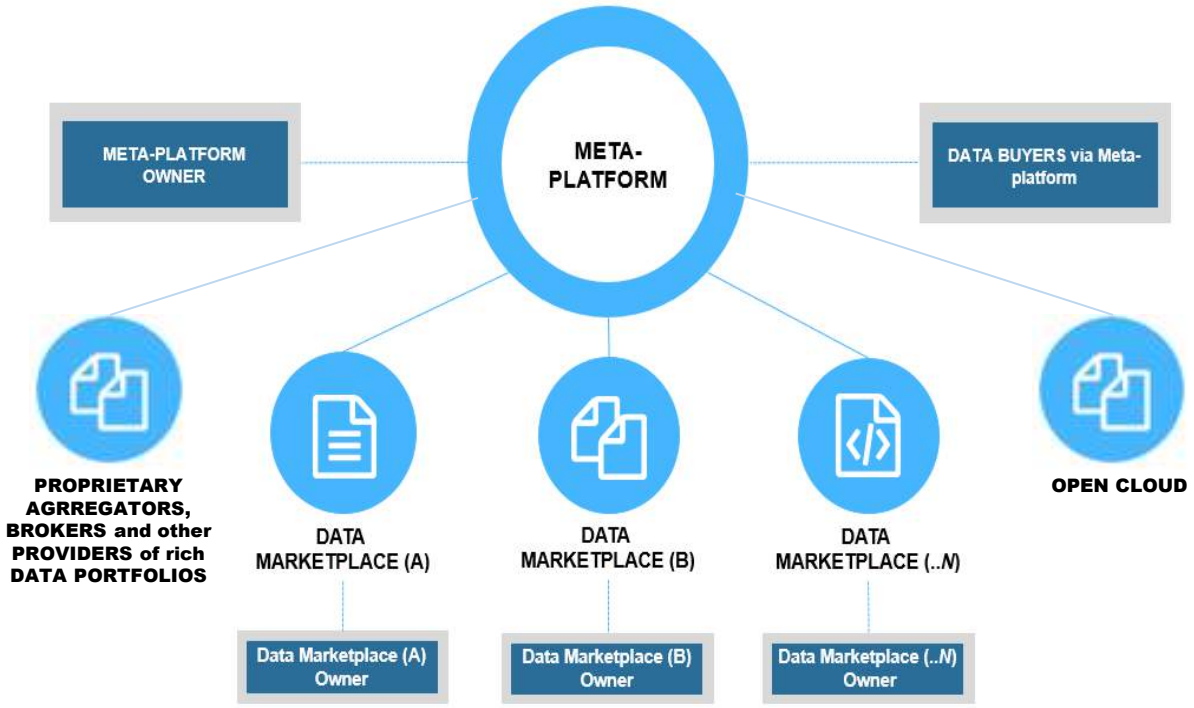
*"A platform that fosters value transfer and resource sharing among and across other (same- or cross-domain) individual platforms based on the concept of **federation** through openness and interoperability endeavours, thus enabling quicker and greater network effects."*




| Amplified Characteristics |
|---|
| Interfaces for interoperability |
| Platform interdependency |
| Cross-domain bridging |
| Value transfer definition |
| Resource sharing |
| Federation governance |
| Amplified network effects |

# TRUSTS federation as meta-platform

## Data market meta-platform conceptualization




## Evolution

- *In the TRUSTS Federator use case, a number of existing data markets (B2B, G2G, G2B and so on) connect with TRUSTS as federating platform sharing information about the data which is available in the decentralized data markets*
- *Standardisation bodies to be involved to ensure acceptance of the TRUSTS Data Market as nexus of a common European data exchange network.*
- *Hierarchical meta-platform as starting point for federation of data markets. May may lead to the emergence of P2P federations of data markets*

# Value creation through data market federation

| Pain points of data markets | Potential value creation by federation |
|---|---|
| 1. Lack of traffic to the data market (number of buyers) | Forwarding of traffic. commissioned brokerage |
| 2. Insufficient economies of scope / adverse both-sided network effects (data sources / datasets) | Increased totality of data sources / datasets within the federation. Value increase through combinations |
| 3. Risk of insufficient value capture for harvested data (selection & sales) | Portfolio effects through harvesting of open data as a shared service for federation members |
| 4. Costly development and upgrading of data market technology infrastructure | Gradual harmonization of technology stack through coordination and common standards |
| 5. Insufficient economies of scale for operations of non-differentiating capabilities | Provision of non-differentiating capabilities (e.g. billing) as shared services |
| 6. Inability to track and sanction violations of data market code of conduct | Central register / authentication of data market users |
| … | … |

# 3. TRUSTS as ecosystem facilitator

| TRUSTS project Mandates | Differentiators | Roles of the Platform |
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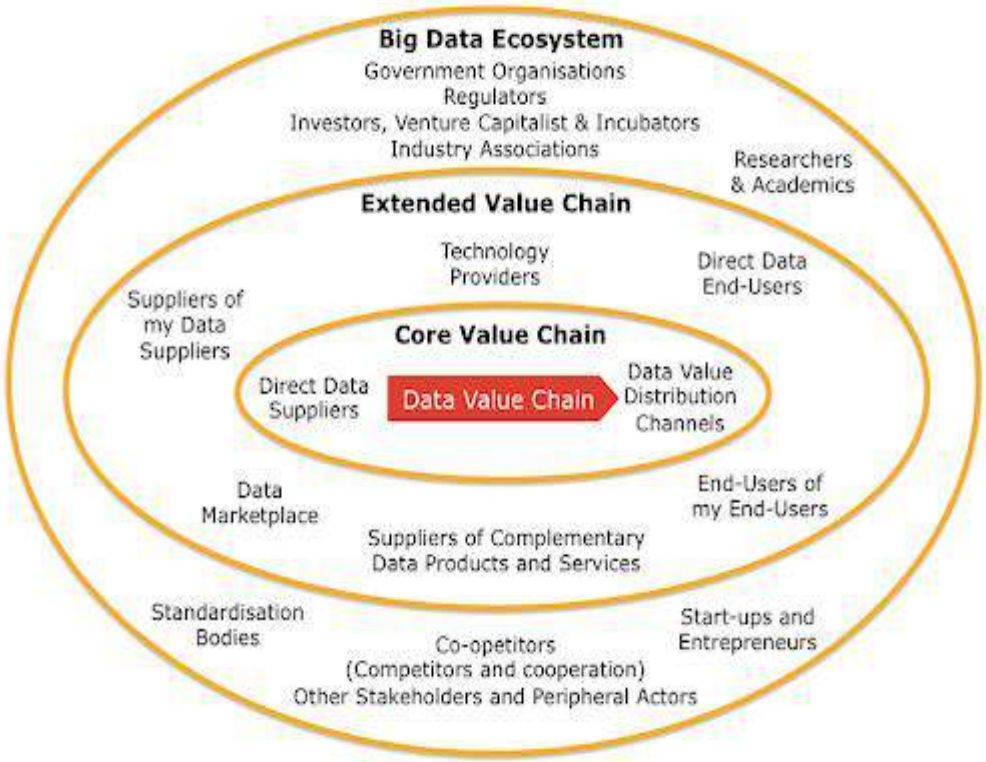
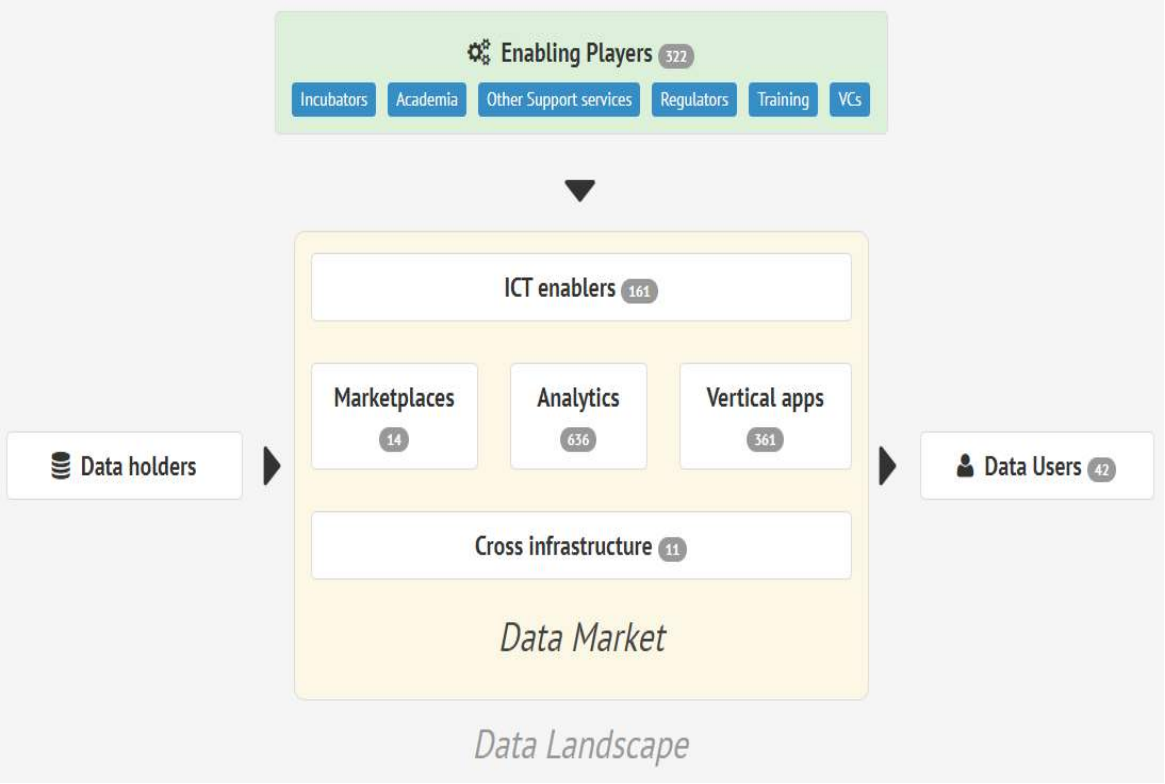
# Data ecosystem: more than data buyers & sellers

## Big Data Ecosystem Stakeholders




## Data Landscape




Source: IDSA, https://datalandscape.eu/eu-data-landscape (as of Oct-20-2020)

# Exploration of viable economic models

| ID | Description | Deliverable/Result Type | Economic Model | Architecture Layer |
|---|---|---|---|---|
| A1 | Data Space Operations/Provider | Service | Profitable | Data Ecosystems |
| B1 | Data Business Models (Data Trustee, Data Traceability etc.) | Service | Profitable | Trusted Data Services |
| B2 | High End GAIA-X Nodes, Trust+ IDS Connectors etc. | Service | Profitable | Trusted Data Services |
| C1 | Basic Data Sovereignty Service Provider | Service | Low profit | Infrastructure |
| C2 | Essential Data Sovereignty Service Provider | Service | Low profit | Infrastructure |
| C3 | Certification Body (dt.: Zertifizierungsstelle) | Service | Non for profit | Infrastructure |
| C4 | Evaluation Facility (dt. Prüfstelle) | Service | Profitable/Low profit | Infrastructure |
| C5 | Digital Certificate/DAPS Provider | Digital Asset | Low profit | Infrastructure |

Source: Fraunhofer ISST, TU Dortmund

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# 5. Getting involved

Next steps, Q&A, contacts

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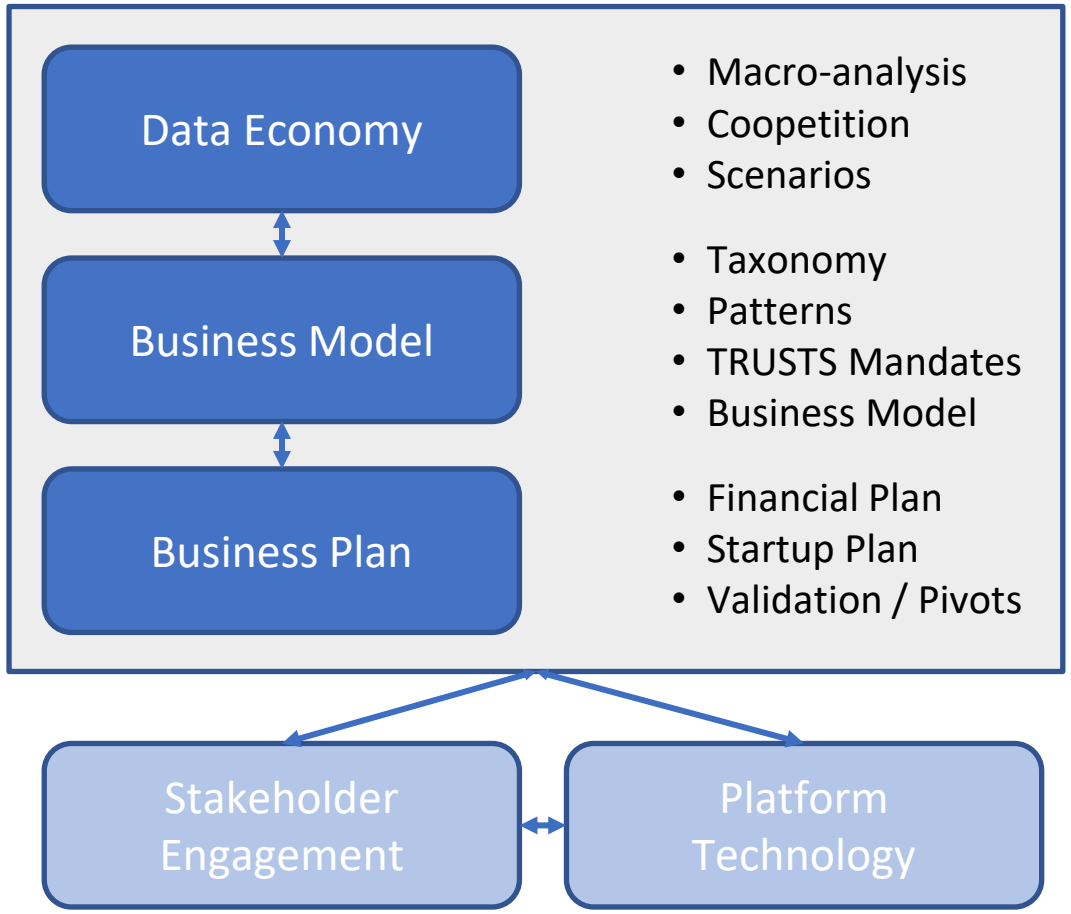
# Getting involved…

## Project interdependencies




## Collaboration venues

- TRUSTS Advisory Board
- Focus Groups
- Workshops
- Regular Webinars
- Surveys

https://www.trusts-data.eu/

# Next webinars

End of March 2021

Legal aspects of TRUSTS with

**KU Leuven** – Lidia Dutkiewicz and Yuliya Miadzvetskaya

**Safe-DEED project** (Safe Data-Enabled Economic Development)

https://www.trusts-data.eu/events/

# Questions & Answers

Any questions?
Please feel free to ask.

We are at your disposal to answer any further questions:

Nina Popanton & Manuela Schlömmer

*Joint Communication and Dissemination Lead, TRUSTS*

DIO
Data Intelligence Offensive

nina.popanton@dataintelligence.at manuela.schloemmer@dataintelligence.at

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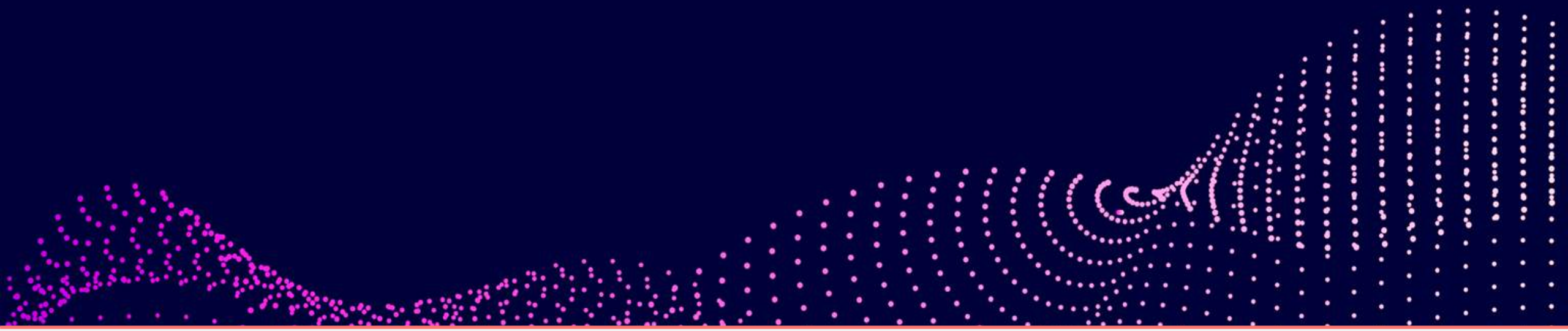
# Thank you for your participation



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