Empowering Citizens. Smarter Societies.

Insight
Centre for Data Analytics

Open Data as part of a wider European Data and AI Ecosystem

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A World Leading SFI Research Centre

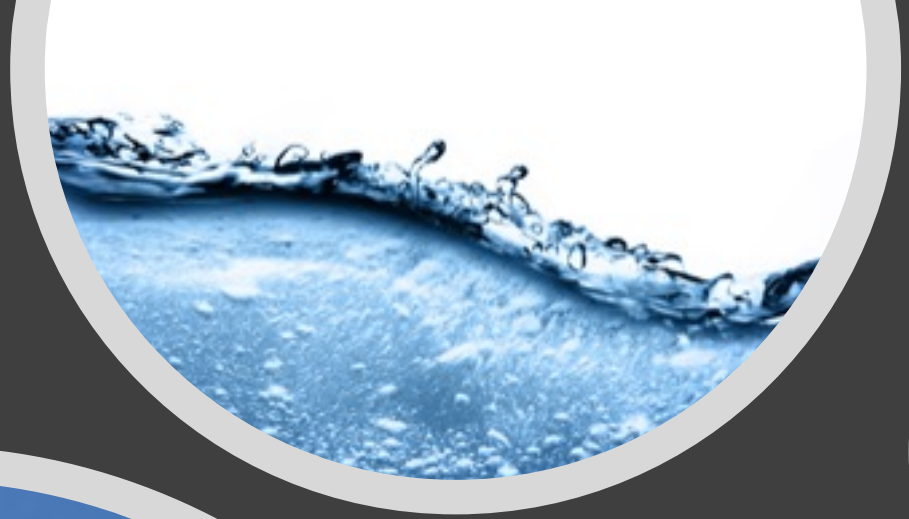
This publication has emanated from research conducted with the financial support of Science Foundation Ireland (SFI)under Grant Number SFI/12/RC/2289, co-funded under the European Regional Development Fund

(Open) Data is Key to AI

"The world's most valuable resource is no longer oil, but data. The data economy demands a new approach to antitrust rules"

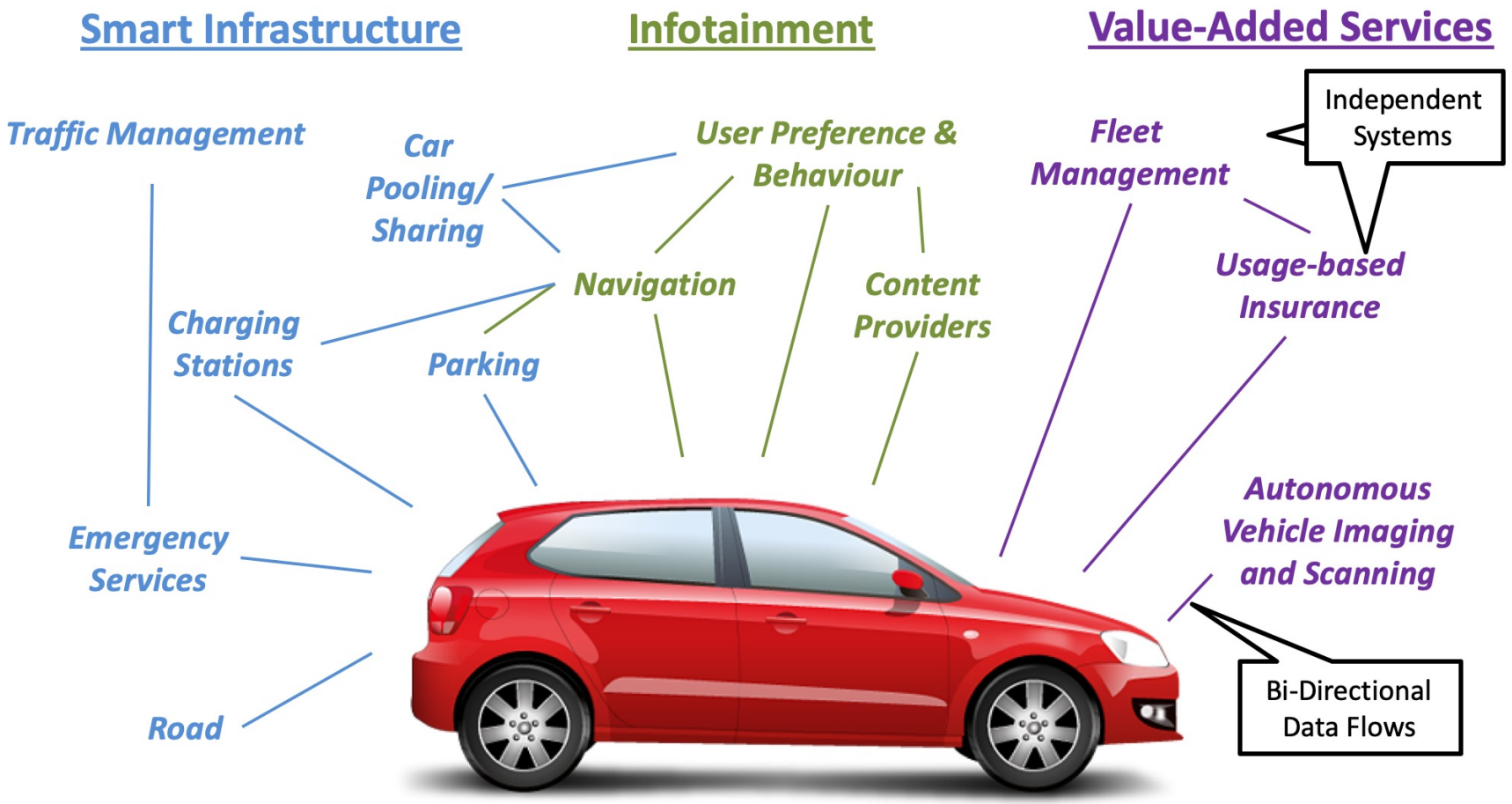
The Economist

...startups and established firms that are just beginning to use AI **need access to data** in order to train their AI systems. Difficulty in accessing the necessary data can create **a barrier to entry**, potentially **reducing competition and innovation**. - Forbes



Emerging Smart Environments….

Connected Intelligent Systems



*Data-driven Intelligence will be drive by industrial, personal and **open** data*

Ecosystem

community of organisms and their environment interacting as a system

Tansley (1935) Lindeman (1942),…

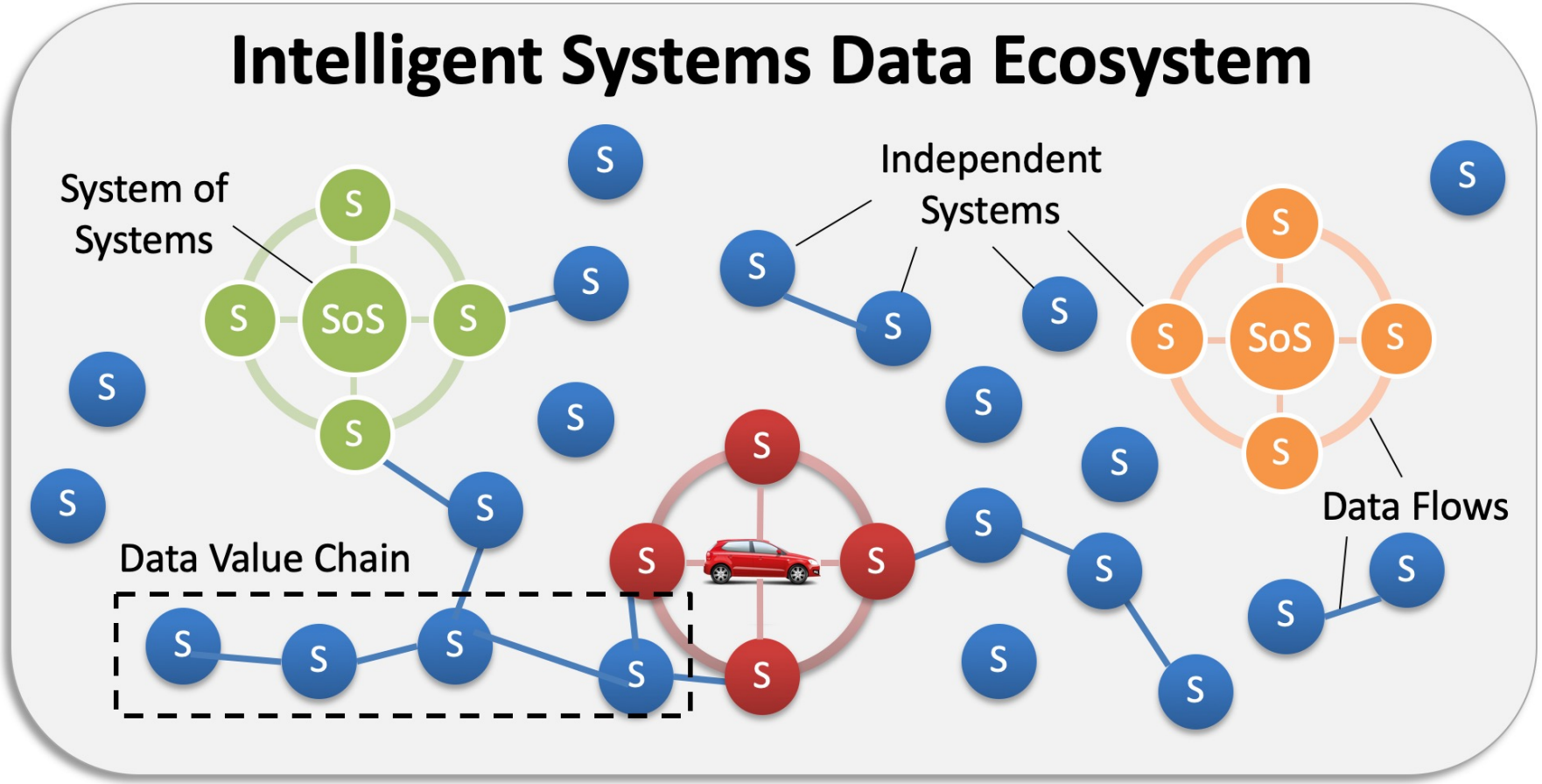
Data Ecosystem

socio-technical system extracting value from data value chains by interacting organisations and individuals [15]

oriented to business and societal purposes

marketplace, competition, collaboration

Distributed and Decentralised Data Ecosystems



Key Barrier: Interoperability – Protocols and **Semantics**

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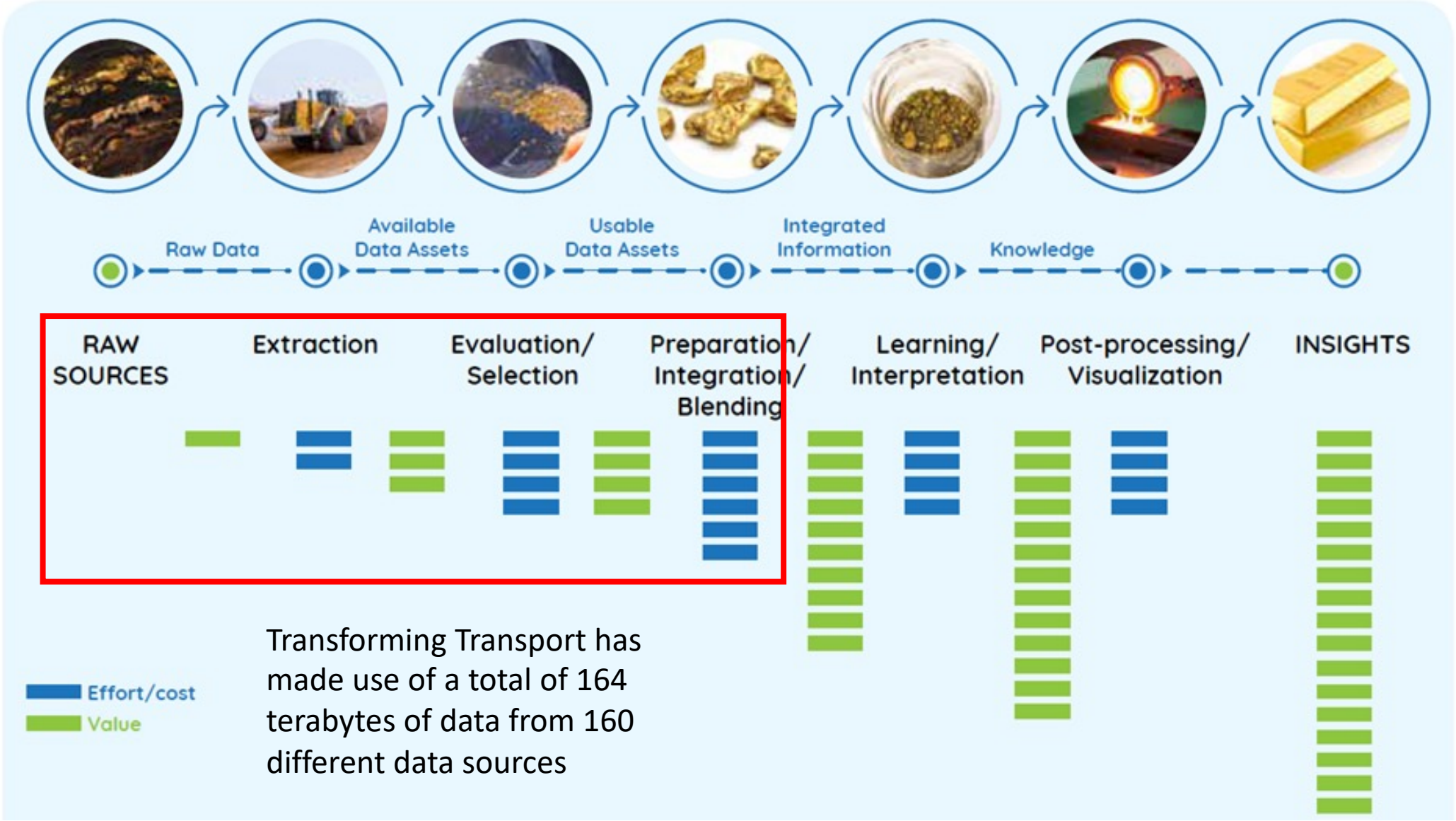
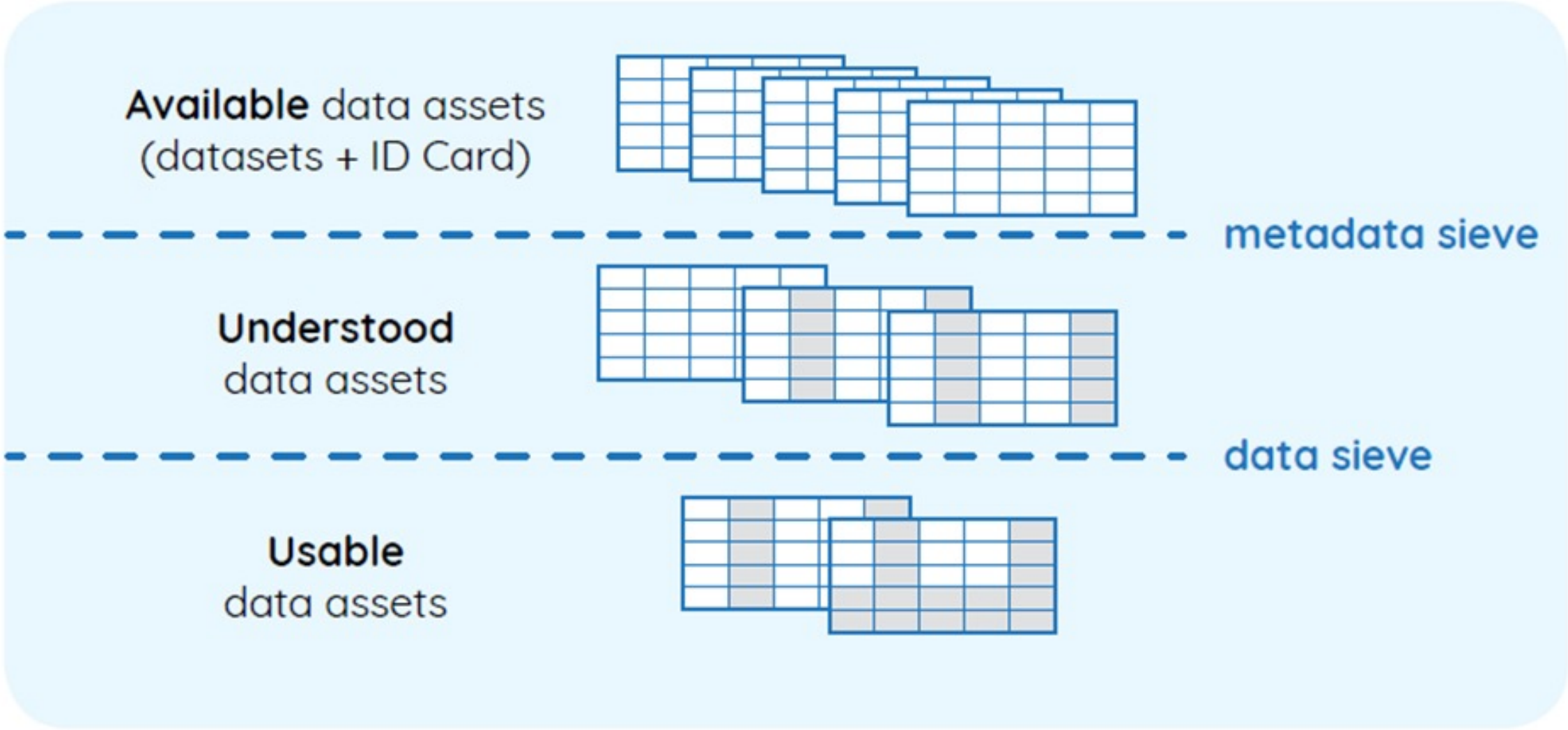
TRANSFORMING
TRANSPORT
THALES
autoaid
SoFLEET
Atos
Insight
VTT
TAMPERE
CARTIF
tomtom
Fraunhofer
INTRASOFT
logika
JEPPESEN
indra
cintra
ferrovial
adif
ORBITA
ATHENS

The “gold mining” metaphor applied to data processing



Transforming Transport has made use of a total of 164 terabytes of data from 160 different data sources

Maturity stages of data assets and related “sieves”



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Data Platforms will Fuel AI-Driven Decision-Making

Data Generation and Analysis
(including IoT)

Data Platforms
(Access and Portability)

AI and Decision Platforms

What is a Data Sharing Space

Emerging ***Data Ecosystems*** rely on three complementary technologies:

- ***Data Spaces:*** Data storage, lifecycle management platforms and protocols
  - networked industrial and/or personal data spaces
- ***Data Platforms:*** Next generation data acquisition and processing platforms
- ***Data Marketplaces:*** Data sharing and exchange platforms where data is commercialized using Open Data, Monetized Data and Trusted Data sharing mechanisms.

Wide Angle Perspective……..

……..Different scales and orientations

- **Data platform for Aviation**
- **Across full Value Chain**
- **Large-scale**
- **Multi-sector**

WatErnomics

- **Dataspace for Water and Energy Management**
- **Localized**
- **Medium-scale**

Real-time Linked Dataspaces

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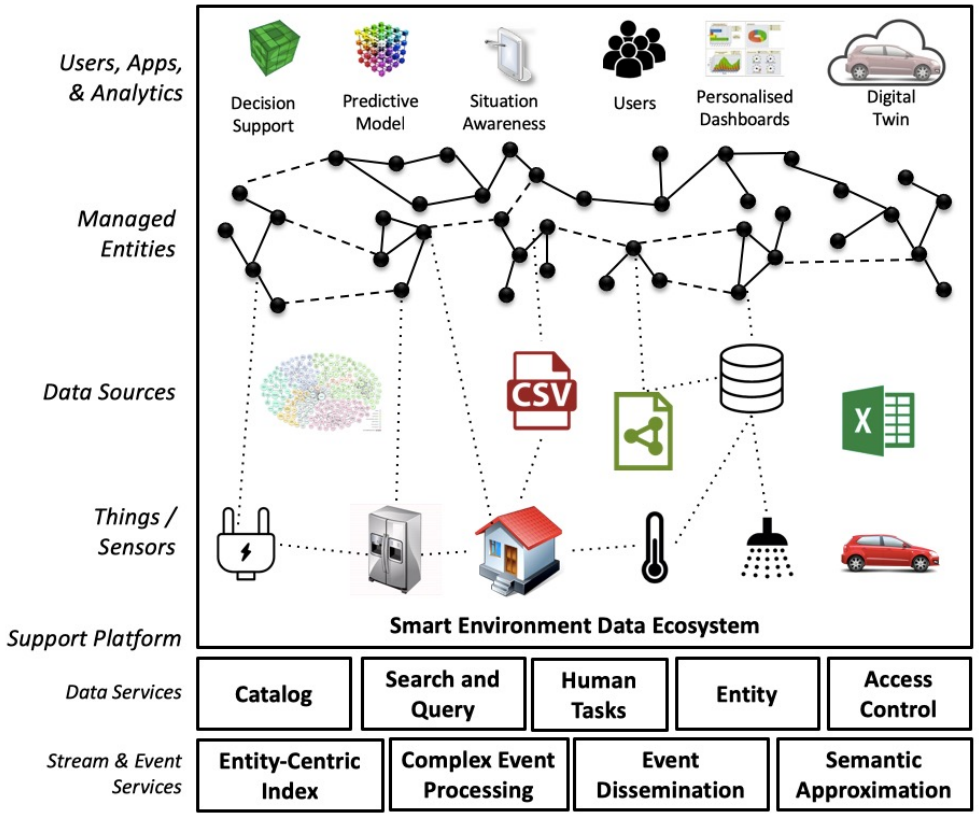
Enabling platform for data management for intelligent systems within smart environments

Combines the pay-as-you-go paradigm of dataspaces, linked data, and knowledge graphs with entity-centric real-time queries

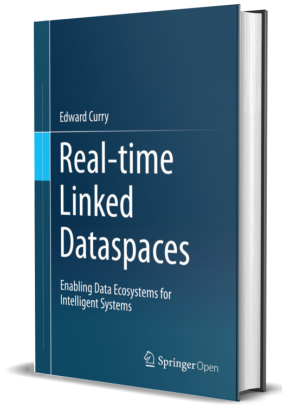


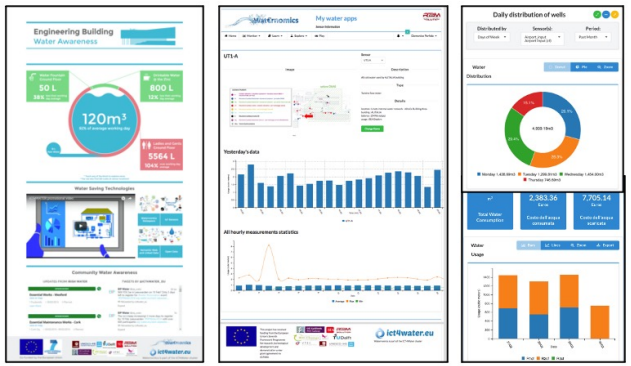
Real-Time Linked Dataspace

Open Access Book (dataspaces.info)

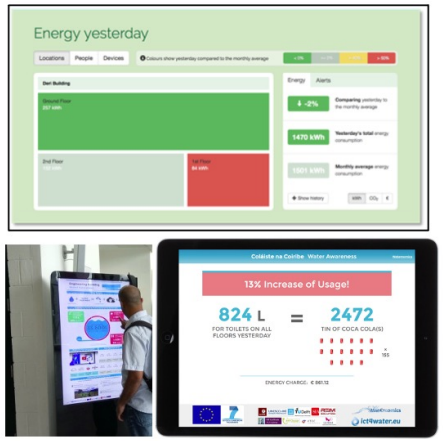
Contents

Part I: Fundamentals and Concepts
Part II: Data Support Services
Part III: Stream and Event Processing Services
Part IV: Intelligent Systems and Applications
Part V: Future Directions

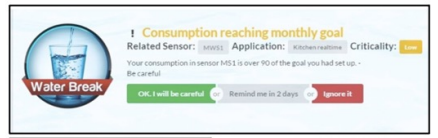




Personalised Dashboards



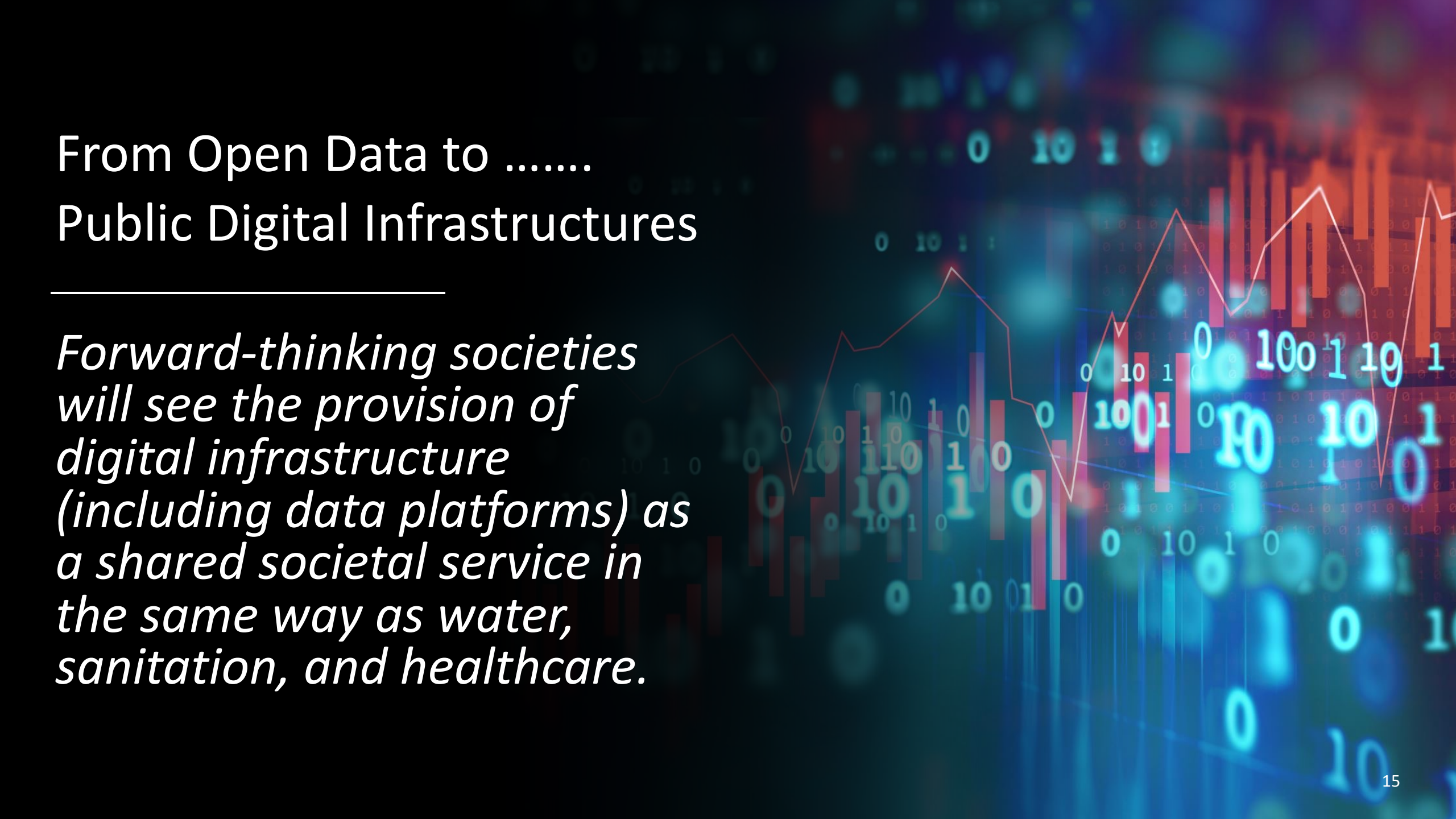
Interactive Public Displays



Alerts and Notifications

From Open Data to …….
Public Digital Infrastructures

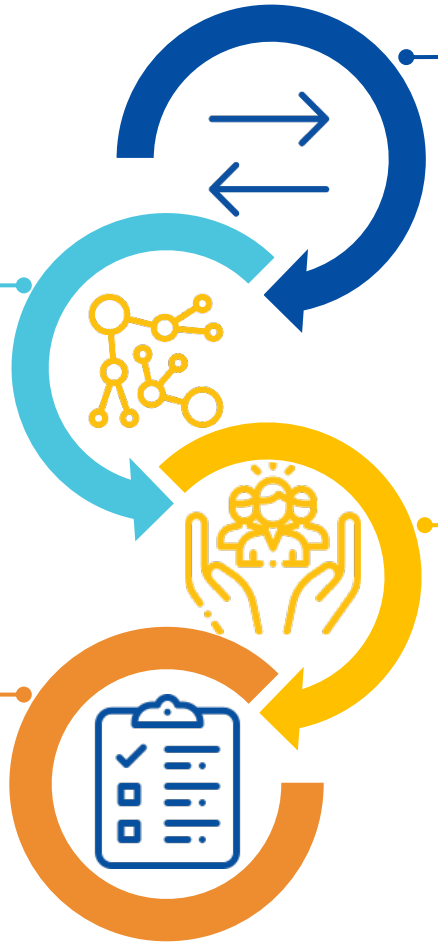
Forward-thinking societies will see the provision of digital infrastructure (including data platforms) as a shared societal service in the same way as water, sanitation, and healthcare.



A European strategy for data

European Strategy for Data

A common European data space, a single market for data



Data can flow within the EU and across sectors

Availability of high quality data to create and innovate

European rules and values are fully respected

Rules for access and use of data are fair, practical and clear & clear data governance mechanisms are in place

European Commission

Common European data spaces

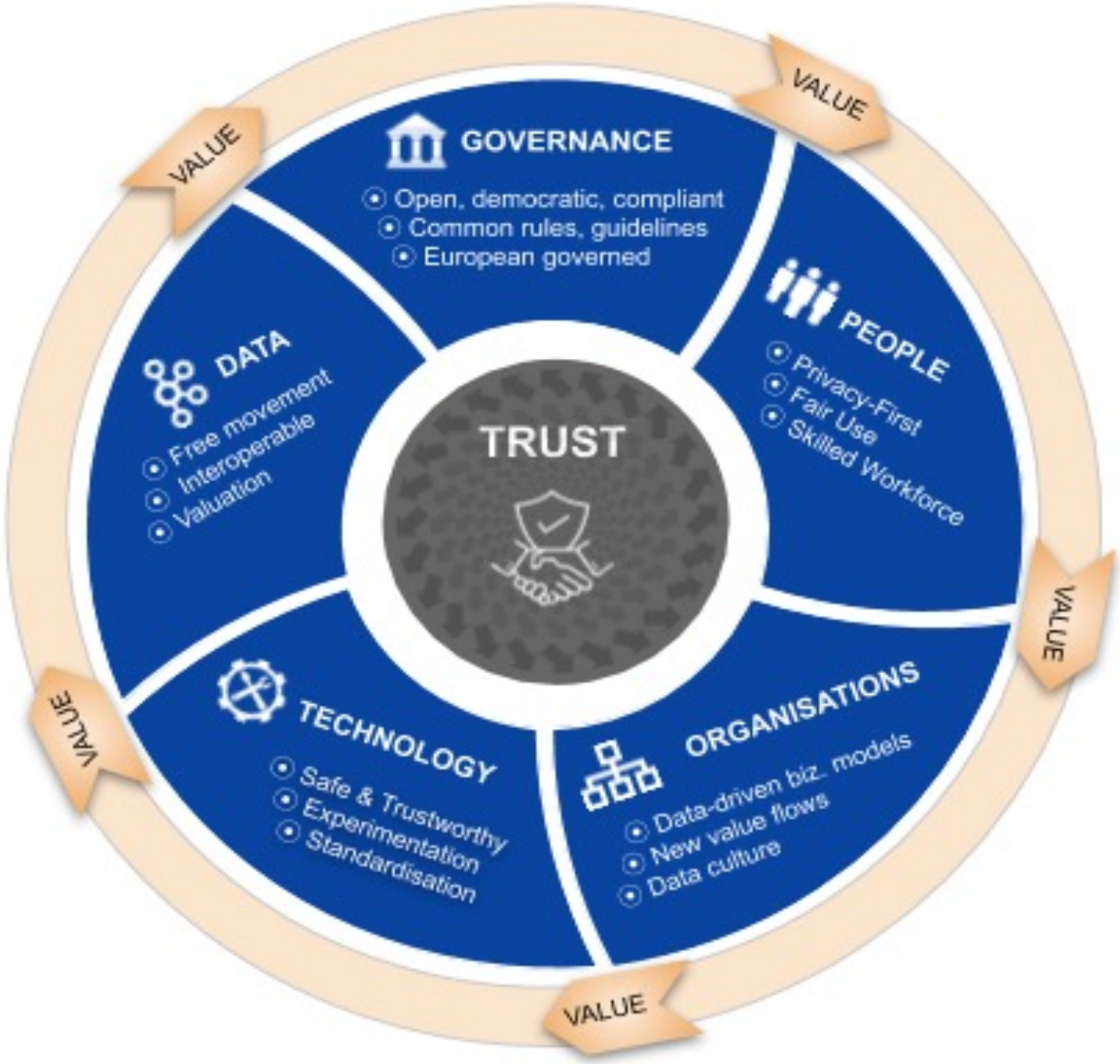
Rich pool of data (varying degree of accessibility)

Free flow of data across sectors and countries

Full respect of GDPR

Horizontal framework for data governance and data access

- Technical tools for data pooling and sharing
- Standards & interoperability (technical, semantic)
- Sectoral Data Governance (contracts, licenses, access rights, usage rights)
- IT capacity, including cloud storage, processing and services

Towards a European-Governed Data Sharing Space

BDV BIG DATA VALUE ASSOCIATION