



IOT and the Digital Transformation: EU Perspective

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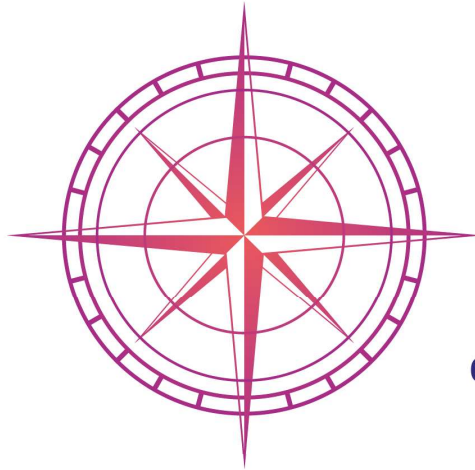
Policy Officer
Internet of Things
DG CNECT
European Commission



Digital Decade: a Compass and Common Targets

Skills

ICT Specialists: 20 millions + Gender convergence
Basic Digital Skills: min 80% of population



Government

Key Public Services: 100% online
e-Health: 100% availability medical records
Digital Identity: 80% citizens using digital ID

Infrastructures

Connectivity: Gigabit for everyone, 5G everywhere
Cutting edge Semiconductors: double EU share in global production
Data – Edge & Cloud: 10,000 climate neutral highly secure edge nodes
Computing: first computer with quantum acceleration

Business

Tech up-take: 75% of EU companies using Cloud/AI/Big Data
Innovators: grow scale ups & finance to double EU Unicorns
Late adopters: more than 90% of European SMEs reach at least a basic level of digital intensity

Industrial Internet of Things: the strategic picture for Europe

Next generation IoT

Power to the edge,
where the data is
Seamless connectivity



Next generation operating Systems
Decentralised/swarm intelligence
Cognitive computing continuum

Investment in Data Spaces
EU 5G & cloud-edge
infrastructure/services

Standardisation &
Interoperability



Vertical, horizontal &
cross-sector integration

Common Open Digital Platforms & Ecosystem

Competition law,
Geopolitics



Strategic
autonomy



Data legislation, e.g.:

- Data Act: Access and fairness on data market
- Digital Market Act: limited role of gatekeepers

Transition pathways
towards resilient,
innovative, sustainable
and digital ecosystems

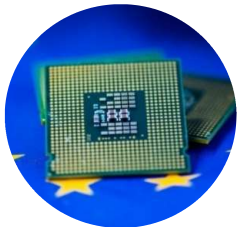


Open, dynamic
ecosystems for EU
tech businesses

New Industrial Strategy

Chips Act

Next generation chips
powering intelligence
at the edge



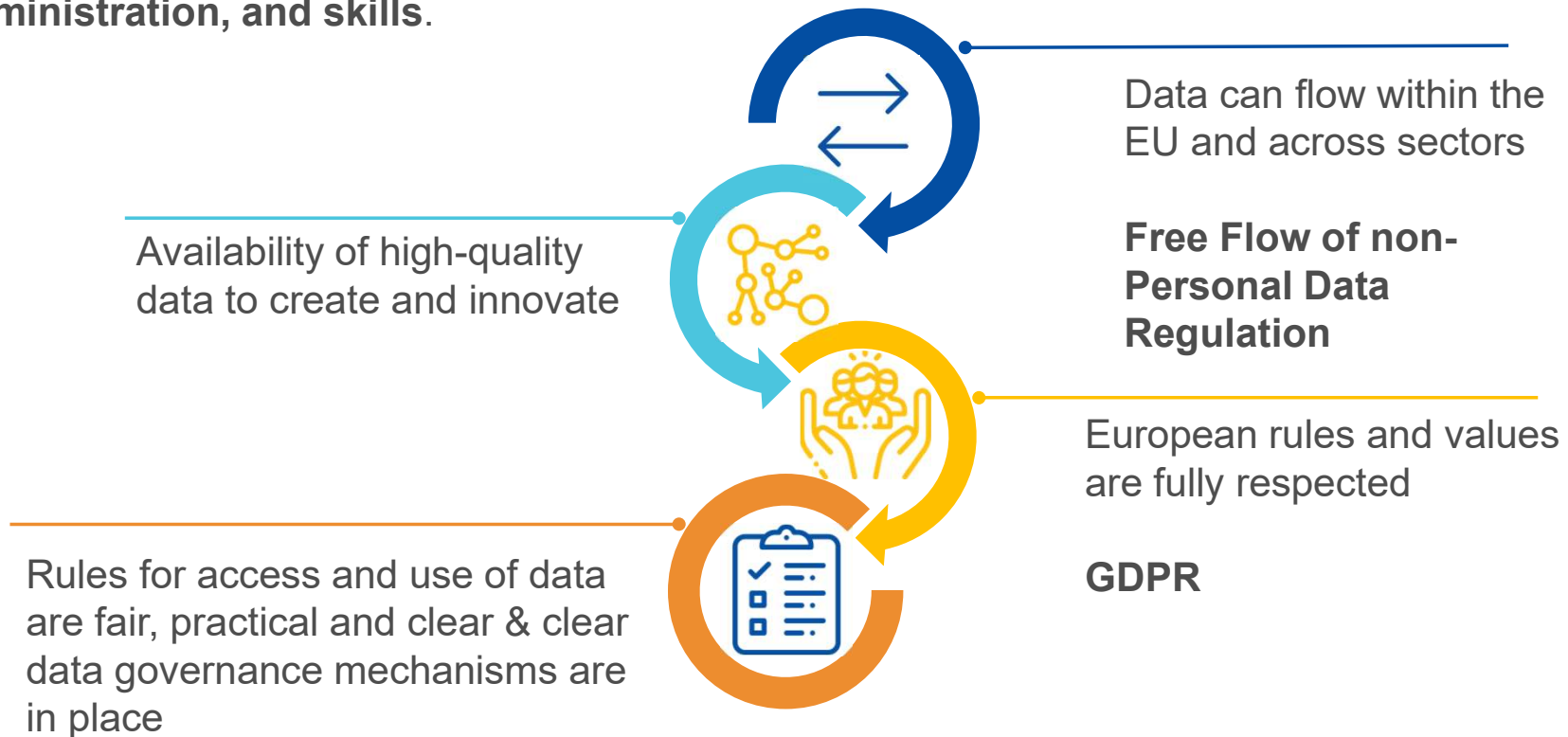
Semiconductor
Chips made in Europe

Data Strategy

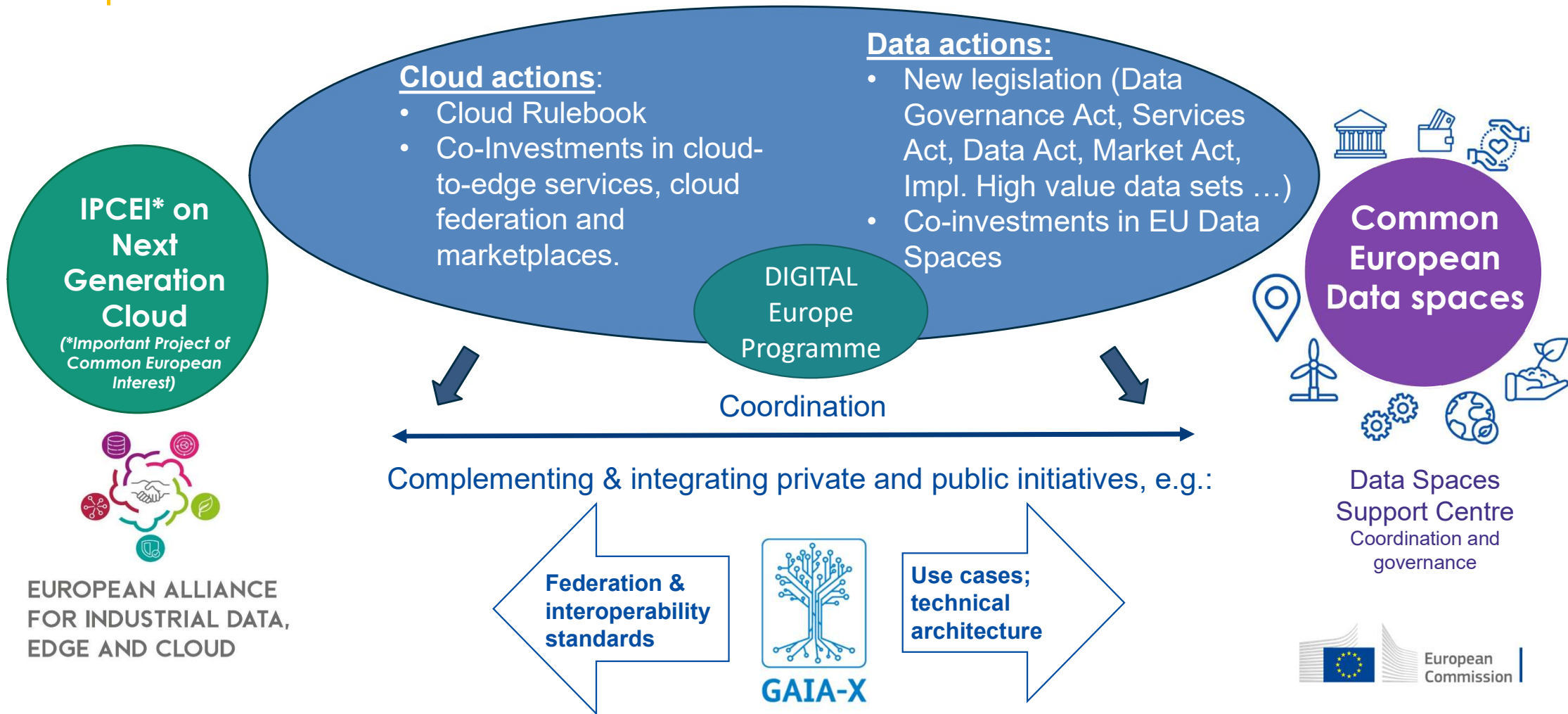
A European Strategy for Data

- Towards a single European data space -

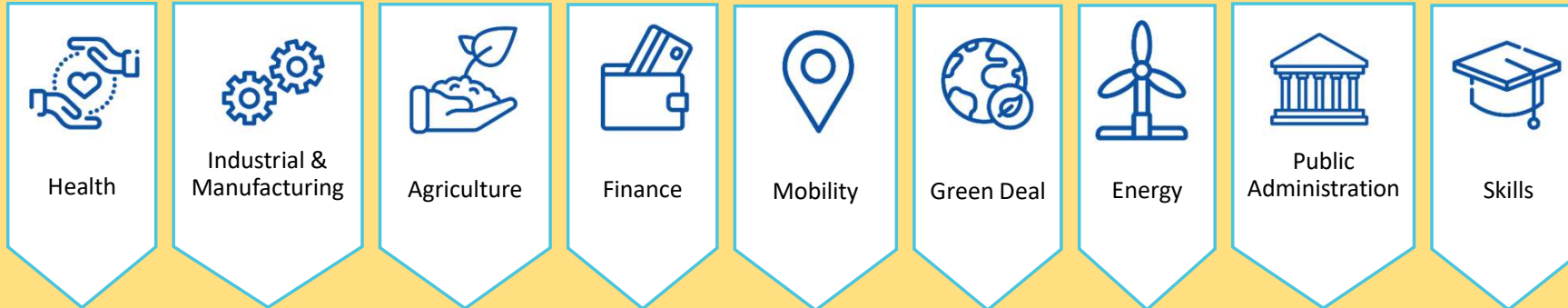
Encouraging the creation of common European data spaces in nine crucial sectors: health, environment, energy, agriculture, mobility, finance, manufacturing, public administration, and skills.



The European Data strategy



Common European data spaces



High Value Datasets from public sector

- Driven by stakeholders
- Rich pool of data of varying degree of openness
- Sectoral data governance (contracts, licenses, access rights, usage rights)
- Technical tools for data pooling and sharing

Data Spaces Support Centre

- Coordinating the development of data spaces
- Assuring common standards and interoperability

Technical infrastructure for data spaces



Edge & cloud Services

Smart Middleware solutions

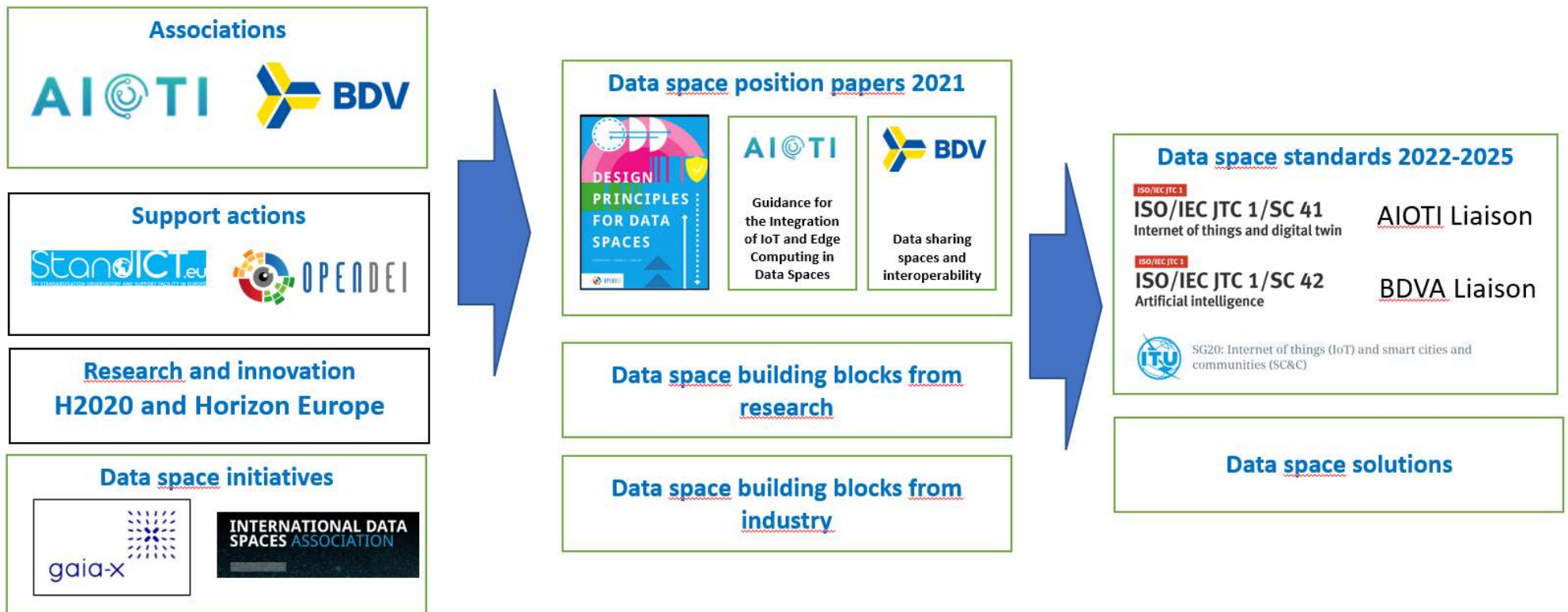
Marketplace

High-Performance Computing

AI on demand platform

AI Testing and Experimentation Facilities

Data spaces standardisation activities



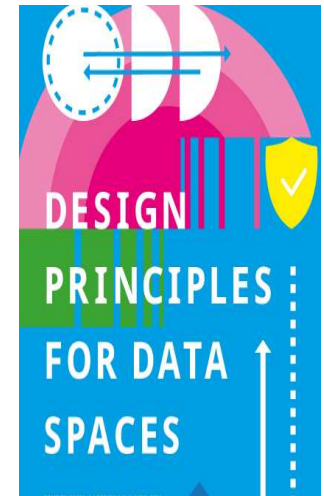
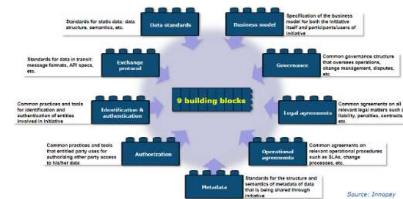
EC projects on IoT and Edge computing and the relationship with data spaces

- **OpenDEI - Design Principles for Data Spaces**

- High-level architecture, Design Principles, Building blocks, Sector-specific data spaces, Governance and business models, Roadmap, Data Spaces supported by an Ecosystem

- **SynchroniCity - Minimal Interoperability Mechanisms (MIMs)**

- Minimal but sufficient capabilities, AI-and IoT-enabled market-ready services: 50 services in 21 cities, cross-domain interoperability, Easy, simple, quick and cheap to implement and easy to test for compliance, Reuse existing standards - NGSI LD, SAREF(4Cities), etc., Development of a viable market –minimising risk and cost and preventing vendor lock-in

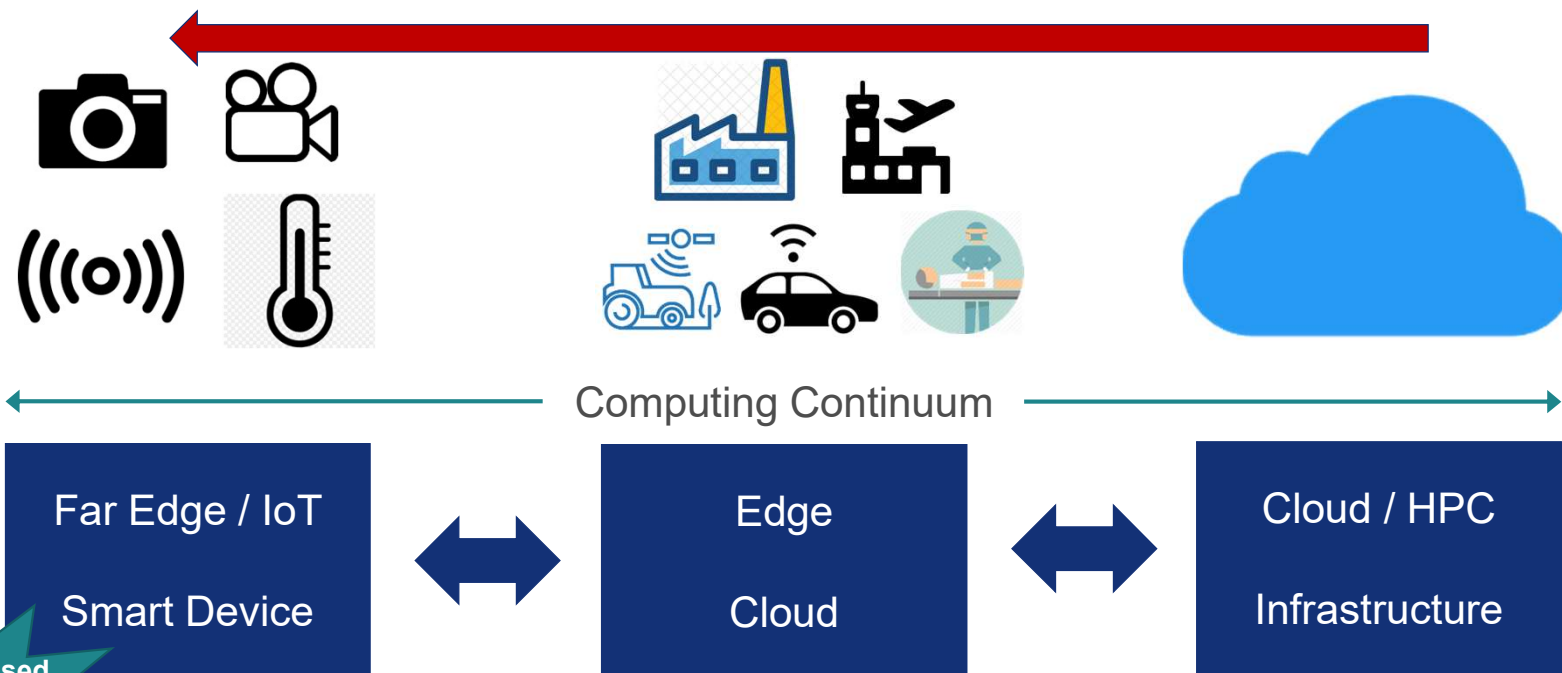


Courtesy: IDSA, InnoPay, **OPEN DEI CSA**
<https://www.opendei.eu/>



Paradigm Shift: Cloud – Edge – IoT

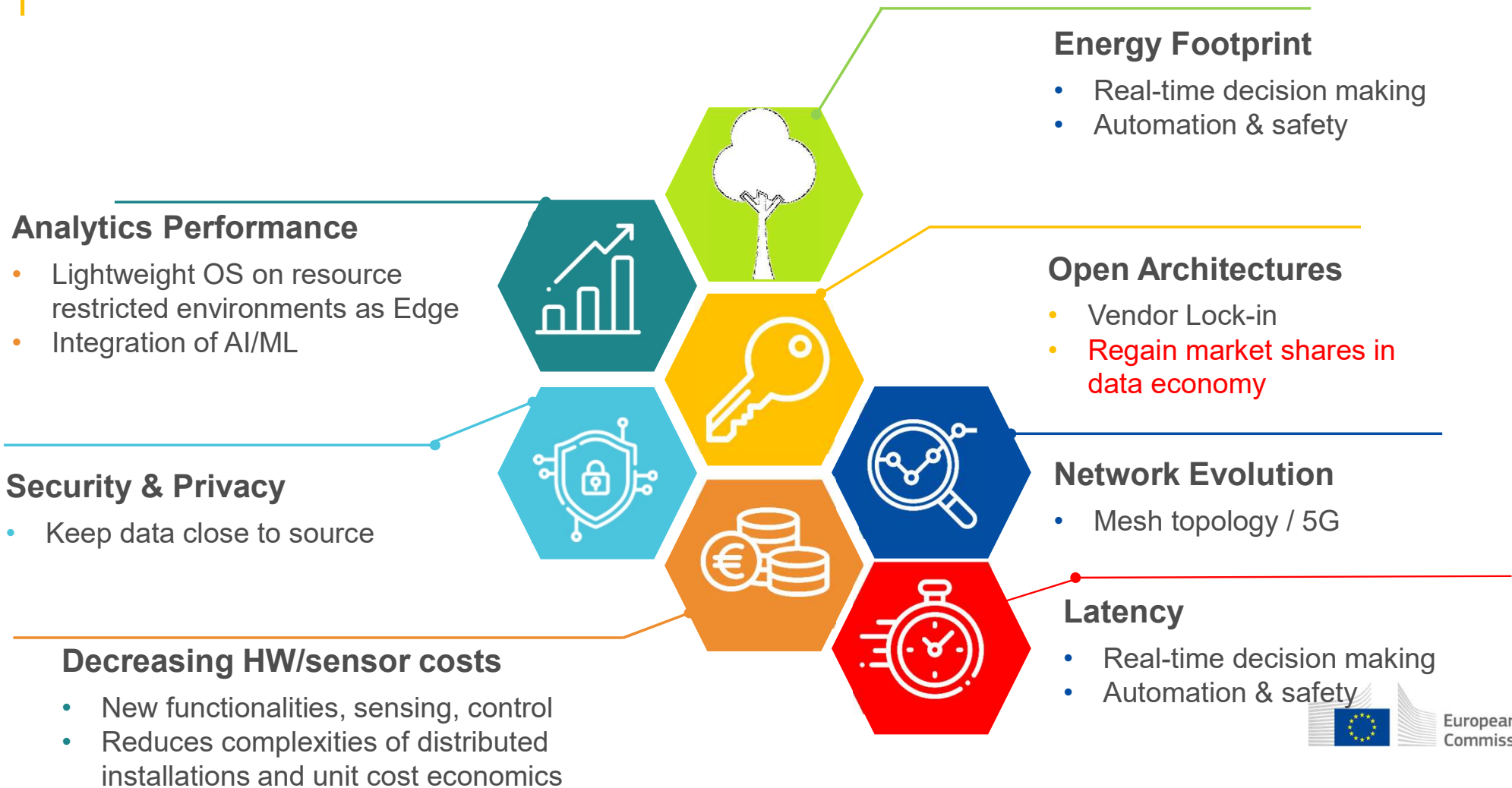
Trend/Paradigm Shift: from Cloud to Edge
Bringing compute resources closer to the data



Decentralised
swarm
intelligence

Federating far edge resources ad hoc via wireless (5G, mesh)
to provide cloud resources close to the edge

Technology Drivers for Edge Computing

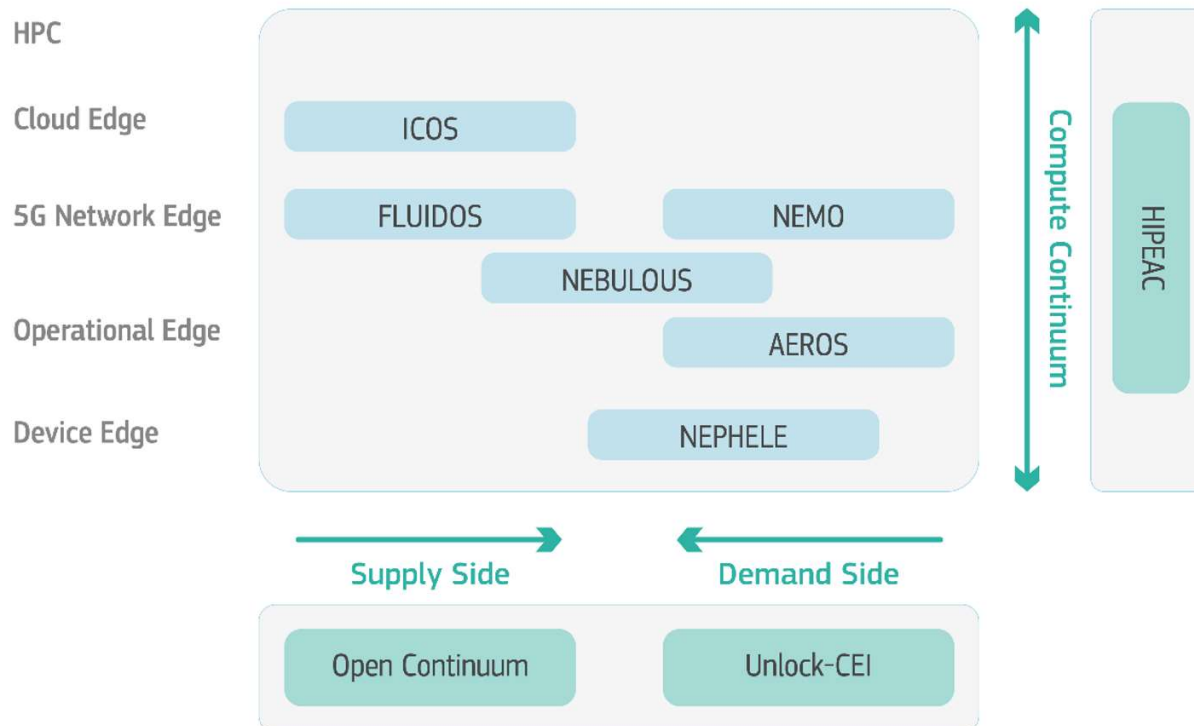


Next Generation IoT and Edge Computing

EU funding: **€64 million**

Meta OS

Swarm computing



- 5 projects
- EU funding 40 M€
- Under Grant agreement preparation

Legal instruments

Data Governance Act	Ensure <u>TRUST</u> in data transactions.	Public sector data, private sector data and personal data voluntarily made available by data holders.
Digital Market Act	Regulate <u>MARKET POWER</u> based on data.	Personal data and private sector data held by online platforms and originating from the users (both businesses and individuals).
Digital Service Act	Ensure a proper functioning of the single market for <u>DIGITAL SERVICES</u> .	Best conditions for innovative cross-border digital services to develop. Maintain a safe online environment and protect fundamental rights.
Impl. Act. High Value Datasets	Unleash the socio-economic potential of data as a <u>PUBLIC GOOD</u> .	Public sector data of high value.
Data Act	Ensure <u>FAIRNESS</u> in the allocation of data value among the actors of the data economy.	Private sector data, personal data and co-generated (IoT) data.

European Commission's view on needs in standard activities

Political

Annual Union Work Programme

- An annual EC Communication to identify strategic priorities, mandates to be launched. Links to the EU political agenda.
- **Actions to fund under actions grants (new)**

Technical

Rolling Plan

- Much more detailed and technical. Much wider view on internationally ongoing actions.
- Provides an overview of the needs for ICT standardisation activities to be undertaken in support of EU policy activities.
- It covers technologies of 'horizontal importance', ones whose application have a wide impact across different technical fields, in the context of ICT infrastructures and ICT standardisation.
- Drafted with the **Multi-Stakeholder Platform (MSP)** ~70 Members + EC Services. **Is not only the EC view anymore.**
- Medium term, Specific to **ICT**.
- **For ICT, the EC only funds standard activities IN the Rolling Plan**
- Updated annually

Rolling plan content

38 topics in 4 thematic areas:

- Key enablers and security
 - **Cloud and edge computing**
 - **Internet of Things**
- Societal challenges
- Innovation for the single market
- Sustainable growth
 - **Smart Grids and Smart Metering**



<https://joinup.ec.europa.eu/collection/rolling-plan-ict-standardisation/rolling-plan-2022>

Gaia-X

- **The European Commission has followed Gaia-X with interest, but no formal relationship exists.**
 - *The Commission is not formally affiliated with Gaia-X.*
- Largest ecosystem of industrial partners and public authorities in the area of cloud and data spaces in Europe.
- Growing network of Gaia-X hubs involving many SMEs and users.
- Open architecture and standards.
- Need to create adequate synergies between EC-led initiatives/investment and Gaia-X to avoid fragmentation / duplication.

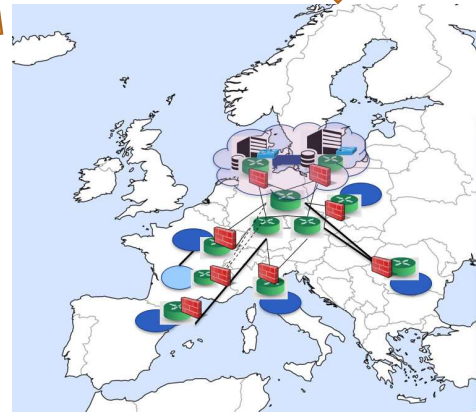


CEF Digital Operational Digital Platforms (ODPs)

EU environmental, energy and digitalization targets

Common European Data Spaces (Energy, Mobility)

European data, federated cloud and edge computing continuum and connectivity infrastructures



ODPs are pan-European physical and virtual information communication technology resources, operating via the communication infrastructure and retrofitting the existing energy and transport infrastructures, which support the flow, storage, processing and analysis of transport or energy infrastructure data, or both.

October 2022

Preparatory Coordination and Support Action
- identify the most appropriate cases
- deliver the building blocks

Deployment works project

2024

Indicative budget: EUR 4 Million
Maximum Co-Funding Rate: 100%

Balanced consortium covering digital, transport and energy



CEF 5G for Smart Communities



Reimbursing **up to 75%** of the infrastructure costs

Facilitating an **online community** for stakeholders (**Futurium**)

Events - Diffusing best practises Promoting replication



Owners: the company that will operate the network infrastructure (a private network is also possible)



The providers of the use cases: public authorities or providers of services of general interest

Thank you



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OPEN DEI

Coordinate & Support EC's efforts in Digital Transformation (DT) for Manufacturing, Energy, Agri-Food and Health & Care Sectors. Support the Adoption of Digital Platforms and the development of LSP

Coordinate & Support **TECHNOLOGY-DRIVEN DT:**

- Common RAs
- OS Reference Implementations
- Methods and tools for Data Spaces
- Domain-specific Open Standards

Coordinate & Support **BUSINESS-DRIVEN DT:**

- Digital Maturity assessments
- Digital Skills
- Emerging Digital Technologies Uptake
- Business KPIs and Benchmarking
- **Business Models**

