DATA FOR SUSTAINABILITY

Enabling sustainable progress at technology and policy levels

DR GIOVANNI RIMASSA
Vice-President - Digital for Planet
Chief Innovation Officer - Martel Innovate

Data Week 2024, 5th June 2024, Leuven

DIGITAL4PLANET.ORG

DIGITAL FOR PLANET

WHO WE ARE

D4P is a non-profit organisation supporting the **development and adoption of green digital technologies and solutions** for sustainable development of our economy and society.

< TOGETHER, WE CAN MAKE A DIFFERENCE />

INVOLVEMENT IN HORIZON EUROPE

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6GNTN

Area: 6G SNS
Aim: fully integrate Non-Terrestrial Networks component into 6G

SPIRIT

Area: eXtended Reality
Aim: build Europe's first multisite interconnected platform for real-time immersive telepresence

COROB

Area: Robotics & AI
Aim: develop a smart cooperative multi-robotic system for Industry 5.0 manufacturing

inpace
EMPOWERING DIGITAL PARTNERSHIPS

Area: EU-Indo-Pacific cooperation
Aim: support the implementation of the Digital Partnerships in the Indo-Pacific area

6G4SOCIETY

Area: 6G/ EU society
Aim: address the tension between parallel needs in terms of 6G technological development

PAVING THE WAY TO SUSTAINABILITY

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KEY INGREDIENTS

- Awareness and education
- Financial means
- Innovative technologies
  - Green by design
  - Affordable and accessible
  - Trustworthy and secure
- New business models
- Policies and regulations
- (Open) Standards
- Policy/economic incentives
- A beyond-the-borders mindset

WHEN IT COMES TO TECHNOLOGIES

Great potential across several sectors

Access to essential (and not only) services

Optimisation of processes

Environmental monitoring

More efficient use of resources

However, technology

- Drives electricity demands
- Damages the environment
- Induces overconsumption

TECHNOLOGY LEVEL: CLIMATE-NEUTRAL AND SUSTAINABLE SMART CITIES

Globally, urban population is expected to grow to 68% by 2050[1]

Cities are responsible for **over 70% of global CO2 emissions**, most of which come from industrial and **motorised transport systems** that consume huge amounts of fossil fuels and rely on distant infrastructure built with carbon-intensive materials.[2]

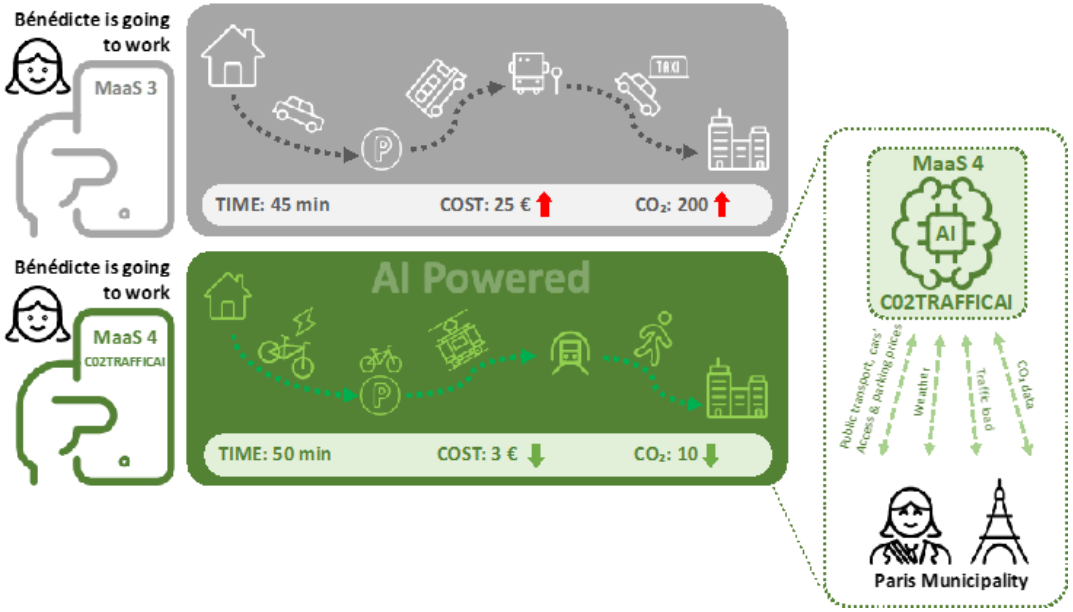
UN SDG #11 *Make cities and human settlements inclusive, safe, resilient, and sustainable* encourages cities to **make better use of ICT to address urban challenges**

Major European investments and actions to

- Underpin the **digital transformation of cities and communities**
- Optimise the **environmental impact** and the **quality of life** for all citizens
- Promote the adoption of **intelligent and sustainable digital technologies and solutions** that can protect our environment and empower citizens

[1] *Source: World Cities Report 2022, UN-Habitat*
[2] *Source: From World Bank Group Climate Change Action Plan 2021–2025*

SUSTAINABLE MOBILITY-AS-A-SERVICE



Sample use case: multi-modal trip planning with dynamic climate impact awareness

Open MaaS enabling components

- Active demand management
- Pillar for policy-driven MaaS

AI-powered decision support

- Advanced CO2/GHG monitoring
- Scenarios for policymakers
- Recommendations and planning for mobility users

Multi-stakeholder vision

- City, transport operators, citizens
- Sharing data, insights, AI models

If you want to know more

- Full-length Walkthrough

DATA PROCESSING (AND AI) AS ENABLER

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	TODAY		TOMORROW
Data-driven Decision Support	• Measure the present • Predict the future		• Explain the present • Make the future
Mobility Governance	• Static governance • Agreement-based • Slow deliberation		• Dynamic governance • Situation-based • Tight deliberative loop
Community Engagement	• City regulates • Operators propose • Citizens use		• City oversees • Operators integrate • Citizens co-create

DATA AS ENABLER AT POLICY LEVEL

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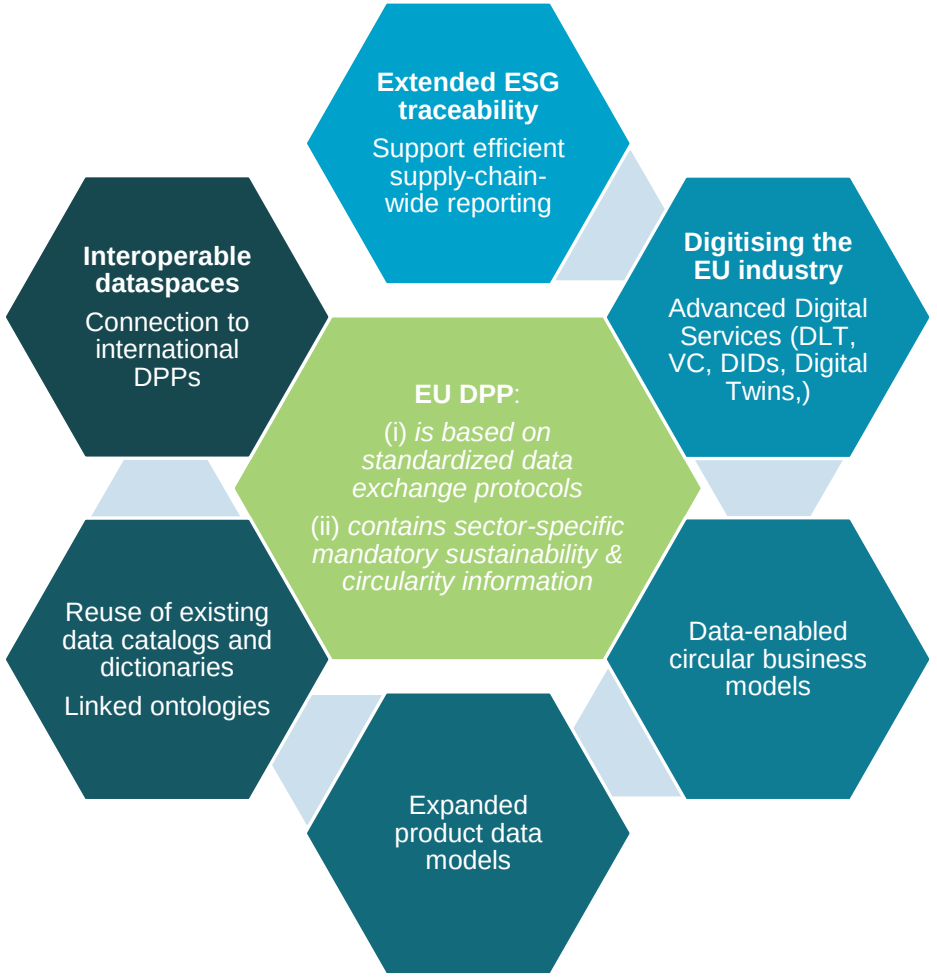
- **Data Governance Act** (DGA) and **Data Act** (DA)
  - From the European Data Strategy, DGA and DA are the horizontal blocks paving the way for European Data Spaces and ultimately enable a genuine **Single Market for Data**
  - The DGA creates the right conditions for individuals and companies that when they share their data voluntarily for the benefit of society - '*data altruism organisations*'
  - The DA lays the normative groundwork for European data economy infrastructure, considering the whole supply chain, explaining roles and protecting fair sharing
- **AI Act**
  - Sustainability explicitly mentioned in relation to self-regulation and codes of conduct
  - Beyond fundamental rights, democracy, and the rule of law, the AI Act ensures that environmental sustainability is protected from high-risk AI. This means that, in the European stance on AI, **Sustainability** and **Transparency** are completely intertwined
  - Data does not grant insight: models, processes, social aspects are all co-enablers

ECODESIGN FOR SUSTAINABLE PRODUCTS REGULATION (ESPR)

- Proposal approved by the European Council on 27th May, 2024
- Framework legislation, ESPR needs many *Delegated Acts* for specific product categories
- The **Digital Product Passport** (DPP) would not be thinkable without digital data management
- Data enables awareness, sustainable consumer choice and behaviour (Energy Labelling Regulation)
- The DPP embodies the two principles of **transparency** and **disclosure**



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THANK YOU FOR YOUR ATTENTION

DIGITAL FOR PLANET

CIRPASS 2
Digital Product Passport

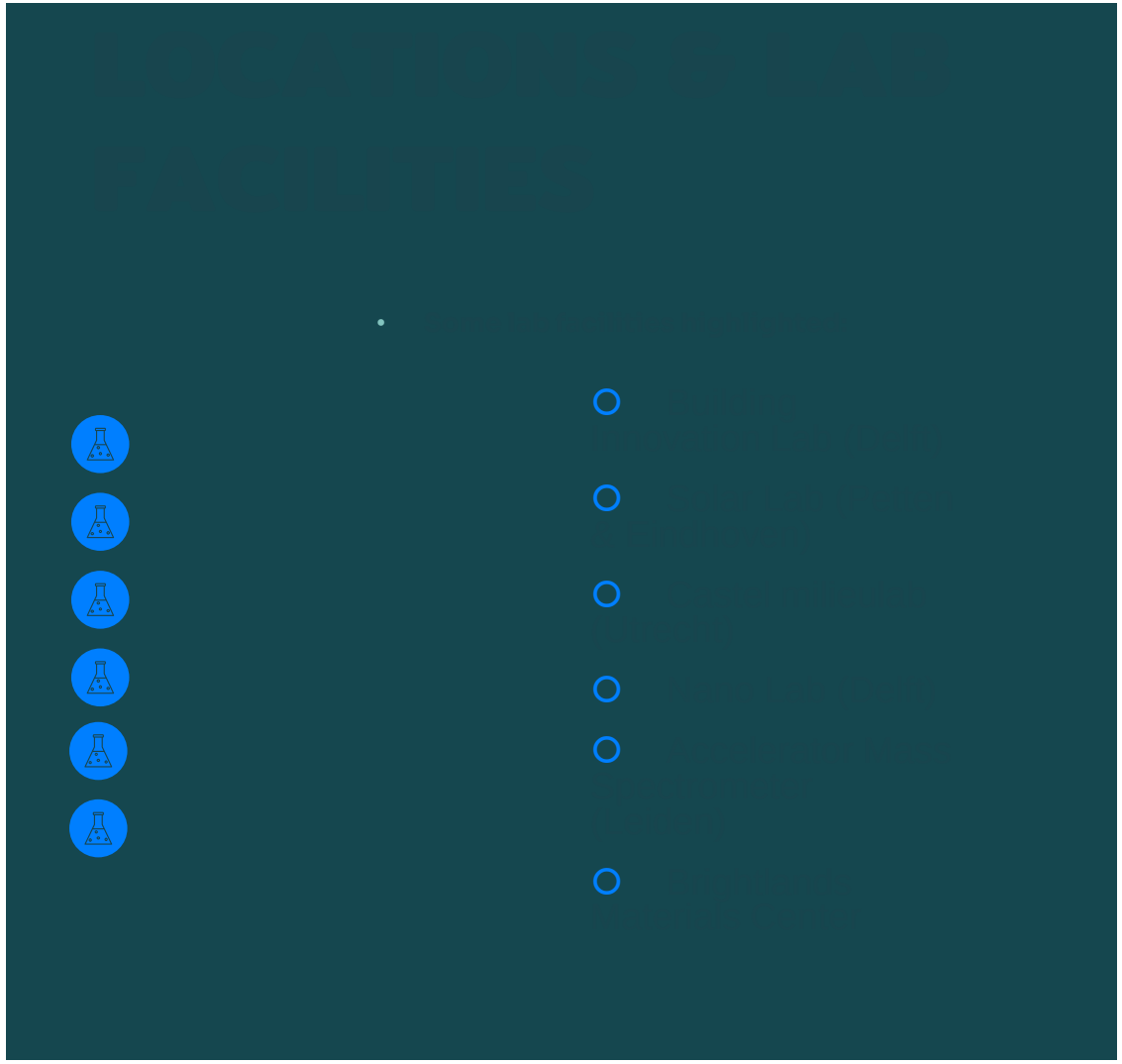
DATA FOR SUSTAINABILITY

Data to support sustainability

Sjoerd Rongen, TNO

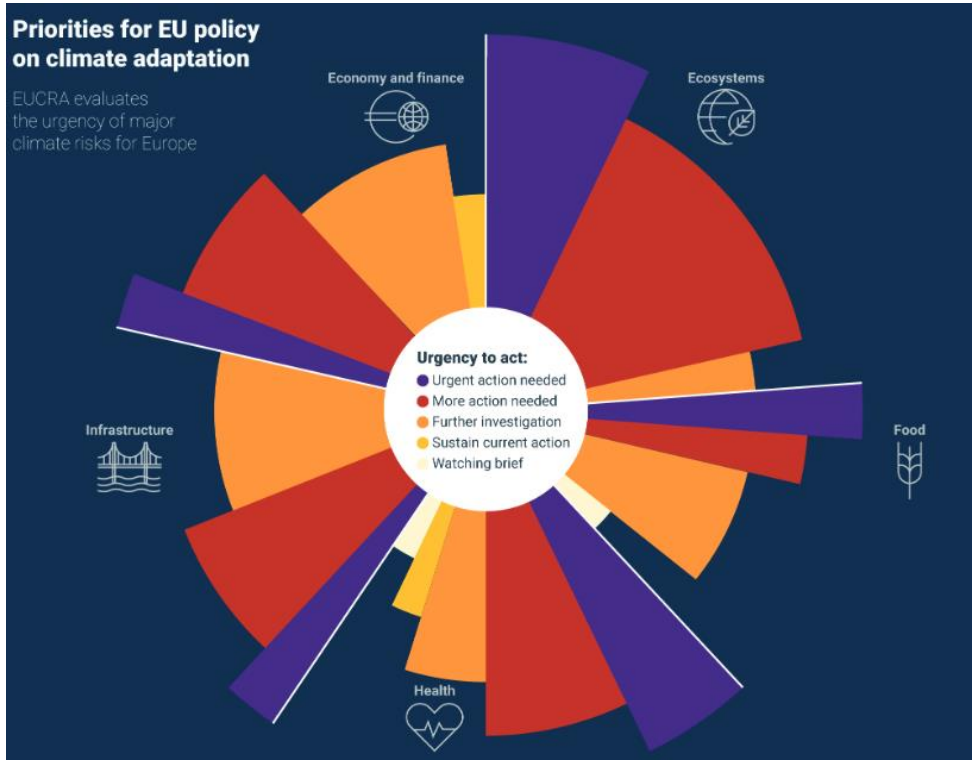
5-6-2024, Leuven

Funded by
the European Union

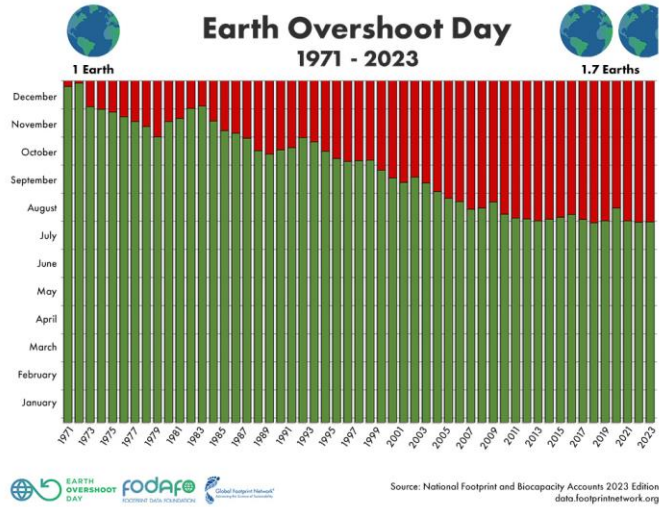



Groningen
Petten
Amsterdam
Leiden
Soesterberg
The Hague
Utrecht
Zeist
Rijswijk
Delft
Eindhoven
Helmond
Bergen op Zoom
Geleen
Lab facilities
Locations

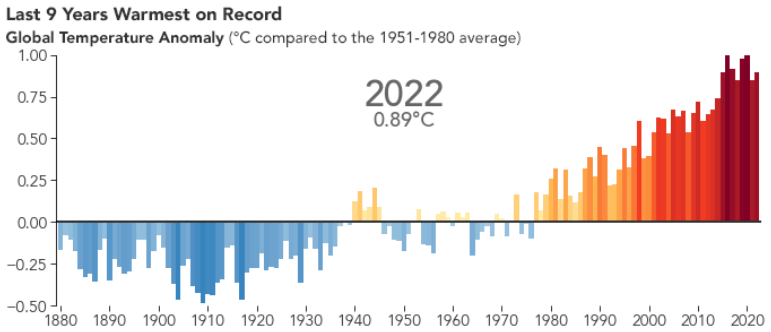
“EUROPE IS NOT PREPARED FOR RAPIDLY GROWING CLIMATE RISKS”*



*According to: European Environment Agency



We’re using to much resources



The planet is heating up

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WE RELY ON OUTSIDE ENTITIES

Bauxite	**Coking Coal**	**Lithium**	**Phosphorus**
Antimony	**Feldspar**	Light rare earth elements	Scandium
Arsenic	Fluorspar	Magnesium	Silicon metal
Baryte	Gallium	**Manganese**	Strontium
Beryllium	Germanium	Natural Graphite	Tantalum
Bismuth	Hafnium	Niobium	Titanium metal
Boron/Borate	**Helium**	Platinum group metals	Tungsten
Cobalt	Heavy rare earth elements	Phosphate Rock	Vanadium
		Copper	**Nickel**

"The risks associated with the concentration of production are in many cases compounded by low substitution and low recycling rates."

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"The risks associated with the concentration of production are in many cases compounded by low substitution and low recycling rates."

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WE RELY ON OUTSIDE ENTITIES

Digital Product Passports (DPP) provide the information for Re-X

Bauxite	**Coking Coal**	**Lithium**	**Phosphorus**
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"The risks associated with the concentration of production are in many cases compounded by low substitution and low recycling rates."

Funded by the European Union

THE OPPORTUNITY OF DPP IS TO ACCELERATE SUSTAINABILITY

ACCELERATE SUSTAINABILITY

- Redesign products and processes based on DPP data to spearhead sustainability in the sector

The purpose of a Digital Product Passport (DPP) is to enable the shift to a circular economy

Funded by the European Union

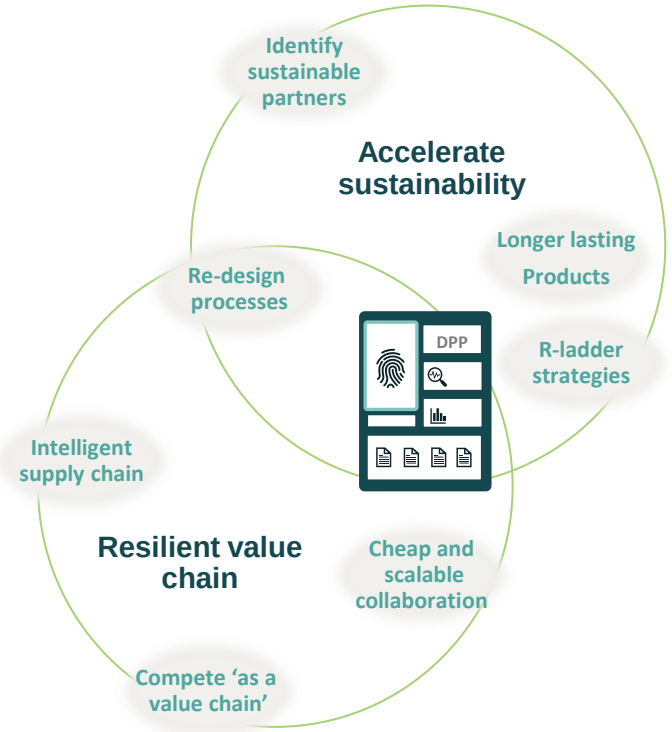
THE OPPORTUNITY OF DPP IS TO ACCELERATE SUSTAINABILITY, GAIN RESILIENCE IN THE VALUE CHAIN

ACCELERATE SUSTAINABILITY

- Redesign products and processes based on DPP data to spearhead sustainability in the sector

BUILD A RESILIENT VALUE CHAIN

- Collaborate along many axes, not just DPP, much more cheaply, at scale



The purpose of a Digital Product Passport (DPP) is to enable the shift to a circular economy

Funded by the European Union

THE OPPORTUNITY OF DPP IS TO ACCELERATE SUSTAINABILITY, GAIN RESILIENCE IN THE VALUE CHAIN AND TO COMPETE IN THE CIRCULAR ECONOMY

ACCELERATE SUSTAINABILITY

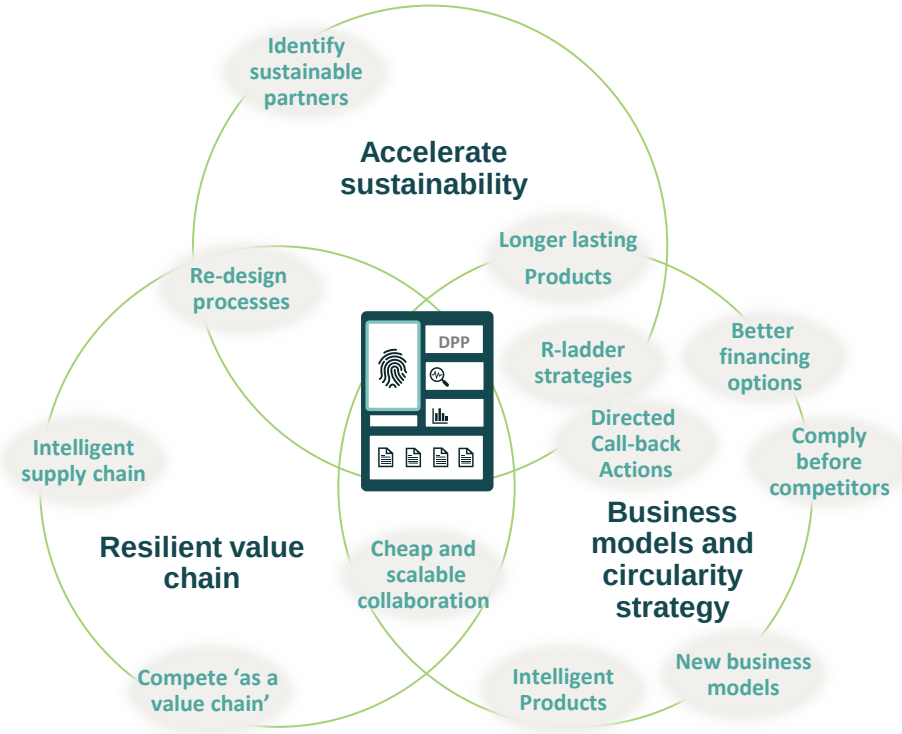
- Redesign products and processes based on DPP data to spearhead sustainability in the sector

BUILD A RESILIENT VALUE CHAIN

- Collaborate along many axes, not just DPP, much more cheaply, at scale

BUSINESS MODELS AND CIRCULARITY STRATEGY

- Develop new business models and circularity strategies
- Benefit from early and trusted compliance compared to foreign competitors



The purpose of a Digital Product Passport (DPP) is to enable the shift to a circular economy

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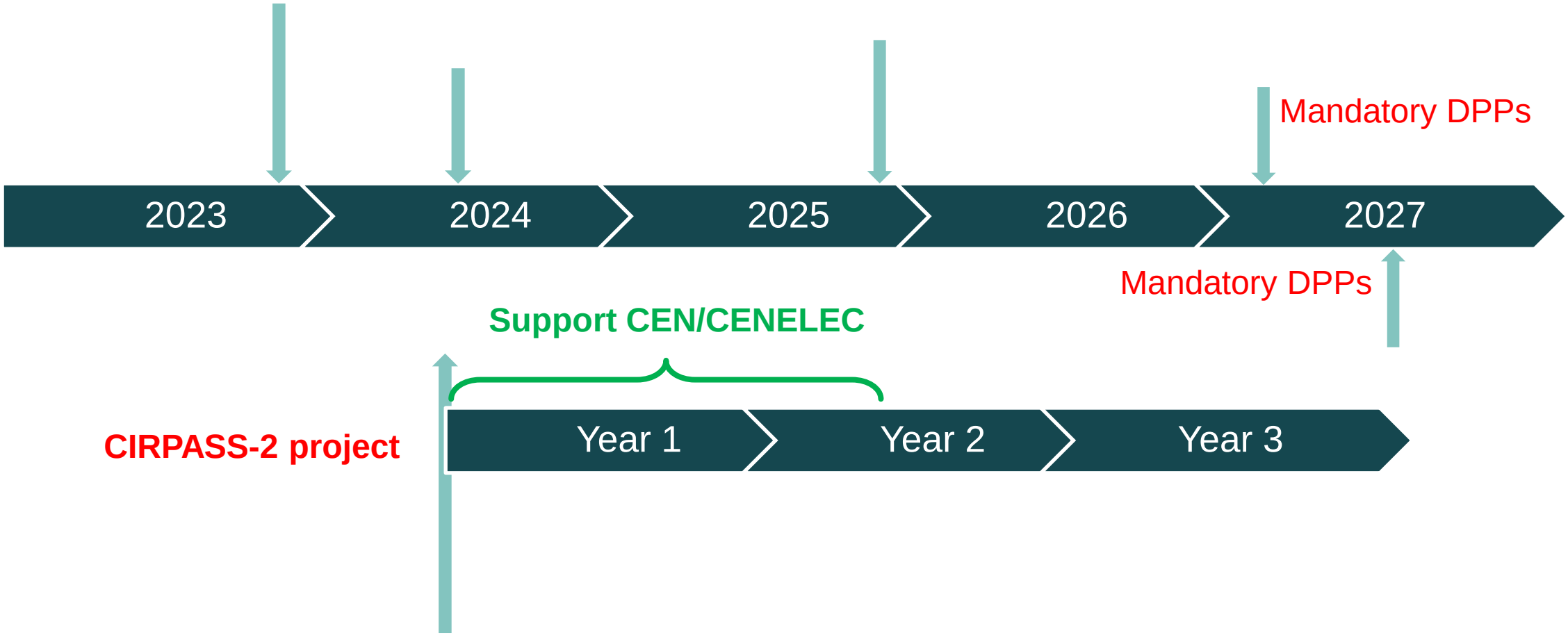
CIRPASS2

- *"How can **all industries** agree on an **extensible and flexible** DPP system capable of supporting **beyond-mandatory** data exchanges to enable new circular business models?"*

Funded by the European Union

STANDARDISATION & CIRPASS2 - TIMELINES



Funded by the European Union

CIRPASS 2
Digital Product Passport

Thank you!

Sjoerd.rongen@tno.nl

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the European Union

CIRPASS 2

2024

European DIGITAL SME Alliance

DATA WEEK 2024

Data for Sustainability

Lina Nardone, European DIGITAL SME Alliance

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www.digitalsme.eu

European
DIGITAL SME
Alliance

45.000 SMEs in the ICT sector

24 National and regional associations from EU member states and neighbouring countries

12 Active Working Groups

150 Project proposals in which we have been involved

450 Experts involved in our Working Groups

THE NETWORK

European DIGITAL SME Alliance

European Commission

European Council

European Committee of the Regions

European Economic and Social Committee

European Parliament

EUIPO EUROPEAN UNION INTELLECTUAL PROPERTY OFFICE

OECD

CEN CENELEC ETSI EUROPEAN STANDARDS ORGANIZATIONS

SME United CRAFTS & SMEs IN EUROPE

Small Business Standards

ECS EUROPEAN CYBER SECURITY ORGANISATION

INATBA International Association for Trusted Blockchain Applications

Alliance for IoT and Edge Computing Innovation

EPC EUROPEAN POLICY CENTRE

European Internet Forum Political Leadership for Digital Society

GeSI ENABLING DIGITAL SUSTAINABILITY

European Entrepreneurs CEA-PME

AIM Annual Investment Meeting

Stakeholder Cybersecurity Certification Group

enisa EUROPEAN UNION AGENCY FOR CYBERSECURITY

WORLD ECONOMIC FORUM

UNIDO

ISO

IEEE Advancing Technology for Humanity

Scale-Up Europe

THE PRIORITIES

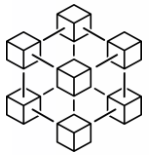
European DIGITAL SME Alliance

ARTIFICIAL INTELLIGENCE

CYBERSECURITY & PRIVACY

DIGITAL SKILLS

SUSTAINABILITY



BLOCKCHAIN

DIGITALISATION

STANDARDS

COMPETITIVE DIGITAL MARKETS

INTELLECTUAL PROPERTY

SMART COMMUNITIES

SOME NUMBERS

45K SMEs in the ICT sector

600K People working in the sector

€5bln Annual revenues from the sector

DATA ECONOMY FOR THE EUROPEAN DIGITAL NEW DEAL

DATA ACCESS

1

DATA STANDARDISATION

2

We must improve conditions for digital innovators in the Digital Single Market, to overcome challenges from attracting talent to facing bureaucracy

3

EUROPEAN DATA MARKETPLACE

Complete the Single Market for Data by establishing a European marketplace as a central reference point for governments and market players in the interoperable exchange of non-personal data. Build a common, open data interface and support the ´´once-only´´ principle for the one-time storage of government data.

Investing in Europe's twin transition

Digital SMEs' role in the twin transition

https://www.digitalsme.eu/sustainability/

Data-based sustainable innovation

Data is a key for all sustainable ICT solutions, as it allows to make informed decisions, and even to automate decisions based on real-time data

The **Data Act** will even further maximise the potential use of data for sustainable solutions as it allows device owners the right to access the data that they have generated, which they can in turn share with third parties, such as innovative SMEs, allowing them to develop sustainable data-driven services

Data to calculate your net carbon impact

EGDC Net Carbon Impact Assessment Methodology for ICT Solutions

Benefits:

- SMEs can assess their ICT solution's intended positive impact robustly and consistently.
- SMEs can measure their contributions to climate neutrality and have tangible data on their contributions to sustainability, which can be communicated to stakeholders, including investors, customers, and regulatory bodies

Challenges: Data quality is a crucial aspect of the methodology. SMEs struggle with collection of primary data (lacking mechanisms for data collection and lack of knowledge of metrics to measure), as well as with access to secondary data necessary for assessing the net carbon impact of their ICT solutions

Data for sustainability reporting

Under **CSRD**, large-listed undertakings and listed SMEs have to disclose the environmental and social impacts of their business activities and the financial impact of their ESG initiatives. Though not directly regulated, unlisted SMEs and micro-enterprises may still see increased demands for sustainability information due to a "trickle-down effect"

To support SMEs in their sustainability efforts, the **Commission** mandated EFRAG to develop standards that SMEs can use to address ESG matters.

Voluntary Standards enable SMEs to have a framework for delivering necessary disclosure to business partners, strategically manage and monitor their transition to a sustainable economy and foster their ability to access sustainable finance.

Challenges for SMEs:

- Lack of in-house compliance department or sustainability managers, which increases costs associated with reporting compliance and training for reporting

Solutions for SMEs:

- Awareness raising and training activities
- Simplification of reporting standards

European DIGITAL SME Alliance

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GLACIATION

GREEN RESPONSIBLE PRIVACY PRESERVING DATA OPERATIONS

DataWeek Leuven

Alexander Borg

theLisboncouncil
think tank for the 21st century

This project has received funding from the European Union's HE research and innovation programme under grant agreement No 101070141

WHAT BROUGHT US TO GLACIATION

Citizens

- Produce massive amount of **data at the edge**
- Must ensure **privacy** and **data ownership**
- **Sustainability** concerns to fully harness data

Businesses

- Gather and **produce data** at the edge, **store**, **transfer**, and **analyse** data across the network
- Must **ensure privacy**, must stay abreast of competition

Public administrations

- **Gather**, **store**, **transfer**, and **analyse** data akin businesses
- Must consider **environmental impact** of storing, analysing, and sharing data

GLACIATION AT A GLANCE

Project title

Call and topic

15 consortium members
plus
1 associated partner

€ 8 580 038,75

36 months

Start date: 01.10.2022

GLACIATION
Main objective

Develop a **cutting-edge digital platform** that elevates **operational performance** and enhances **energy efficiency** across the cloud-edge continuum, utilising a **novel metadata fabric** and an **AI-powered optimisation engine** to **improve privacy awareness** while **reducing environmental impact** of data movement and operations

SPECIFIC TECHNOLOGIES BEING DEVELOPED

Metadata fabric: provides a number of specifications and corresponding tools to support the annotation of data for power and data movement purposes.

Energy vocabularies: supports the exchange of data and power requirements and consumption metrics, with the potential for use in a variety of devices.

AI-enabled movement engine implements the predictive movement of data based on the profile of data processing, privacy requirements, and availability/price/efficiency of power; can be integrated with data spaces for optimized movement within multi-cloud scenarios.

Energy and power consumption framework support the collection of power consumption metrics over the cloud-edge continuum, with applicability to multiple industries, including manufacturing, telecommunication providers and energy production and distribution companies.

Edge-enabled distributed knowledge graph provides technologies for the realization of knowledge graphs in a distributed environment, with the assignment of processing tasks to edge nodes.

USE CASES

Edge-decentralized data management

This pilot addresses the need for resource-efficiency and high privacy standards of a nation-wide platform for human resources management in a decentralised public administration.

Leading Beneficiary
Ministero dell'Economia e delle Finanze
Sogei - Società Generale d'Informatica S.p.A.

Data-driven energy-efficient manufacturing

This pilot addresses the need for resource-efficiency advanced data analytics of tugbots and cobots in a highly digitalised smart manufacture.

Leading Beneficiary
Dell Technologies

USE CASES

Privacy-preserving cross-company analytics

This pilot addresses the need for the highest privacy standards while enabling data sharing and analysis in a distributed architecture spanning across organisational boundaries.

Leading Beneficiary

Sap Se

Smart IoT for Enhanced Grid Efficiency and Resilience

This pilot addresses the need for optimized energy consumption, enhanced performance, and data privacy/protection while integrating smart IoT devices into the grid to bridge the gap between operational technology (OT) and information technology (IT).

Leading Beneficiary

INDEPENDENT POWER TRANSMISSION OPERATOR S.A. (IPTO)

GLACIATION
Impact

Enable safe and secure data handling
Contributes to European cybersecurity and privacy-preserving efforts.

Improve the efficiency of data operations Reduces the energy footprint and increases the usage of renewable energies for data storage, helping to reduce CO2 emissions from fossil fuel energy sources.

Prioritise humane, fair, and ethically sound collection, processing, and manipulation of data
Aligns with the principles of responsible and trustworthy AI.

Facilitate the sharing and manipulation of data
Ensures compliance with prevailing and emerging legislation (e.g., GDPR) and meets the needs of data processors and data subjects/rightsholders and other stakeholders.

Boost the creation of a pan-European data infrastructure.
Focuses on sharing and re-use of data within common European data spaces, such as GAIA-X and EOSC in various application areas.

Improve Regulatory and Privacy Adherence Supports compliance and navigation of European legislation including the Digital Product Passport, Corporate Sustainability Reporting, Ecodesign Directive, and GDPR.

GLACIATION
Impact

Support Twin Transition (Green and Digital) Integrates green and digital advancements for a sustainable future.

Sustainable Cybersecurity Measures that supports digital sovereignty in edge Environoments Supports enhanced privacy in edge environments in a sustainable manner

Integrate Edge and IoT Technologies. Facilitates the integration of edge computing and Internet of Things (IoT) technologies.

Meet the growing demand for energy-efficient datacentres
Provides blueprints for high performance and high energy efficiency, including the number/length of cables required and power efficiency (number of ports/hops used per source/destination pair).

Enhance Privacy Awareness and Sustainability in Big Data
Promotes privacy awareness and sustainability in the handling of big data.

Promote Sustainability and Privacy in Smart Cities and Industry
Enhances sustainability and privacy measures within smart cities and industrial applications.

PARTNERS


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Leibniz
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Hannover


ERCIM
European Research Consortium
for Informatics and Mathematics


DELL Technologies


MEF
Ministero
dell'Economia
e delle Finanze


EURECOM
Sophia Antipolis


hiro
MICRODATACENTERS


sogei


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GLACIATION

Thank you

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think tank for the 21st century

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DIGITAL TECHNOLOGIES ACTING AS A GATEKEEPER TO INFORMATION AND DATA FLOWS

TANGO in a nutshell

Data Week 2024

EVIDEN

This project has received funding from the European Union's HE research and innovation programme under the grant agreement No. 101070052

TANGO PROJECT IDENTITY CARD

Project Name	• Digital Technologies ActiNg as a Gatekeeper to information and data flOws
Project Consortium	• 38 partners, 14 Countries
Call / Project Type	• Topic: HORIZON-CL4-2021-DATA-01-01 • Project Type: RIA
Total Budget/Max EU Contribution	• €10.444.121
Start Date	• 1 September 2022
Duration	• 36 months (31 August 2025)

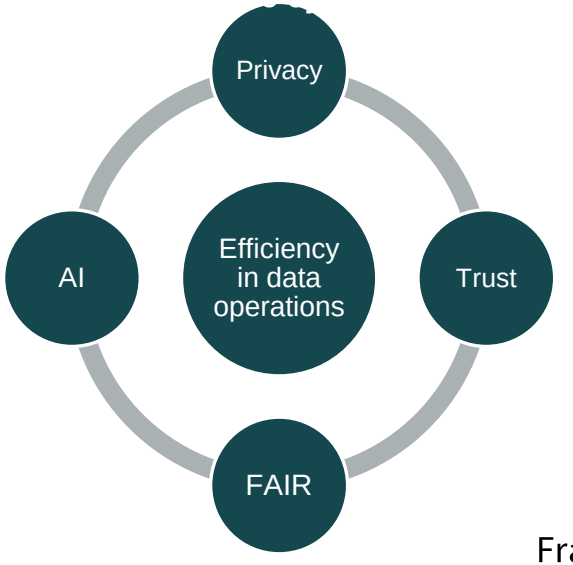
GA n. 101070052

SUMMARY OF MAIN PILLARS

DATA-01-01 Expected outcome
Improve the efficiency and the use of trustworthy digital technologies to address the requirements of citizens, companies and administrations/public organisations on privacy and commercial and administrative confidentiality as well as **responsible, fair and environmentally friendly** (e.g. in terms of energy/carbon/material footprint) **data operations in data spaces, across the data**

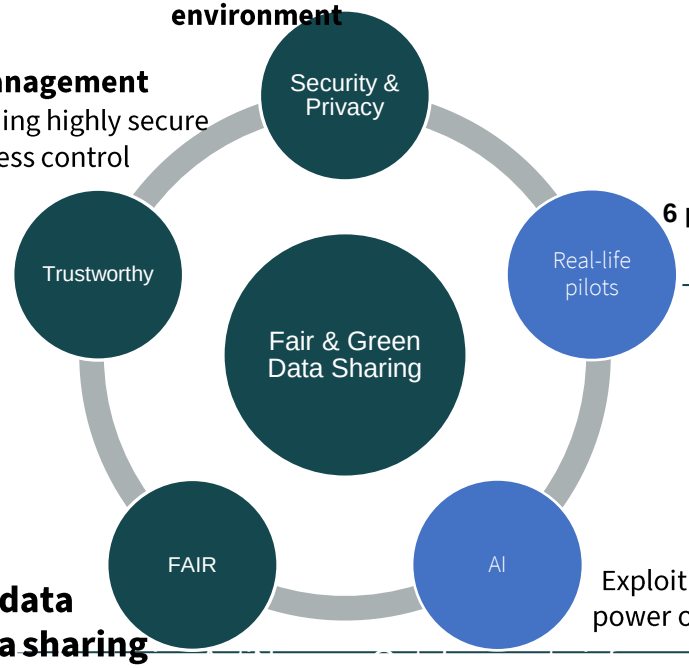
TANGO Main

1 Design and develop a holistic, flexible and open framework for fair, responsible and green data management, sharing and storage while maintaining data ownership based on energy-efficient Smart Contracts, Artificial Intelligence, Self-Sovereign Identity, Self-Encryption and Continuous Behavioural Authentication

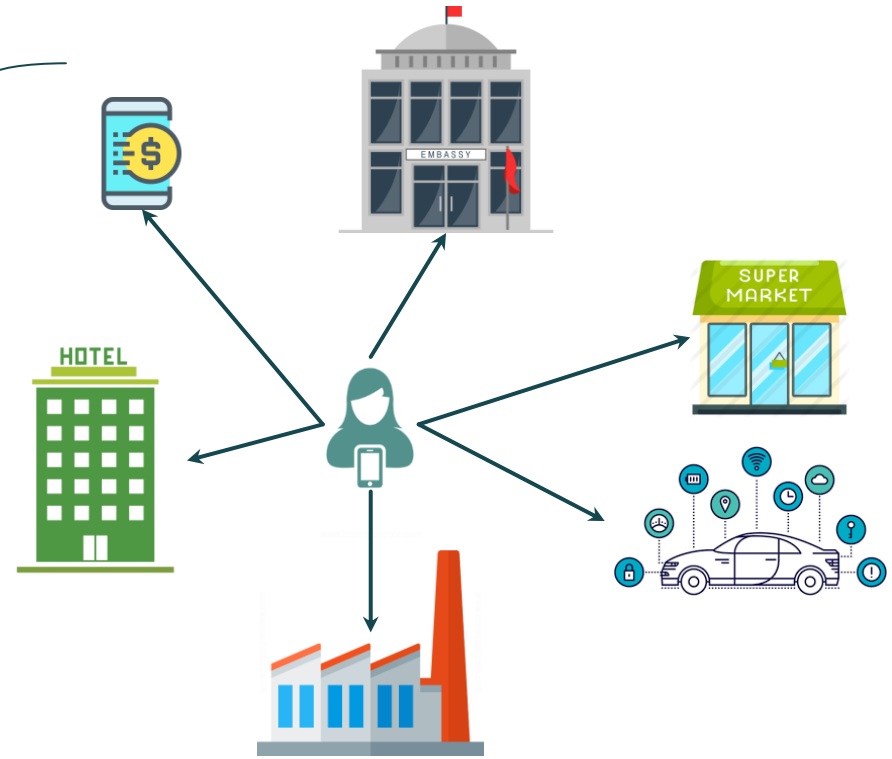


Distributed **trust management mechanisms** providing highly secure and user-friendly access control

A secure and audible data management and sharing environment



6 pilots



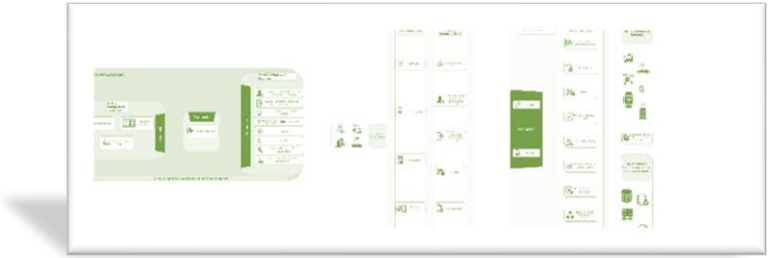
Framework for **fair, responsible, green data management & data sharing**

Exploit the power of **AI**

STANDING IN THE SHOULDERS OF GIANTS…

- Technologies for industrial data sharing, following IDS and GAIA-X principles
  - ensure sovereign, secure, and trusted data exchange and service provision
  - adopt data/service provider and data/service consumer concept
  - decentralized data storage
  - data/service providers (owners) impose usage control policies on their data
  - data/service consumers accept the data/service provider's usage policies and comply
- Data Spaces: Following latest **DSBA Technical Convergence recommendations.**
- Extending the FIWARE Data Space Connector with our technology offerings.

TANGO OVERALL ARCHITECTURE



Dataspace compatible

Builds on the principles of security, trust and interoperability of dataspace initiatives

Adopts the notion of **Connector** and extends it by providing extra privacy, security and AI tools

- Offered as **Services** (on-premise or cloud deployment)
- Or deployed at organization/end-user premises as **containerized** packages

Modular

Highly-modular architecture allowing for **fine-grained configuration** and dynamic enablement of services/technology offerings

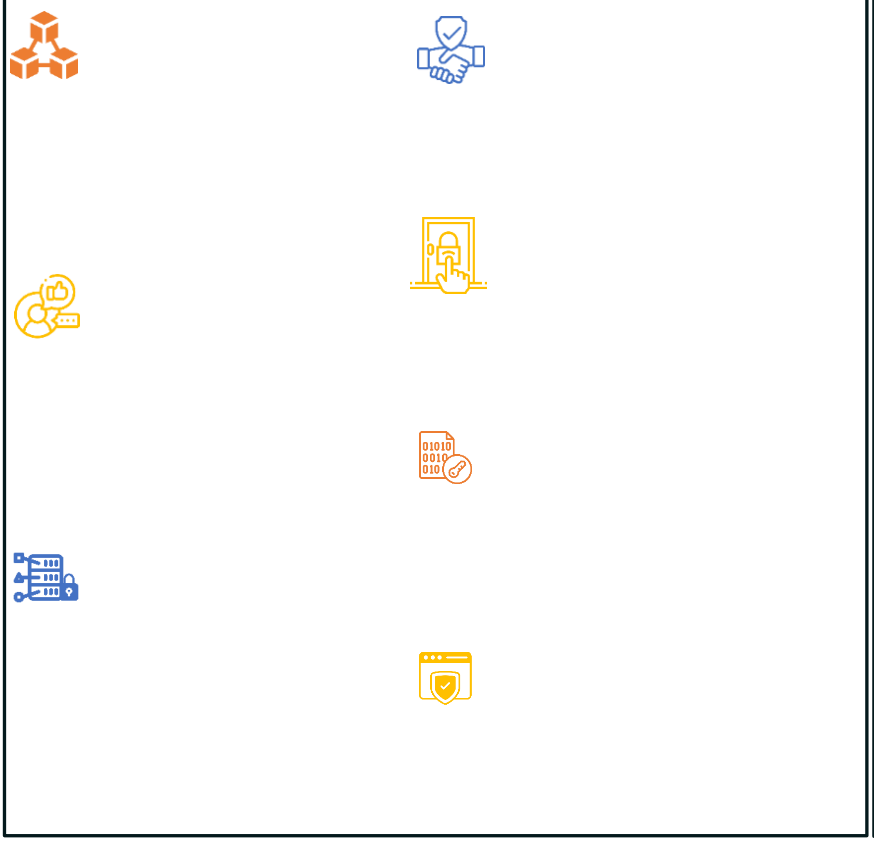
- Connector deployed on a **Kubernetes** cluster
- Blueprint files provide configuration options and selection of container images for deployment

Transparent

Front-end applications and User Interfaces allow users to interact with the TANGO ecosystem in a user-friendly and **transparent** way

- **TANGO App Store and Portal** allow users to browse and select technology offerings and discover services

TECHNOLOGY OFFERINGS



AND WHAT ABOUT SUSTAINABILITY IN DATA OPERATIONS?

- **The right choice**: Selecting lightweight options fit for purpose.
  - Blockchain: Very expensive in terms of energy. Only used when needed and for legally binding scenarios. Mainly identifiers stored in blockchain.
  - AI: Trying to minimise the footprint: Federated learning (less data movement), lightweight AutoML, MLOps and XAI.
  - Reduction in energy consumption in application execution for a single node (TornadoVM).
  - Openness: To add future green technology offerings into the architecture
- TANGO forecasts **renewable energy availability**
  - For efficient, cost-effective computing infrastructure management.
  - Enabling via RENOPS smart scheduling of heavyweight workloads (e.g., AI training, energy consumption in data centres) when and where renewable energy is available.
- **Evaluation**:
  - Assessing the energy efficiency of the TANGO Platform and several of its components.
  - Reports describing the performance improvement in terms of efficiency/energy consumption between existing solutions and the TANGO approaches.
  - Best practices and lessons learned.

DIGITAL TECHNOLOGIES ACTING AS A GATEKEEPER TO INFORMATION AND DATA FLOWS

Thank you!

https://tango-project.eu/

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EVIDEN

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MobiSpaces

new data spaces for green mobility

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Funded by the European Union

Data in service of people, environment and economy

Ilias IAKOVIDIS

Advisor, Digital aspect of Green Transition,

DG CONNECT, European Commission

Digitalisation and the 3 Dimensions of Sustainability

European Commission

Sustainability

Economic

Growth, decent jobs,

Economic resilience,

Social

Equity and Social Justice, Poverty Alleviation, Education,

Lifelong learning, Health/well-being, Inclusion, culture

Social cohesion,, Resilience and disaster preparedness

Environmental

Climate change

Pollution

Biodiversity loss

How can data serve of all 3 dimension of sustainability?

European Green Digital Coalition (EGDC)

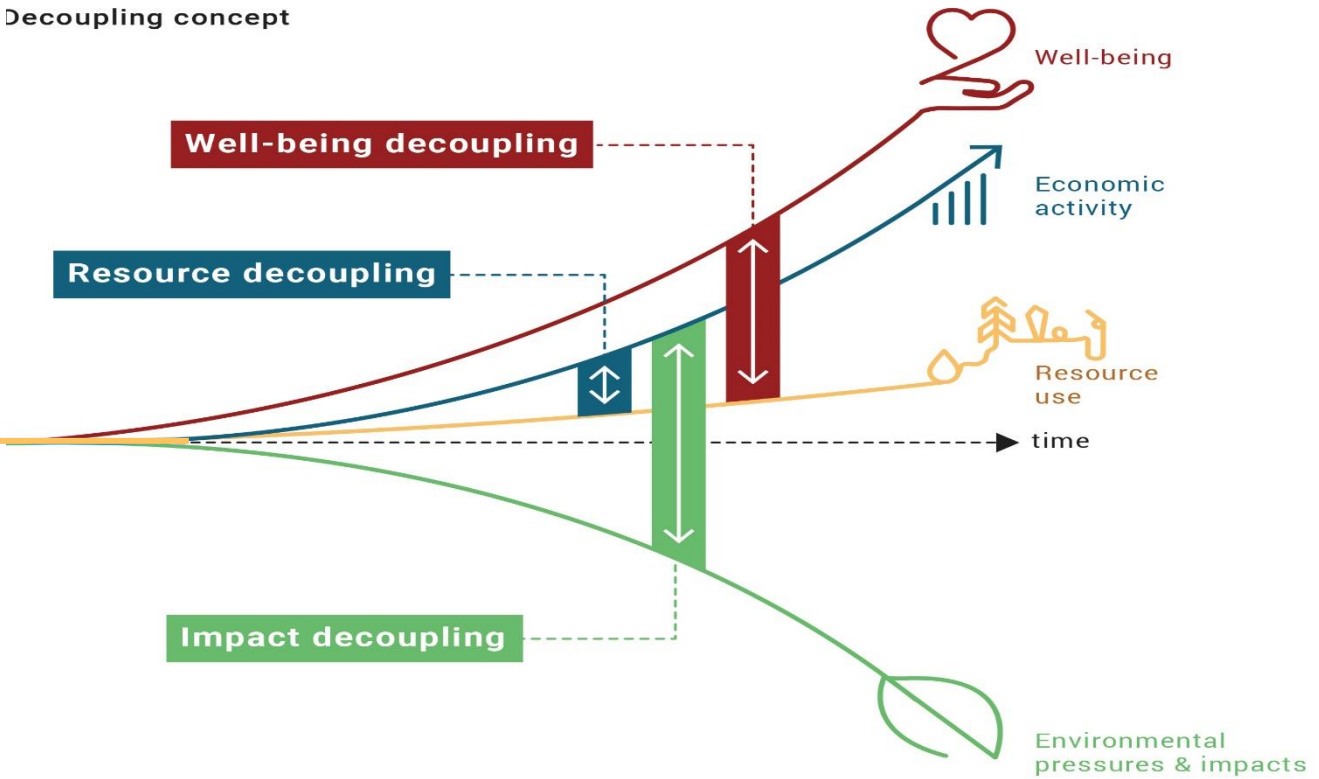
EUROPEAN GREEN DIGITAL COALITION

1. Net Carbon Impact Assessment Methodology for ICT Solutions,
2. Real Life Case Studies
3. Deployment Guidelines

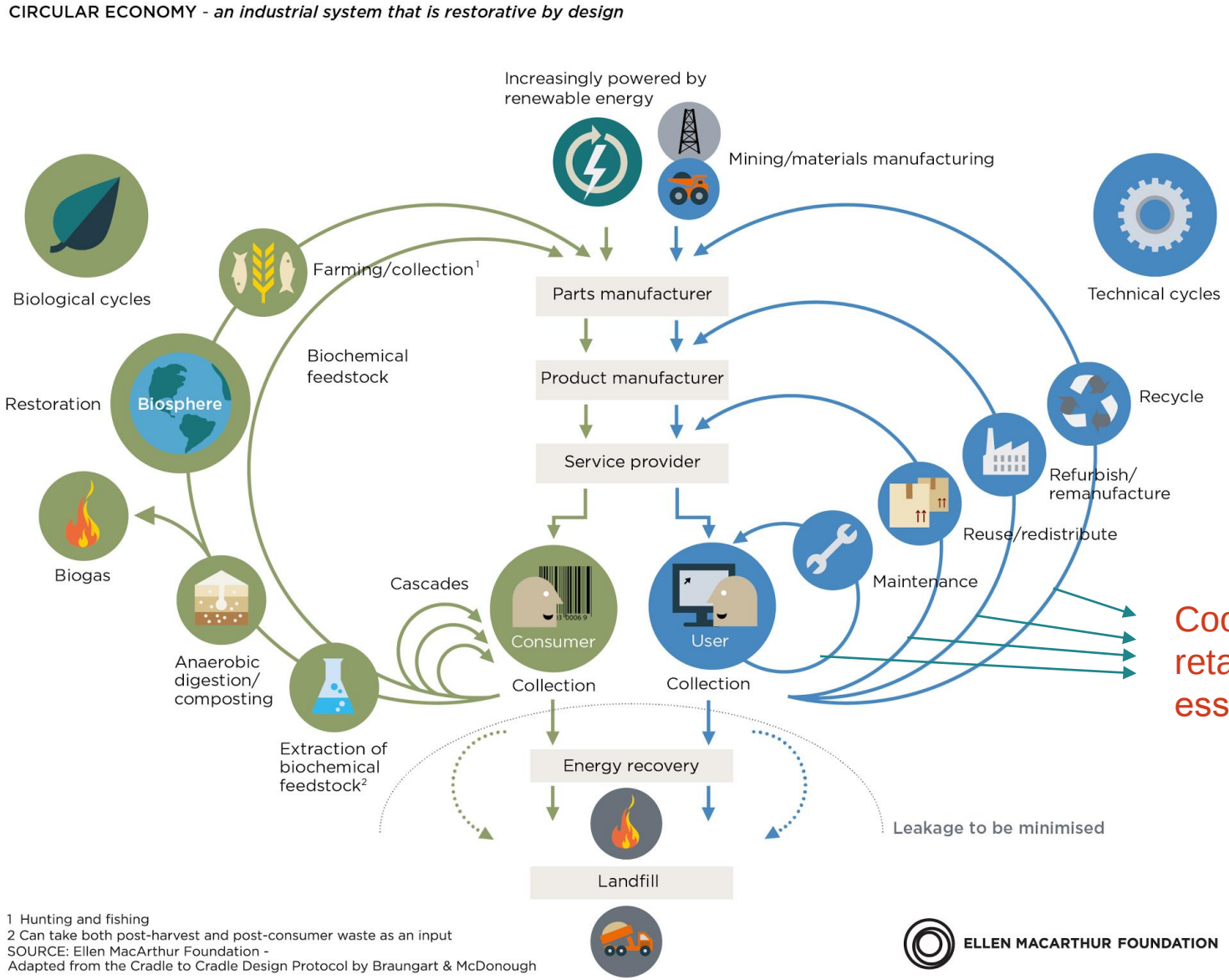
www.greendigitalcoalition.eu

Funded by the European Union

Sustainability is not only about GHG emissions reduction



Key for Sustainability - Circular economy

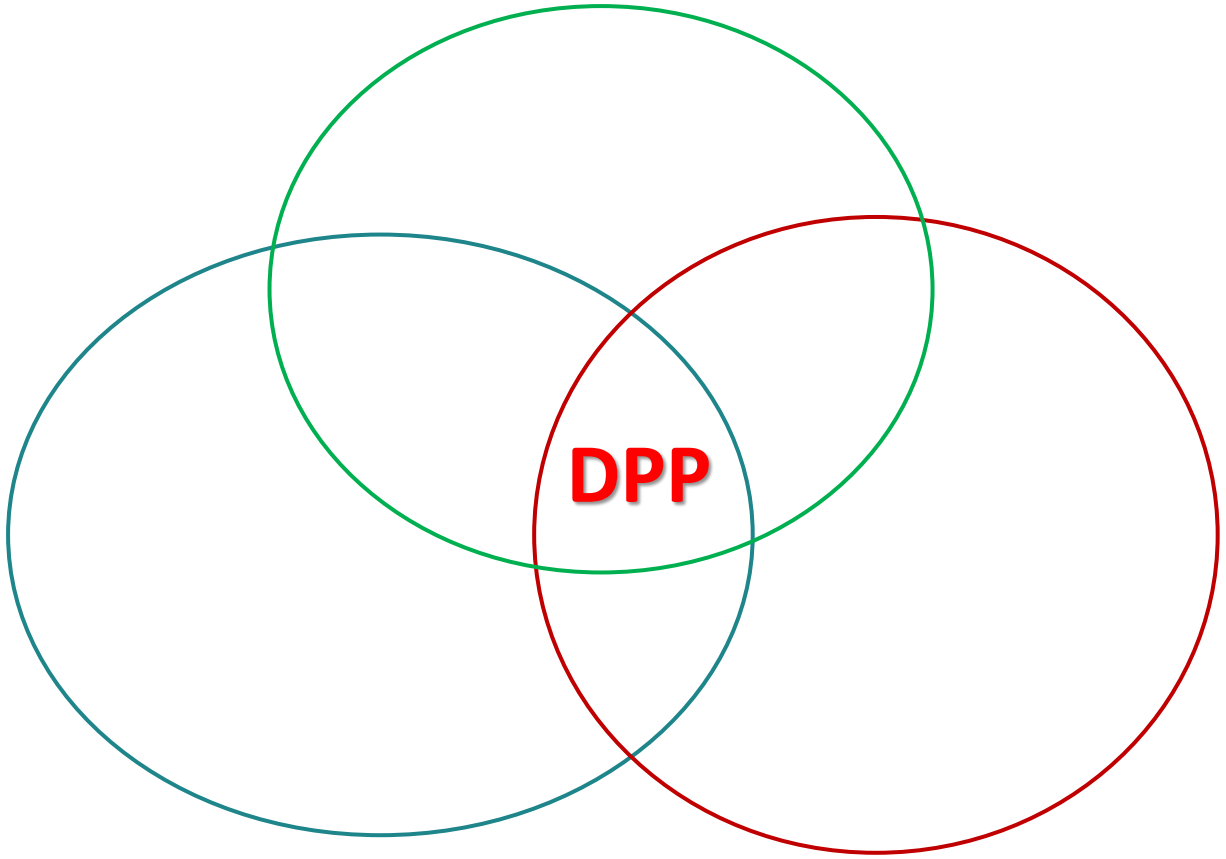


Cooperation among manufacturers, retailers, repairers, recyclers, is essential to enable these ‘circles’

European Commission

DPP – a tool to support three policy objectives

Increase
Environmental sustainability



Promote
Circularity

Support
Legal compliance

European Commission

Implementation work ahead

- The Commission will adopt an **ESPR Working Plan**. Adoption is expected within 9 months after the entry into force of ESPR (i.e., around Q1-Q2 2025).

- The co-legislators have pre-identified a number of product groups the Commission should prioritise:
  - Iron & steel
  - Aluminium
  - Textile, notably garments and footwear
  - Furniture, including mattresses
  - Tyres
  - Detergents
  - Paints
  - Lubricants
  - Chemicals
  - Energy related products
  - ICT products and other electronics

- The Commission retains the right to add or remove product groups from the ESPR working plan, but it should provide a justification for each decision.

DPP main design features

- DPP is based on a **decentralised** approach for data storage.
- The DPP shall be uniquely linked to a product.
- Access to data will take place through a **product unique identifier**, embedded in a **data carrier and** relying on a **look-up mechanism**.
- Access to DPP-data based on a **need-to-know** basis (there will be public and restricted data)
- **3** possible levels of **granularity**: (i) model, (ii) batch, (iii) item

Main requirements for companies

- Make sure that a product passport **exists**, and it is in compliance with essential requirements established in articles 10 and 11 – exceptions are possible
- Make sure that the product passport is **complete**, meaning it includes all the mandatory information listed in the corresponding product group-specific Delegated Act.
- Make sure that the information included in the passport is **authentic, reliable** and **verified** in accordance with requirements established in the corresponding product group-specific Delegated Act.
- A **back-up copy** of the DPP is stored by a [certified] third-party product passport service provider.
- Copy of the data carrier or unique product identifier are made available to **dealers** and **online market places** selling the corresponding product.

The standardisation work (on DPP-system)

DPP-system

DPP-data

*(the "**HOW**". To be developed horizontally for all product groups and legislations)*

Digital Product Passport

*(the "**WHAT**")*

- All standards and protocols related to the IT architecture (**8** areas)
- The EU DPP (central) registry

Information to be included in the DPP will be **product-group specific** and it will be identified through dedicated legislation.

It may include information/data on one or more of the following areas:

- Technical performance
- Environmental sustainability performance
- Circularity aspects (durability, repairability, etc)
- Legal compliance
- Product-related information (e.g., manuals, other labels)

European Commission

EU DPP (central) registry and web portal

DPP registry

- Product identifier
- Economic operator identifier
- Facility identifier
- Registration identifier (this will not be public)
- Commodity code
- Back-up reference

Link with **EU CSW-CERTEX** – This is an EU central operational system that already exchanges information with other EU partner DGs central systems for verification purposes. It will enable automatic verifications by the customs authorities on the existence and authenticity of the DPP.

It will be the "**entry point**" for the web portal(s) the Commission will have to set up to allow **search & compare** functions of the information included in the DPPs

Web portal for "restricted" data

Mostly to support Market Surveillance Authorities, customs authorities, governments, other agencies

Web portal for "public" data

European Commission

6. Implementation work ahead

- Prepare the adoption of delegated acts setting out the **rules and requirements to be followed by DPP service providers**, including a certification scheme to verify such requirements.

- Prepare the adoption of implementing acts setting out **procedures to issue and verify the digital credentials of economic operators and other relevant actors** that shall have access rights to information included in the product passport.

- Prepare the adoption of delegated acts to establish **rules and procedures related to unique identifiers and data carriers' lifecycle management**

- Design and set-up the DPP registry.

- Design and set up the DPP web portal.