ERA LEARN

Funded by the European Union

ERA-LEARN Networking Event 2026

Bridging European Partnerships:

Connecting, Sharing, Growing

Tech Gate | Vienna

18 Nov. 2026

Parallel Workshops

B4 AI, Data and Digital Transformation

Exploring how AI, data and digital technologies can transform Partnership operations, innovation and industrial competitiveness.

Welcome and Introduction

Moderation: Tor Ivar Eikaas, ERA-LEARN

Partnership Pitches

- FromCEI-Sphere to EXPANSE AI: AI, cloud-edge computing, and digital ecosystems as technology that can transform sectors, **Inessa Seifert**
- The Experience of EOSC in fostering Europe's leadership in data-intensive research and AI and its responsible use, **Aneta Pazik-Ayba**
- Virtual Worlds (VW): How can we transform industry and logistics by using a variety of immersive technologies, **Alejandra del Valle**
- How does AI, Data and Robotics Partnership (ADR) the European Partnership as focal point for these themes contribute to digital and technological sovereignty, **Philip Piatkiewicz**
- Processes4Planet: Digital and AI for process excellence and industrial leadership to deliver a step change in energy and material efficiency, **Patrick Pammer**
- CETP: AI in Practice – a practical use case, **Ludwig Karg**

CEI-Sphere

part of EUCloudEdgeIoT.eu

From CEI-Sphere to EXPANSE AI: AI, cloud-edge computing, and digital ecosystems as technology that can transform sectors



18 November 2026

Inessa Seifert (VDI/VDE-IT)

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CEI-Sphere

AI Ecosystem - from data and computing foundations to distributed intelligence

DATA & COMPUTING

- High-quality data
- Foundation models
- LLMs & Generative AI

Computing resources

- Cloud
- High-performance computing
- Quantum computing

DISTRIBUTED INTELLIGENCE

- Intelligent agents
- LLM-based multi-agent systems

Energy-efficient • Trustworthy • Safe

EDGE & HARDWARE

- **Edge & IoT** — Resource-constrained devices
- **AI hardware accelerators**
- **Neuromorphic computing**
- **Spiking neural networks**

Secure, trustworthy orchestration & brokering

EVOLVING AI CAPABILITIES

- **Descriptive** — What?
- **Diagnostic** — Why?
- **Predictive** — What may happen?
- **Prescriptive** — Which action?
- **Autonomous** — Learn • Reason • Act
- **Embodied AI** — Interact with the physical world

DIGITAL ENVIRONMENTS

- Digital twins
- Metaverse / Omniverse
- Virtual worlds

Two Large-Scale Pilots for Europe's Cloud–Edge–IoT Ecosystem

CEI-Sphere

O-CEI and COP-PILOT: complementary approaches to open platforms and intelligent orchestration

O-CEI

Open CEI platform uptake
Jan 2025 – Jun 2028

58 partners | **20 countries**

Nearly **€28m total** • **€23.14m EU funding**

CORE FOCUS Open reference platform for secure cross-domain exchange

Resources ⟷ Data ⟷ Digital services

8 LARGE-SCALE PILOTS • 6 SECTORS

- Electricity grids
- Agriculture & agrifood
- Mobility
- Urban areas
- Telecommunications
- Logistics

PLATFORM ENABLERS

- Open architectures & APIs
- Documentation & automation tools
- Data governance, privacy & sovereignty

COP-PILOT

Collaborative service orchestration
Jan 2025 – Dec 2027

45 partners | **20 countries**

€27.71m total • **€22.50m EU funding**

CORE FOCUS End-to-end orchestration across heterogeneous infrastructure

Deploy → Monitor → Adapt (↺)

4 LARGE-SCALE PILOT CLUSTERS

- Industry
- Energy
- Smart buildings & cities
- Agriculture & vineyards

AI & AUTOMATION

- LLM-based user interfaces
- Closed-loop SLA management
- Zero-touch automation & secure actuation

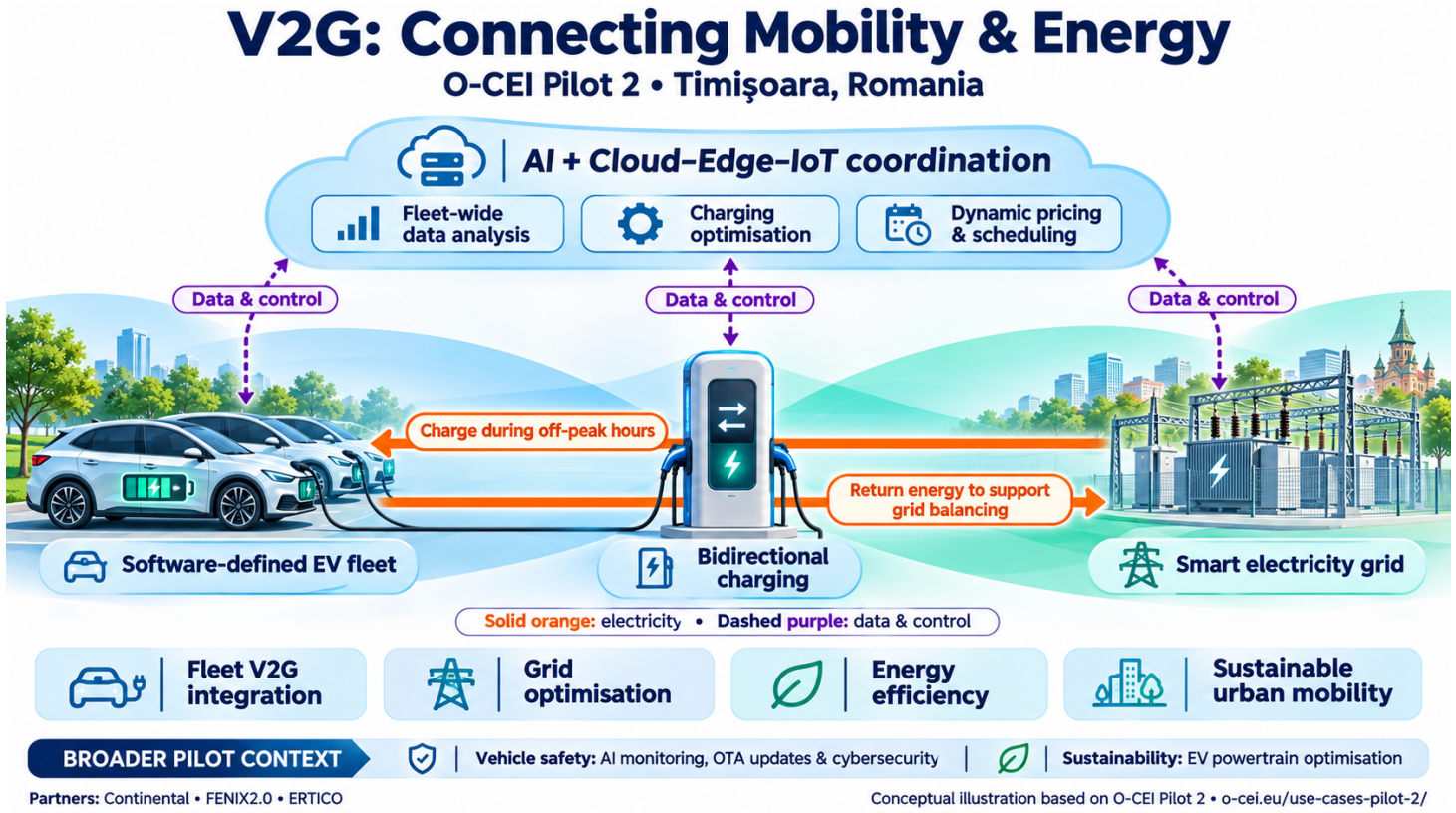
COMMON COMPUTING CONTINUUM

Connected devices & sensors ⟷ IoT & edge ⟷ Cloud infrastructure ⟷ Cross-domain applications

Secure data exchange • Interoperability • Real-world validation • Trusted European digital ecosystems

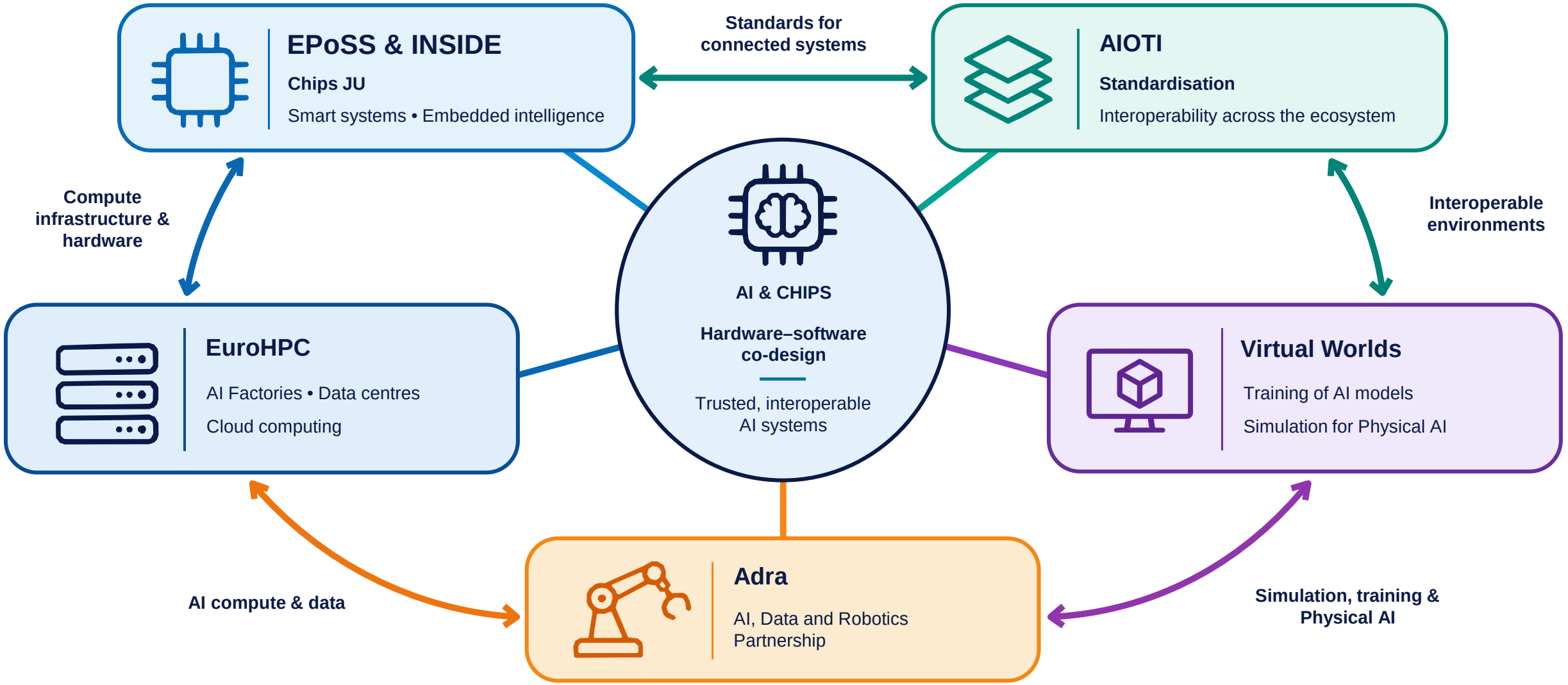
Source: supplied project summaries; CORDIS 101189589 & 101189819; O-CEI use cases

O-CEI Large-Scale Pilot for cross-sectoral transformation and vehicle-to-grid V2G initiatives



- European Coalition of the Willing on Bidirectional Charging
- IEA EV TCP Task 53
- Digital4Energy (D4E) and Sustainable Transport Forum (STF)

Connected European AI & Chips Ecosystem



Conceptual technology relationships — not formal governance or funding links

AI Value Chain & Key Challenges

From enabling technologies to trustworthy applications across sectors

EXPANSE <<AI>>

01 **Advanced compute hardware**
Compute capacity

02 **High-quality datasets**
Data foundations

03 **Simulation environments**
Virtual Worlds

04 **Trustworthy foundation models**
Responsible AI

05 **Applications across sectors**
Real-world impact

APPLICATION AREAS

- Health
- Mobility
- Manufacturing
- Energy
- Agriculture & Environment

PRESSING SOCIETAL & ECONOMIC CHALLENGES

Energy demand & costs
High energy needs and costs of training large language models

Water & resources
Responsible resource use in data centres

Strategic dependencies
Reliance on non-European cloud and foundation models for GAI

Resilient infrastructure
Flexible value chains across the Cloud–Edge–IoT continuum

Funded by the European Union
Project number:101294707

EXPANSE <<AI>> VDI VDE IT BluSpecs imec IDC adra The AI Data Robotics Association Dealflow.eu

Scale-Up Academy – Sprints Series Overview

Targeted training, practical tools and expert guidance for trusted, human-centric and market-ready AI innovation.

IMEC

Human-centric & societal value

User acceptance, inclusive design, ethical readiness and trustworthy AI.

- W1 — Human-centric value & impact
- W2 — Ethical readiness & trust

VDI/VDE-IT

Innovation & legal compliance

EU regulatory alignment, compliance by design and data-driven business opportunities.

- W3 — Legal & regulatory guidance
- W4 — Data-driven business models

IDC

Market insights

Market analysis, value proposition, adoption barriers and uptake readiness.

- W5 — Value proposition & validation
- W6 — Uptake readiness & scale-up

BluSpecs

Cross-sector cooperation

Co-design of value chains, open standards and shared governance.

- W7 — Value-chain co-design
- W8 — Governance & cooperation

ADRA & EPoSS

Ecosystem visibility

Stakeholder engagement, global dependencies and technology ambassadors.

- W9 — Engagement & outreach

DEALFLOW.EU

Investor & market readiness

Capital processes, go-to-market planning, pitching and funding access.

- W10 — Capital processes
- W11 — Go-to-market planning
- W12 — Effective pitching

Overall Outcome

Business modeling tools, regulatory readiness, validated demand, scalability assessment in value chains and investment readiness.

Funded by the European Union
Project number:101294707

How to engage with Expanse AI?

- Join the Advisory Board and stakeholder consultations
- Be an Industry Expert and meet the cohort of high quality startups and founders
- Visit the Website: expanse-ai.eu
- Contact us: expanse-ai@vdivde-it.de
- Follow us on LinkedIn

Funded by the European Union
Project number:101294707

EXPANSE <<AI>>

CEI-Sphere

part of EUCloudEdgeIoT.eu

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Funded by the European Union

The Experience of EOSC in fostering Europe’s leadership in data-intensive research and trustworthy AI

Aneta Pazik-Aybar, Co-Chair, EOSC Steering Board

18 November 2026

Why Trustworthy AI Matters



Reliable

Does it work under the conditions we care about?



Fair

Who is missing from the data or poorly served?



Secure

Are sensitive data and systems protected?



Responsible

Who oversees its use and acts when it fails?

What is EOSC

The European Open Science Cloud connects **research data, tools and services** across Europe.

A federation of nodes (National, thematic, and e-infrastructres)
National and specialist infrastructures connect their resources (via federating capabilities that connect the whole federation)

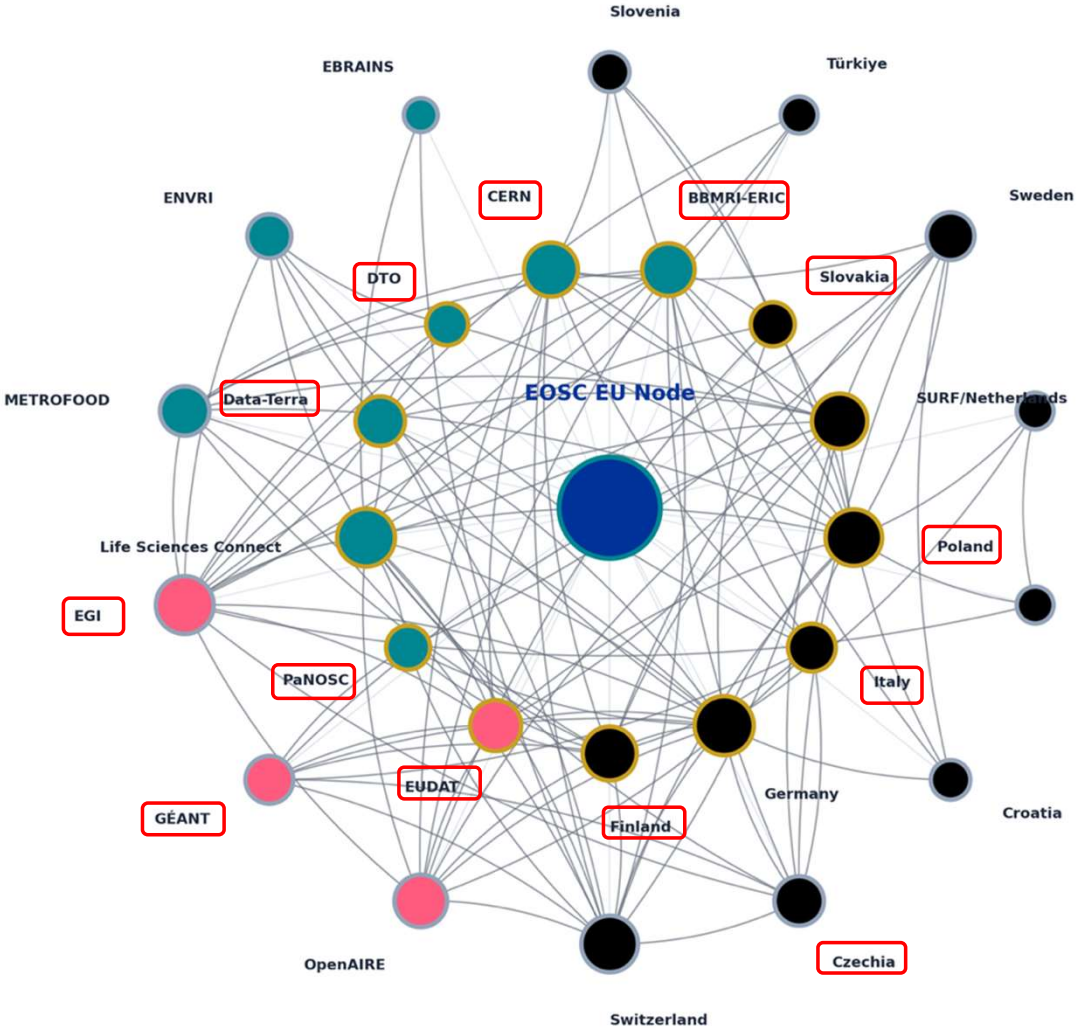
A way to work across borders
Teams can find and reuse research outputs from other disciplines and countries

Access under clear conditions
Data holders can retain control over who uses sensitive or proprietary data

eosc | Federation

Node type

- National
- Thematic
- E-Infrastructure
- EOSC EU Node (universal)



Enrolment wave & links

- First wave (13) — inner ring
- Second wave (14) — outer ring
- Documented node-to-node link
- EU Node dependency (all nodes)

In Production

Enrolment support window	Node
1: May-Aug 2026	EGI Node EOSC CZ Node GÉANT EOSC Node EOSC Scholarly Commons Node
2: Sep-Dec 2026	METROFOOD-RI EBRAINS EOSC Node ENVRI EOSC Node EOSC Latvia Node Croatian EOSC Node
3: Jan-Apr 2027	EOSC Node North Macedonia Turkish National EOSC Node Slovenian EOSC Node EOSC Node Switzerland Swedish National EOSC Node

Many more candidate nodes are preparing for a 3rd wave of enrolment in 2027

Documented cross-node collaborations mined directly from the nodes' latest project charters, coloured by node type; EOSC EU Node shown as universal dependency

EOSC / FAIR principles

> **“(…) the FAIR Principles put specific emphasis on enhancing the ability of machines to automatically find and use the data, in addition to supporting its reuse by individuals.”**

Wilkinson et al., *Comment: The FAIR Guiding Principles for scientific data management and stewardship,* "Scientific Data", 2016.



F

Findable

Can people and software find the data?

A

Accessible

Is it clear how to get access?

I

Interoperable

Can tools combine it with other data?

R

Reusable

Are its origins and reuse terms clear?

EOSC and data intensive research

Four ways the federation supports data-intensive research:

Find research data

Search beyond a single institution or country.

Use compatible tools

Work with shared formats, services and methods.

Collaborate

Share outputs and workflows across research teams.

Run data-intensive work

Use services such as notebooks and compute.



Image – AI generated

EOSC and AI / 3 core aspects

AI for FAIR

AI can suggest metadata and flag gaps, help find the right data and tools, etc.

FAIR for AI

Fit-for-purpose data supports training and testing.

AI governance

People assess risks, validate and monitor.

SRIA 2.0 treats governance as a responsibility across the full lifecycle.

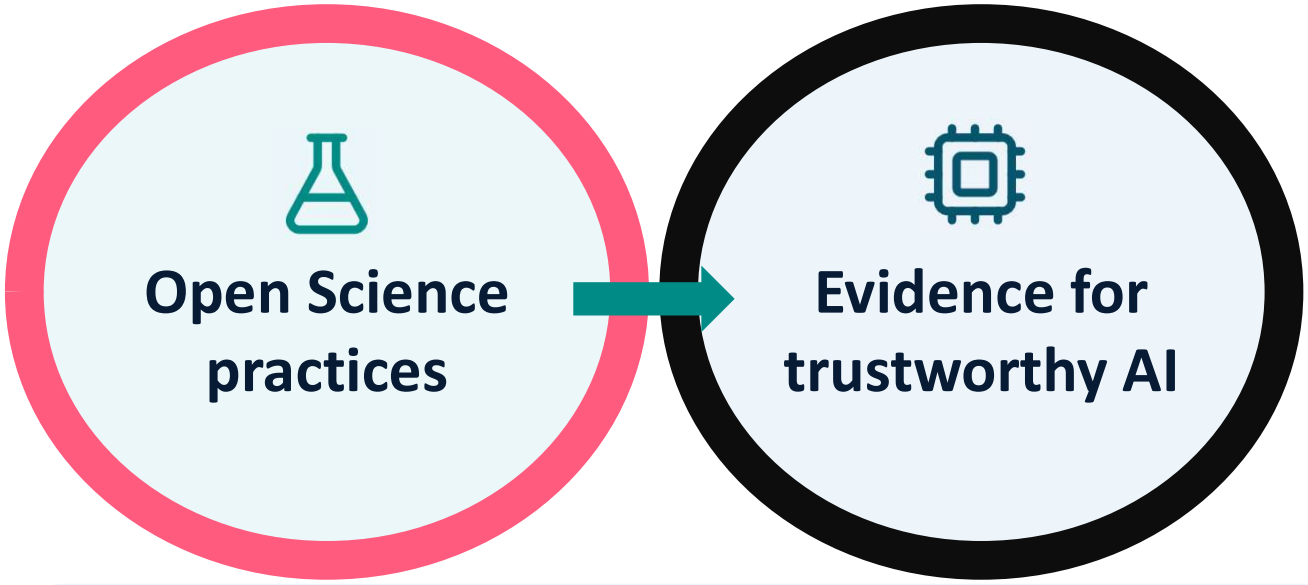
FAIR for AI

- FAIR Data: AI-ready and Reusable
- EOSC supports research workflow
- Teams / humans are responsible for how resources are used



Open Science: The Foundation for Trustworthy AI

Here's what EOSC can enable - users can:

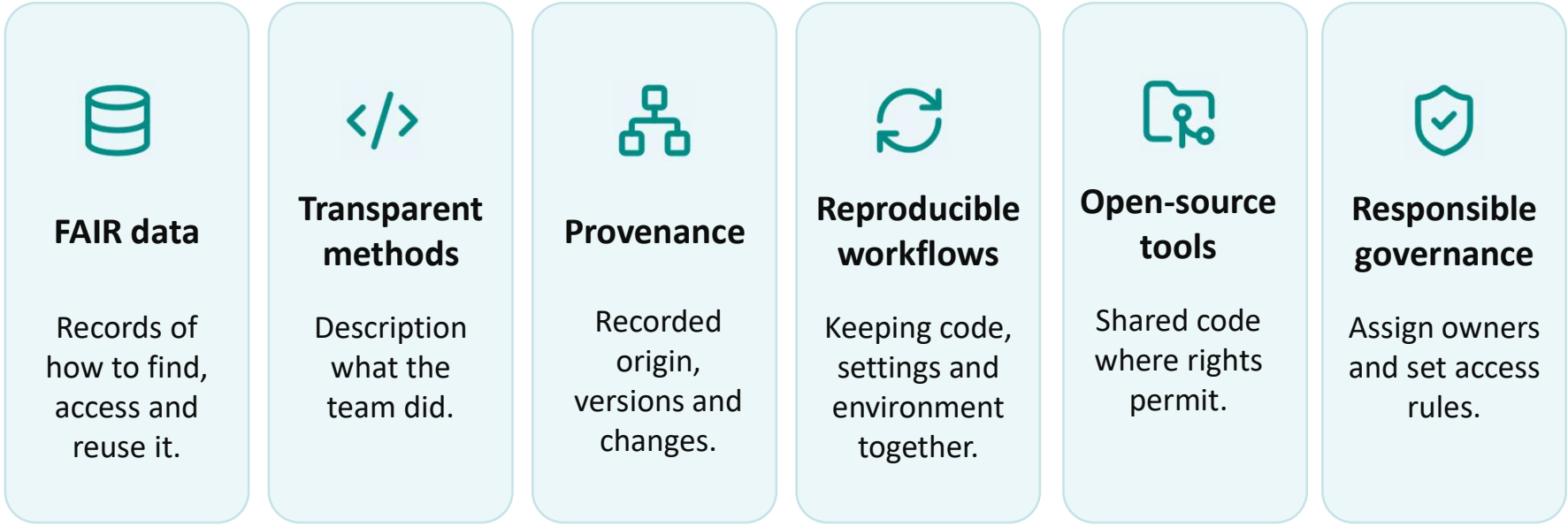


- See the inputs and methods
- Trace origins and changes
- Rerun or verify the work
- Review limitations and risks
- Reuse under clear conditions

As open as possible, as closed as necessary.
Share what can be open, BUT: Protect sensitive data

Key Open Science Practices for Trustworthy AI

Practical ways to document, review and responsibly reuse the evidence behind AI.

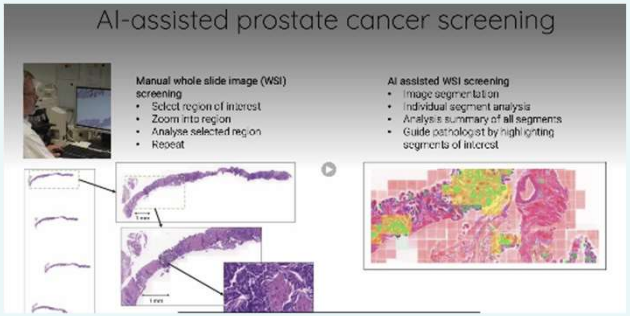


Use Cases from the EOSC Federation (2 examples)

FUMD-AI
Federated Urban Mobility Datasets and AI-based Handover Prediction



Multi-centric validation of AI models for prostate cancer screening



Thank you!



Virtual Worlds PARTNERSHIP

Virtual Worlds: How can we transform industry and logistics by using a variety of immersive technologies

Alejandra del Valle, Secretary General, VWA

ERA-LEARN Networking Event · Vienna, 18 Nov 2026

Funded by the European Union

These activities are supported through NOVA, a Horizon Europe CSA funded by the EU under Grant Agreement No. 101296278 to support the Virtual Worlds Partnership.

The Virtual Worlds partnership

Virtual Worlds PARTNERSHIP

A co-programmed partnership



Signed 10/12/2025







A strong and multi-disciplinary Partnership, to develop and promote a thriving industrial and end-user ecosystem, covering all aspects of the Virtual Worlds value chain, while actively engaging with people and society

Private side

Virtual Worlds Association

Public side

Industry
Large companies, SMEs, start-ups,spin-offs

Academia Universities, innovation & research organisations

Policy makers
National, regional, local levels & **Regulator**

End-users
Unions, customers, associations, applications users

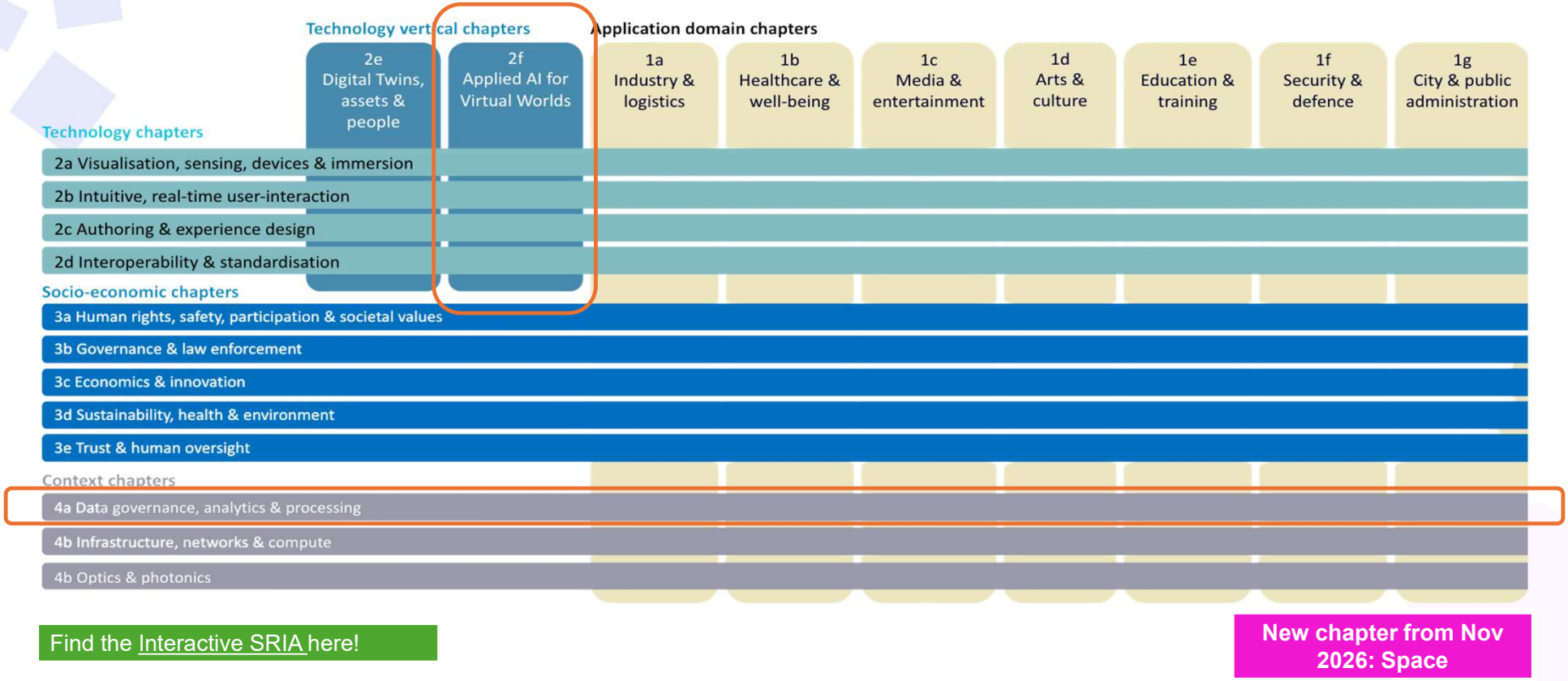
Funded by the European Union

European Commission launches European Partnership for Virtual Worlds | europa.eu

The SRIA, Strategic Research & Innovation Agenda

Virtual Worlds PARTNERSHIP

provided by Virtual Worlds Association



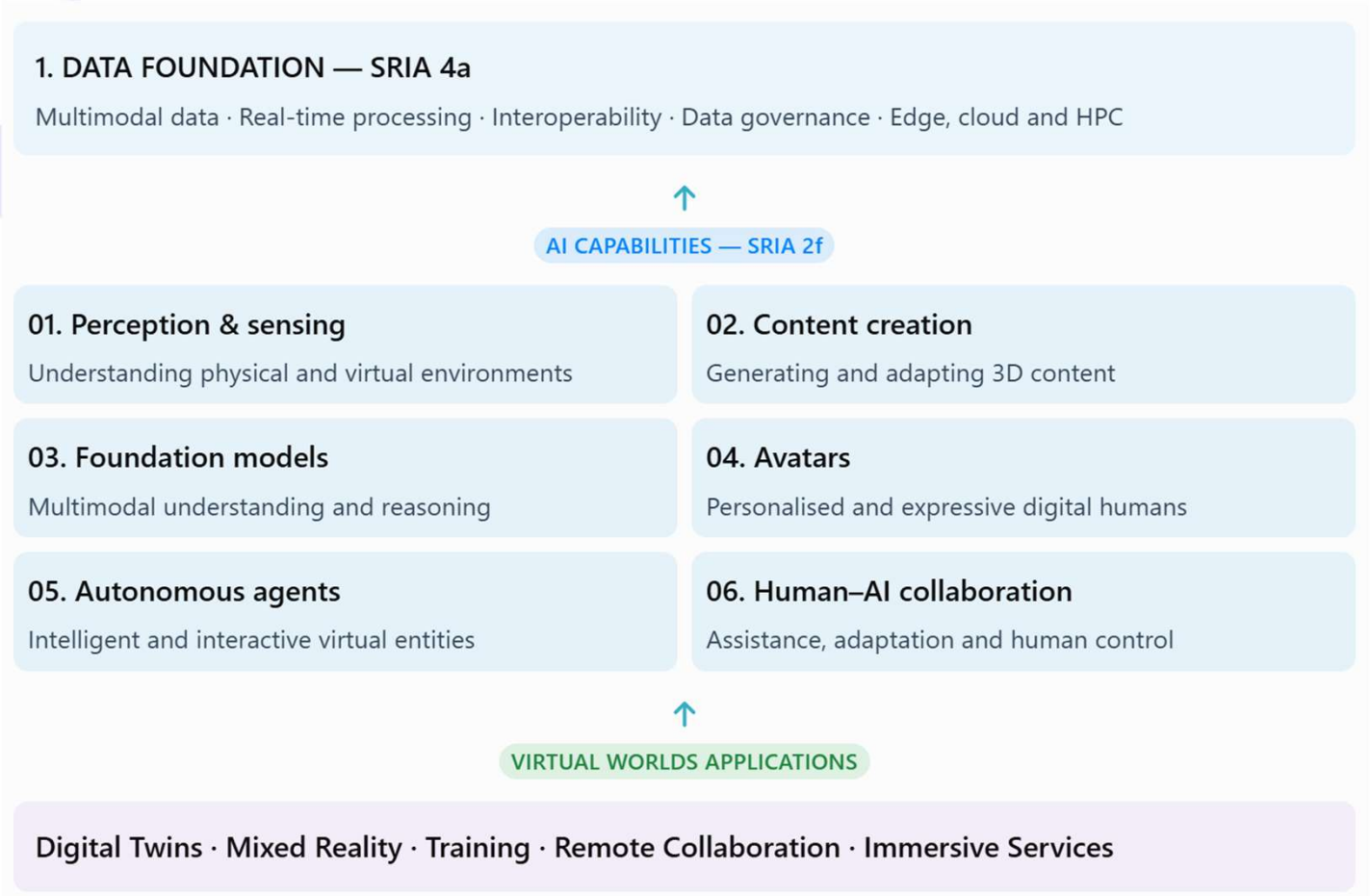
Find the Interactive SRIA here!

New chapter from Nov 2026: Space

Funded by the European Union

Role of AI and data in Virtual Worlds

Virtual Worlds PARTNERSHIP



AI enables the creation, intelligence and operation of Virtual Worlds

Funded by the European Union

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Where AI and data create value in industry

Virtual Worlds PARTNERSHIP

From design to maintenance, AI and data enhance the entire industry value chain

Build twins faster

AI and 3D scanning generate Digital Twins and 3D assets from CAD data, making them affordable for all type of stakeholders

Augment workers

AR/MR remote assistance with LLM support, AI-powered virtual instructors and safe training for hazardous tasks

Enhanced planning and automation

AI agents test layouts, intralogistics flows and robots in the Digital Twin before deployment, trained on synthetic data



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Examples of good practices

Virtual Worlds PARTNERSHIP

Siemens, Erlangen factory

AI and Digital Twins in production

15–20%

productivity gains from early Digital Twin deployment

Up to 20%

cost savings from AI agents that plan production and validate each scenario in the Digital Twin

Catena-X data ecosystem

Sovereign data sharing in automotive (SRIA 2e)

1,069

companies exchanging data (Sept 2026), up from 182 in Dec 2025

8 of 10

largest automotive suppliers share data for traceability, carbon footprint and quality

Sources: Virtual Worlds SRIA ch. 1a and 2e; Siemens (2026); Catena-X (2026); Automotive Logistics (2026). Company-reported figures.

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AI and data in VW: European R&I in practice

Virtual Worlds PARTNERSHIP

Project	What it does	AI and data angle
XR5.0	Human-centric XR for Industry 5.0, with six high-TRL pilots in design, maintenance, training and assembly	Explainable, generative and neurosymbolic AI combined with XR
XR2INDUSTRY	European open XR platform piloted in manufacturing, logistics and maintenance, with Open Calls	Privacy-compliant data handling and technological sovereignty
THEIA-XR (coordinated from Vienna)	XR for operators of off-highway machinery: snow grooming, construction and logistics	Machine and sensor data made visible to the operator, for safety
VICTOR-XR (Virtual Worlds call, 2026)	Reference framework for virtual–physical consistency; pilots in automotive, collaborative robotics and rehabilitation	Digital Twins kept in sync with reality through multimodal sensing and AI cognitive assistants

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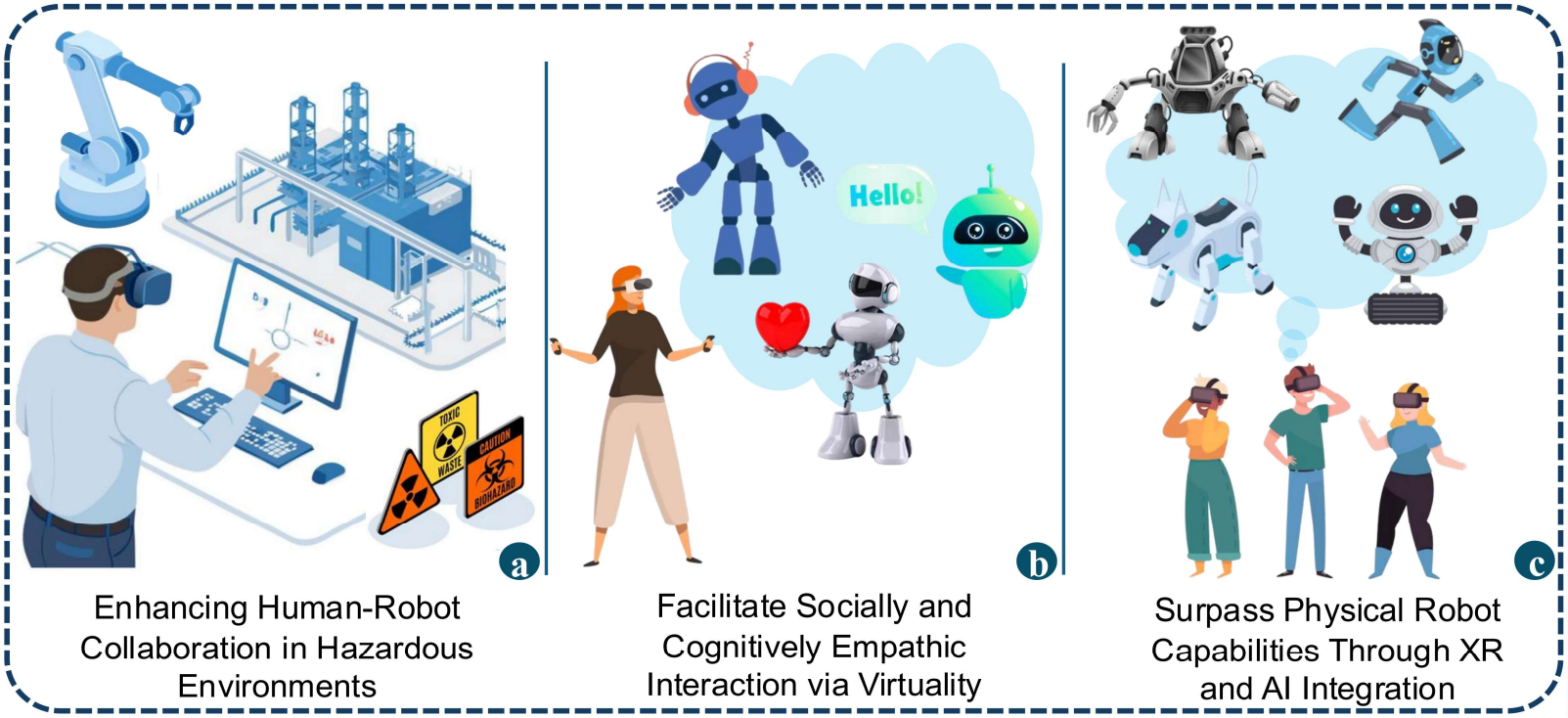
The future: virtual robots powered by XR and AI

Virtual Worlds PARTNERSHIP

Safer collaboration in hazardous environments

Socially and cognitively empathic interaction

Beyond physical limits



Enhancing Human-Robot Collaboration in Hazardous Environments

Facilitate Socially and Cognitively Empathic Interaction via Virtuality

Surpass Physical Robot Capabilities Through XR and AI Integration

Image: Zhang, Ma & Kragic, Reframing Human–Robot Interaction Through Extended Reality (2025)

Funded by the European Union

Main challenges and risks

Virtual Worlds PARTNERSHIP

What still holds AI back in Virtual Worlds (SRIA 2f)

Hardware limits

AI models need more power, memory and compute than headsets and edge devices offer; many still depend on the cloud

Interoperability

Isolated ecosystems and incompatible data models limit semantic interoperability and data integration

Standards for Virtual Worlds

Open standards needed for 3D asset formats, a capability-aware hardware platform and links to industrial standards (AAS)

Adoption

Generated content not yet physically accurate or pipeline-ready; tools costly for non-experts; benefits still to be measured

Understanding the real world

Spatial grounding, multimodal integration, contextual understanding and robustness in dynamic scenes

Trust, transparency and privacy

Bias, avatar impersonation, AI decisions users cannot question, and sensitive gaze and physiological data

Funded by the European Union

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Conclusions: where AI for Virtual Worlds must go

Virtual Worlds PARTNERSHIP

From
isolated perception and content generation

To
AI that understands, reasons, acts and adapts in dynamic environments

Four research priorities to make this vision a reality

1 **Perceive & act: intelligent agents**
Multimodal perception, memory, reasoning and proactive action

2 **Understand: contextual scene understanding**
Semantics, properties and relationships of physical and virtual entities over time

3 **Spatially grounded multimodal AI**
Joint reasoning across language, vision, geometry and user activity

4 **Adapt to people: Human-centric VW**
Personalised assistance, adaptive interfaces and user control. Inclusive and ethical virtual worlds.

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Thank you!

Contact me at: secretarygeneral@virtualworldsassociation.eu

Visit us at **https://www.virtualworldsassociation.eu/about-the-virtual-worlds-partnership**

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Co-funded by the European Union

The AI Data Robotics Association

Freedom to choose: the ADR Partnership and Europe's technological sovereignty

Philip Piatkiewicz · Secretary-General, ADRA

adr-association.eu · ERA-LEARN Networking Event, Session B4 · Vienna, 18 November 2026

BDV BIG DATA VALUE ASSOCIATION · CAIRNE · ellis European Laboratory for Learning and Intelligent Systems · EurAI · eu ROBOTICS

AI, Data and Robotics Partnership (2021–2030)

EUROPEAN ARTIFICIAL INTELLIGENCE OFFICE

European Commission (public side)



ADRA (private side)

Sovereignty

Secure European autonomy in AI, Data & Robotics

Industry

Boost competitiveness through digital & green transformation

Research

Achieve global research excellence

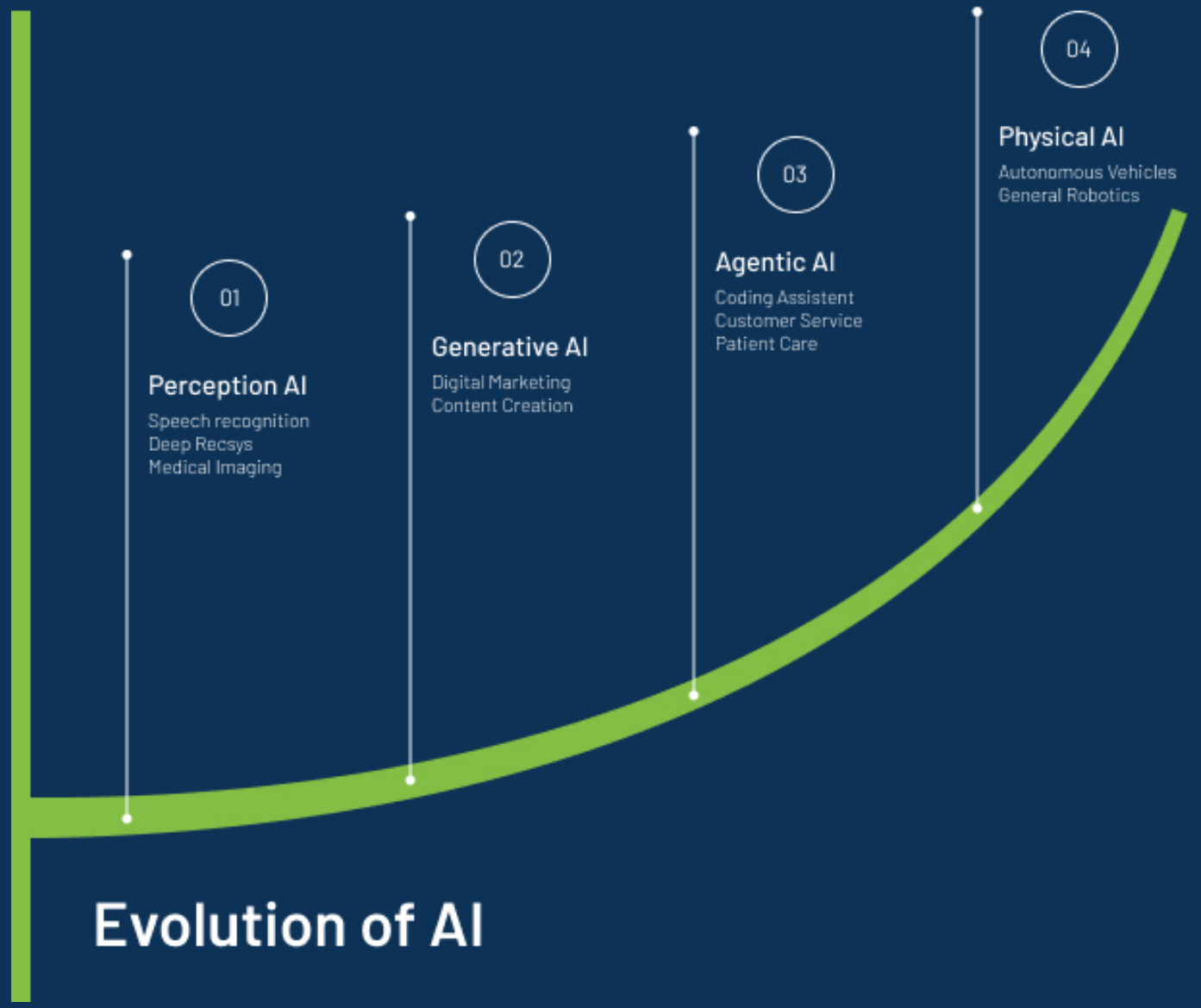
Social Impact

Drive solutions for climate, health, energy & security

Founded in 2021 by BDVA, CAIRNE, ELLIS, EurAI and euRobotics · 18 topic groups · one shared agenda, the SRIDA

AI Trends

- From uni-modal to **multi-modal models**
- From next token prediction to **reasoning**
- From machine learning to **neurosymbolic AI**
- From chat to **agents**
- From language models to **world models**



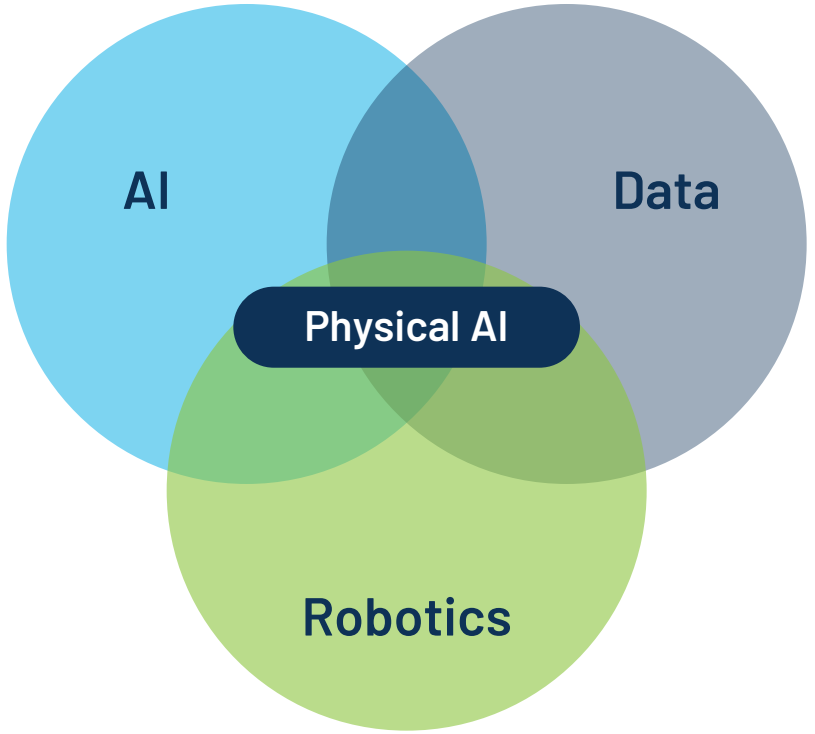
The next wave of AI acts in the physical world

Physical AI senses, reasons and acts in a closed loop with its environment.

Grounded in physical law, embodied in machines or embedded in infrastructure, and co-designed with its hardware.

Its hard problems are engineering problems: the sim-to-real gap, world models grounded in physical data, safety assurance for learned control, and energy-efficient inference at the edge.

The partnership has united these communities since 2021.



02 · EUROPE'S POSITION

Europe starts from the industrial stack

Europe never built the consumer software industry. It did build the industrial one: SAP, Siemens, Dassault Systèmes, Schneider, ABB. Physical AI is the next layer of that stack.

~25%

of the world's industrial robots are produced in Europe

400+

service robotics producers across the continent

Data no one else can scrape

Motion, force and process data sit inside European plants, hospitals and ports.

The risk is the intelligence layer. If it is licensed from outside, Europe's installed base becomes a distribution channel for someone else's margin.

Source: ADRA position paper (2026)

03 · FREEDOM TO CHOOSE

Two linked bottlenecks will decide who leads

BOTTLENECK 1

Access to real-world data

Leaders will gather data from real-world systems and put it to use.



reinforce each other

BOTTLENECK 2

Parts that fit together

Sensors, robots, models and software from many suppliers must combine.

BUILT INTO EVERY LAYER, FROM THE START

Interoperability

Components and data flow through open protocols

Modularity

Replace one part without rebuilding the whole

Portability

Models and data move without vendor lock-in

Sovereignty is not autarky. Open to the best, locked in to no one.

Source: ADRA (2026)

04 · WHERE IT IS DECIDED

Sovereignty is won or lost in translation

THE WEAK MIDDLE

01
Research
Builds the foundations

02
Integrate
Turns capabilities into systems

03
Qualify
Makes it trustworthy and deployable

04
Deploy
Pilots in real environments

05
Scale
Reaches the European market

Research base | Industry-led integration and qualification | Catalyst end-users | Buyers and investors

Research is well funded and procurement drives scale. The middle decides margin and standards, and it is where ADRA and the Catalyst are focusing.

Source: ADRA (2026)



European AI and Robotics Catalyst

Europe's scientific networks are world-class. The task now is to turn that excellence into industrial capability.

05 · OUR CONTRIBUTION

The partnership pools mutualised assets

SHARED ASSETS

Open European models

A base SMEs, integrators and labs build on, instead of licensing a black box from abroad.

Networked training and qualification centres

Embedded in the TEFs, growing into a distributed industrial network for Physical AI.

Standards for trustworthy Physical AI

Interoperable, modular and portable, built on Europe's safety culture and machinery standards.

SHARED DEMAND

European AI and Robotics Catalyst

End-user-led challenges, testbeds and pilots, shaped so far by 18 companies in nine sectors:

AEROSPACE & DEFENCE
Airbus · Diehl · JPB · Safran

AUTOMOTIVE
Audi/VW · Michelin · Renault · Valeo

MANUFACTURING
Bosch · Signify

ENERGY
Framatome · Orano · RWE · TotalEnergies

PROCESS & CONSTRUCTION
BASF · Loxam · Sidenor

Sources: ADRA position paper (2026); Catalyst end-user sessions (2026)

06 · WORKING TOGETHER

From MoUs to joint work: three places to start

Physical AI draws on what EOSC, Virtual Worlds, Processes4Planet and the cloud-edge community are building. No single partnership can deliver it alone.

Joint challenges

Industrial challenges co-defined with Catalyst end-users and your communities.

Shared testbeds

Pool testing, qualification and data facilities instead of duplicating them.

Common terms

Reusable data-sharing and IP terms that work across partnerships.

Open to the best, locked in to no one. Let's pick a first joint action in the discussion.

Extra slides

Background for the discussion

A united Community of Excellence

- **Single Point of contact:** ADRA is the EC's primary partner for advancing AI, data, and robotics R&I in Europe
- **Integrated Network:** Connecting AI, Data & Robotics expertise across Europe
- **Multi-Stakeholder Collaboration:** Industry + Research + Academia + Government
- **Research Excellence:** Europe's top minds in ADR technologies
- **Industry Bridge:** Transforming research into market solutions
- **Geographic Reach:** Active presence across Member States
- **Rapid Mobilisation:** Ready expertise for strategic initiatives









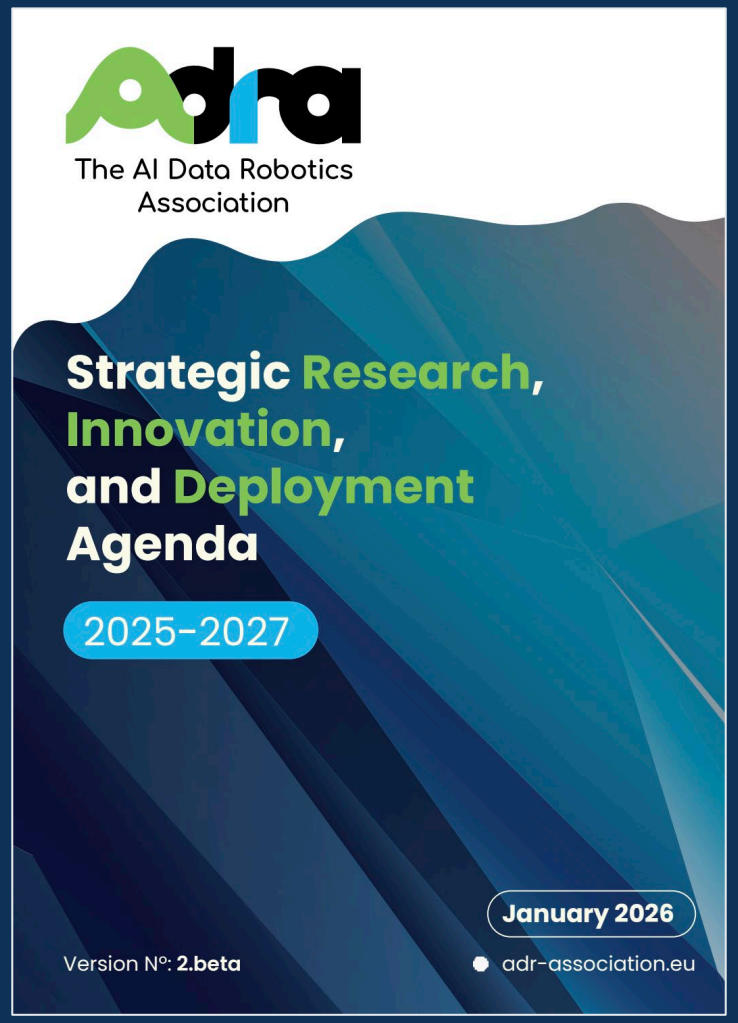







18

Topic groups



Read document

02 · THE GAP

Three weaknesses slow the path to market

Systemic

Today: research is pushed to market rather than pulled by it

Needed: end-user challenges, early procurement commitments and a TRL 6→9 bridge

Velocity

Today: grants move at committee speed and check compliance

Needed: empowered programme managers who can stop and redeploy

Relational

Today: partnerships coordinate through non-binding MoUs

Needed: shared IP and data terms, pooled qualification and procurement

The common thread is **fragmentation** of funding, procurement, legal terms and demand.

Source: ADRA response to the consultation on the future of European Partnerships (2026)

Hardware is where intervention matters most

A Physical AI company carries inventory, tooling, certification, field service and multi-year development cycles before its first euro of revenue.

Patient capital

Funds built for hardware timelines, activated once a solution clears validation.

A launch customer

Strategic procurement and buyers' clubs of European end-users moving together.

Room to grow here

Champions that scale here without seeking capital and ceding IP overseas.

Source: ADRA position paper on a Physical AI and Robotics Joint Undertaking (2026)

2026 brings demand, funding and permission

PROPOSED · JUNE 2026

Cloud and AI Development Act

Grand challenges for physical and industrial AI, and a platform to orchestrate AI agents

PROPOSED · JUNE 2026

Chips Act 2.0

A physical AI challenge on the hardware side

PORTFOLIO DUE · END 2026

FP10 European Partnerships

Strong Member State support for AI and robotics in the next programme

None of them makes European products work together, or gives buyers the confidence to choose them.

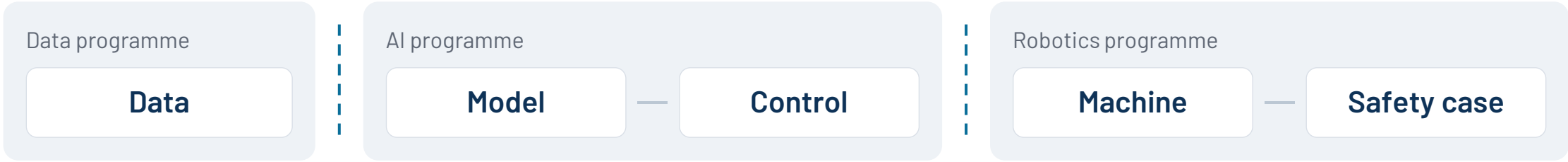
Sources: European Commission, COM(2026)502 and COM(2026)504; ADRA (2026)

The value sits where AI, data and robotics meet

ONE PARTNERSHIP



THREE SEPARATE PROGRAMMES



Three programmes would create seams where the technology has none.

Europe would fund components while others integrate systems, and integration is where margin and standards are decided.

Source: ADRA position paper on a Physical AI and Robotics Joint Undertaking (2026)

05 · THE INSTRUMENT

ADRA recommends a Physical AI and Robotics Partnership: one scope for AI, data and robotics.

Proposed within the future Single Basic Act now, rather than left as a conditional option for a later stage.



Processes4Planet:

Digital and AI for process excellence and industrial leadership to deliver a step change in energy and material efficiency

Patrick Pammer, Chair Advisory and Programming Group

ERA-LEARN Networking Event 2026, Vienna, 17 November 2027

The Association: A.SPIRE

A.SPIRE is the European Association committed to managing and implementing the **Processes4Planet co-programmed Partnership f**rom the private side.

It represents innovative process industries, 20% of the total European manufacturing sector in employment and turnover, and more than **170 industrial and research process stakeholders from more than 20 countries** spread throughout Europe.



The Partnership: Process4Planet

The **Processes4Planet (P4Planet) Partnership** aim is to transform the European process industries to **achieve circularity and overall climate neutrality** at the EU level by 2050 while **enhancing their global competitiveness.**

P4Planet is a **European co-programmed public-private Partnership** established between A.SPIRE and the European Commission in the context of the Cluster 4 (Digital, Industry and Space) of Horizon Europe.



What we do



Essential for daily life
Delivering materials and products essential to sustain citizens' quality of life

Backbone of EU value chains
Primary suppliers for countless downstream sectors in Europe

Driving regional prosperity
Strong contributors to regional prosperity and social cohesion

Enabling Europe's transition
Central actors in delivering the EU's objectives on climate-neutrality, circularity, strategic autonomy, competitiveness

13,1 million
direct jobs

10-15 million
indirect jobs

590 billion EUR
Gross Value Added

23 %
of EU Manufacturing Gross Value Added

Integrated, competitive, circular and net-zero industrial value networks

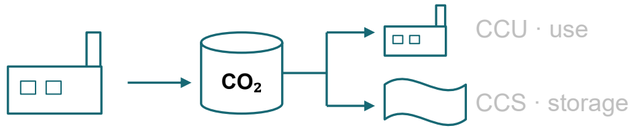
Low-carbon energy systems

Electrification - Energy hubs - Shared infrastructure - Flexible low-carbon energy mix



Carbon management

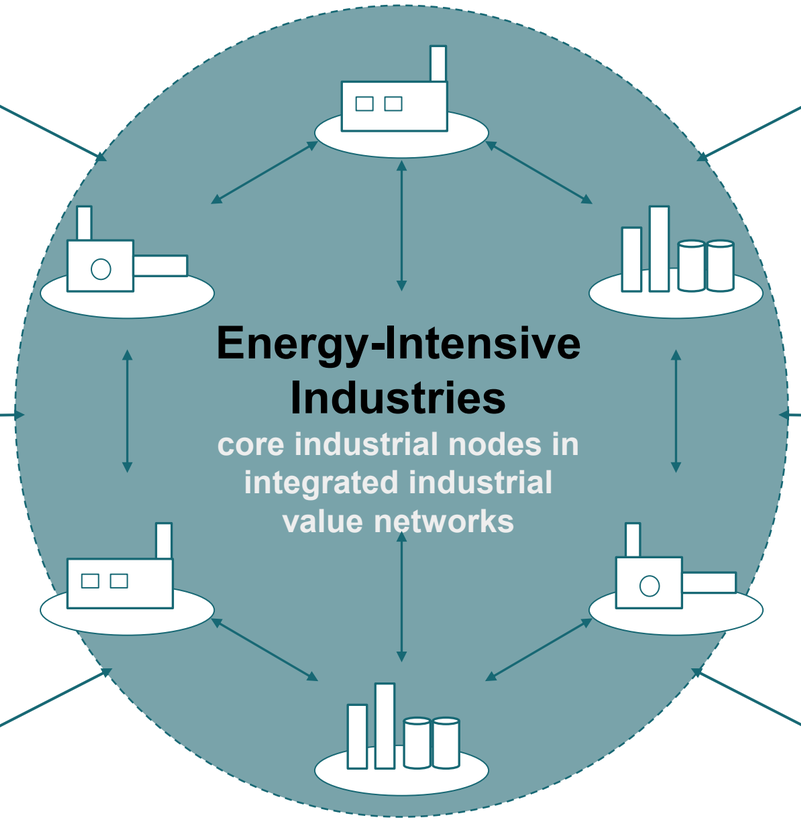
CO_2 capture - CCU - CCS for residual emissions



High-value materials and products

Net-zero and circular solutions - Market pull - Differentiated products





Circular and strategic feedstocks

Secondary raw materials - Renewable & recycled carbon - Logistics solutions



Smart industrial operations

Industrial AI & digital solutions
Strong industrial data protection and cybersecurity

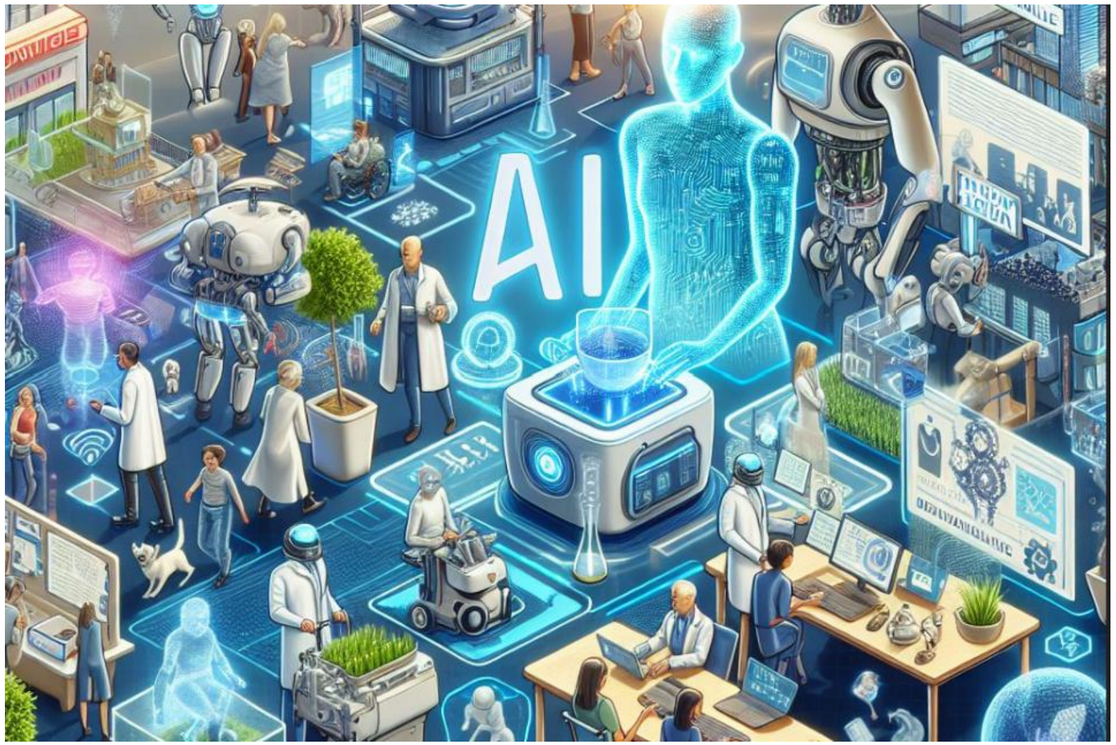


People and enabling conditions

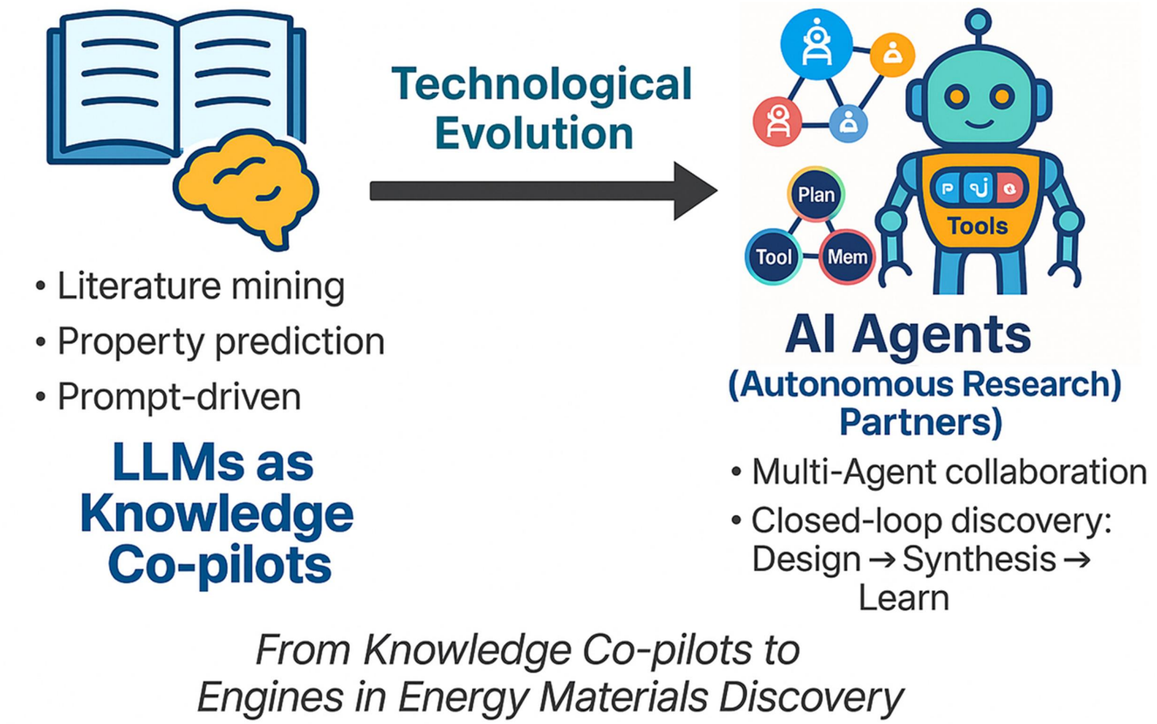
Skills - Investment - Permitting - Infrastructure, etc



AI has changed meaning in just a few years.



Source: Microsoft Corporation



Source: Yao et.al: From large language models to AI agents in energy materials research: enabling discovery, design, and automation

AI has changed meaning in just a few years.

What does this mean for how the energy intensive industries will develop and run processes?



PAST

AI learns from our data

Which process parameters drive product quality?

Statistics, machine learning, soft sensors

PRESENT

AI learns the physics

Can one model predict a process it has never seen?

Physics foundation models

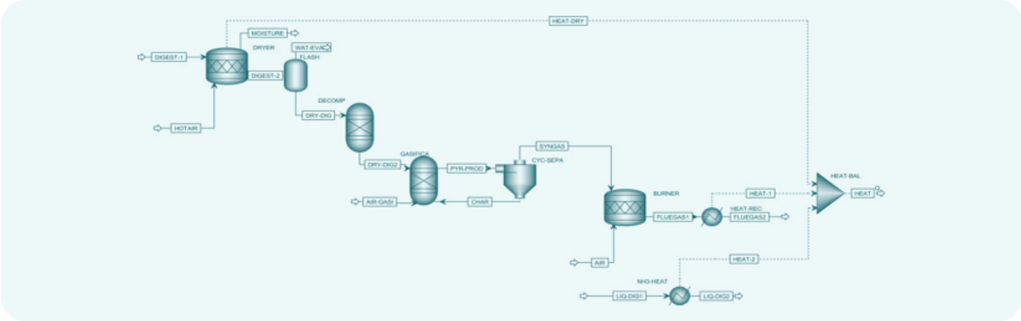
FUTURE

AI reasons together with humans

Can we ask our processes a question in plain language?

Large language models and agents

AI learns from our data



RTRT
Real-time release testing

RTO, MPC
Real-time optimization, model predictive control

PAT
Process analytical technology

Data science

enables

controls

measures

QTPP
Quality target product profile

determines

CQA
Critical quality attributes

driven by

CPP
Critical process parameters

CMA
Critical material attributes

define

Design space

Material–process–property relations: CMA, CPP, CQA

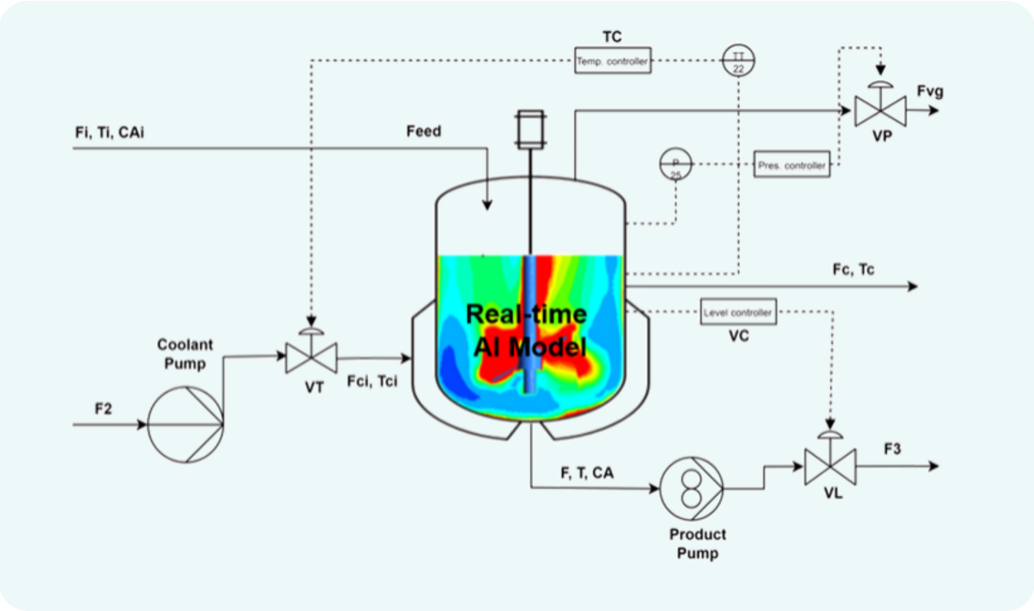
Data science taps into machine and sensor data

Methodologically: statistics, machine learning, deep learning

Real-time optimization, batch-to-continuous

Softsensors, MSPC, model predictive control, assistance systems, automation

AI learns the physics

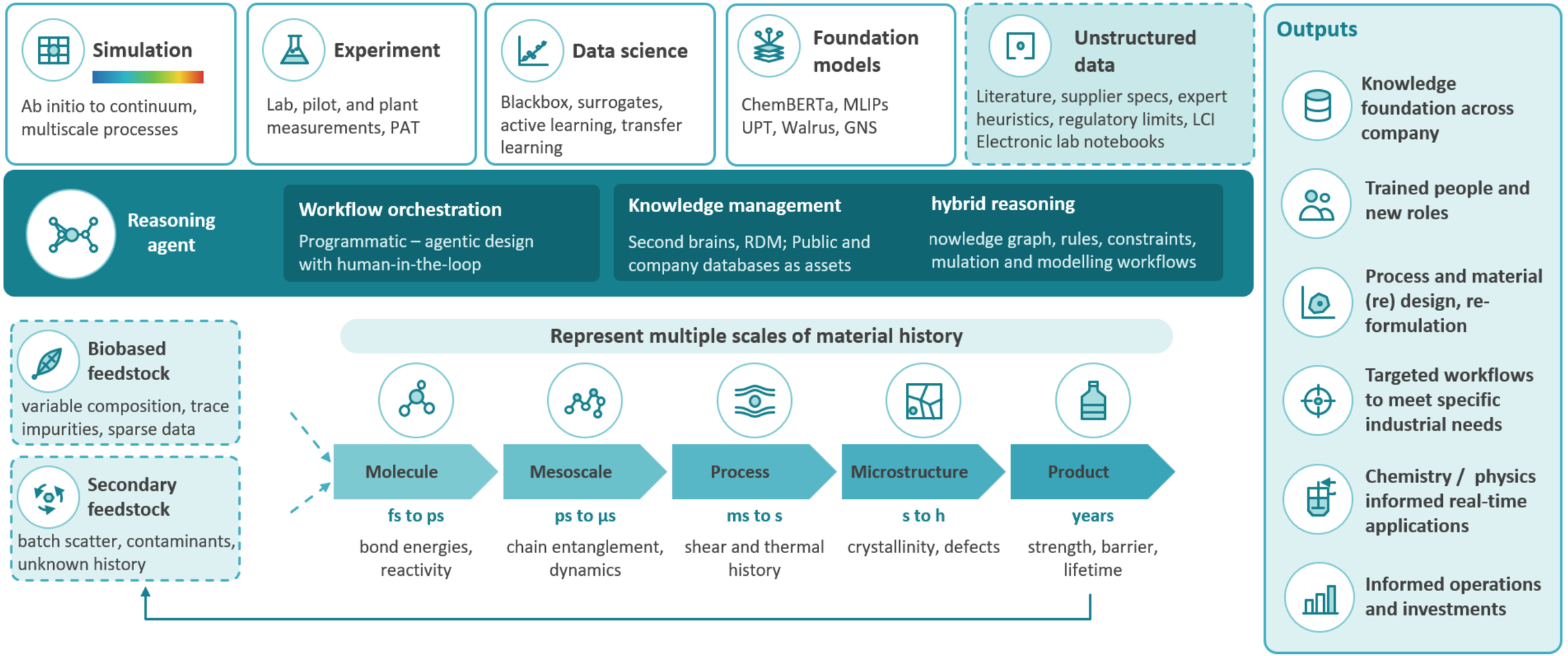


Physics foundation models: UPT, Walrus, GSN

Operator learning / transformer architectures / graph neural networks trained on a large volume of diverse simulation data to generalize to new physics

- Improving **process modelling: fast & accurate**
- **Multi-scale insight** into relevant chemical systems
- **Real-time capability** through physics-constrained AI
- **Simulation-assisted** equipment design, scaling, and optimization
- **Simulation-assisted** reformulation and requalification
- **End-to-end process** simulation & control

AI reasons together with humans



IJ4 Process excellence and leadership through Industrial AI and digital solutions

MISSION

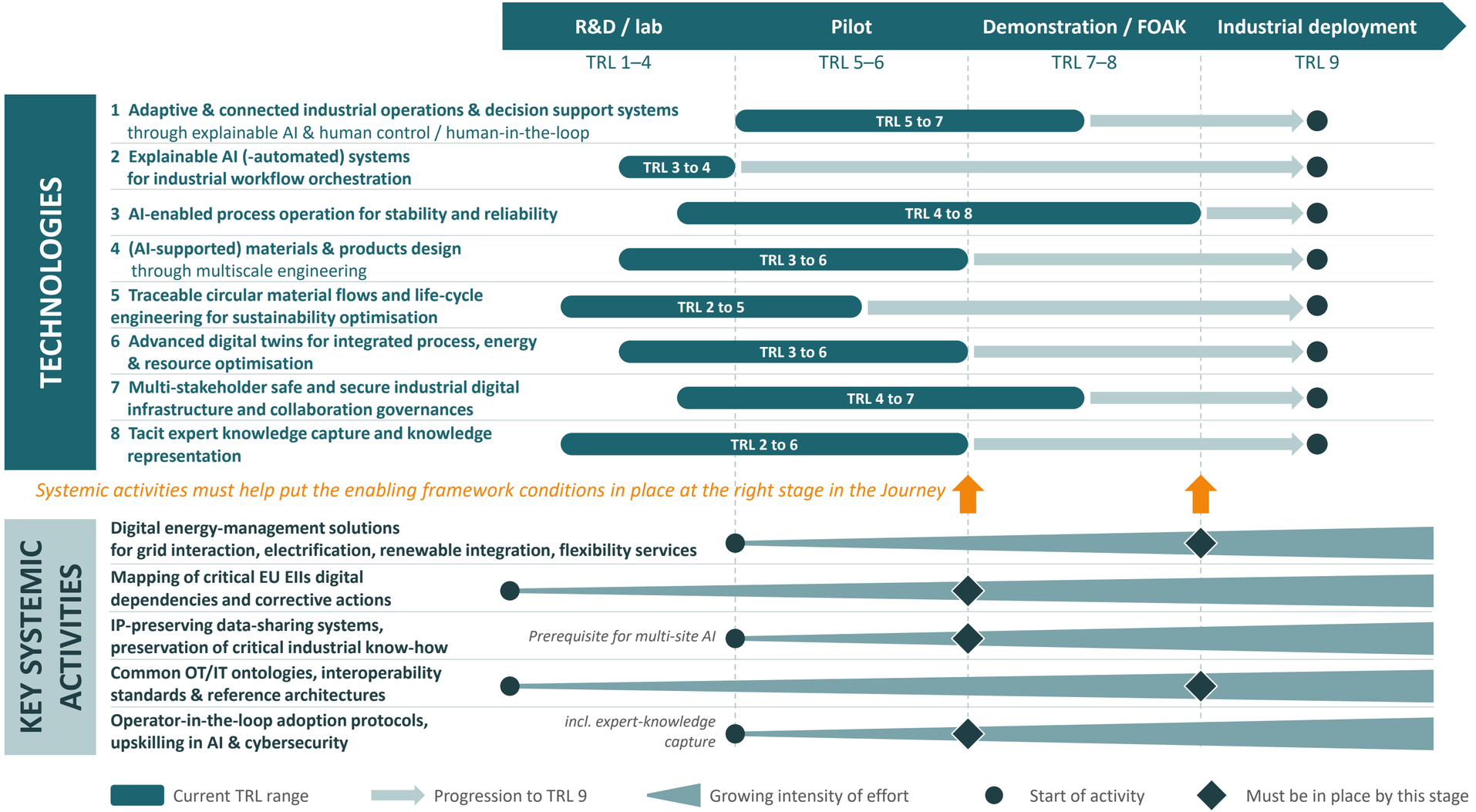
Unlock the full potential of Industrial AI and digital technologies to deliver a step change in energy and material efficiency, flexibility and cost-competitiveness of industrial processes, and in the design, optimisation and validation of new-performance materials and products

Establishing Europe as a global leader in Industrial AI & Digital technologies, with EIIs as key drivers

SECTORS & VALUE CHAINS

All Energy Intensive Industries

EII value networks including energy suppliers, public sector, technology providers etc.



EXPECTED OUTPUTS

Industrial-ready, trustworthy, interoperable, cybersecure and reusable AI/digital solutions

for predictive, adaptive and resource-efficient operations across plants and value chains,
and for AI-enhanced materials & products

IMPACT KPIs

Yield improvement, enhanced energy and material efficiency, reduction in off-spec production

Enhanced ability to deploy solutions across plants, sectors and legacy OT/IT environments

Extended operational lifetimes of Industrial AI and Digital Solutions

Enhanced reliability, traceability and explainability

NB: TRL ranges are indicative (state of play 2026), to be confirmed. This IJ is still a draft version, which might significantly evolve over next few months.

Thank You!

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+32.491.71.19.72

CETPartnership, DISCCO and AI

HOW THE CLEAN ENERGY TRANSITION PARTNERSHIP WORKS TOGETHER, AND HOW TO USE AI WITH SENSITIVE DATA

B.A.U.M.

17.11.2026, Ludwig Karg

01

DISCCO

Digital **I**nformation-**S**ystem for **C**ommunication and **CO**llaboration

HOW THE PARTNERSHIP WORKS TOGETHER ON ONE PLATFORM

What is Clean Energy Transition Partnership?

EUROPE POOLS NATIONAL CLEAN ENERGY RESEARCH FUNDING IN JOINT CALLS

60+
Funding partner organisations and ministries, from 35 countries

→

4
joint calls so far, 2022 to 2025

→

213
funded projects, with 385 MEUR of funding

→

1,100+
partners in those projects, from 42 countries

Seven Transition Initiatives (TRIs) set the themes. Funded projects per TRI:

TRI 1	TRI 2	TRI 3	TRI 4	TRI 5	TRI 6	TRI 7
27	**51**	**70**	**28**	**10**	**9**	**18**
Net-zero energy systems	Zero-emission power	Storage, fuels, CCU/CCS	Heating and cooling	Regional energy systems	Industrial energy systems	Built environment

Goal: speed up the clean energy transition towards a climate-neutral Europe by 2050. It is too large for any one funder or country to tackle alone.

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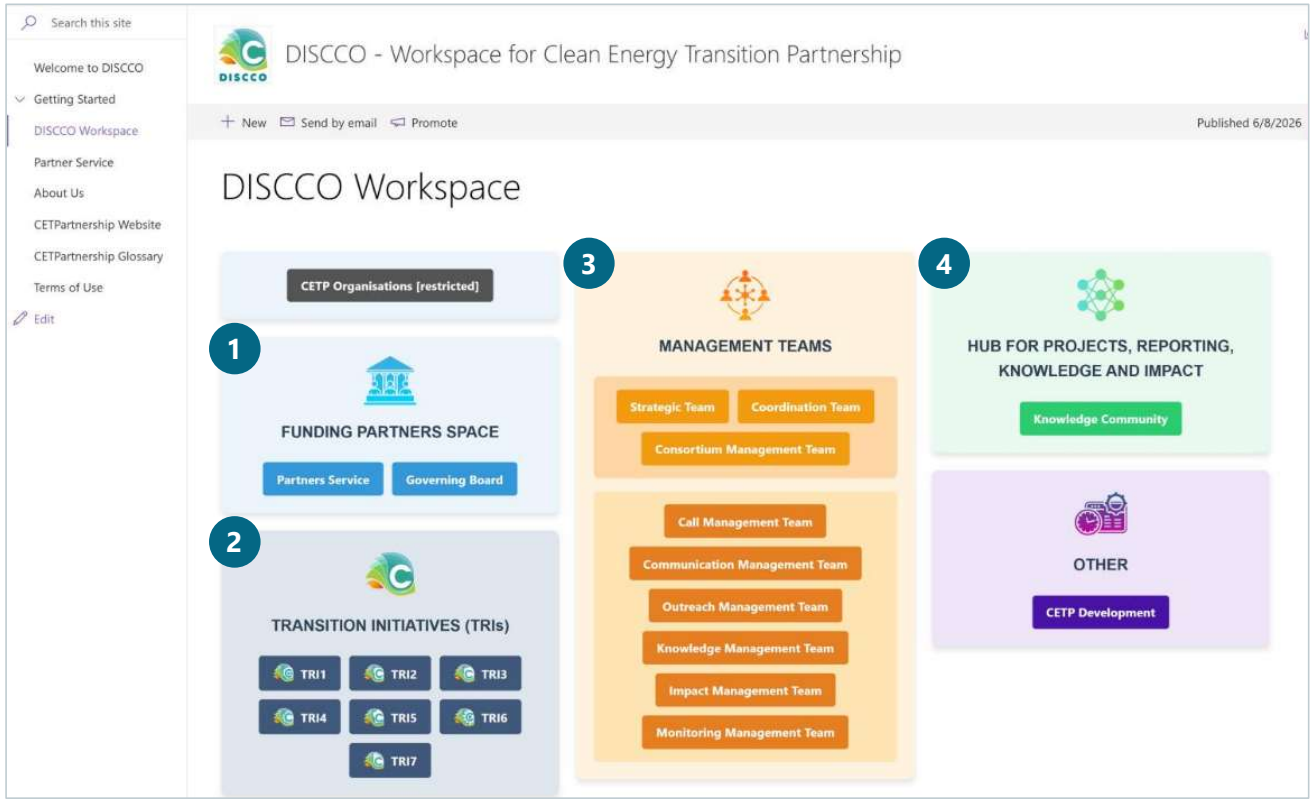
DISCCO: one front door for everyone

DIGITAL **I**NFORMATION-**S**YSTEM FOR **C**OMMUNICATION AND **CO**LLABORATION



1. **Funding Partners Space**
   Service for funders and the Governing Board
2. **Transition Initiatives**
   One space for each of the 7 TRIs
3. **Management Teams**
   9 teams, from strategy to call management and monitoring
4. **Knowledge Community**
   Hub for projects, reporting, knowledge and impact

More than 500 pages and 25,000 files and folders, all reached from this one map

15 key services of DISCCO

WHAT FUNDERS, PROJECTS AND TEAMS USE DISCCO FOR

Working together

1. **Managing organisation & person data**
   Every group and person reaches adequate spaces
2. **Team spaces**
   For the TRIs, management teams and Governing Board
3. **Shared documents**
   Libraries with version history and access control
4. **Calendars and events**
   Meetings, events and team availability
5. **News and calls to action**
   Latest information and open tasks for each group

Projects

6. **All funded projects**
   Searchable list of 213 projects by call and TRI
7. **Online reporting**
   One report per project, in clear tabs
8. **Review and feedback**
   Funding Lead and TRI Lead comment on each report
9. **Public factsheets**
   The public part of each report, ready to share
10. **Project file libraries**
    One library per project, with its own rights

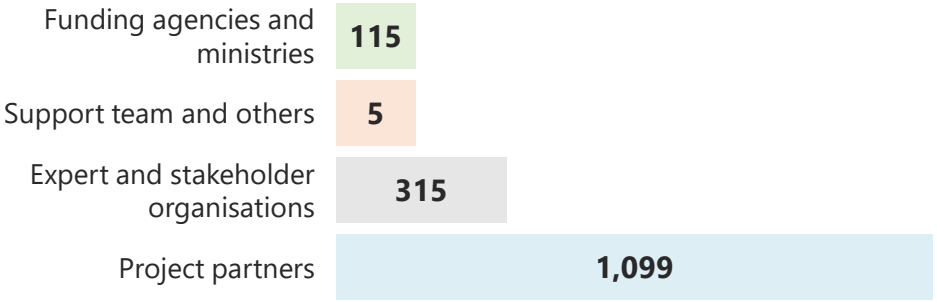
Running the partnership

11. **Funding and contract data**
    Costs, funding and contract status per partner
12. **Monitoring dashboards**
    Reporting status and compliance at a glance
13. **People and contacts**
    Profiles, roles and contact lists for each group
14. **Access by role**
    Everyone sees what their role allows
15. **Help and onboarding**
    Getting started pages, guides, videos and helpdesk

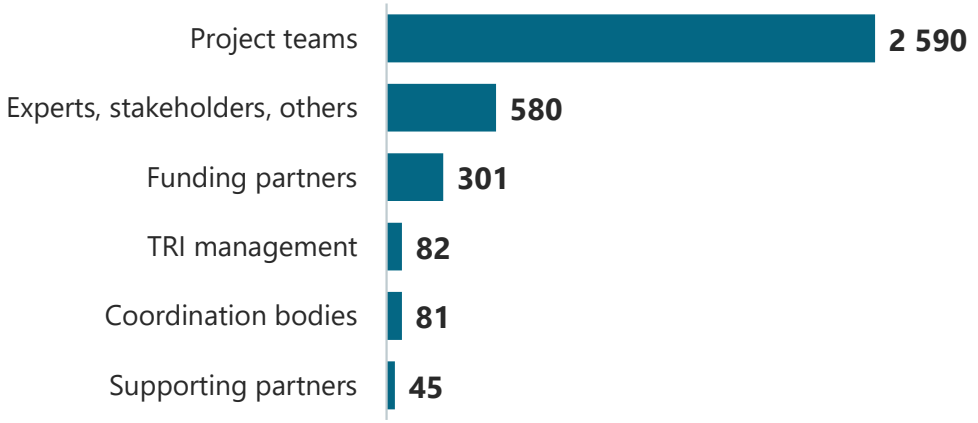
Why is this complex?

MANY ORGANISATIONS, MANY COUNTRIES, AND PEOPLE IN VERY DIFFERENT ROLES

More than 1,500 organisations ...



... with more than 3,300 people in many teams



A typical project alone has

7 partners

4 countries

4 funding agencies

And on top of that

Several hats: Almost half of all people hold more than one role

Many rule books: Each partner has a contract with its own national funder

Confidential data: Reports, money and persons are not for everyone

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How DISCCO helps each person

LESS SEARCHING, AND THE RIGHT INFORMATION FOR EACH ROLE

Project coordinators
Report, files and contacts in one place

Funding partners
All funded projects, calls to action and events in one space

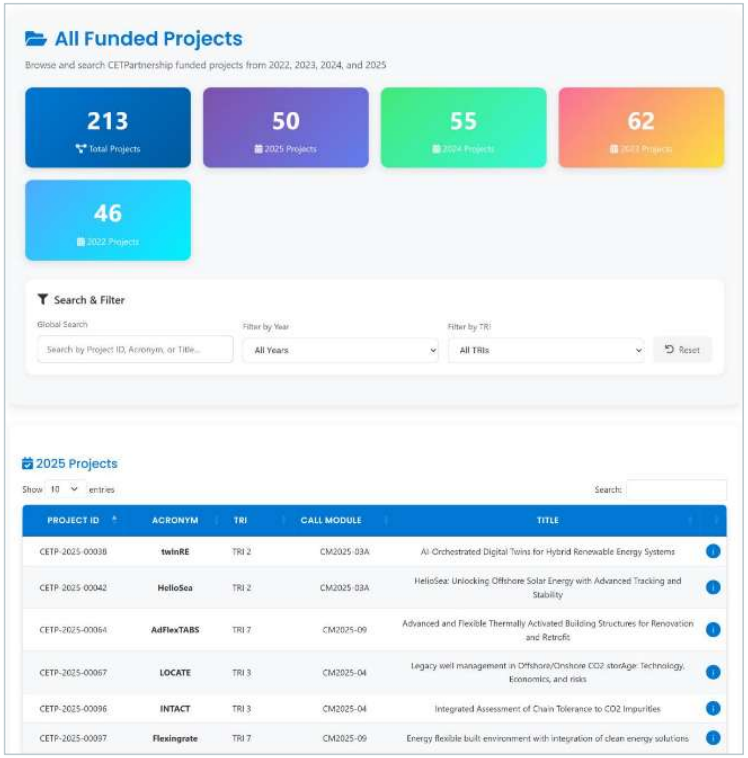
TRI experts
Their TRI's tasks, projects and core documents

Management teams
A working space per team, with shared documents

Experts
A profile with keywords, so Call Management can find them

The result: a partnership of this size can work as one team, and sensitive data stays with those entitled to see it.

Example: all funded projects, searchable



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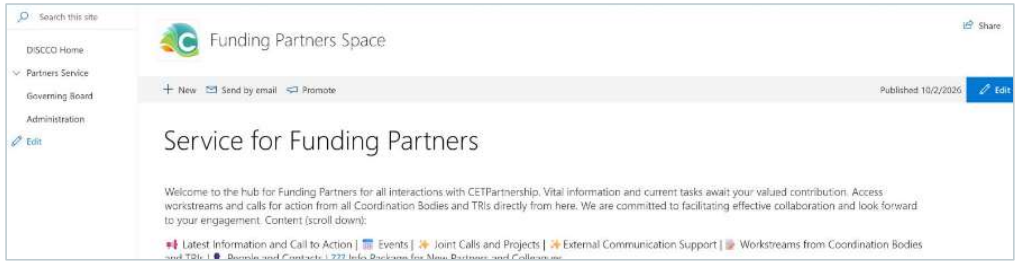
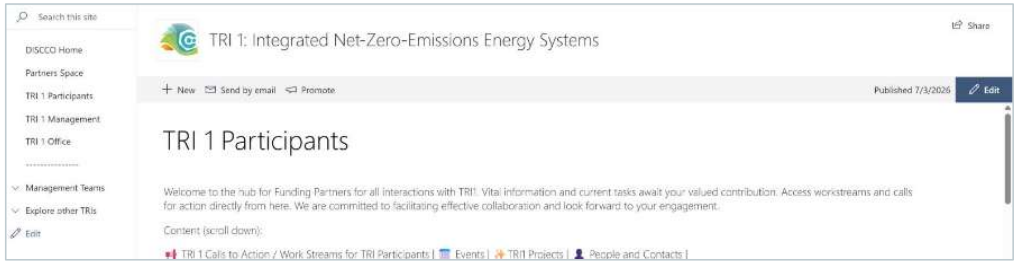
Every group gets its own space

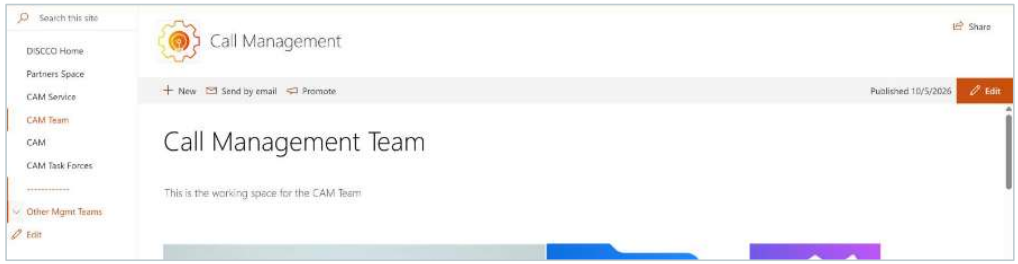
SAME LAYOUT EVERYWHERE, A DIFFERENT COLOUR FOR EACH AREA



Funding partners: News, calls to action, events, joint calls and projects, people and contacts



Transition Initiatives: Tasks, events, projects and core documents, with levels for participants, management and office



Management teams: A working space per team, for example call management with its task forces



Knowledge Community: Project reporting, co-creation, monitoring and evaluation, impact and exploitation

Your affiliation and roles decide what you see

ACCESS IS SET BY RULES, NOT BY HAND FOR EACH PERSON

You belong to a group → **You hold a function** → **Rules give the access** → **You see what you need**

The real rule table

IF A PERSON IS IN THIS GROUP (Group (Team))	AND IS ASSIGNED A ROLE (Role (Function))	AND IS ALSO DELEGATED TO THE GROUP (Delegated to (refTeam))	AS (DELEGATE ROLE) (As (Subfunction))	THEN THE PERSON GETS THESE DISCCO ACCESS RIGHTS
CAM · ID 1	Co-Lead · Function · ID 932	—	—	CAM|Master, COR|Master, GOB|Supporter, MGT|Supporter, TRI|Supporter, TRP|Supporter · Details · Copy
CAM · ID 1	Collaborator · Function · ID 27	—	—	CAM|Member, COR|Member, GOB|Visitor, MGT|Visitor, TRI|Visitor, TRP|Visitor · Details · Copy
CAM · ID 1	Expert · Function · ID 25	—	—	CAM|Expert, TRP|Visitor · Details · Copy

37
roles in use

7,000+
active access rules

213
projects with their own rights

Example: one project report, four views

Edit — **Project team**
Writes and edits its own report

Review — **Funders of that project**
Read the full report; the Funding Lead gives feedback

Review — **TRI lead for that project**
Reads the full report and gives feedback

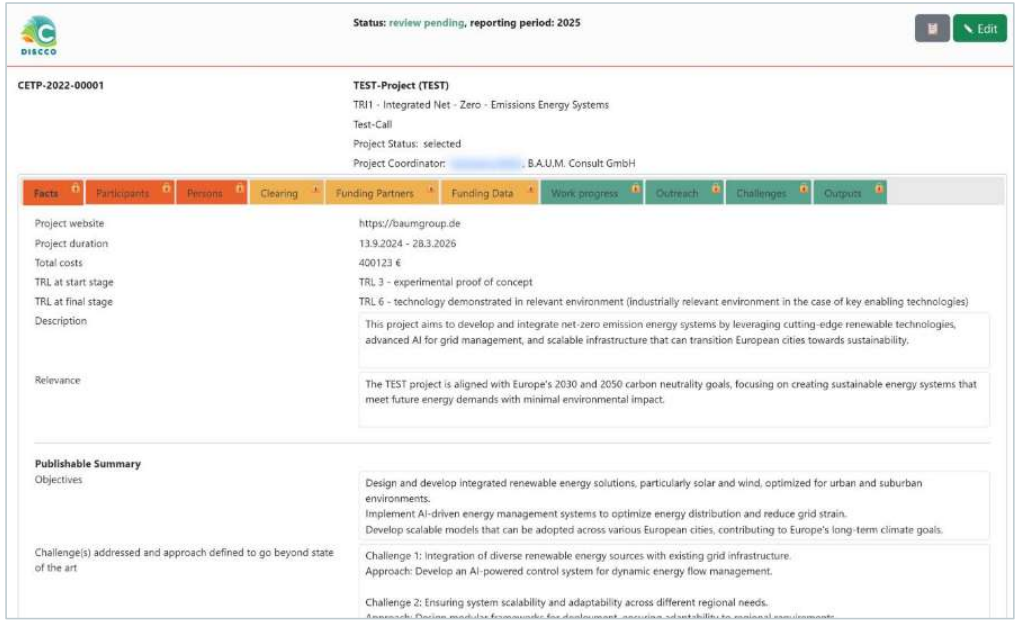
Public — **Everyone else on DISCCO**
Sees only the public factsheet

One project, one place, one clear path

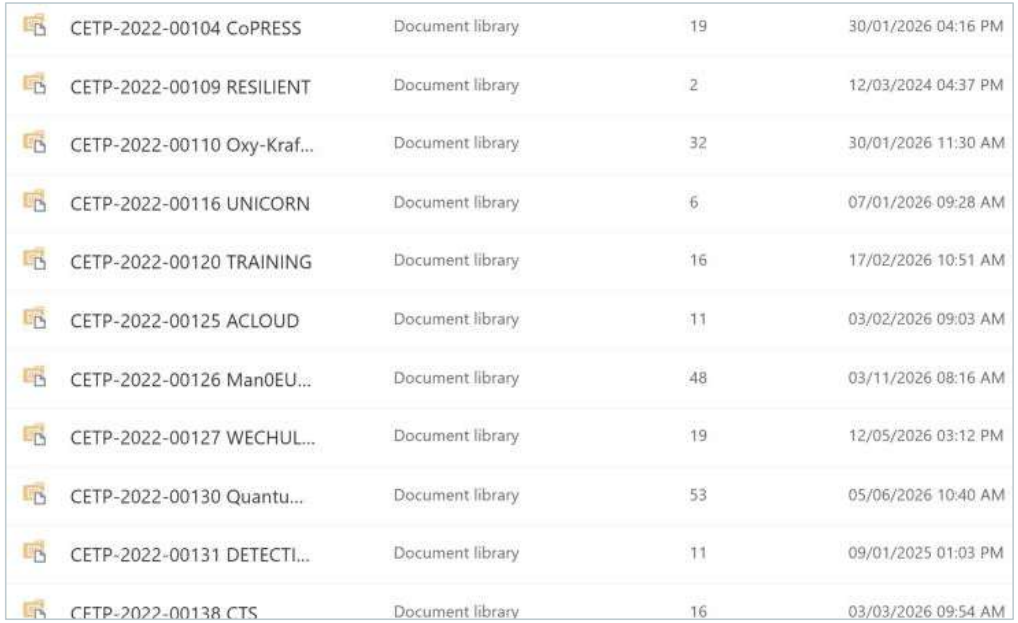
FROM THE REPORT TO THE PUBLIC FACTSHEET

Project team writes the report → Monitorer checks it is complete → Funding Lead and TRI Lead give feedback → Monitorer accepts or returns it → **Public part feeds the factsheet**

One report with 10 clear tabs (test project)



One file library for each of the 213 projects



DISCCO moves towards open source

FROM A WORLD WE DEPEND ON TO A PLATFORM THE PARTNERSHIP OWNS

Why? Sovereignty!

- Geopolitical tensions
- Less trust in big non-EU tech providers
- Microsoft ends support for Self hosted Server

Today: the Microsoft world
We depend on others

- Licences, prices and rules set by one vendor
- Its web editor loses support end of 2026
- Next step offered: data on Microsoft's cloud

Move

Tomorrow: our own platform
Everything in our hands

- Open source software, such as OnlyOffice
- Owned and run by the partnership
- Hosted in the EU, can move to any provider

Sovereignty is not free. It takes:

Financial resources | **Expertise** | **Time**

02

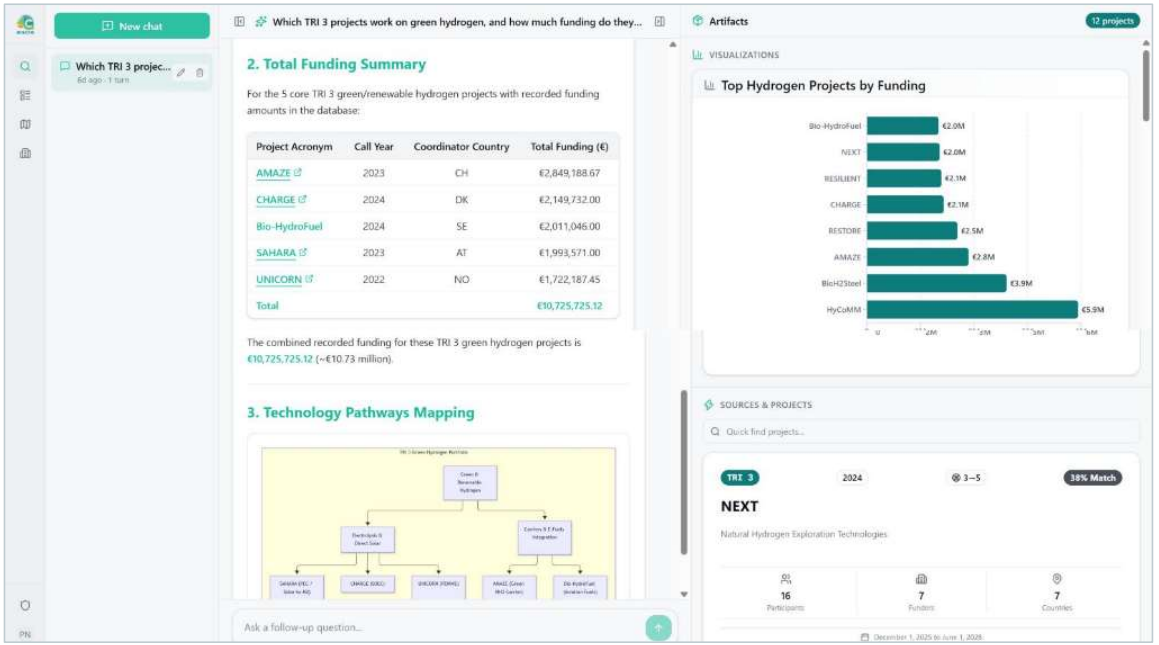
DISCCO and AI

WHAT WE USE AND WHERE WE GO

DISCCO AI Hub: ask the project portfolio

LIVE FOR CETP PARTNERS, BUILT ON PUBLIC PROJECT DATA

1. **ChatCETP**
   Ask about the projects in plain language
2. **Answers with sources**
   Each answer shows the projects it used
3. **Tables and charts**
   Totals, tables, charts and diagrams in the answer
4. **Follow-up questions**
   Keep asking, with a saved chat history
5. **Project Explorer**
   Search and filter projects: partners, funders, budget, TRL
6. **Project Map**
   Where projects are, how partners and funders connect
7. **Organisations**
   52 funding agencies and 894 participating organisations



Today: public factsheets and funding data only, provider's cloud model is fine
Next: access to report data, DISCCO permission rules apply, no provider's cloud allowed

Expert Matching for Joint Call 2026 with AI

FROM EXPERT POOL TO A FROZEN, AUDITABLE EVALUATION PLAN IN EIGHT STEPS

STEP 1

Import Expert Profiles

421 profiles from CETP DISCCO pool (Oct. 1)

STEP 2

Import Proposal Data

320 pre-proposals in 11 call modules

STEP 3

Cluster Proposals and Build Assign-ment Plan

45 subject panels and a first full plan on day one

STEP 4

Screen Conflicts of Interest

All 960 pairs, at every plan version

STEP 5

Validate Evaluator Workload

No one above a personal limit

STEP 6

Validate Panel Diversity

Five experts per panel

STEP 7

Review & Approve Assignments

46 of 46 panels accepted by people

STEP 8

Freeze Plan and Export Evidence

Approved and frozen on 23 October

Steps 1–6: ArkNexus **Steps 7–8: decided by people**

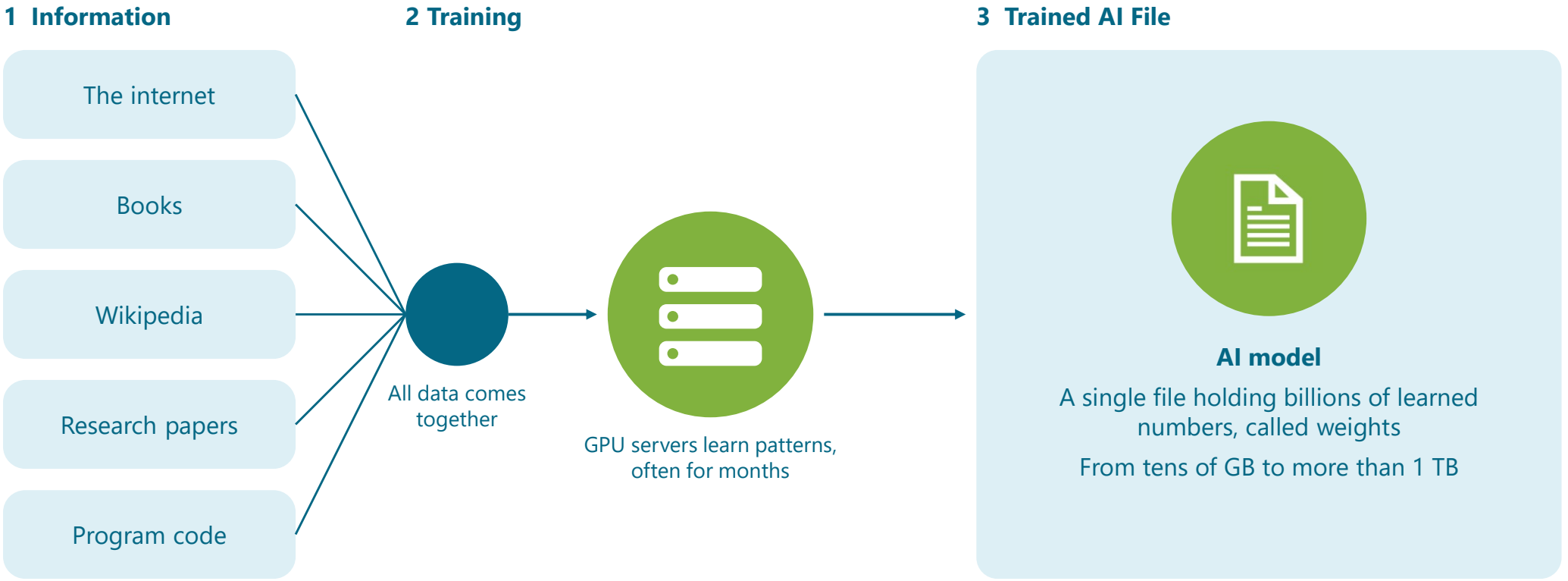
3

AI models

WHAT A MODEL IS AND WHERE TO RUN IT

An AI model is just a large file

TRAINED ONCE ON HUGE AMOUNTS OF DATA, THEN READY TO USE

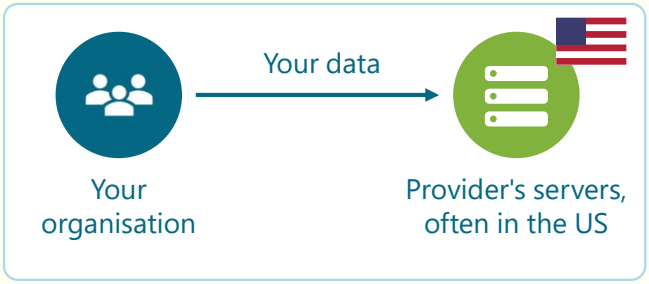


Size example: GLM-5.2 weights are 756 GB (8-bit) and 1,507 GB (16-bit) on Hugging Face, read 23 Oct 2026.

Three places to run a model

WHAT CHANGES: WHO HOLDS THE FILE AND WHERE YOUR DATA GOES

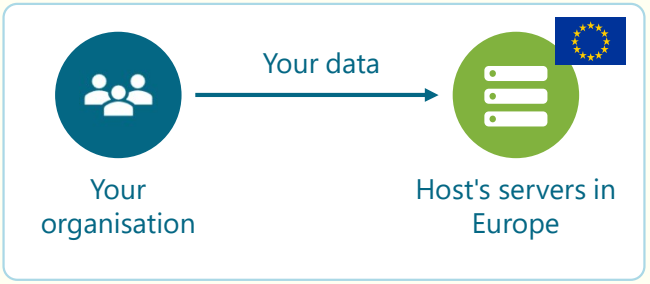
A Closed model, provider's cloud



- OpenAI, Anthropic and Google keep their top models' files
- You send requests over the internet
- Business plans do not train on your data by default

Who holds the file: only the provider

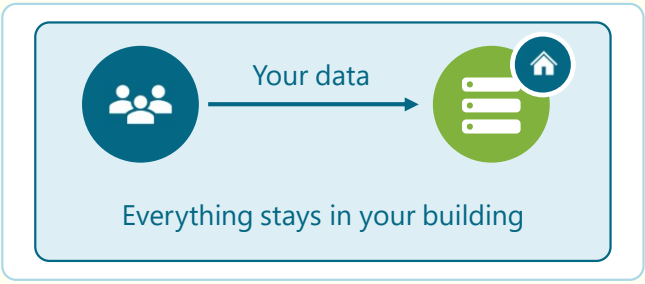
B Open model, European host



- Makers such as Mistral or DeepSeek publish the file
- Hosts such as Lyceum or Hetzner run it in Europe
- Prompts and answers are not kept or used for training

Who holds the file: the host, from a public download

C Open model, own server



- You download the same open file
- You run it on your own GPUs
- Hardware, updates, security: your job

Who holds the file: you

Open weights are free to download, but licences differ and training data usually stays private. Sources in the notes, read Nov 2026.

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More control always has a price

SAME EXAMPLE USAGE ACROSS ALL THREE OPTIONS

	A Closed, provider's cloud	B Open, European host	C Open, own server
Price index	100 % ≈ €1,800 a year No upfront cost	≈ 55 % ≈ €1,000 a year No upfront cost	≈ 2,000–12,500 % ≈ €35,000–220,000 a year ≈ €40,000–370,000 upfront
Quality	Highest, newest capabilities	Lower: close behind but not on par	Same as B, if the hardware is big enough
Your data	Goes to the provider. Zero retention on request, but US law can reach it	Goes to a European host. Prompts and answers are not kept	Stays in your organisation
Pros	• Best quality, newest features • Nothing to run, start today	• Pay per use, no base fee • European host, easy to switch model	• Full control, works offline • Can pay off at very high, steady use
Cons	• Depends on a US company • Hard to accept for sensitive data	• Behind on the hardest tasks; test first • Young market	• Most expensive, needs specialist staff • Models and hardware age quickly

rough assessment for pricing

Task dependent: price and capability vary by task, and in many cases the real cost of open models can go up.

Example: 50 users, 20 requests a day, 220 days, 2,000 tokens in and 500 out. 100 % = $2/$10 per million tokens (GPT-6.1 Sol, Claude Sonnet 5.5). B: DeepSeek V4.1 Flash to GLM-5.3 at Lyceum. C: B.A.U.M. estimate over 4 years. Quality gap: Epoch AI, average Jan–May 2026. Read Nov 2026; €1 = $1.1267.

Let your data decide the option

MOST ORGANISATIONS CAN START IN THE MIDDLE

If your data is…	…choose
Public or non-sensitive data Public reports, website content, general drafting	**A Provider's cloud**
Confidential or personal data Project proposals, reports, expert CVs	**B European host**
Data that may not leave the house Strict legal or contract rules (e.g. funding scenarios)	**C Own server**

Combine them, e.g. anonymise with B, then send heavy tasks to A.

How we help partnership decide

1. **Sorting involved data**
   by how sensitive it is
2. **Matching each use case to option A, B or C**
3. **Checking or preparing contracts**
   for GDPR, IPR, retention, location
4. **Prototypng and test on real tasks**
   before role out to partnership

A recommendation, not legal advice. Have your data protection officer confirm the choice.

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