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Prof. Dr.-Ing. Boris Otto · 10 November 2026

Towards a European Industrial Growth Model based on Smart Data Ecosystems

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Towards a European Industrial Growth Model based on Smart Data Ecosystems

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Airbus and Industrial Data and AI Ecosystems

Industrial Data and AI Case Studies

Economics of Data: Dedicated Data and AI Ecosystems

Skywise



Customers Data Space
(Skywise)

Most aircraft data belong to Airbus' customers who decide if they want to share them with Airbus on Skywise data space.
Airbus develops AI solutions (e.g. predictive maintenance) on these data.



Airbus-internal Data

Some Airbus data are not shared in data spaces (e.g. aircraft design, commercial information...).
Airbus is developing AI solutions (e.g. knowledge assistants) on these data.

Decade-X



Suppliers Data Space
(Decade-X)

Airbus and its suppliers (voluntarily) share data on Decade-X data space (e.g. production planning, conformity certificates). Airbus and its partners will develop AI solutions (e.g. missing parts prediction) on these data.

Fig.: © Airbus (2026), own illustration based on Otto, B.; Jestin, C. (2026) Die Ökonomie industrieller Daten am Beispiel Airbus [online]. Frankfurt am Main: Frankfurter Allgemeine Zeitung, 15 July 2026. www.faz.net/digitalwirtschaft [accessed on: 4 Sep. 2026]

Valeo and the AI-Defined Vehicle

Industrial Data and AI Case Studies



Hardware → Edge-Cloud Infrastructure → AI Models → Data → Products and Application Services

© Valeo (2026)

European Industrial Competitiveness

European Challenges and Opportunities

Call by Mario Draghi

- Leverage industrial leadership
- Launch a vertical AI priority plan
- Democratize compute infrastructure
- Shift from restriction to adoption
- Harmonize data and sandboxes

Implications

- Europe does not lack resources relevant for Industrial AI, i.e. models, compute, money, expertise, and in particular data
- However, all the resources are fragmented and scattered across a landscape of different stakeholders
- Thus, a collective action with shared governance is needed for a unique European growth model



Source: Draghi, M. (2024) The future of European competitiveness [online]. European Commission, September 2024. commission.europa.eu [accessed on: 3 Nov. 2026]

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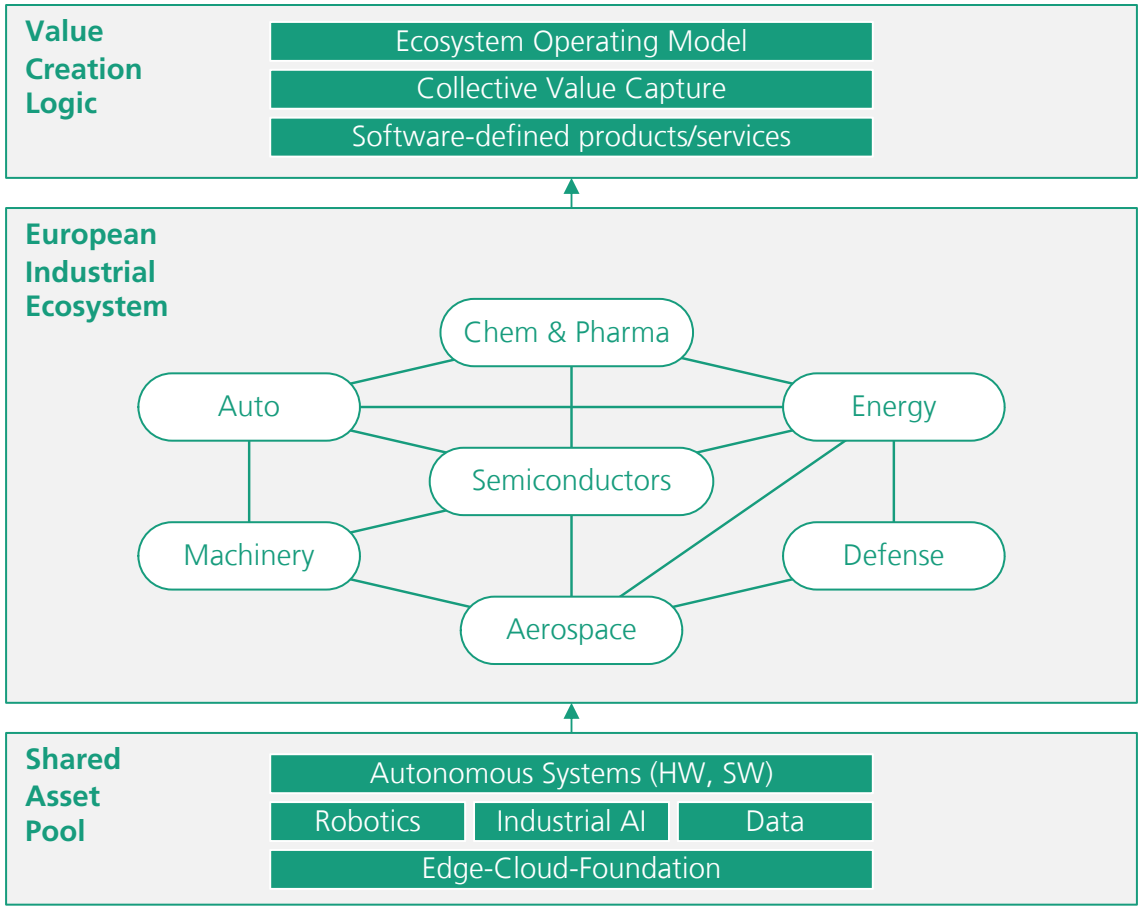
Blueprint of a European Industrial Growth Model

European Challenges and Opportunities

Work in Progress

External Stress Factors and Risks

- Costs (energy, labor …)
- Bureaucracy
- ‘Unfair’ trade policies
- Speed of innovation
- Oligopolistic resource concentration outside of EU
- …



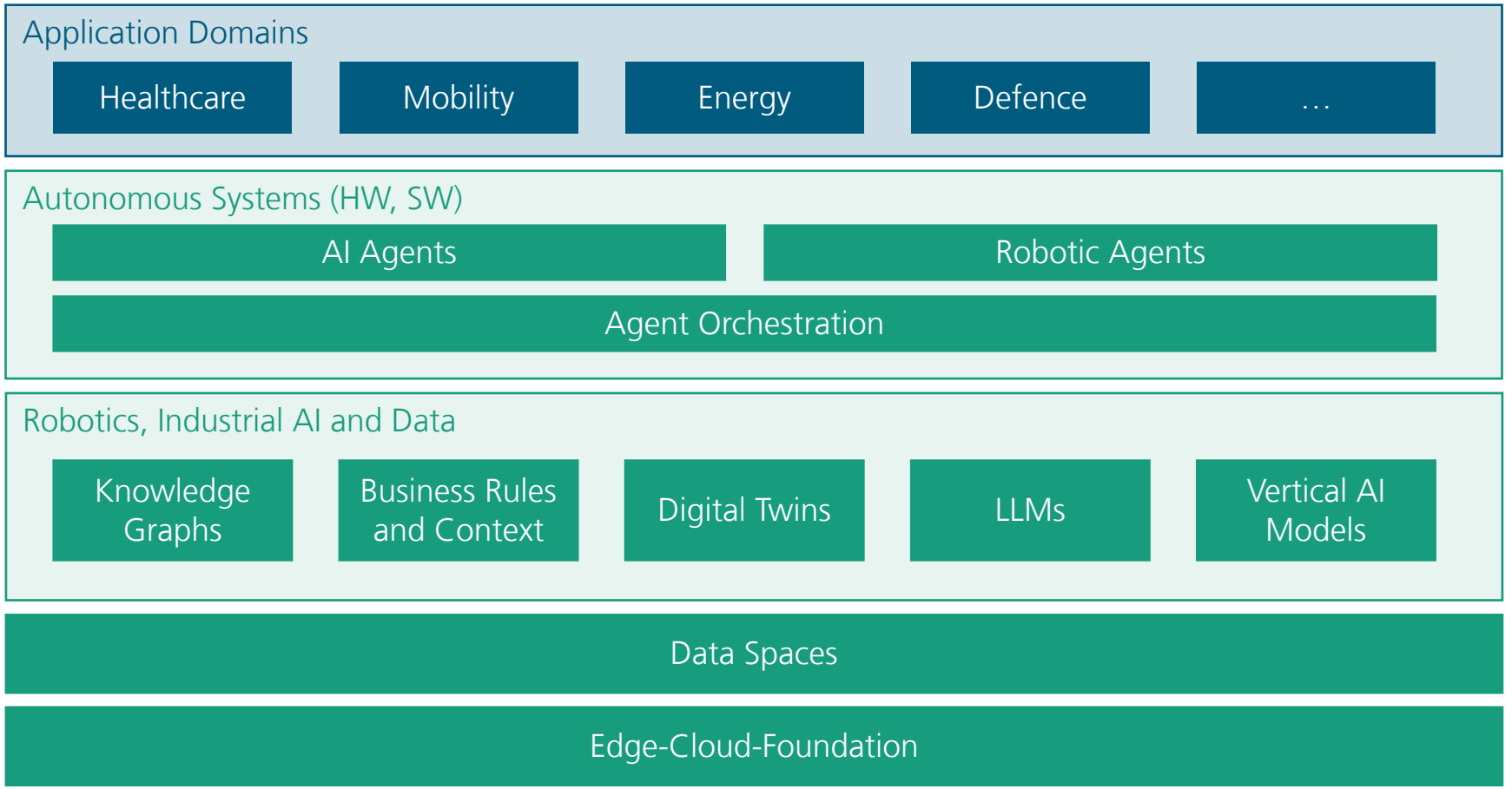
Political Support

- Regulatory core
- Public funding
  - Data readiness
  - SME adoption
  - Education
- Political support abroad
- ‘Level playing field’ for data/AI regulation

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Digital Assets Architecture Model

A Shared Pool of Digital Assets



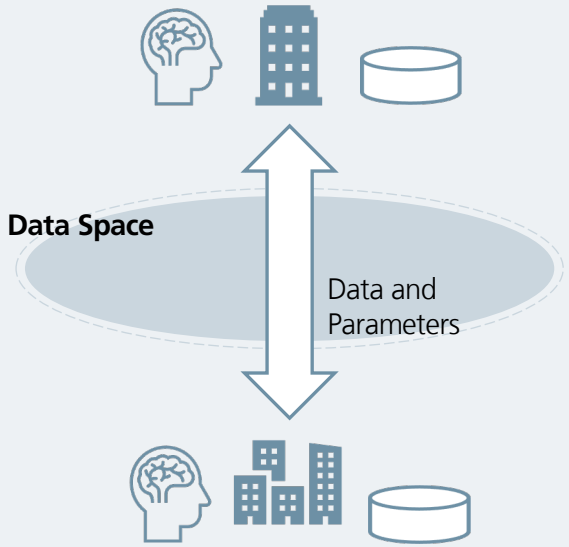
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Industrial AI and Data Spaces

A Shared Pool of Digital Assets

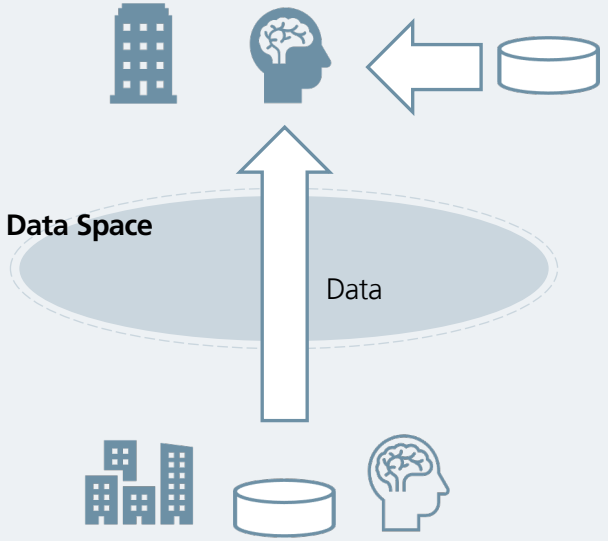
I Collaborative AI Model Development

Perform AI model learning by collaborating and sharing data and parameters between organizations



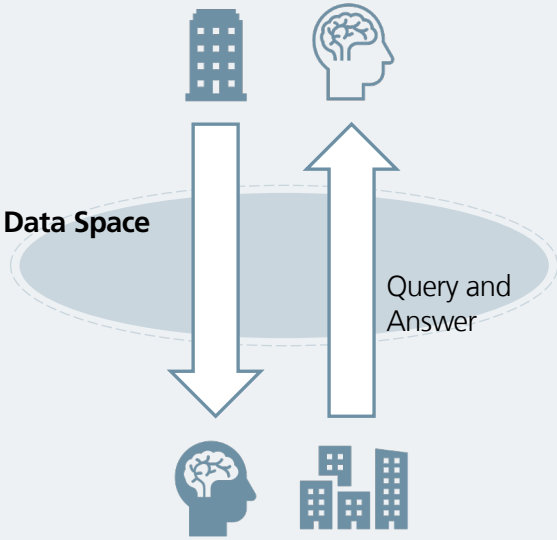
II Inter-organizational AI Model Inference

Enhance existing AI model learning by linking data between organizations



III Inter-organizational AI Model Collaboration

Collaborate and coordinate by querying the AI models held by organizations



Source: Fujitsu Research in cooperation with Fraunhofer ISST (2025): Enabling Collaborative AI: Role of Data Spaces

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A Shared Pool of Digital Assets

Starting Point

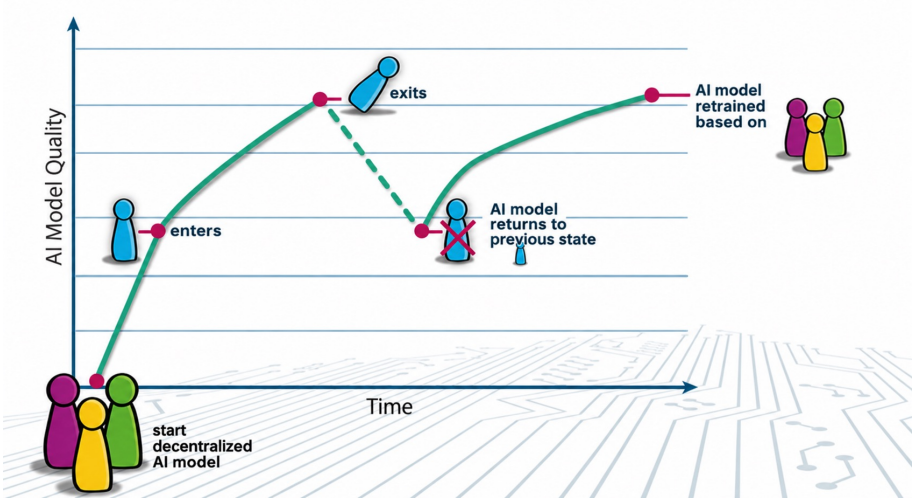
- A **Decentralized Federated Learning framework** named **P2PFL** already exists and is capable of combining clients in a decentralized manner and allows them to jointly train a machine learning model.
- This framework **doesn't supply any capabilities of unlearning data** from a trained model.

Our Solution / Service

- We extend P2PFL so clients can leave a federated learning process by unlearning their data.
- The three-step approach modifies training, rolls back the model and recalibrates it to remove the departing client's data completely.

Result

- Clients can leave at any time. Information from the remaining clients speeds up recalibration by at least a factor of 2.
- The system records participating clients in each training iteration, ensuring traceability.



Additional Information

- Partners: Fujitsu
- Project Type: Industry project
- Patent application pending.

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Industrial AI · Driving Future Value Creation

A Shared Pool of Digital Assets

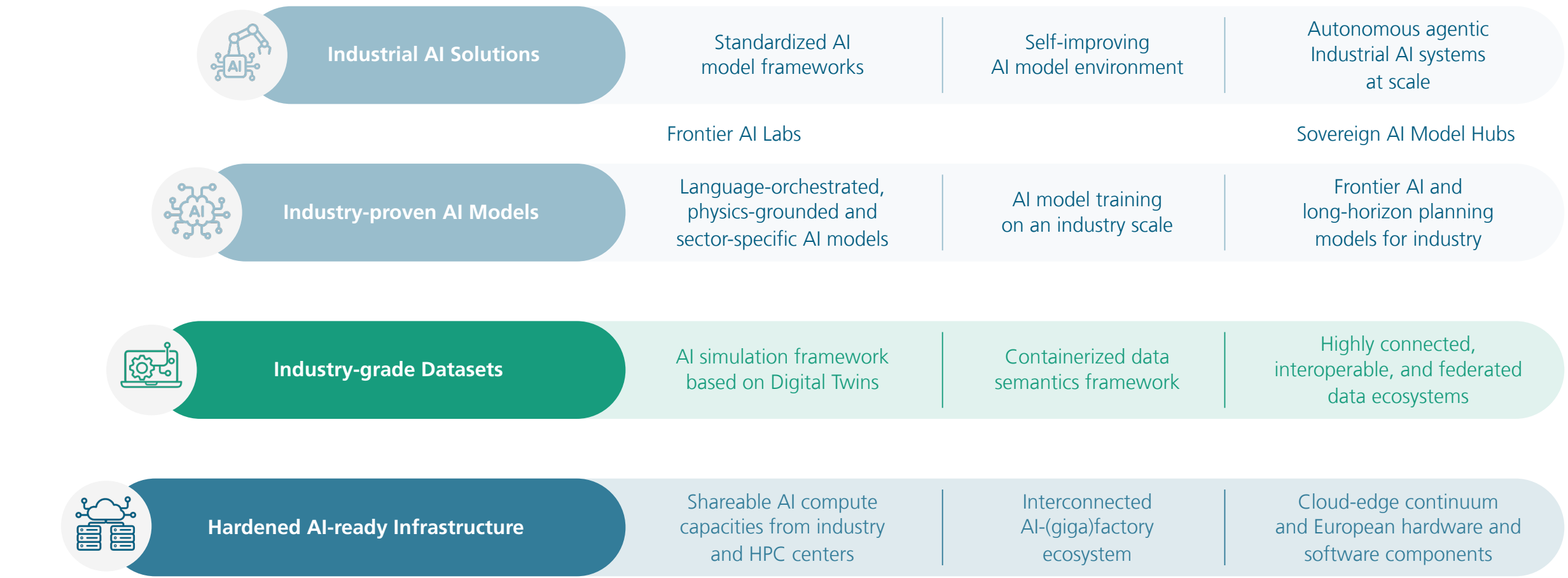


Fig.: illustration based on Plattform Industrie 4.0 (n.d.) Industrial AI – Driving Future Value Creation [online]. Plattform Industrie 4.0. www.plattform-i40.de [accessed on: 3 Nov. 2026]

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Open Questions for Research and Industry Co-Creation

The Need for a Collective Action

Architecture Layer	Research Topics
Ecosystem Layer	▪ Governance of Smart Data Ecosystems ▪ Economics of data sharing ▪ Self-organization of autonomous agent ecosystems ▪ Ecosystem patterns and constellations
Application Layer	▪ Domain-specific innovative services ▪ Data and AI based business models ▪ Twin transformation
Data & AI Layer	▪ Digital twins of ecosystems ▪ Digital twin agents ▪ Data spaces and data (sharing) platforms ▪ Next generation data management ▪ Data readiness
Infrastructure Layer	▪ Federated cloud infrastructures ▪ Edge-cloud continuum ▪ Cloud service orchestration

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If you want to go fast, go alone; if you want to go far, go together

Source: African proverb.

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