Manufacturing-X International

Brussels, February 10th, 2025

Thomas Hahn / Siemens

Why?

Why Data Transparency is needed?

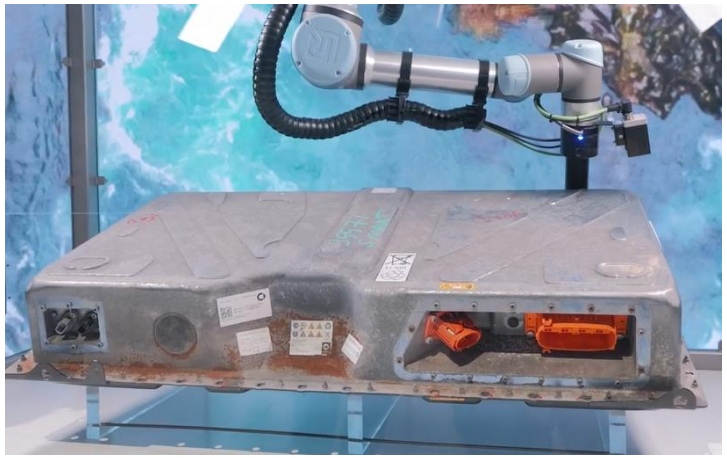
Example: Carbon Footprint

- ~10% of CO2 emissions from industry generated by own factories, ~90% by upstream/downstream supply chain [1)]
- To reduce CO2 emissions, transparency along the entire value chain is necessary

1) depending on production

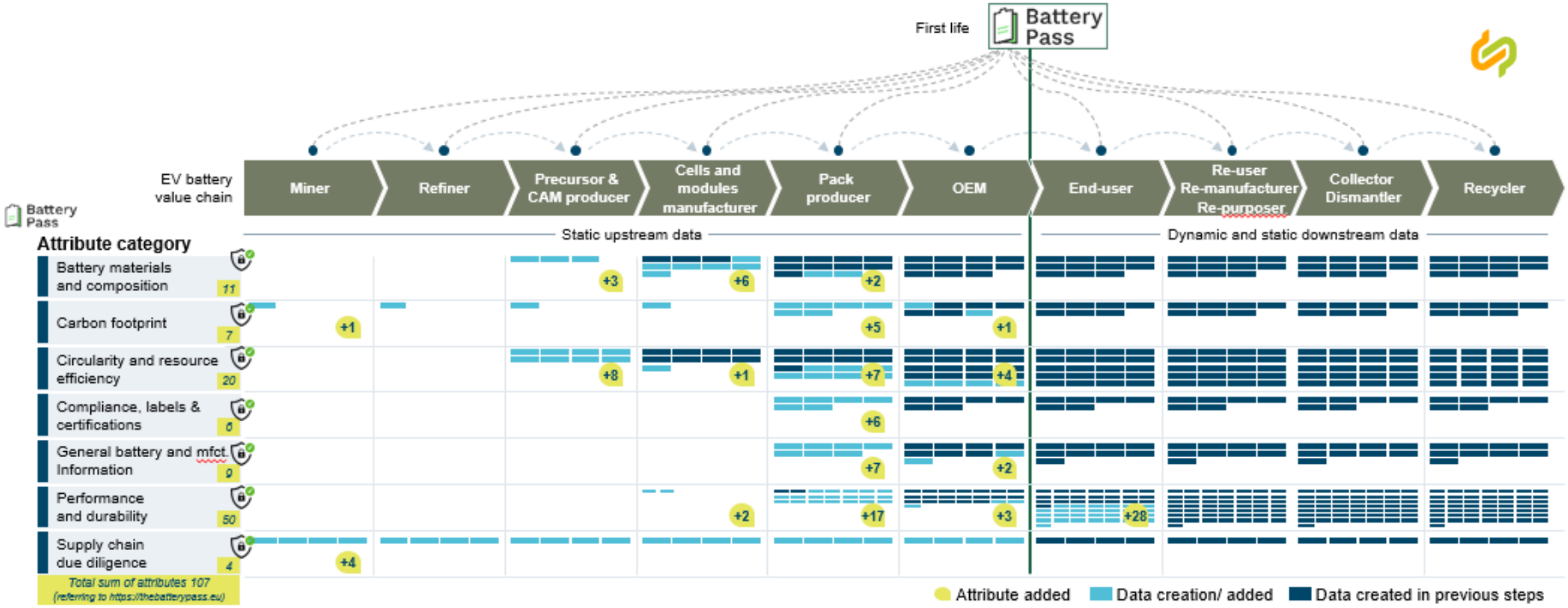
Example: Battery production

- Only if we use the potential of digitalization we can produce batteries more sustainably
- ~ 96% of the ingredients of a battery are recyclable
- Consistent and transparent use of digital twins along the complete cycle the design and production will be more sustainable



Example

Battery Passport



International Manufacturing-X (IMX): Make Data Work

IMX will implement a federated, decentralized and collaborative data ecosystem for smart manufacturing. Open, global and cross-industry, following FAIR Data Principles.

Reorganize and increase flexibility and autonomy of industrial value chains and networks.

Resilience

Increase efficiency and enable data-driven solutions for GHG/CO2 balancing and circular economy.

Sustainability

Accelerate digital innovations and enable new data-driven business models to create new value for manufacturing

Competitiveness

Motivation & Big Picture

International Manufacturing-X (IMX): Make Data Work

IMX will implement a federated, decentralized and collaborative data ecosystem for smart manufacturing.
Open, global and cross-industry, following FAIR Data Principles.

Examples from funded projects in Germany
With link e.g. Data4Industry and other projects

Factory-X Industry Use Cases

11 Use Cases für horizontalen- und vertikalen Datenaustausch

Integrated Toolchains and Collaborative Engineering

DPP

Information Update and Change Service

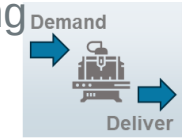
Collaborative Information Logistics

Condition Monitoring led Services

Modular Production

Manufacturing as a Service – On Demand Manufacturing

DPP



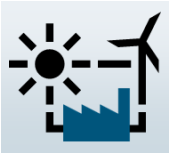
Autonomous Operation-as-a-Service

Traceability

DPP

Energy-Consumption and Load Management

DPP



Carbon Footprint Management

DPP

Circular Economy

DPP

Factory-X Kernel & Basis Services

Trust Anchor

Examples

Motivation & Big Picture

Foundational Framework for IMX

A common guideline for IMX activities and international stakeholders.

Strategic Goals

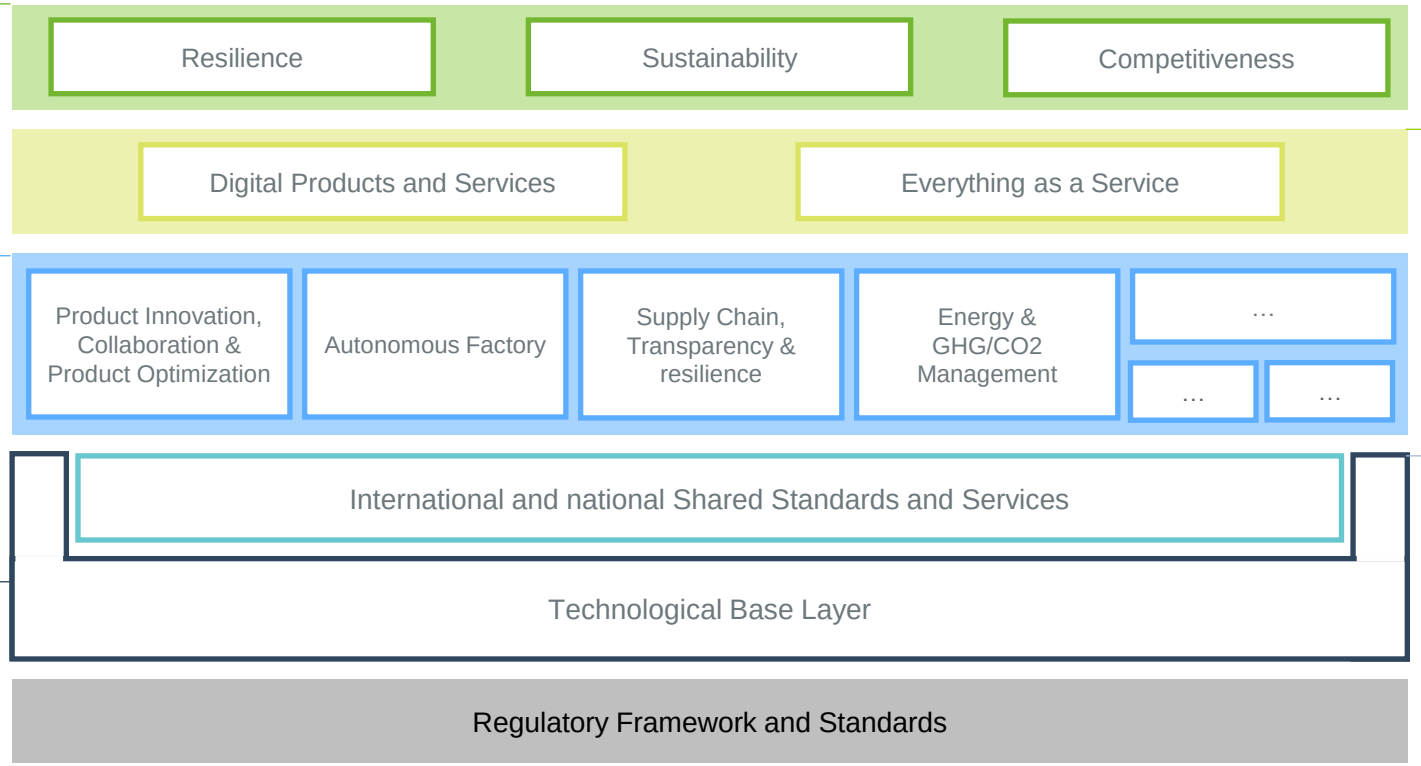
International Manufacturing-X develops the foundations for a resilient and competitive industry in a sustainable society.

Exemplary Cross-Industry Use Cases

International Manufacturing-X addresses cross-industry use cases based on a collaborative use of data with high economic and ecological impact.

Foundation

International Manufacturing-X defines global standards and runs a basic technical infrastructure to guarantee interoperability and sovereignty.



Business Models

International Manufacturing-X enables innovative business models based on a interoperable data-ecosystems

Capabilities

International Manufacturing-X enables development and deployment of fundamental services driving the federated data ecosystem.

Requirements

International Manufacturing-X builds on a common technical, organizational and legal framework and contributes to the future development in cooperation with international law.

Motivation & Big Picture

Foundational Framework for IMX

A common guideline for IMX activities and international stakeholders.

Strategic Goals

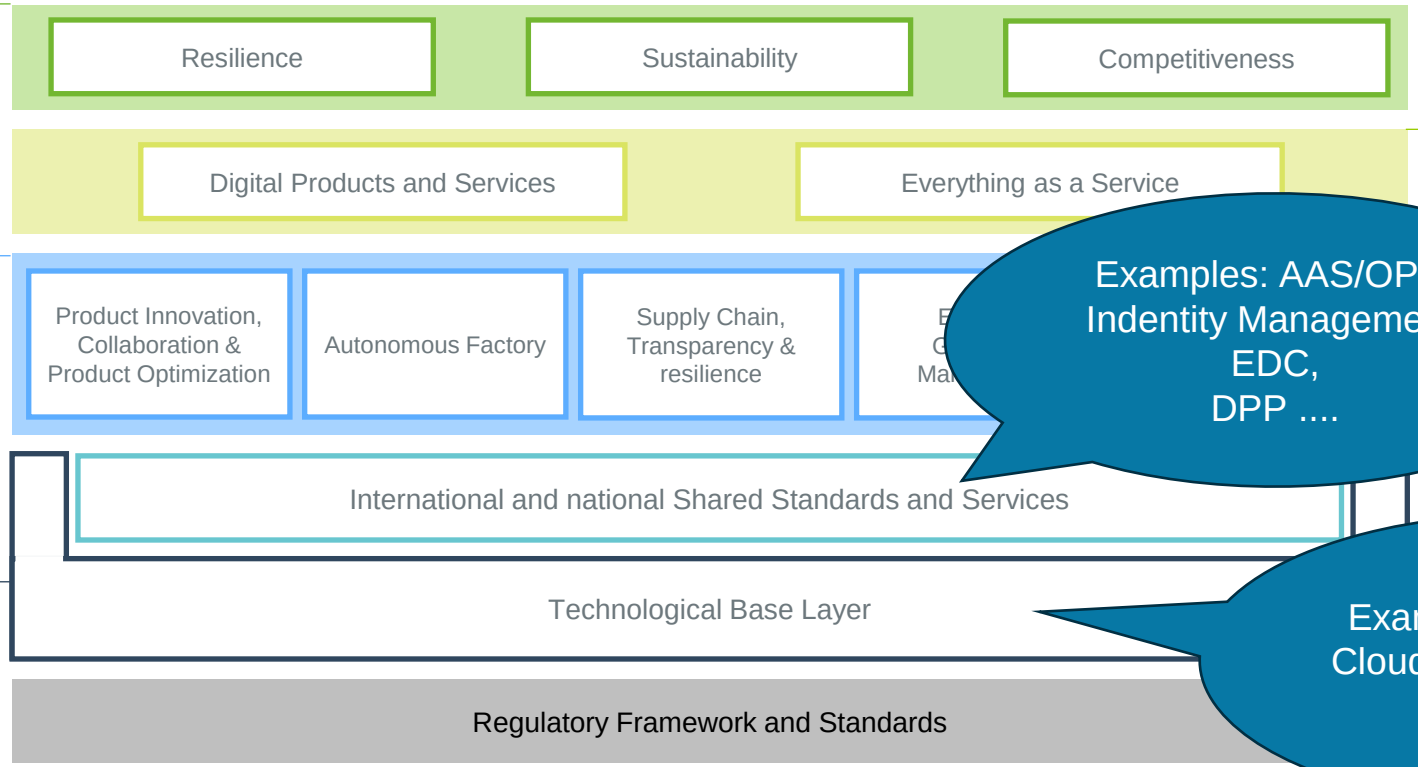
International Manufacturing-X develops the foundations for a resilient and competitive industry in a sustainable society.

Exemplary Cross-Industry Use Cases

International Manufacturing-X addresses cross-industry use cases based on a collaborative use of data with high economic and ecological impact.

Foundation

International Manufacturing-X defines global standards and runs a basic technical infrastructure to guarantee interoperability and sovereignty.



Business Models

International Manufacturing-X enables innovative business models based on a interoperable data-ecosystems

abilities

l Manufacturing-X
elopment and
t of fundamental
driving the federated data
ystem.

Examples: AAS/OPC, Indentity Management, EDC, DPP ....

Examples: IPCEI CIS, Cloud-Edge Continuum, 8ra

Who?

Initiatives Involved in Establishing the IMX Council

What has happened so far:

2023 July

Initiation Brussels, Belgium

2023 October

Inauguration Tokio, Japan

2024 February

Kick-off Paris, France

2024 Novem.

USA/CESMII

We have also to address „cross-vertical“ cases ...

Digital economy can create positive impact for society
… secures existing business and competitiveness
… enables new, [cross-sector] business models (B2B andB2B2C)
… and needs to address –where needed- common standards

International Manufacturing-X Council:
Make Data Work

Thank you!