

Smart Manufacturing 2023: Ten nations join forces to launch International Manufacturing-X (IM-X) – “Make Data Work”

By Chris Schlueter Langdon, 2023-11-02

Manufacturing-X goes international @ 2023 CESMII Greenville SC

Ten nations are coming together to establish the **International Manufacturing-X (IM-X) Council**, with its official announcement at the 2023 Annual CESMII Member Meeting hosted at SOUTHTEC’s Smart Manufacturing Experience Oct 24-26 in Greenville, SC (CESMII 2023). IM-X puts data front and center encapsulated by the tagline “**Make Data Work**”.

Recognizing the pivotal role of software in digitizing manufacturing and the necessity of data as critical input for any software application, IM-X envisions to implement a federated, decentralized and collaborative data ecosystem for smart manufacturing globally (U.S. DoE 2023). The **United States of America** are joining **Germany** (Plattform Industrie 4.0), **Austria** (Plattform Industrie 4.0 Österreich), **Australia**, **Canada** (Offensive de Transformation Numérique), **France** (Alliance Industrie du Futur), **Italy** (Confindustria), **Japan** (RRI), **Netherlands** (Smart Industry), and **South Korea** (KOSMO) in launching this initiative (Industrie 4.0 2023).



Figure 1: U.S. and German governments announcing International Manufacturing-X

Governments on stage: U.S. with CESMII, Germany with Industrie 4.0 Deputy Directors from the **U.S. Department of Energy** (U.S. DoE) Diana Bauer and Kelly Visconti joined the stage with Markus Hess, Deputy Director General of the **German Federal Ministry of Economics and Climate Action** (BMWK; see Figure 1). The U.S. government will participate through CESMII, run by CEO John Dyck, while Germany will be represented by its “Plattform Industrie 4.0”, lead by Secretary General, Henning Banthien (see Figure 1, lower right: John Dyck (CESMII), Markus Hess (BMWK), Georg Kube (SAP, Industrie 4.0), Henning Banthien (I4.0), Dominik Rohrmus (Siemens, I4.0)).



Figure 2: German government delegation “Industrie 4.0” visiting Bosch, BMW, and GE

German government delegation Industrie 4.0

"Plattform Industrie 4.0" (I4.0) was launched in April 2013 by Germany’s Federal Ministry for Economic Affairs and Energy (BMWK) and the Federal Ministry of Education and Research (BMBF). It is the overarching national initiative focused on driving the digital transformation of manufacturing and industrial processes to enhance productivity, innovation, and competitiveness within the German industrial sector. I4.0 will be an active participant in IM-X using ...

- Germany’s **Manufacturing-X** initiative ([link](#)), which in turn is implemented through ...
- Sectoral projects like **Catena-X** ([link](#)) in the automotive industry (2021-2024, see Ganser & Otto 2023) and **Factory-X** (2024-2027)

In order to demonstrate its commitment and kickstart involvement with U.S. counterparts Markus Hess led an entire “BMWK delegation trip Industrie 4.0 in USA” to participate in the

CESMII conference as well as in related company visits. The delegation included in alphabetic order: Henning Banthien (Ifok; Secretary General I4.0), Erich Barnstedt (Microsoft; I4.0, OPC Foundation, [link](#)), Matthias Boelke (Schneider Electric; I4.0, IDTA, [link](#)), Oliver Ganser (BMW; Catena-X, [link](#)), Thomas Koenen (BDI, [link](#)), Georg Kube (SAP; I4.0), Dominik Rohrmus (Siemens; I4.0, LNI 4.0, [link](#)), Chris Schlueter Langdon (Deutsche Telekom; Catena-X), and Nina Stock (BMWK). Figure 2 depicts company visits of manufacturing plants of Bosch at Anderson, BMW at Spartanburg (with reception by Robert Engelhorn, president and CEO of BMW Manufacturing), and GE at Greenville. In Figure 2, lower left at BMW: Dominik Rohrmus, Mark Johnson (Clemson University), Markus Hess, Nina Stock, Georg Kube, Chris Schlueter Langdon, Thomas Koenen, Matthias Boelke, Henning Banthien.



Figure 3: IM-X workshop at Clemson University's International Center for Automotive Research (ICAR)

IM-X workshop @ Clemson's International Center for Auto Research

In order to jumpstart activities a **first IM-X workshop** with CESMII experts and member companies like Pfizer, Procter & Gamble, and Toyota as well as BMWK's Industrie 4.0 delegation was convened (see Figure 3, upper left: BMWK delegation members Schlueter Langdon, Koenen, Hess, Boelke). It was held at the Greenville Technical College Center for Manufacturing Innovation (CMI, [link](#); see Figure 3, upper right), hosted by Clemons University's International Center for Automotive Research (CU ICAR, [link](#)), and run by CU professor Mark Johnson (see Figure 3, lower left). Messrs Kube (SAP) and Rohrmus

(Siemens) kicked it off with a presentation of Manufacturing-X (M-X; see Figure 3, lower right). Many questions were raised on tech capabilities and in particular **Catena-X (C-X)**, a US\$ 250 million development project in the German auto industry, which is providing the tech foundation for M-X. Professor Schlueter Langdon (Deutsche Telekom) who is one of three agile Product Managers responsible for the C-X software, was on hand to explain ...

- Unique C-X benefit of peer-to-peer data transactions with data sovereignty protection (Lauf et al. 2022)
- Three key ecosystem layers of: (1) network (core dataspace or data exchange), (2) data products (digital twin aspect models based on Industrie 4.0 asset administration shell technology; Schlueter Langdon & Sikora 2020), and (3) super-apps (traceability for product carbon footprint tracking, for example; first dataspace case studies in: Schlueter Langdon & Schweichhart 2022)

The good news was pointed out by Matthias Boehle from I4.0 and chairman of the board of directors of the Industrial Digital Twin Association (IDTA, [link](#)): CESMII and Industrie 4.0 are off to a good start as they are already well aligned on digital twins. The **smart manufacturing profile** (SMP) from CESMII and the **asset administration shell** (AAS) from Plattform Industrie 4.0 exhibit high levels of synergy and both implementations are harmonized to enable the exchange of information between partners as proven in a joint demonstrator for CO2 exchange in 2021 (Industrie 4.0 2021).

LinkedIn posts

1. BMWK Delegation, IM-X & company visits, 1 picture, [link](#)
2. BMWK Delegation, short version, 3 pictures, [link](#)

Learn more from our pioneering dataspace projects

- **What** is a dataspace: For a C-level 1-pager, [link](#), and a Top 10 overview, [link](#)
- **How** to get started: From “Dataspaces 101” to data products, [link](#)
- First **use cases** in AutoMobility: “Data Move People”, [link](#)

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