RoX ecosystem: Minister & Board kickoff, lauch@Dürr

christoph.schlueter-langdon@telekom.de (business lead of Telekom dataspace unit & Catena-X agile Product Manager; Research Associate Professor, Peter Drucker School, Claremont Graduate University, link)
v2 2024-11-30

Robotics plays a crucial role in driving innovation, productivity, and competitiveness in developed countries globally (Economist 2024), particularly within Europe's traditional stronghold of medium-sized enterprises and 'hidden champions' in advanced manufacturing and industrial automation. As global competition intensifies, leveraging AI and industrial data is essential to unlock new efficiencies, enhance adaptability, and secure a technological edge. RoX has been designed to address this challenge by creating a digital robotics ecosystem.

RoX: Digital ecosystem for AI-based robotics

RoX has been tasked with creating a digital ecosystem to enable and simplify the use of innovative AI-based robotic solutions. These systems have the potential for horizontal impact, offering greater efficiency and flexibility across a wide range of industries, particularly in manufacturing, logistics, and the service sector (VDMA 2023). Applications include loading, picking, placing, assembling, welding, painting, sorting, packaging, inspecting, as well as commissioning, setup, and calibration of robotic systems.

Figure 1: Consortium launch with Minister Habeck and Team Telekom with Board Member Nemat

Kickoff by Federal Minister Habeck with collaboration incentive

To ensure broad impact and adoption, RoX has been designed as an industry consortium. To attract a diverse membership, including even competing companies, the German Federal Ministry for Economic Affairs and Climate Action (BMWK) is providing research funding as an incentive. RoX will for 30 months from September 2024 until end of 2026. Figure 1 shows Minister Habeck launching RoX at the "Industrial Data Ecosystem" event including Telekom Board Member Mrs Nemat (from top-left clockwise: consortium members, team Telekom with Boettger, Nemat, Schlueter Langdon; Turnbull, Taba and Hofmann at Dürr; Langdon on making RoX interoperable with the German government's Manufacturing X program). RoX aligns with Europe's overarching digital strategy, encouraging its industry to leverage **industrial data** across organizational boundaries for next-level performance and to avoid missing opportunities, as happened with **consumer data**, where growth and business are dominated by non-EU firms, such as U.S.-based and Chinese hyperscalers. Alongside this 'seed funding,' and to boost adoption, the consortium includes the VDMA—one of Europe's largest industry associations, with its network of 3,600 members—as an integral part of RoX.

Figure 2: Launch at Dürr featuring overview of concepts for ecosystem, data, and software stack

Launch hosted by Dürr

Figure 2 showcases scenes from the launch of RoX at Dürr (from top-left clockwise: the government's perspective on ecosystem formation, details on data, software stack, and a first joint planning meeting of sub-projects TP4/5/6). RoX includes industry heavyweights and global brands, from ABB to Siemens, as well as 'hidden champions' (Simon 1992)—the 'who's who' in robotics. Therefore, it was fitting for the consortium to be launched at Dürr. Dürr is a global mechanical and plant engineering firm, founded by the Dürr family near Stuttgart, Germany, in 1895, and has been a publicly listed company since 1990 (Wikipedia 2024). It is particularly known for its paint shops and final assembly systems for the automotive industry, with customers that include nearly all major automobile manufacturers and their key suppliers.

Ecosystems: How to be cross-organizational and interoperable

Ecosystems began to emerge in the 1990s and quickly captured the attention of CEOs as an evolution in business value creation (see Business Ecosystems 2.0). They focus on creating shared value by fostering collaboration and resource sharing among diverse participants to achieve mutual innovation, growth, and competitive advantage. In short: if you can't do it alone, then you turn to ecosystems. This model is complex, as it requires collaboration with competitors—hence the term 'co-opetition' (Brandenburger & Nalebuff 1996, 1995, for example).

Fortunately, information technology has caught up with the concept, enabling business implementations that are interoperable and scale across organizations (for interoperability across a cloud-data-application stack, please see Dataspace super-apps). RoX will benefit from previous initiatives such as Gaia-X, which provides a trust layer, and Catena-X, which offers an industrial dataspace network base layer as well as automotive-specific digital twin standards for first applications, such as battery pass. RoX is aligned with IPCEI-CIS/ 8ra, a pan-European effort involving 12 EU member states and around 120 companies, extending ecosystem enablement along the cloud-edge continuum. Deutsche Telekom has been central to this evolution:

- as a founding member of Gaia-X (link)
- as a key partner in leading projects including RealLab Hamburg (link), Gaia-X for Future Mobility (link), and Catena-X (link)
- as pioneer of first use cases including a dataspace-enabled Umati (universal machine technology interface) demonstrators (link) based on OPC UA specifications in close collaboration with Germany's Machinery and Equipment Manufacturers Association (VDMA; Schlueter Langdon & Schweichhart 2022)

Consortium members

ABB AG, Boehringer Ingelheim Pharma GmbH & Co. KG, Deutsches Zentrum für Luft und Raumfahrt e.V. (DLR), DFKI, Fiege Logistik Stiftung & Co. KG, Gluth Systemtechnik GmbH, RIF Institut für Forschung und Transfer e.V., Intrinsic Innovation GmbH, INVITE GmbH, Mercedes-Benz AG, Roboception GmbH, Robomotion GmbH, SCHUNK SE & Co. KG, SOTEC GmbH & Co. KG, T-Systems International GmbH, VDMA Robotics + Automation, Wacker Chemie AG, Adolf Würth GmbH & Co. KG, Yardstick Robotics GmbH, Fraunhofer-Institut für Produktionstechnik und

Automatisierung IPA, Fraunhofer-Institut für Materialfluss und Logistik IML, Dürr Systems AG, Rheinmetall Waffe Munition GmbH, SAFELOG GmbH, Siemens AG

Important links

- RoX launch LinkedIn post: Link
- RoX on LinkedIn: https://www.linkedin.com/company/https-www.linkedin.com-company-77001750-admin-dashboard-/about/
- Industrie 4.0: https://www.plattform-i40.de/IP/Navigation/EN/Manufacturing-X/Manufacturing-X.html
- IPCEI-CIS: https://www.linkedin.com/company/8ra/

References

Brandenburger, A. M., and B. J. Nalebuff. 1996. *Co-opetition.* Currency/Doubleday: New York, NY

Brandenburger, A. M., and B. J. Nalebuff. 1995. The right game: Use game theory to shape strategy. *Harvard Business Review* (July–August): 57–71

Economist. 2024. Three reasons why it's good news that robots are getting smarter – They are becoming more capable, easier to program and better at explaining themselves. The Economist (2024-06-06), link

Schlueter Langdon, C., and K. Schweichhart. 2022. Dataspaces: First Applications in Mobility and Industry. In: Otto, B. et al. (eds.). Dataspaces – Part IV Solutions & Applications. Springer Nature, Switzerland: 493-511, link

Simon, H. 1992. Lessons from Germany's Midsize Giants. *Harvard Business Review* (March-April): 115-123

VDMA. 2023. Strategiepapier Robotik und Automation 2028 – Schlüsseltechnologie für Deutschland (Robotics and automation 2028 strategy paper - key technology for Germany). White paper (June), Verband Deutscher Maschinen- und Anlagenbau (VDMA; Machinery and Equipment Manufacturers Association) Robotik + Automation, Frankfurt, link