Position Paper

ROLE OF THE OI4 ALLIANCE IN THE CONTEXT OF MANUFACTURING-X

1   Introduction

The impact of the fourth industrial revolution extends beyond the manufacturing of industrial products and encompasses the collaboration among various stakeholders in complex value chain networks. In light of this, the Open Industry 4.0 Alliance (OI4 Alliance) was established in April 2019 as an association of companies aiming to implement Industry 4.0 solutions in a pre-competitive manner, utilizing a common foundation.

With more than 100 companies from diverse industries such as mechanical engineering, process industry, pharmaceuticals, or food & beverage, the members of OI4 actively engage in work groups and projects to deliver interoperable solutions for customers in production and logistics.

This position paper highlights the role of the OI4 Alliance in fostering open and interoperable solutions as a project and industry community.

2   Goals/Objectives

In alignment with standard bodies and associations, the OI4 Alliance provides components such as advisory, guidance, source code, documentation, or partner test facilities for the implementation of Industry 4.0 solutions.

The OI4 is an implementation alliance that harnesses technological advancements resulting from research, standardization, and industry practices, making them applicable to concrete projects. An important aspect of this objective is the creation of implementation communities that represent the interests of participating companies and their customers. These communities serve as an important platform for knowledge exchange, experience sharing, and the development of best practices. This allows members to find the right entry point for digitization activities and shape existing offerings. End customers value the 'best of breed' thinking, which means preventing vendor lock-in. Customers can choose the products that best suit their problems without the need to write interfaces. In addition to the member companies, it is equally important to engage a broad mass of producing companies, reducing barriers through seamless I4.0 applications.

Broad impact can only be achieved through collaborative efforts with industry associations, which is why we strive for a coordinated and sustainable cooperation.

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3   Pre-competitive project and industry community

The OI4 plays a significant role in developing cross-industry and cross-technology solutions by creating an ecosystem designed by industry for industry, enabling collaborative engagement among participating companies. This environment offers companies the opportunity to test standards and market requirements in implementation projects together and generate recommendations for the development and deployment of Industry 4.0 solutions through publications.

Furthermore, the OI4 promotes the exchange of knowledge and experience among participating companies and customers. By building industry communities, participating companies can benefit from the experiences and best practices of others, leading to accelerated implementation of Industry 4.0 solutions.

The OI4 stands for an ecosystem of market-leading companies committed to deliver value by enabling a faster time-to-market, reduced risk of failure, increased market awareness, and, thus, increased revenue and customer satisfaction.

4   Community to test new technology (PoCs)

End customers profit from unique OI4 Alliance´s deliverables like partnerships, guidelines, E2E solution architectures, and proof points which enable end customers to create a request for quotation (RFQ). The OI4 community will help finding well-tuned solution partners.

The OI4 Alliance is an association of companies mutually dedicated to implement existing standards in their hardware and software solutions. This alliance develops pre-competitive solutions for interoperability within the value chain network.

As its name implies, the Open Industry 4.0 Alliance is 'open' and hence suitable for companies with initial solutions, seeking for feedback or testing facilities. The jointly developed cross-vendor implementation modules allow significant time and cost savings in the implementation process.

5   Community to start new customer projects (Business Development)

By becoming a member of the OI4 Alliance, companies aim to realize Industry 4.0 projects. Collaborating with Manufacturing-X e.V. can support joint member companies, as well as external entities, in successfully implementing projects with customers as users of Industry 4.0 products. The OI4 Alliance deliberately avoids vendor lock-in,

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enabling the inclusion of various strengths and perspectives, including those of IT service providers, component manufacturers, and machine builders, to design and implement end-to-end solutions ("Best of breed").

The results of this collaboration can be used to convince factory, plant, and warehouse operators that they are not investing in an "isolated Industry 4.0 application" and that these applications are compatible with other manufacturers.

These interoperable solutions undergo pre-competitive testing, providing operators a low-risk option. This significantly reduces the economic efforts associated with bad investments due to technological lock-in scenarios, particularly for small and medium-sized enterprises implementing Industry 4.0 projects with OI4 partners.

A key factor for successful market-ready development is a continuous control loop between market requirements, implementation recommendations and prototypical implementation, which the OI4 Alliance realizes through networking among technology, industry and real applications (early adoption) (see Figure 1).
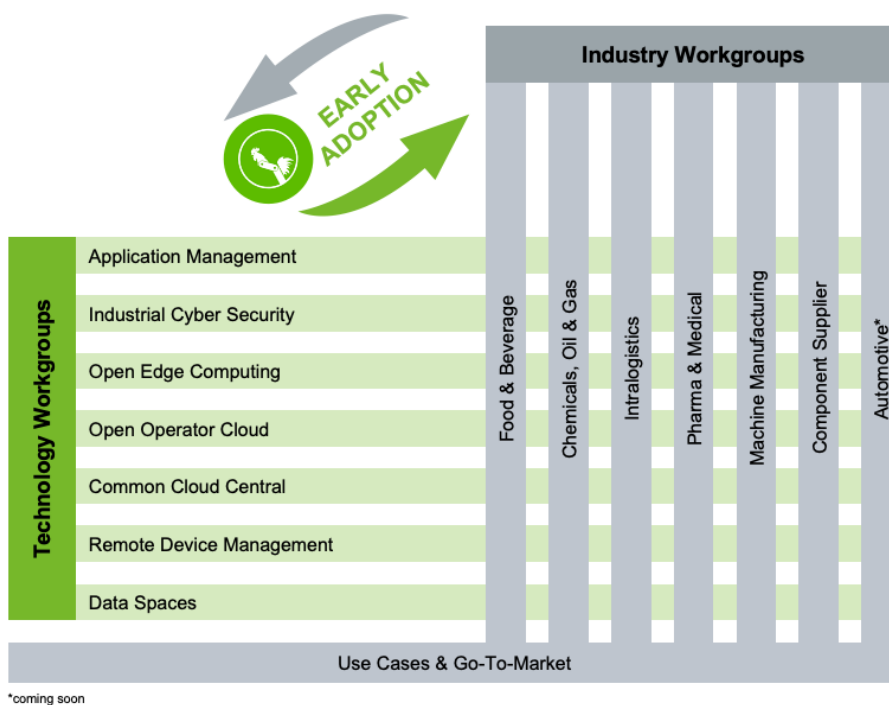

Figure 1: Overview of the OI4 Industry & Technology Communities.

Early adoption at the heart of linking market requirements and implementation recommendations.

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6 Conclusion in interaction with the "Manufacturing-X e.V."

The OI4 plays an important role in developing communities which define IMPLEMENTATION as their goal and contribute to the advancement of interoperable Industry 4.0 solutions. By creating the OI4 ecosystem, which facilitates the development of solutions based on standards and specifications, participating companies can benefit.

Furthermore, the OI4 Alliance enables knowledge and experience exchange, leading to an accelerated implementation of Industry 4.0 solutions. The OI4 Alliance enables the exchange of knowledge and experience, which leads to accelerated implementation of Industry 4.0 solutions. Manufacturing-X focuses on data spaces for the organized exchange of data between companies and business partners. The technological enablement to empower cross-company economic data exchange is a core element of the OI4 Alliance. Based on a cooperative partnership with the Manufacturing-X Community as well as relevant industry associations, we see success and scaling especially in the market for small and medium sized enterprises ensured.

At the information event of Manufacturing-X organized by VDMA in Frankfurt on 27.02.2023, the graphic presented below (see Figure 2) showcased the OI4 background discussed in this document. Inspired by this, we intend to respond to the VDMA's invitation and establish an OI4 project community.
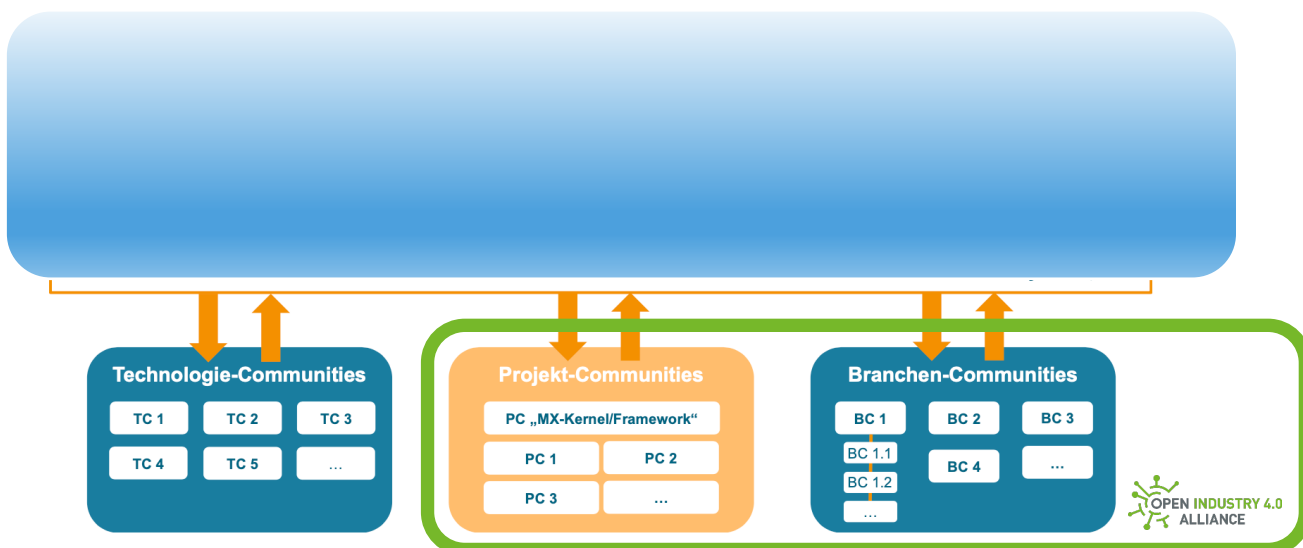

Figure 2: Proposal for a community-centred Manufacturing-X ecosystem

Source: "Mechanical Engineering in Transition" presentation at the VDMA Info Day on 27.02.2023.

As board members of the OI4 Alliance, we eagerly anticipate engaging in a dialogue on how to shape the cooperation with the OI4 Alliance as a project community.

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