KITs 101

An introduction to Catena-X KITs within the open source Eclipse Tractus-X project

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Catena-X
Your Automotive Network

Why KITs?

To build an ecosystem of interoperable business applications, Catena-X consolidates all essential code and non-code artefacts for a use case into a KIT (Keep It Together). This comprises standards, open source developer resources and technical documentation that ensure Catena-X principles such as trust, sovereignty, and interoperability. The KIT structure is standardized to accelerate the adoption by solution providers.

Tractus-X

There are two main customer groups for KITs

Adopters

Companies that are part of the automotive value chain and participate in a Catena-X use case. These companies require technical support, specifications, and guidance. For instance, a production company may need to exchange product carbon footprint data with its partners. KITs consolidate the necessary software components, standards, policies, and deployment scripts, ensuring these companies have everything required to successfully participate in a Catena-X use case.

Solution Providers

Companies interested in offering an application or service for a specific use case on one of the Catena-X marketplaces. These companies need to align their existing solutions with Catena-X requirements. Within a KIT, they receive guidelines and the technical support necessary for adapting their solutions to meet Catena-X conformity.

Achieving network effects in the Catena-X data space is critical to success and depends on the active participation of adopters and the creation of appealing solution offerings, especially for SMEs, by solution providers. Therefore, it is important to make it as easy as possible to get started. KITs facilitate this process by supporting both customer groups and simplifying the technical integration with the Catena-X data space.

Benefits

Transparency, Efficiency & Innovation

KITs are open to everyone as part of the open-source Eclipse Tractus-X project, which facilitates participation in the design and development of a KIT. Each use case offers at least one KIT to support the customer groups. KITs have wide applicability and are not limited to the automotive value chain.

1
Transparency is a key feature of KITs as it allows automotive companies, suppliers, and other stakeholders to comprehend the source code. This transparency enables bug identification and encourages contributions for improvement, fostering trust and collaboration.

2
KITs contribute to cost reduction by facilitating the reuse of existing software components. This means that companies don't have to start from scratch, resulting in significant cost and time savings.

3
Innovation thrives within KITs due to the diverse group of contributors. Regardless of a company's size, contributors share ideas, expertise, and resources, promoting a culture of innovation.

4
KITs align with Catena-X principles of interoperability and data sovereignty. They encompass use case semantics to establish a common "language" within the ecosystem, enabling seamless integration of diverse technologies from different providers while adhering to relevant standards.

5
KITs promote the building of an ecosystem. Diverse stakeholders collaborate and tailor solutions to specific needs. This expands the range of solutions and creates opportunities for partnerships.

Context

Step-by-Step Approach

KITs combine the relevant enablement services and core services for a specific use case. They provide a step-by-step approach for adopters and solution providers to participate in the data space through a technical description. By following this approach, automotive companies, suppliers, and solution providers can effectively engage with the Catena-X data space and harness their full potential. Rather than reinventing the wheel, KITs anticipate and enable collaboration with other data spaces.

Catena-X proves that a data space can work, and the KIT approach encourages efficiency, fosters innovation, and promotes seamless integration. By tapping into an established data space, participants can access a wealth of shared knowledge, infrastructure, and tools, accelerating their progress and driving impactful outcomes.

Why Are KITs So important?

KITs are part of the Eclipse project Tractus-X, which is open for use and collaboration within a community of developers.

Mutually developed standards and artifacts foster trust and collaboration governed by the Association.

KIT development is the foundation for further use cases, business applications, and services.

Key Components

Structure & Functionality

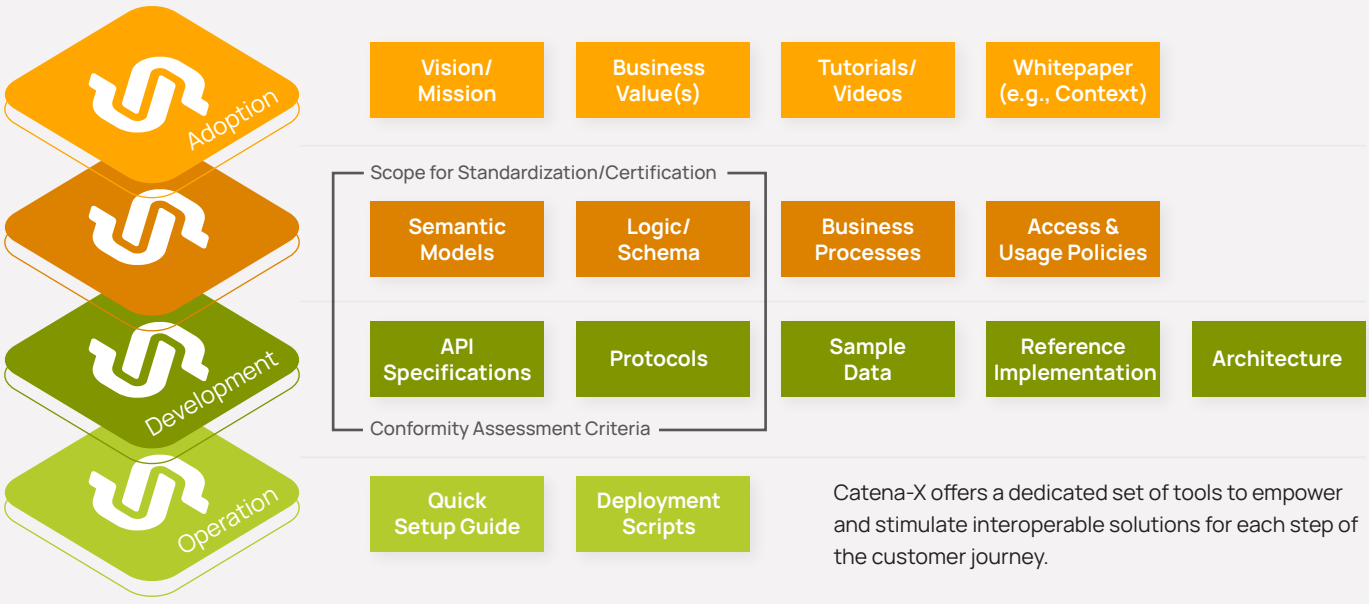
A KIT is always structured in the same way and supports the journey of a company joining the Catena-X data space. To ensure interoperability and data sovereignty in Catena-X use cases, adherence to a minimum set of elements is required, including semantic models for data integration and understanding, logic and schema for value calculation, API implementation for intercommunication, and access and usage policies to maintain data sovereignty.

A KIT consists of various other artifacts in addition to the minimum set. The vision formulates strategic objectives of a KIT that inspire adopters and solution providers to engage. The mission defines the purpose and addresses industry-specific problems. The business value highlights the benefits by enabling the connection to the Catena-X data space and facilitating commercial or non-profit solutions for Catena-X marketplaces. Tutorials provide educational resources, including how-to guides and videos for specific use cases. Whitepapers outline KIT goals, provide background information, highlight challenges, propose solutions, evaluate alternatives, and offer actionable recommendations.

Standardized semantic models add basic meaning to the data and relationships to enable interoperability. Standardized logic and schemas provide a definition of the minimum viable business logic that must be implemented to enable interoperability. Business processes describe interrelated (and cross-company) activities that enable specific objectives within a Catena-X use case. Access and usage policies regulate the rights and terms of data access and usage to enable data sovereignty.

API specifications detail the functional and expected behavior of an API, endpoints, data formats, and rules for interface interaction, promoting interoperability. Protocols define rules for data transmission and communication between components. Reference implementations carry out all requirements from our corresponding standards in the Catena-X Association and beyond and are available for use or further development. The architecture describes the basic components and their interaction within the operating system. Quick setup guides for installing and configuring reference implementations provide step-by-step instructions for developers. Deployment scripts, such as HELM diagrams, simplify the installation of components in the desired target environment.

Our KITs Toolbox



Catena-X offers a dedicated set of tools to empower and stimulate interoperable solutions for each step of the customer journey.

Roadmap

Continuous Development

	Release Q1	Release Q2	Release Q3	Release Q4
Network & Core Services	**Connector V0.1** IDS Protocol **Business Partner V0.1** Golden Record – Pool API **Data Chain V0.1** Interative Chains	**Data Chain V0.2** Local Test Bed / Debugging Front End	**Connector V 0.2** Integration of SSI (Step 1) **Business Partner V0.2** Sharing Member – Gate API **Digital Twin V0.1** Decentralized Registry	
PLM & Quality		**Traceability V0.1** BOM Semantic Models / Quality Alerts	**Traceability V0.2** Update Decentralized Registry & Unique ID Push **Behavior Twin V0.1** Remaining Useful Life **Quality V0.1** Decentralized Registry	**More to be announced soon...**
Resilience			**DCM V0.1** Early Bottleneck Detection **OSim V0.1** Semantics	
Sustainability			**Eco Pass V0.1** Product Pass APIs & Reference Implementation **PCF V0.1** PCF Rulebook 2.0 & Tutorials **Circularity** Preview	

Additional Resources

Tractus-X KIT Website ↗

Catena-X KIT Website ↗

KITs Video ↗

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