

CATENA-X
STANDARD



CX - 0071 Triangle Quality Early Warning Field and Root Cause v.1.0.0

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ABOUT THIS DOCUMENT & MOTIVATION

Catena-X is the first open and collaborative data ecosystem. The goal is to provide an environment for the creation, operation, and joint use of end-to-end data chains along the entire automotive value chain. All partners are on an equal ground, have sovereign control over their data and no lock-in effects occur. This situation provides a sustainable solution for the digitalization of supply chains, especially for medium-sized and small companies, and supports the cooperation and collaboration of market participants and competitors.

The ever-growing Catena-X ecosystem will enable enormous amounts of data to be integrated and collaboratively harnessed. To ensure that these complex data volumes can be sent, received, and processed smoothly across all stages of the value chain, one language for all players: common standards. The standards of the Catena-X data ecosystem define how the exchange of data and information in our network works. They are the basis for ensuring that the technologies, components, and processes used are developed and operated according to uniform rules.

Common standards create added value for all partners: Within our network, data flows more smoothly through interfaces. In addition, we avoid cumbersome individual IT solutions for sharing data with other partners. In the field of international standardization, Catena-X follows the proven international standardization institutions: ISO/IEC/ITU and CEN-CENELC/ETSI.

For users and data providers, implementation of standards will reduce the costs that would arise from adapting different systems. In addition, no important data is lost. On the contrary, it even becomes easier to collect data across companies. For

operators and developers, standards will create a framework that provides reliable orientation and planning security.

The following document describes one of the standards used in the Catena-X ecosystem and the requirements needed to implement it. Here, it serves as main resource to illustrate the following data model. It contains information starting from the format of the model, up to the conceptual and physical model. The standardisation of the data model will enable faster information sharing and homogeneity throughout the entire Catena-X ecosystem.

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ABSTRACT

The Catena-X use case Live Quality Loops (QAX) provides the ability to detect quality issues the earliest possible to start root cause analyses and/or to enable an early warning feature for new quality topics. In subsequent steps, counter measures can also be defined earlier and monitored. In sum, this reduces the number of vehicles affected by quality issues and increases the availability of the vehicle and built-in components. Catena-X use case Live Quality Loops is powered by Catena-X standard core components to share data from OEM and suppliers based on data sharing agreements and usage policies.

1. INTRODUCTION

The Catena-X use case Live Quality Loops (QAX) uses multiple data models to exchange data between automotive manufacturer (OEM) and component supplier (TIER1). Each of these data models can be supplied independently. The QualityTask data model defines the root element for Catena-X-based quality work. It describes the quality task and why two companies want to work collaboratively on a quality topic.

1.1 AUDIENCE & SCOPE

This section is non-normative

The standard is relevant for the following roles within the scope of the Use Case Live Quality Loops * Data Provider / Consumer * Business Application Provider

In scope:

- Data sharing between OEM, Tier1 and Tier n

- Earliest possible detection of potential issues with products and vehicles in usage

- Understanding of the root cause of the detected issues to enable earliest possible counter measure implementation

1.2 CONTEXT

This section is non-normative

For all participants of the Use Case Live Quality Loops it is necessary to provide and consume the data in accordance to the standardized semantic data models CX-00036 - CX-00041 to ensure the defined interoperability requirement "free of choice

application" to be able to use the established inhouse tool set for analysis.

1.3 ARCHITECTURE OVERVIEW

This section is non-normative

Use Case Live Quality Loops uses IDSA compliant file transfer for data sharing between different Catena-X participants. The Eclipse Dataspace Connector (EDC) as a reference implementation is **RECOMMENDED** to be used for file exchange and data contract negotiation.

1.4 CONFORMANCE

As well as sections marked as non-normative, all authoring guidelines, diagrams, examples, and notes in this specification are non-normative. Everything else in this specification is normative.

The key words **MAY**, **MUST**, **MUST NOT**, **OPTIONAL**, **RECOMMENDED**, **REQUIRED**, **SHOULD** and **SHOULD NOT** in this document are to be interpreted as described in BCP 14 [RFC2119] [RFC8174] when, and only when, they appear in all capitals, as shown here.

1.5 PROOF OF CONFORMITY

This section is non-normative

All participants and their solutions will need to prove, that they conform with the Catena-X standards. To validate that the standards are applied correctly, Catena-X employs Conformity Assessment Bodies (CABs).

Since this Triangle document describes a set of standards to be fulfilled, participants **MUST** fulfill all mentioned standards and the respective conformity assessment criteria in addition to the specific criteria mentioned in this document.

The specific criteria described in this document are describing the usage of the central tools as well as common tools described in the linked standardization documents and therefore compliance should be checked with the tools provided for these components.

1.6 EXAMPLES

1.7 TERMINOLOGY

This section is non-normative

Business Partner Number (BPN) : A BPN is the unique identifier of a partner within Catena-x

Additional terminology used in this standard can be looked up in the glossary on the association homepage.

Eclipse Dataspace Connector (EDC) : The EDC is a reference implementation of a connector for IDSA conform sovereign data exchange

Additional terminology used in this standard can be looked up in the glossary on the association homepage.

2. STANDARDS FOR "Triangle Quality Early Warning Field and Root Cause"

This section is normative

2.1 LIST OF STANDALONE STANDARDS

This section is normative

To participate in the Triangle Quality Early Warning Field and Root Cause use-case, the following single standards **MUST** be fulfilled by all participants for which the standard is relevant:

CX - 0018 Sovereign Data Exchange

As OEM or Software solution provider for OEM I **MUST** align to the following aspect models in the corresponding data exchange:

CX - 0036 Aspect Model: Quality_Task

CX - 0037 Aspect Model: Vehicle.Production_Data

CX - 0038 Aspect Model: Fleet.Diagnostic_Data

CX - 0039 Aspect Model: Fleet.Claim_Data

As Supplier or Software solution provider for Supplier I **MUST** align to the following aspect models in the corresponding data exchange:

CX - 0036 Aspect Model: Quality_Task

CX - 0040 Aspect Model: Part_Analyses

CX - 0041 Aspect Model: Manufactured_Parts_Quality_Information

Data provisioning and consuming **MUST** be done according the standardized semantic data models.

The data provider defines the data content that will be provided. Provided data assets are defined in data sharing agreements and/or data usage policies.

2.2 ADDITIONAL REQUIREMENTS

3 REFERENCES

3.1 NORMATIVE REFERENCES

CX - 0018 Sovereign Data Exchange

3.2 NON-NORMATIVE REFERENCES

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3.3 REFERENCE IMPLEMENTATIONS

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