Industrial
Digital
Twin
Association

Catena-X
Your Automotive Network

EU Digital Battery Passport: from regulation to implementation

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Tractus-X Community Days, July 2nd, 2026

European Commission’s (EC) Battery Regulation

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Energy, Climate change, Environment

Environment

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NEWS ARTICLE | 17 August 2023 | Directorate-General for Environment

Circular economy: New law on more sustainable, circular and safe batteries enters into force

GettyImages/Petmal

Source: https://environment.ec.europa.eu/news/new-law-more-sustainable-circular-and-safe-batteries-enters-force-2023-08-17_en

To help consumers make informed decisions on which batteries to purchase, key data will be provided on a label. A QR code will provide access to a digital passport with detailed information on each battery that will help consumers and especially professionals along the value chain in their efforts to make the circular economy a reality for batteries.

From 18th February 2027:
EV and industrial batteries on the EU market will require a unique battery passport

Open questions regarding implementation

I: How does the data model and its serialization looks like?

II: How are the required data exchanged between different companies such as suppliers?

Two Interlocking Components

Data models and the Catena-X Standard CX-160 fit together like two puzzle pieces

AAS Submodels for Digital Battery Passport

Describe the content and format of the data.

Catena-X Standard CX-160

Describes how to exchange the data models through the Catena-X dataspace between different companies.

I: Who takes care on the data model?

Joint Activity

- Industrial Digital Twin Association
- Maintains AAS specification
- Develop and maintains generic & application specific AAS submodels

- Funded BMWK and EU project to improve data exchange systems in the automotive value chain
- Uses AAS; Battery Passport use case

- Supported BMWK project to provide detailed list of battery attributes
- Formal results in DIN DKE SPEC 99100
- Successor project: BatteryPass-Ready

BMWK: Federal Ministry for Economic Affairs and Climate Action (Germany)

Contributors to the JWG

Siemens, Circulor, Bosch, Harting, ECLASS Office, BASF, Fraunhofer, Mercedes-Benz, SAP, Capgemini, ZF, Consileon, Eviden, Dräxlmaier, MHP, M&M Software, Dataciders InMediasP, Volkswagen, msg group

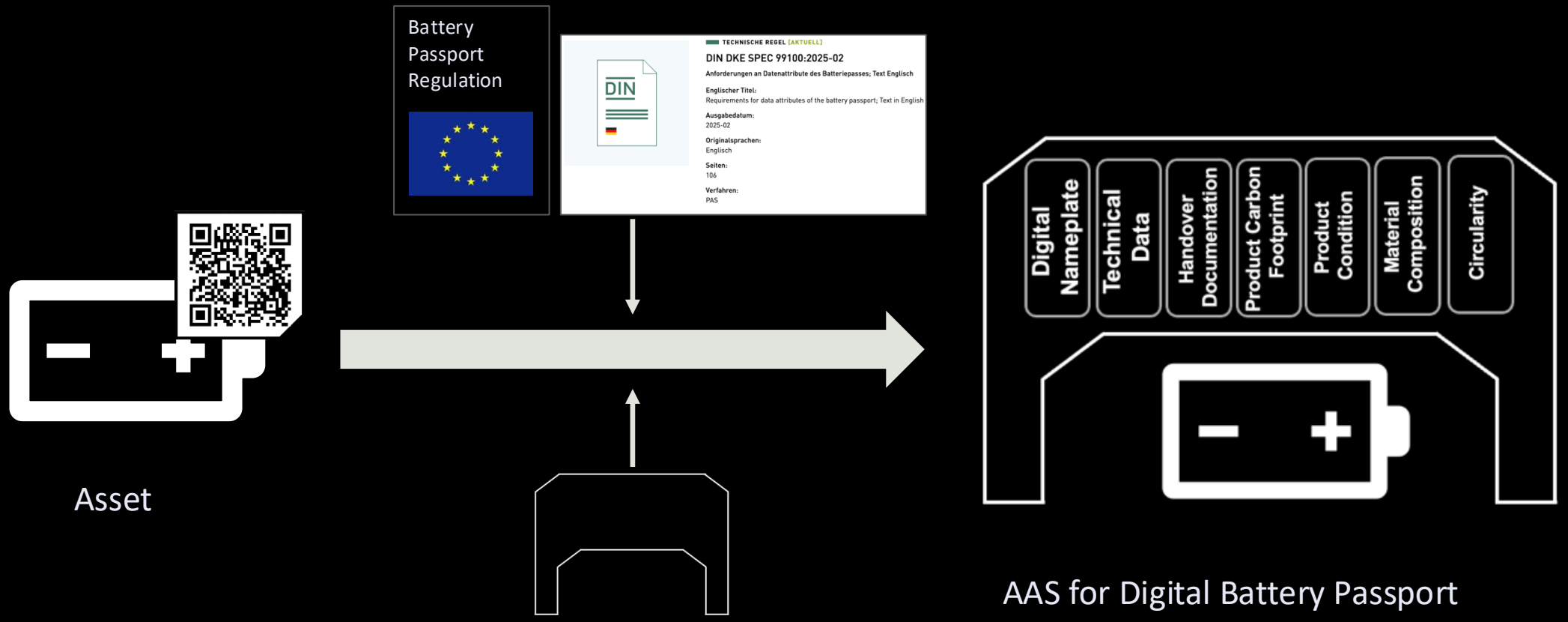
CATL, Huawei, Shenzhen Precise Testing Technology Co., Volvo

IBM, Microsoft, Amazon

Hitachi, Denso, NTT DATA

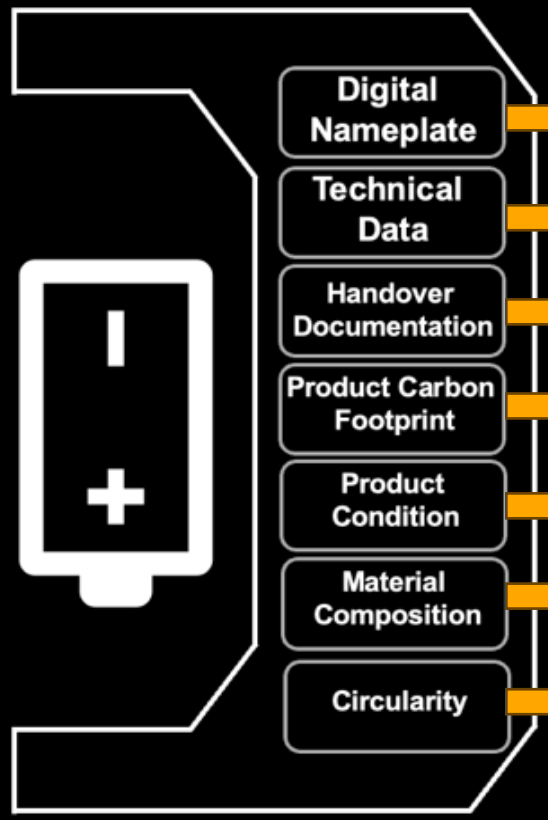
JWG: Joint Working Group

I: Goal of the Joint Activity



Specify an AAS template of Submodels for the Digital Battery Passport that complies with the guidelines for the content of the EC battery passport

I: AAS Submodels for Digital Battery Passport



- Basic details of the battery (e.g., name, serial number) and Economic Operator (e.g., address)
- Details about technical (static) properties of the battery (e.g., max voltage, power capability)
- Manual and documents (e.g., manual for removal of the battery from the appliance)
- Environmental information for CO2 (e.g., PCFCO2eq as total or normalized value)
- Dynamic battery data (e.g., SoC, battery status, remaining power capability)
- Material information of the battery (e.g., chemistry usage, hazardous substances)
- Information for circularity (e.g., recycled content, spare part sources)

→ The proposed solution for the Digital Product Passport based on existing models from IDTA and Catena-X/Battery Pass project (Aspect Models), aligned with DIN DKE SPEC 99100

II: Catena-X Standard CX-160 – Use Cases

The Catena-X Standard CX-160 standardizes three use cases:

USE CASE 1

Battery Passport Provisioning

Provisioning of a near-complete battery passport, e.g. from a battery manufacturer to a customer like an OEM.

Usage example:

To be used when a vehicle manufacturer buys a complete battery and needs detailed data to create the battery passport for the EU and end customers.

USE CASE 2

Not yet covered – work in progress

Component Supplier Integration

Integration of component suppliers, for example cells, housing and battery packs.

Usage example:

Battery component or material producer provides data to battery manufacturer for further processing.

USE CASE 3

DPP-Service Provider View

Complete exchange of DPPs to a service provider, which makes them publicly available.

Usage example:

Car manufacturer provides battery pass data to service provider who provides it to end users and/or performs the EU registration.

II: Catena-X Standard CX-160 – Content

The Catena-X Standard CX-160 standardizes the following aspects:

1 · PROVIDE

Provide the data models via the digital twin registry (DTR).

2 · FIND & ACCESS

Find and access data models in a digital twin registry.

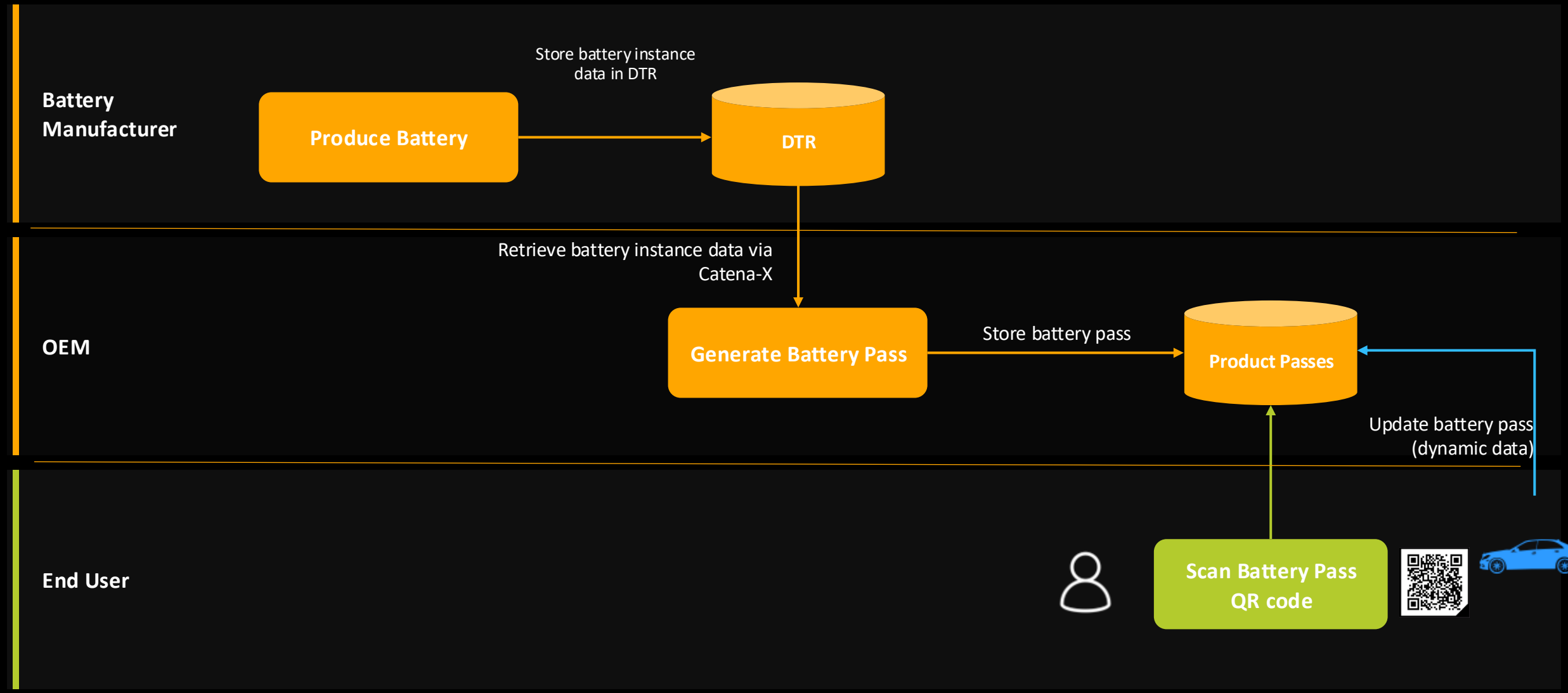
3 · APPLY

Apply the data models, e.g. the usage of specific attributes in the Catena-X context.

4 · EXTEND (Additional functionality)

Additional functionalities like bulk load (finding multiple new battery passes) and notifications for new data.

Example: Data Flow for buy batteries (UC 1)

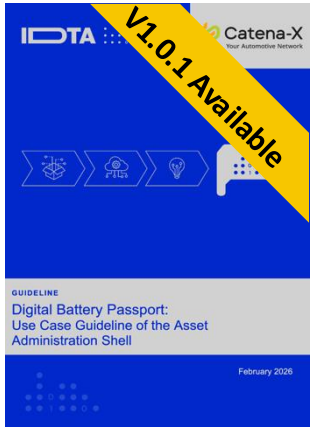


How can I implement it?

TC4M Modelling and DPP Workshop:
- Today: 3:45-5:45pm
- Tomorrow: 9:30-11:30am

Option 1
Implement the data models and the Catena-X Standard

Data Models (AAS + Aspect Models)



https://industrialdigitaltwin.org/use-cases/implementierung-des-eu-digital-battery-passport-mit-aas

In development:
V1.1 with CEN/CENELEC JTC24 support

C-X Standard CX-160

Catena-X
Automotive Network

CX-0160 Battery Passport v.1.0.0

ABSTRACT

https://catenax-ev.github.io/docs/next/standards/CX-0160-BatteryPassport

Option 2
Buy commercial Software

Commercial Software

Cofinity-X
Marketplace

(additional options might be available, check with your software vendor)

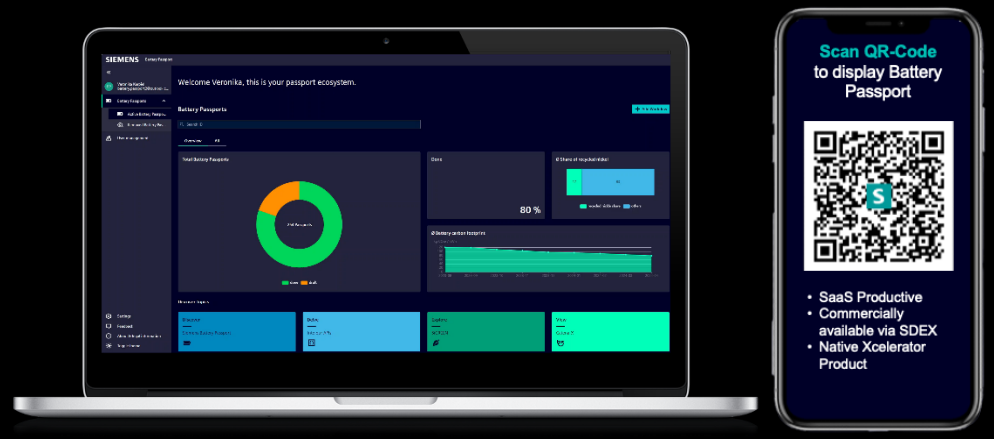
https://www.cofinity-x.com/apps?case=product-passport-ecopass&page=1

Adaptation (E.g., Siemens)

Siemens Mobility in Railway-X

Digital Battery Passports for rolling stock portfolios with traction batteries

Siemens Digital Industries



Digital Product/Battery Passports software for Siemens products and for customers

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Get in touch!

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Thank you