

Digital Product / Battery Passport Management System

Verifiable Digital Product Passports (vDPPs)
in the automotive supply chain

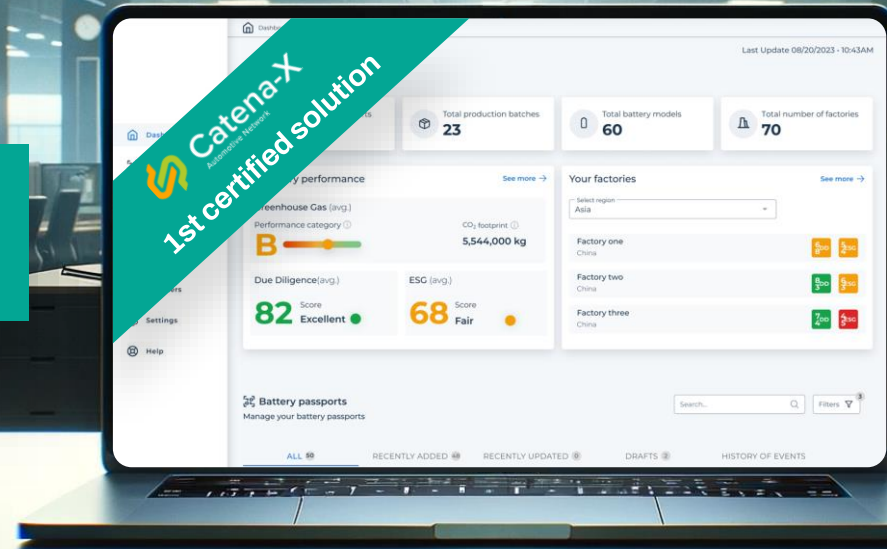


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transfer-x[®]
knowledge platform

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About Spherity



Founded in 2017

Dortmund, Germany (HQ)
New York, USA
25 Employees

Offering:

Digital Wallet, Digital Product Passport, and
Credentialing Solutions

Core Industries:

Life Sciences, Automotive,
Manufacturing, Energy.



Founder & CEO

Carsten Stöcker

Highly technical,
entrepreneurial & International
profile

Further Products

- Credentialing Solution **CARO** in
US Pharma Industry
- Digital Product Passport **VERA**
for international Product
Compliance

Technology

Based on open standards using
W3C specifications for
Decentralised Identifiers and
Verifiable Credentials

References

Customers



Partners



Certificates



Awards



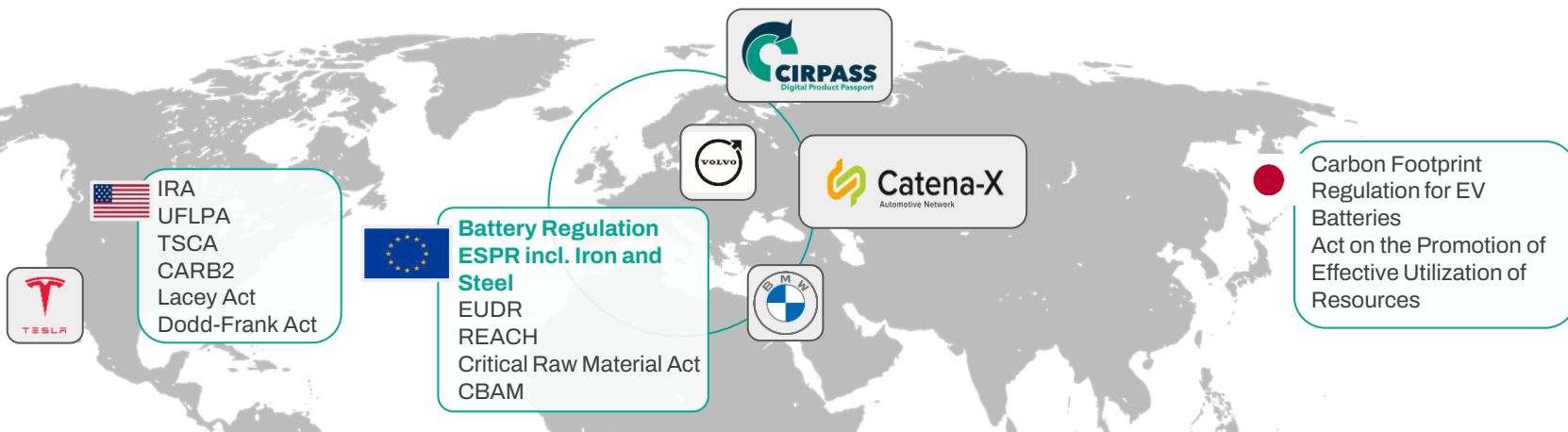


From manufacturing to recycling,
Digital Product Passports
facilitate sustainable practices,
lifecycle management, and
innovative value-added services.

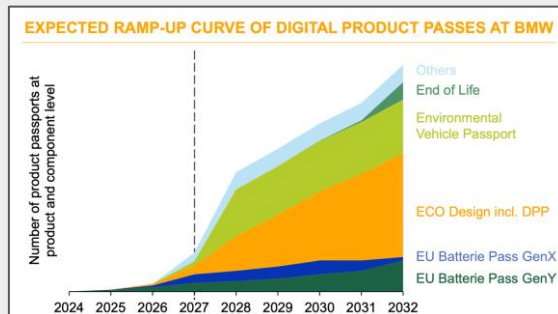


DPP regulatory Landscape

Digital Product Passports Are Here



- A **regulatory tsunami** with **global impact**
- New rules for digital identities and **Digital Product Passports**
- Far-reaching supply chain **information requirements**





ESPR - The Regulation that is Bringing the DPP to over 30 Product Groups

The Ecodesign for Sustainable Products Regulation (ESPR) , which was **adopted by the Council of Europe in May 2024**, affects **more than 31 product groups**. It introduces new requirements concerning sustainability, repairability, and recyclability as well as **significant information requirements, including a Digital Product Passport**. The Commission will be empowered to set ecodesign requirements by delegated acts and the industry will have 18 months to comply with them.

Priority will be given to **highly impactful** products:

- Textiles (especially garments and footwear)
- Furniture (including mattresses)
- Iron and steel
- Aluminium
- Tyres
- Paints
- Lubricants and chemicals
- Electronics
- Energy related products
- ICT products



T-Shirt DPP

This DPP is based on a proposal **based on bottom-up up research** approach **involving a survey or 81 stakeholders and experts in textile** sectors from almost 20 countries in Europe. The research was conducted by the European Parliament's Science and Technology Options Assessment (STOA) Panel. The “**minimal & simplified DPP**” version for textile at short-term horizon 2027 is mainly includes **mandatory information** and **additional information that will be useful for lifecycle analysis**.



Regulations

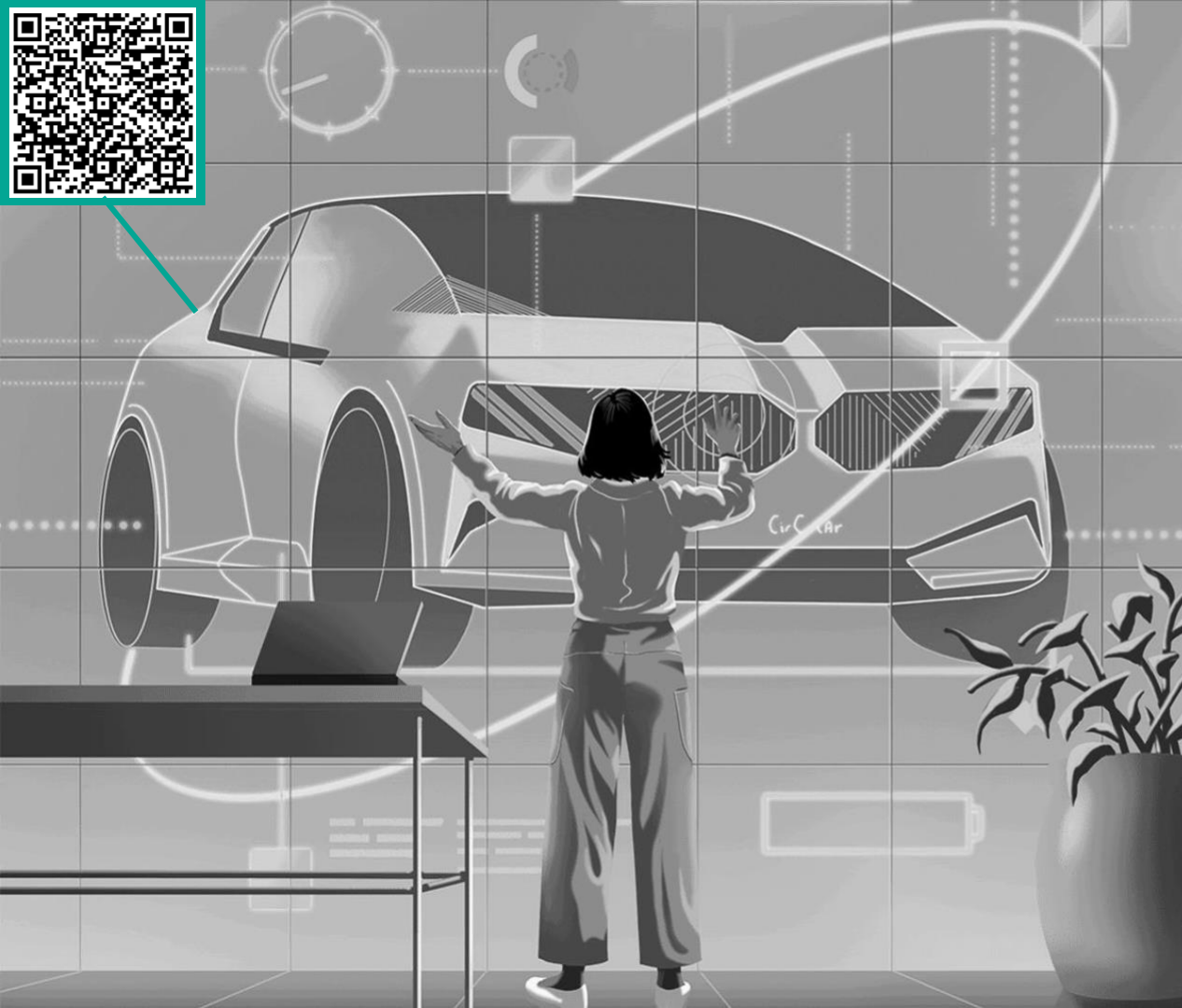
- **ESPR** (Ecodesign for Sustainable Products Regulation)
- **REACH** (Registration, Evaluation, Authorisation and Restriction of Chemicals)
- EU Strategy for Sustainable and Circular Textiles
- EU Green Claims Directive



Data Attributes

- General information
- Labels and certifications
- Product Carbon footprint
- Supply chain due diligence
- Materials and composition
- Circularity & resource efficiency
- Performance & durability





Hypothesis

The transformation towards electric mobility is closely linked to the transformation of global markets, sustainability, and digitalization. Electing the **Battery Passport** as the premier **digital product passport** sets a precedent for digital integration at the core of the value chains, trailblazing hundreds more to come, and driving digitalization in the heart of global economy.

Source: Catena-X, BMW Group

EV Car Battery DPP



Batteries for EVs and industrial applications are the **first product group for which the DPP will become mandatory**. The relevant regulation will take effect in February 2027.

The DPP requirements, which are specified in Article 77 of the EU Battery Regulation, include significant **supply chain information** requirements and **distinguish public and confidential data**.

For a complete list of attributes, consult the Battery Pass content guidance linked below.



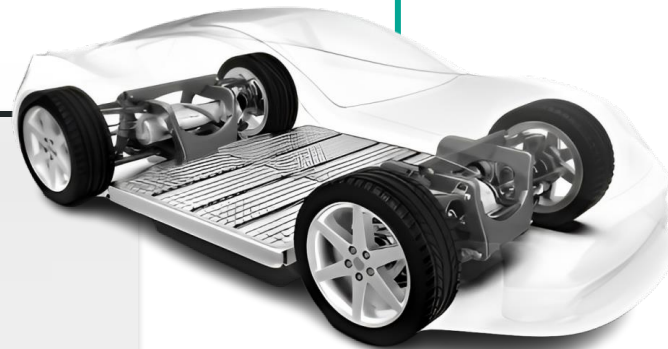
Regulation

EU Battery Regulation Article 77. 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.

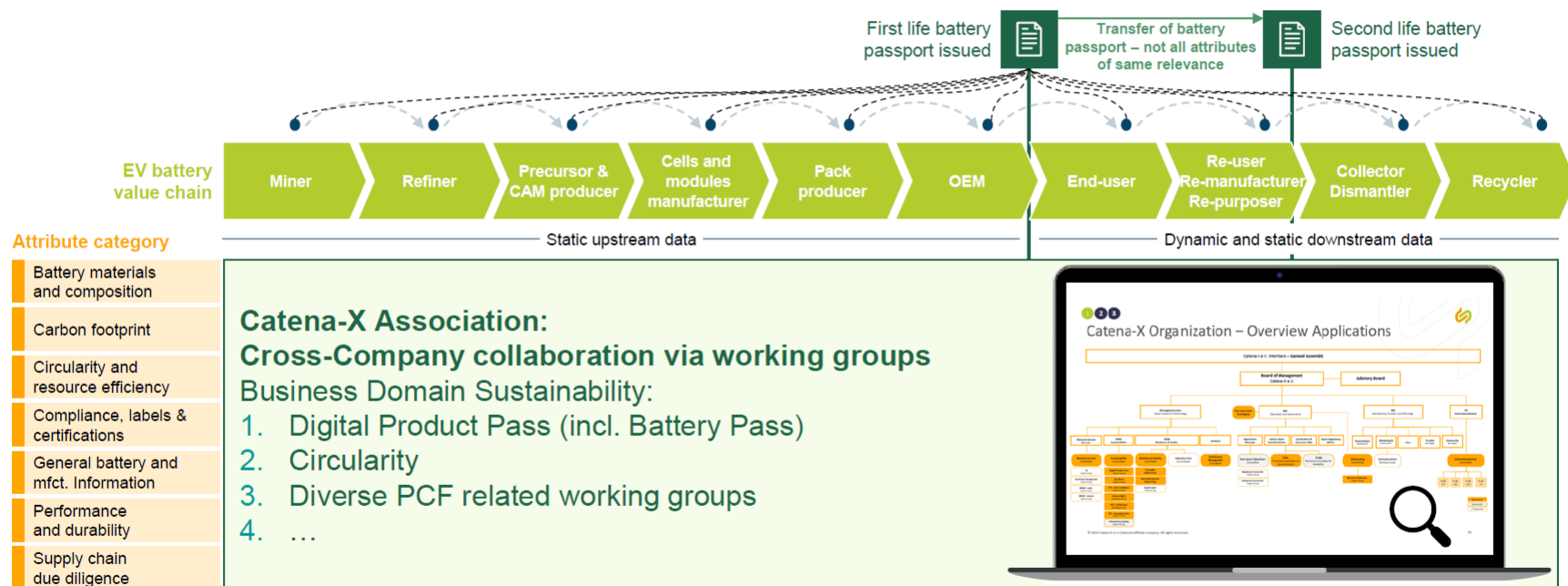


Data Attributes

- General information
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Standardization take place via Catena-X and collaborative cooperation in working groups.

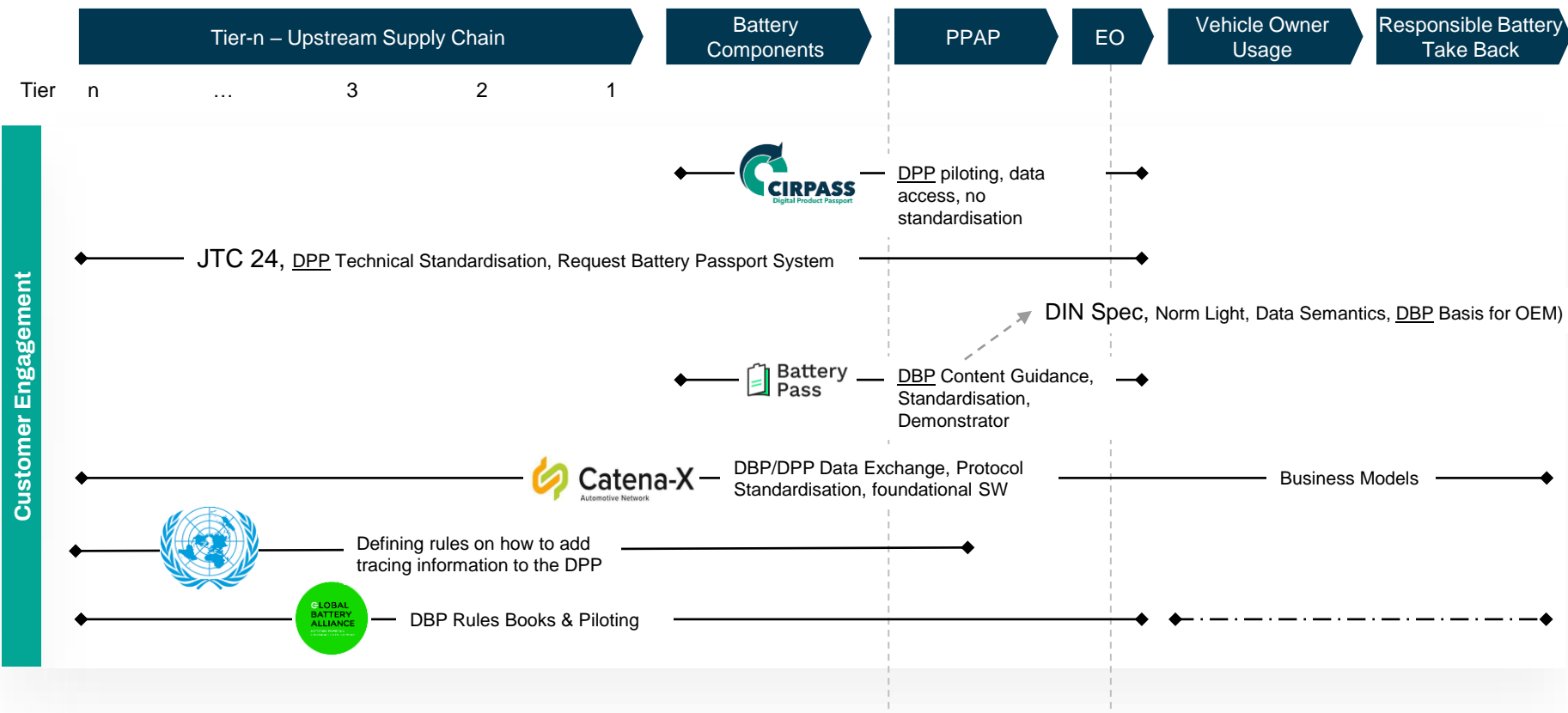


Deep Dive available

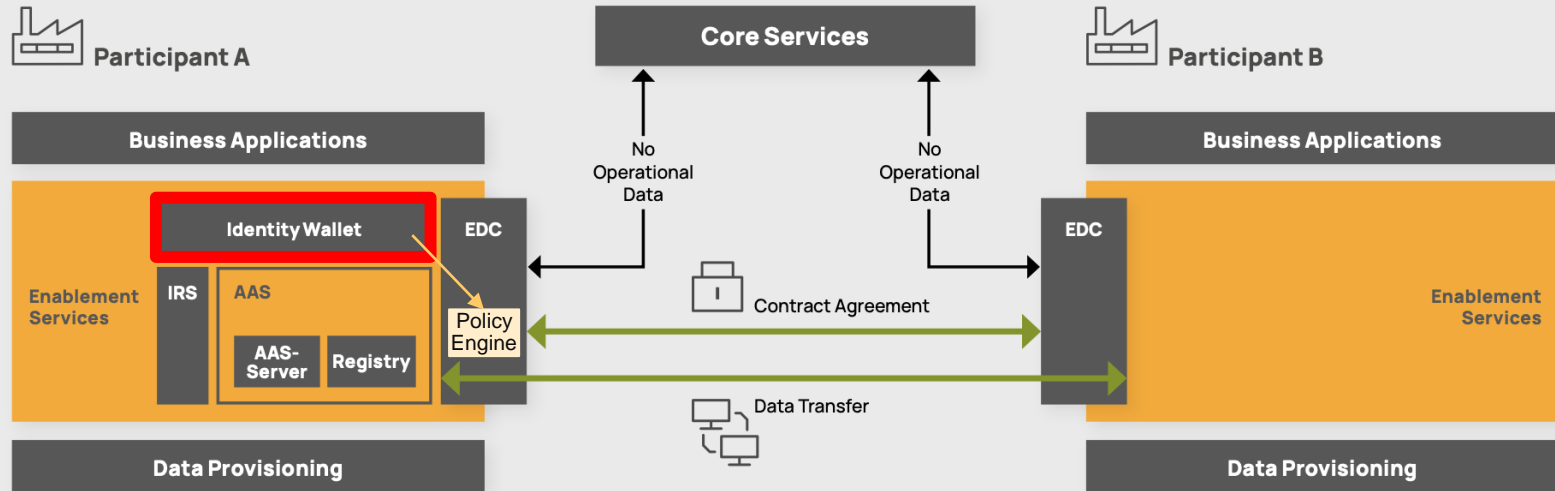


Our Alignment with Standardisation

At Spherity we are involved major standardisation ecosystem



Catena-X Data Space Architecture



Quelle: Catena-X e.V.



Key Definitions and Distinctions for Effective DPP Deployments

Definition

A Digital Product Passport (DPP) is a digital record throughout a product's its lifecycle that:

- Provides comprehensive and verifiable information about the product's origin, composition, manufacturing processes, and environmental impact.
- Meets the requirements of the European Sustainable Products Regulation (ESPR).
- Can go beyond ESPR compliance.

Important Distinction

DPP System

- Software & infrastructure
- IT standards & protocols
- Interoperability

DPP Data

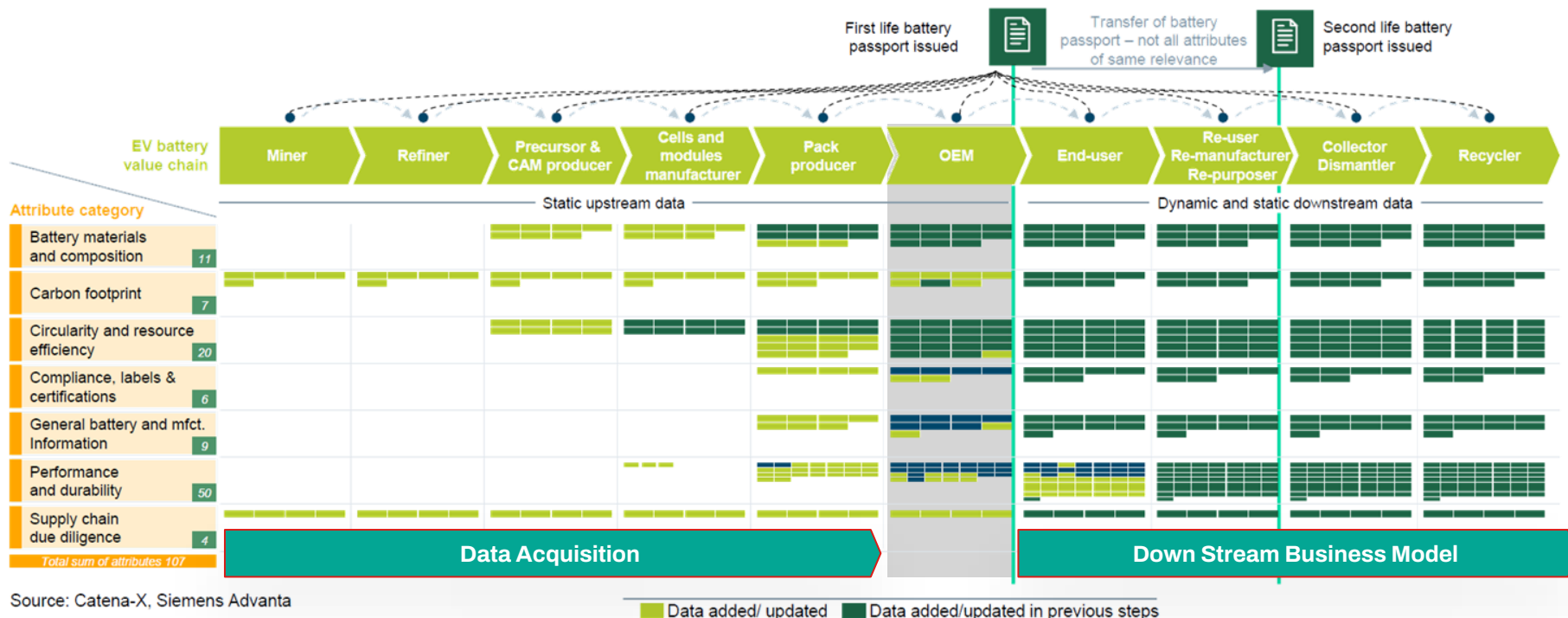
- Static data
- Dynamic data (e.g. granular health data in case of IoT)
- Data are product-category dependent

Details on
Next Page



Example: EU Battery Passport (simplified)

Multi-Tier exchange of **sensitive, verified** and massive amounts of data sets a new baseline to re-think the status quo.

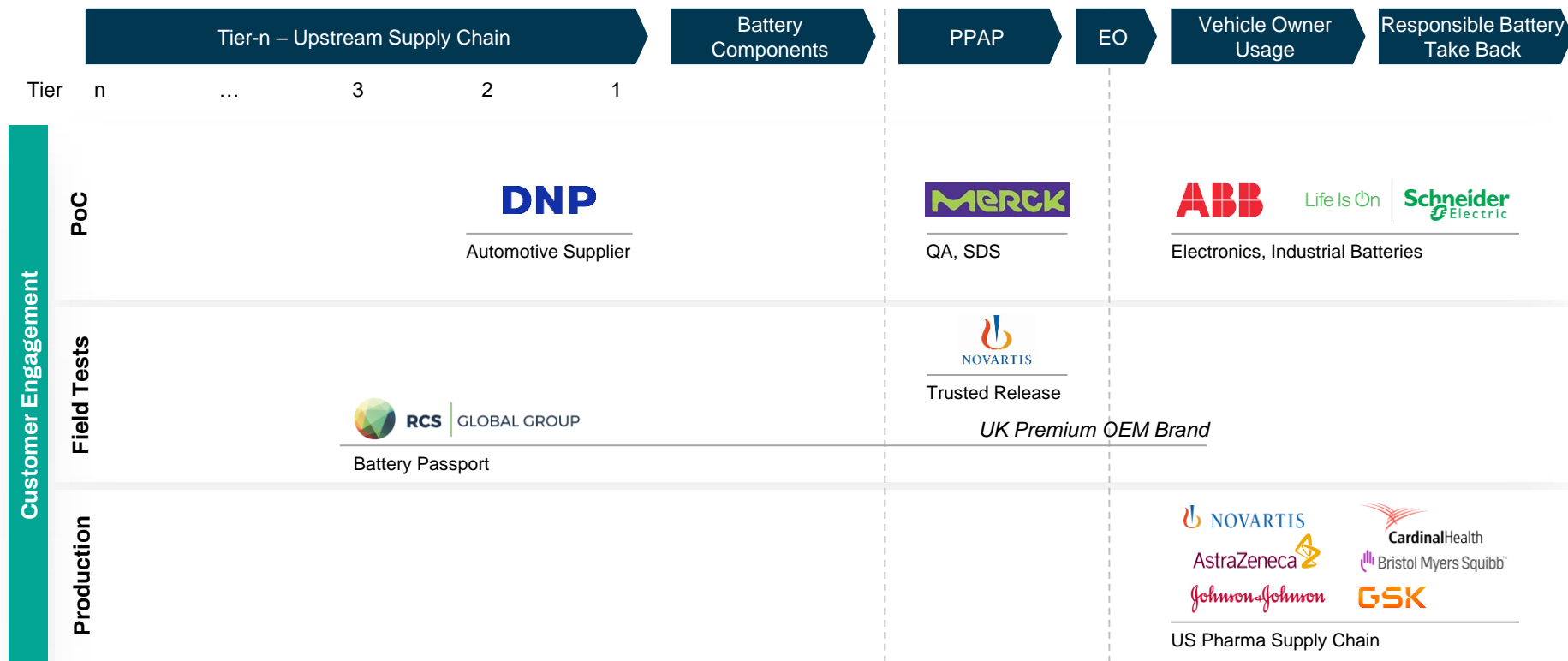


Source: Catena-X, Siemens Advanta



Spherity's Customer Project Expertise

DPP Examples from in Regulated Industries





Enhancing Engagement, Market Potential, Compliance, and Circular Integration

Unlocking Value with Digital Product Passports: Compliance & Beyond



**Next Level
Customer
Engagement**



**New Market
Potential**



**Compliance &
Documentation
Requirements**



**Circular Process
Integration**



We move it ecosystem: Collaborative Research and Development Initiatives

Driving Digital Innovation in Mobility, Transport and Special Machinery

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DFKI Kaiserslautern

- Digitaler Zwilling für alle Prozessschritte der Batteriefertigung
- Fahrerverhaltensmodell für vernetzte, autonome Fahrzeuge
- Schaffung eines digitalen Zwillings für die Fahrzeugindustrie
- KI-basiertes Resilienzmanagement in der Produktion

TU Kaiserslautern

- Elektromobilität im Kontext von Netzstabilität
- Synthetische Kraftstoffe („E-Fuels“)

Hochschule Koblenz


- Kompetenzzentrum digitale Technologien Mittelstand

Hochschule Trier

- Cyberphysisches Roboterframework für die Industrie
- Kreislauffähigkeit des Elektro-Antriebsstrangs durch intelligente Demontage

Fraunhofer ITWM

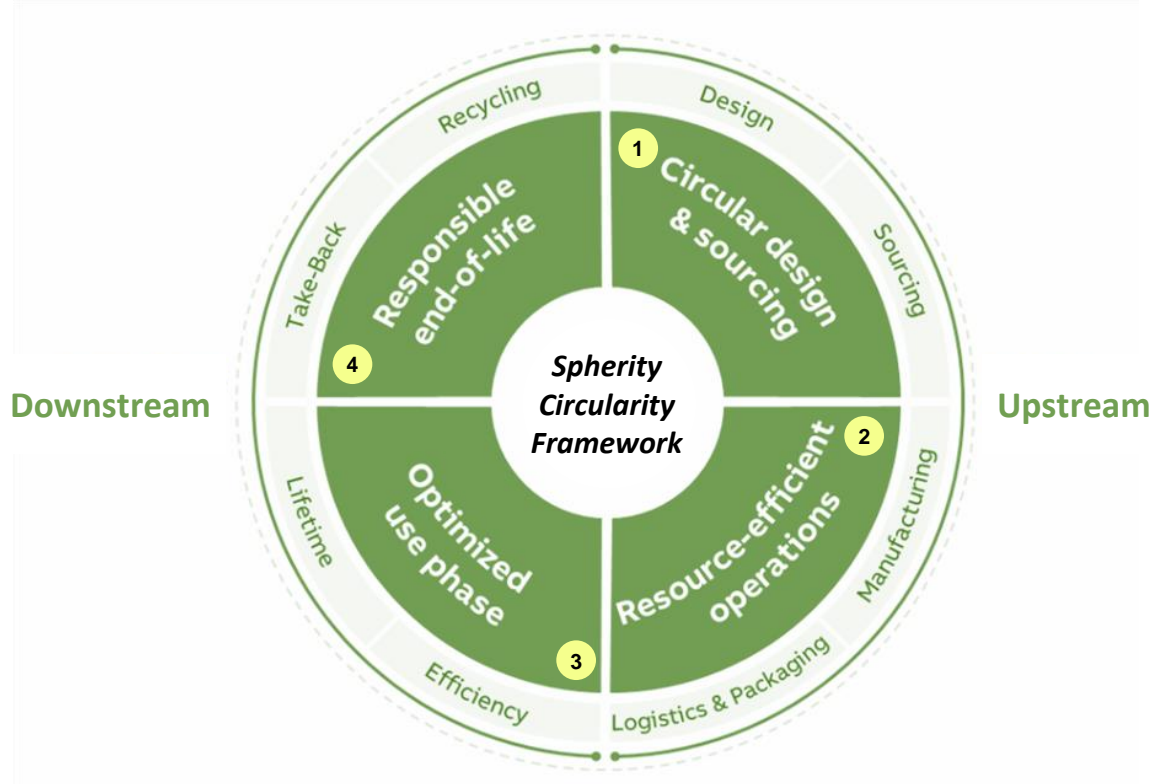
- Vorhersage der Lebensdauer von Lithium-Ionen-Batterien
- KI zur Nutzung von Mobilitätsdaten
- Datenräume zur Abbildung der Historie von Werkstoffen

- 
- Digital Enterprise Identity
 - Digital Product Passports
 - Digital Twins
 - IT Security, Access Control
 - CPS Data Provenance



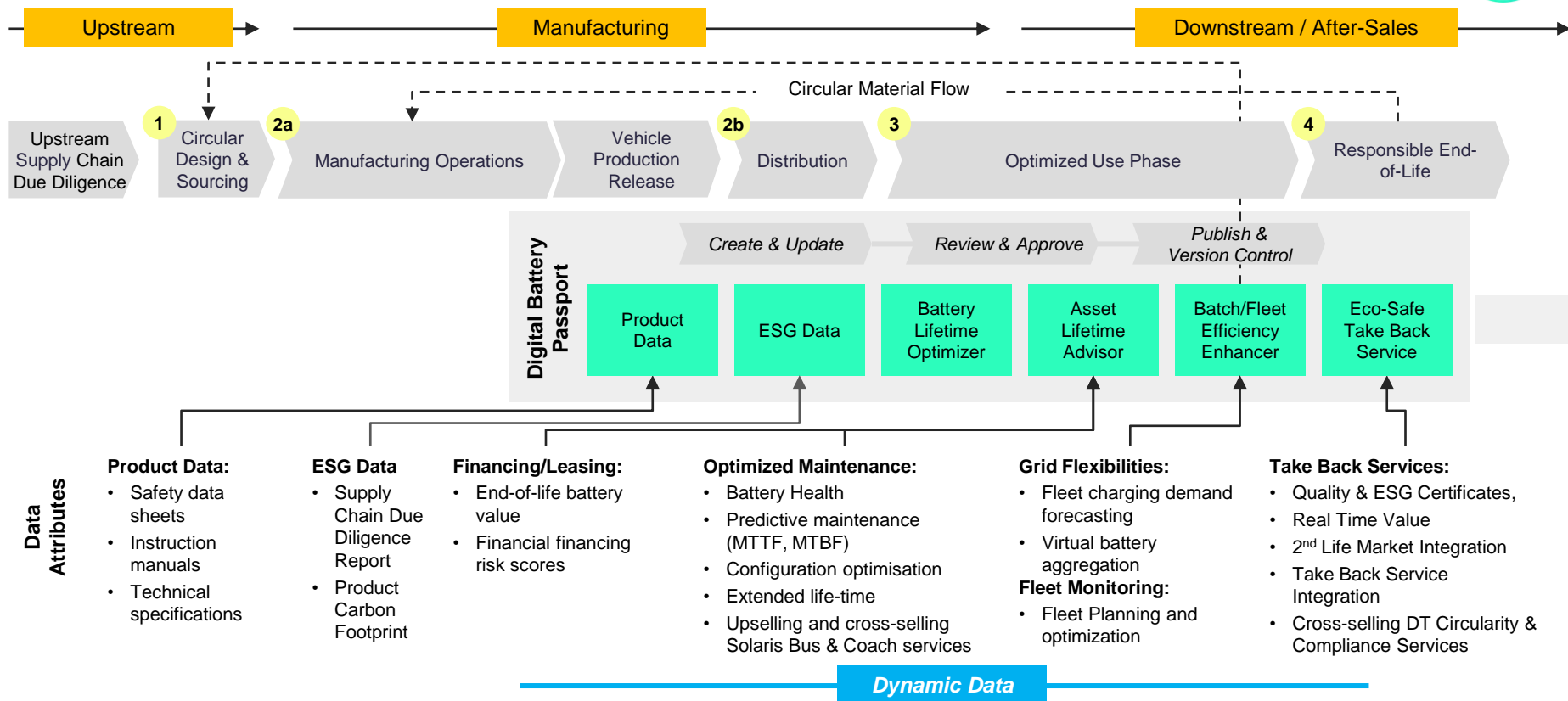
Spherity Circularity Framework

Industrial Products with Circular Economy Initiatives





Identifying DBP Data Modules Using an OEM's Circularity Framework





Secure, Transparent, and Circular DPPs

Explore Our Digital Product Passports with QR Codes

**Volvo L25
Electric
Excavator**



Test QR Code,
subject to change



**Schneider
Electric
Galaxy USP**





Spherity's VERA Product Suite: Our Extensible 'DPP Management System'

Easy Creation and Publishing of DPPs on the Web with Seamless Integration into SSI-based Trust Ecosystems and Data Spaces



Create &
Publish DPPs,
Rapid Prototyping,
Full Production,
GPT-inside

VERA Studio



Product Landing
Page with Value-
Added Services

Verifiable Digital
Product Passports
(vDPPs), Trust
Framework,
EUDI Wallet ready

VERA-SSI

VERA-X



Data Spaces,
IDTA, Catena-X,
Manufacturing-X



VERA-SSI: From Basic to Full Formal Trust Models


Trust Model Continuum for Verifiable Digital Product Passports (vDPPs)



Basic Out-of-the-Box Trust Model

- Naïve trust model, Ideal for initial field testing
- Utilizes standard APIs and hard-coded trust mechanisms
- Spherity as root of trust
- Easy setup with minimal customization

Ecosystem-Specific Trust Model

- Example:  **Catena-X**
Automotive Network
- Designed for domain-specific field testing and production
- Includes setting up an ecosystem-specific trust domain
- Provides documentation and training
- Allows authorized control over trust lists for onboarding & audits

Full Formal Trust Model

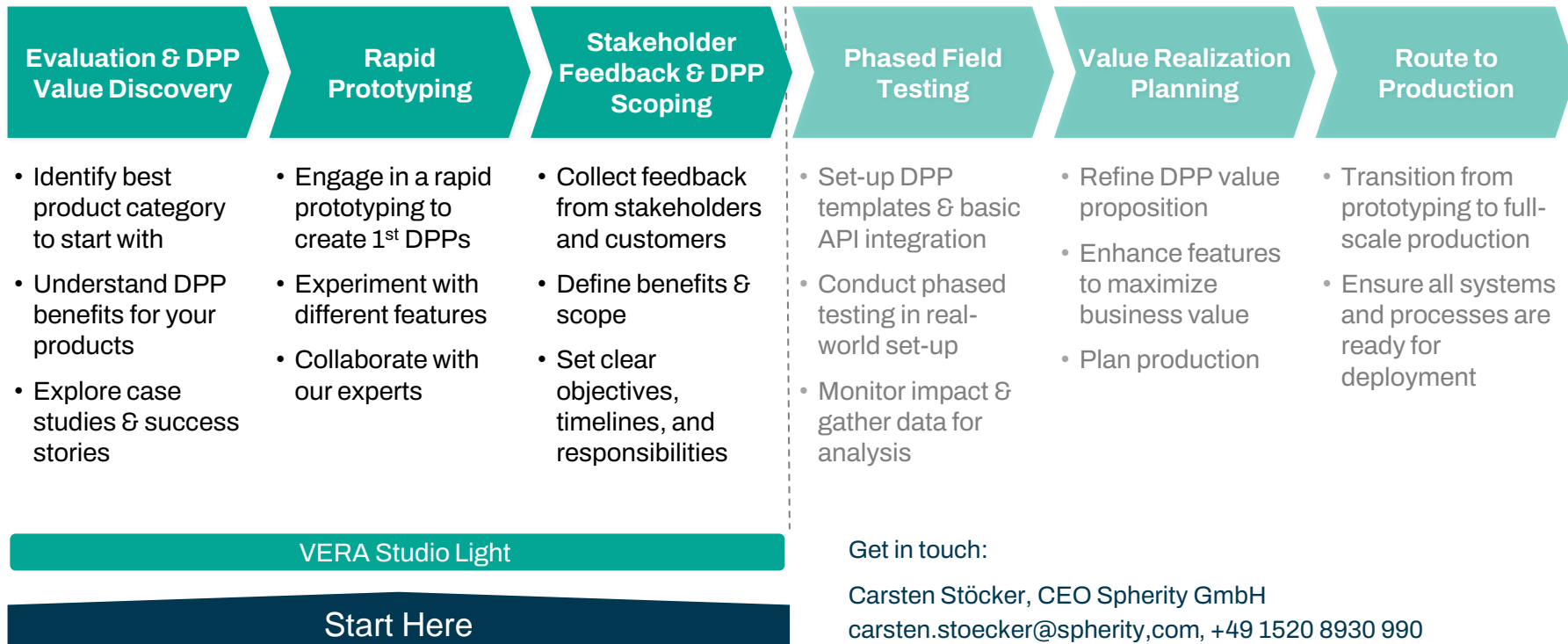
- Implemented for highly regulated environments like the US Pharma Supply Chain, Legal Compliance, or Critical Infrastructure
- Endorsed by regulatory authorities such as the BNetzA, BSI or, the FDA
- Involves comprehensive conformance governance and audit mechanisms

Trust Model Continuum

Where to Start?



Actionable Steps to Begin Your Digital Product Passport Journey



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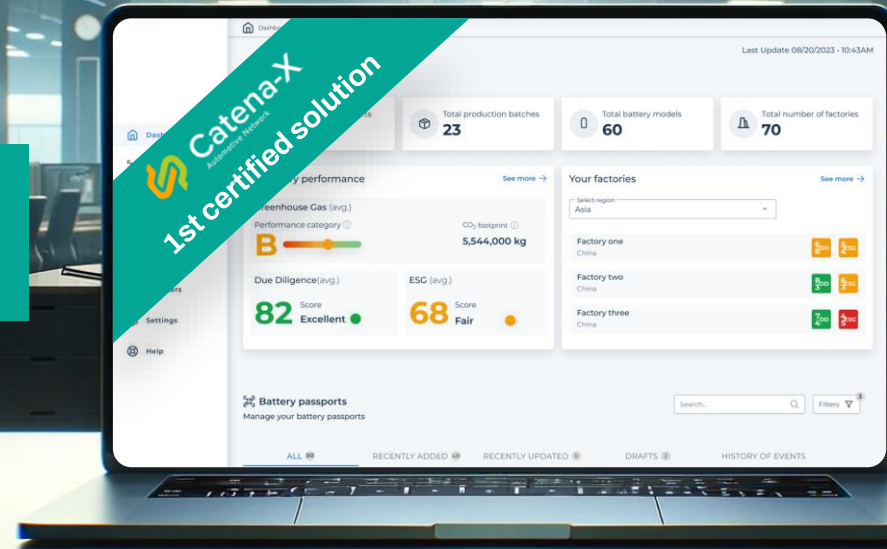


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knowledge platform

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Our Product

Certified Battery Passport Infrastructure



Automate using our APIs: Generate BPPs for thousands of products in seconds.



Leverage existing data sources: Link up traceability software, sustainability tools, and ERP systems



Ensure Catena-X compliance: We provide the first officially Catena-X certified battery passport solution on the market



Manage everything with ease: One admin interface to manage connections, data, access rights, and DBPs.



Certificate

The Conformity Assessment Body commissioned by the Catena-X Automotive Network e.V. certifies that the organization:

Spherity GmbH
Emil-Figge-Straße 80
44227 Dortmund

has demonstrated Conformity with the Catena-X Ecosystem for the following Roles and Use Cases:

Certified Provider: Business Application Provider

(Achievement level: full)

With the Certified Solution:

VERA

Proof was provided that the requirements of the Catena-X Certification Framework were met.

The following Standards were certified:

CX-0018 Eclipse Data Connector (EDC)	2.1.0	CX-0034 Data Model Battery Pass	1.0.1
CX-0096 Triangle for Digital Product Pass	1.0.0	CX-0103 Aspect Model Digital Product Pass	1.0.0