Battery Pass

thebatterypass.eu

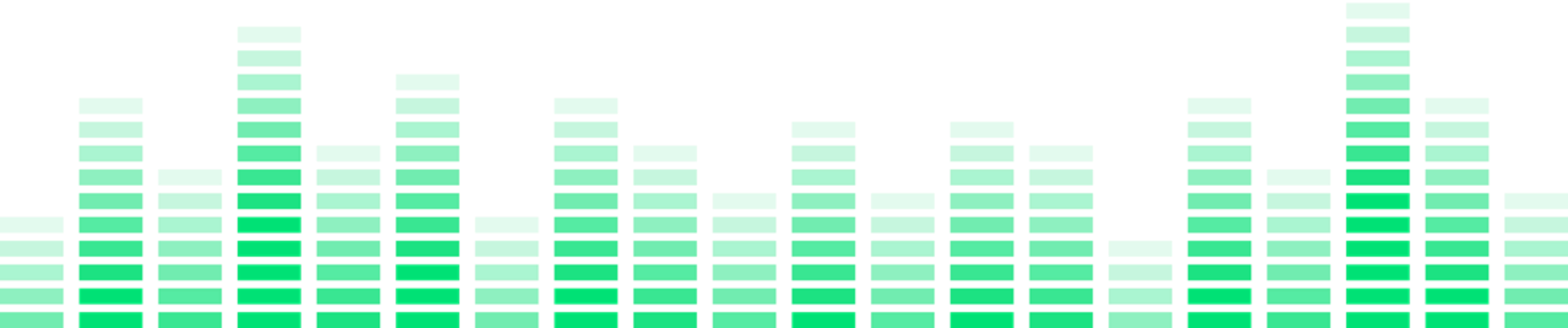
Closing Event

25 February 2025, Brussels

Supported by:
Federal Ministry for Economic Affairs and Climate Action
on the basis of a decision by the German Bundestag

From Concept to Blueprint:

Battery Passports as Enablers of Transparent, Competitive, and Circular Value Chains.



PRESENTATION

From Concept to Demonstration: The Technology Behind Battery Passports

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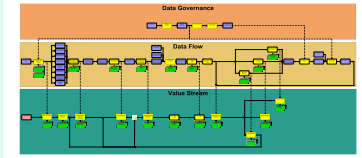
Battery Pass published a Technical Guidance, defining the technical backbone to operate the passport

Guiding principles

i **Interoperability is the biggest challenge**

ii **Interoperabilty is a capability on several levels**



iii **DPP-System needs to work for all with minimal entry barriers**

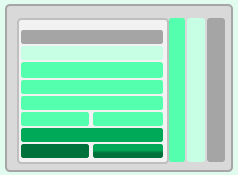
Technical Guidance

Objective

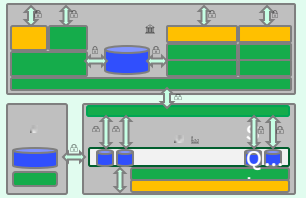
Provide an overview to economic operators on what the technical battery passport system could look like and which technical standards it should support

Published in March 2024

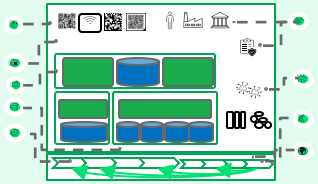
Technical Standard Stack



Architecture



Challenges and Recommendations



[1]Enterprise Interoperability Framework

A variety of interoperability challenges need to be solved

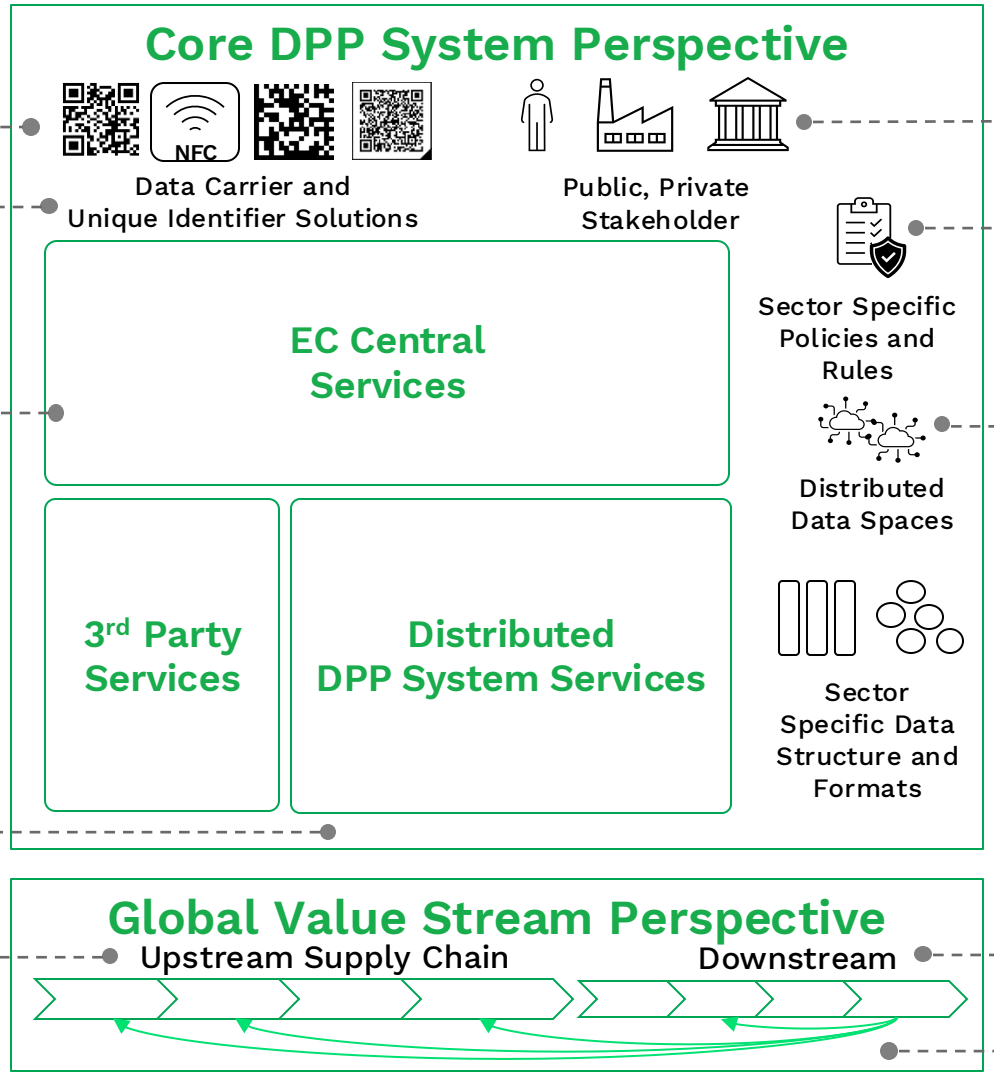
Application of different Data Carriers

Allow different principles of Unique Identifiers

Routing to different distributed DPP Systems

Application of different data management technologies

Secure and reliable supply chain data acquisition and exchange



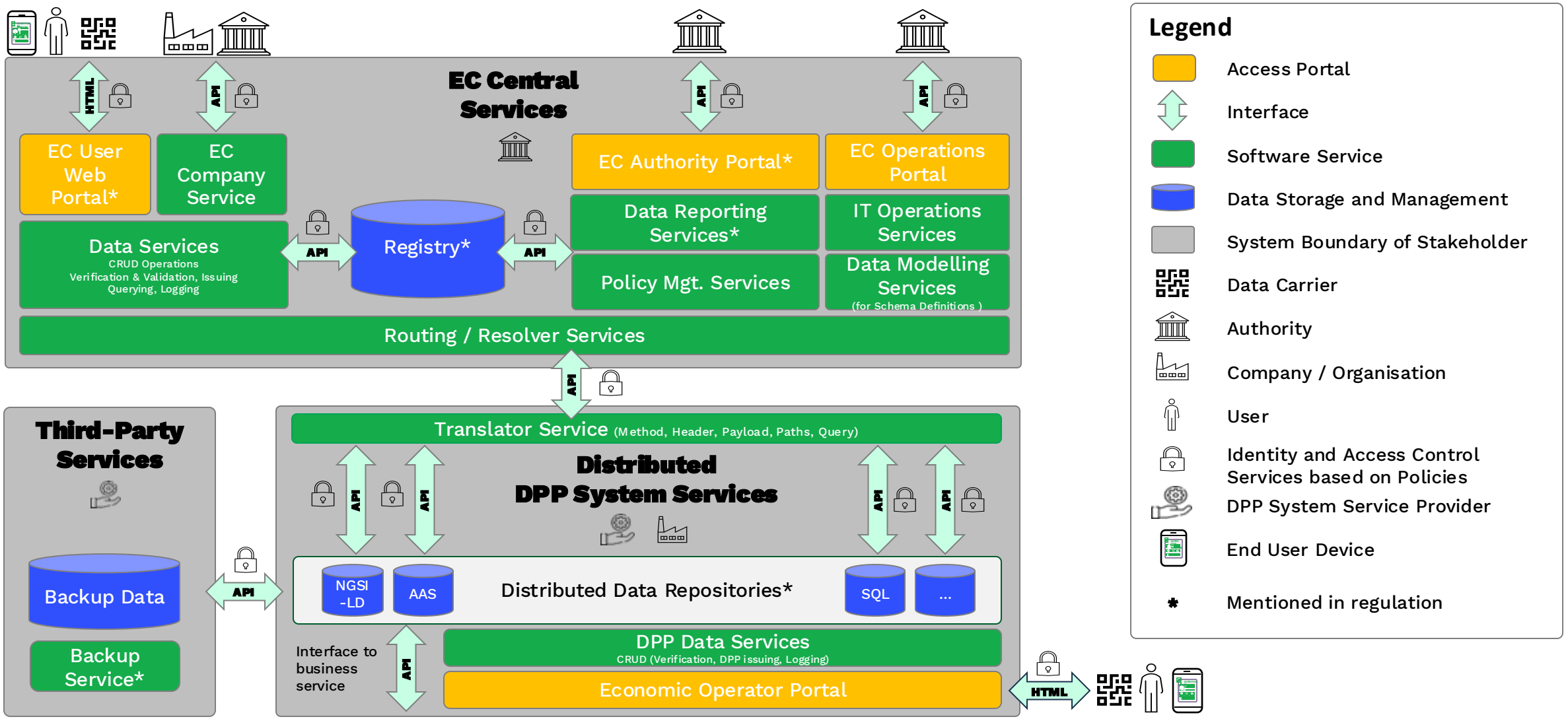
Seamless and secure provision of access to different stakeholder groups with sector specific policies and rules

Cross-domain interoperability across different data spaces

Realise connectivity to products for dynamic data acquisition in use and r-phases

How to align with global DPP initiatives (sector, country)

Additional building blocks beyond regulation are needed



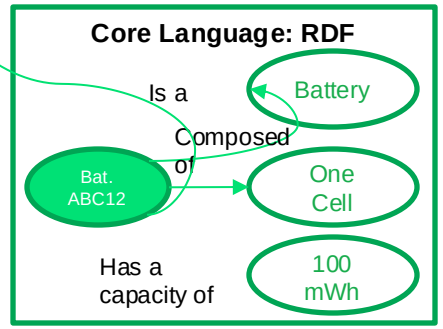
A semantic battery passport data model enables interoperability

WP 2: Content Guidance

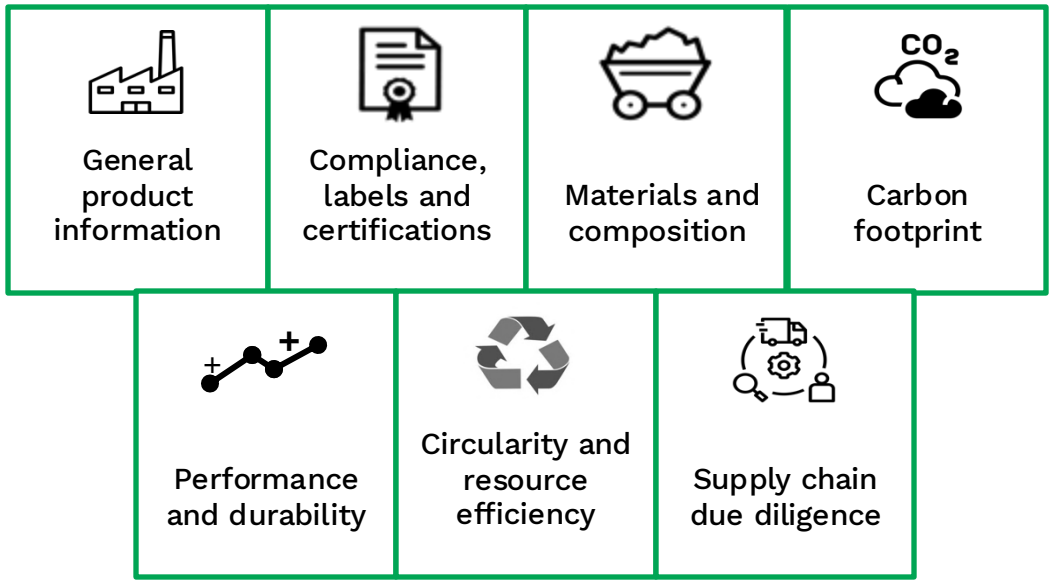
Battery pass data model

- Co-existing data model standards
- Aligned with Catena-X Your Automotive Network
- Generic design to be used for other product sectors

Standardised common meta model based on RDF, defining core data model elements (e.g., entities, properties, data types, physical units, etc.)



Product-agnostic semantic data models to compose the battery passport data model

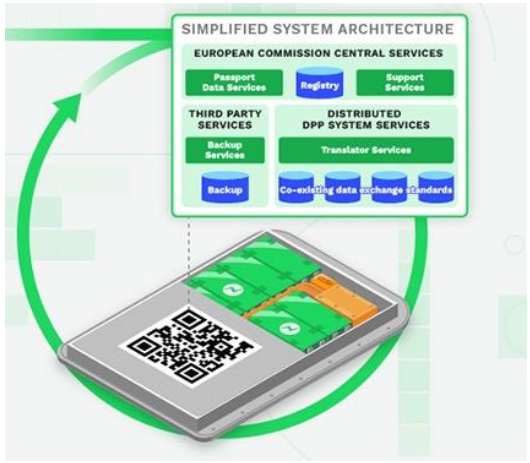


- Extensibility for individual data and updated legislative requirements
- Available in many different formats:

RDF ttl | JSON-LD Context | Payload JSON | Schema JSON | OpenAPI Spec | AAS XML | Java Classes | FIWARE NGSI LD | Catena-X Your Automotive Network

A minimum viable battery passport eco-system proofs feasibility

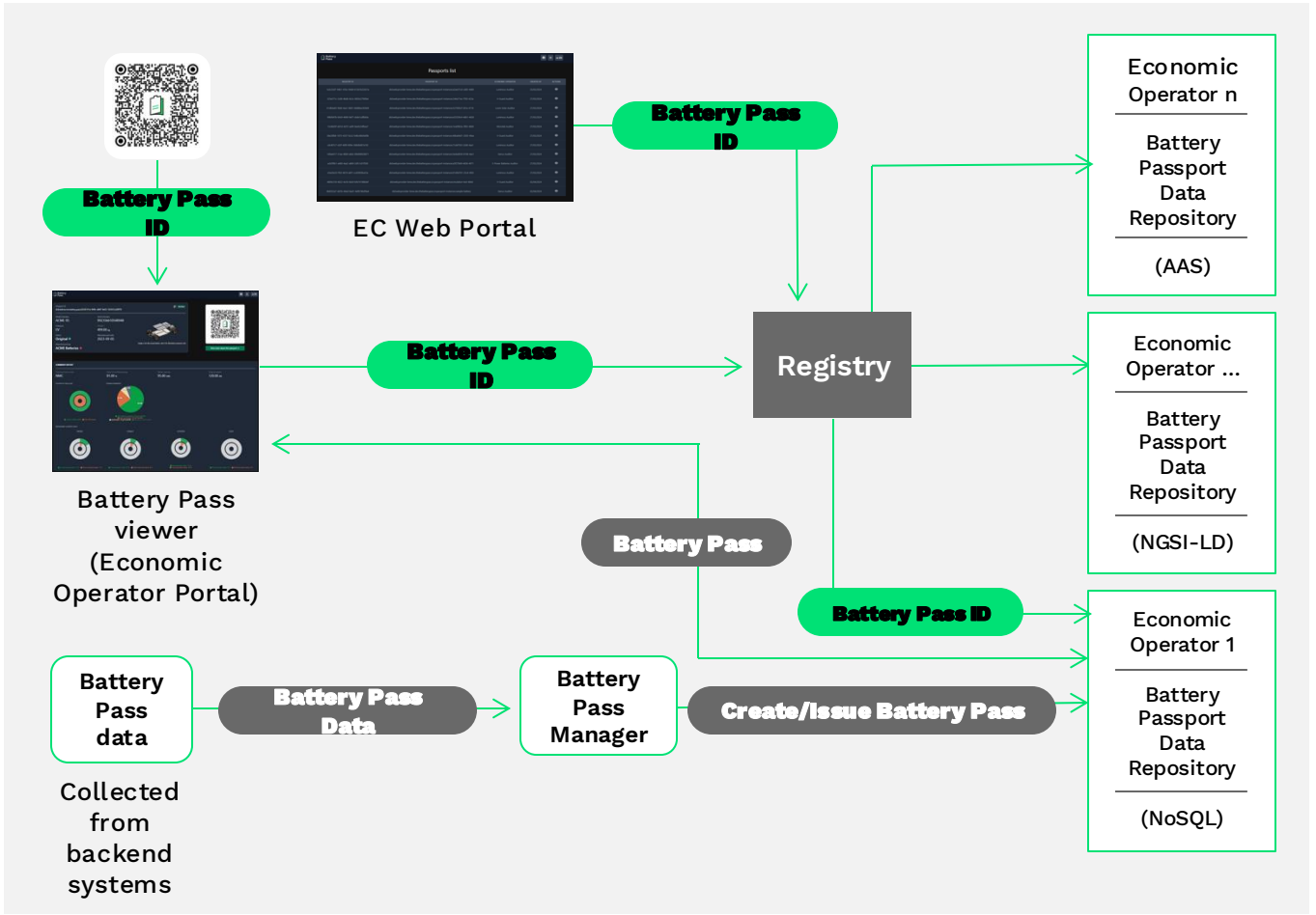
WP 3: Technical Guidance



Demonstrator shows application of:

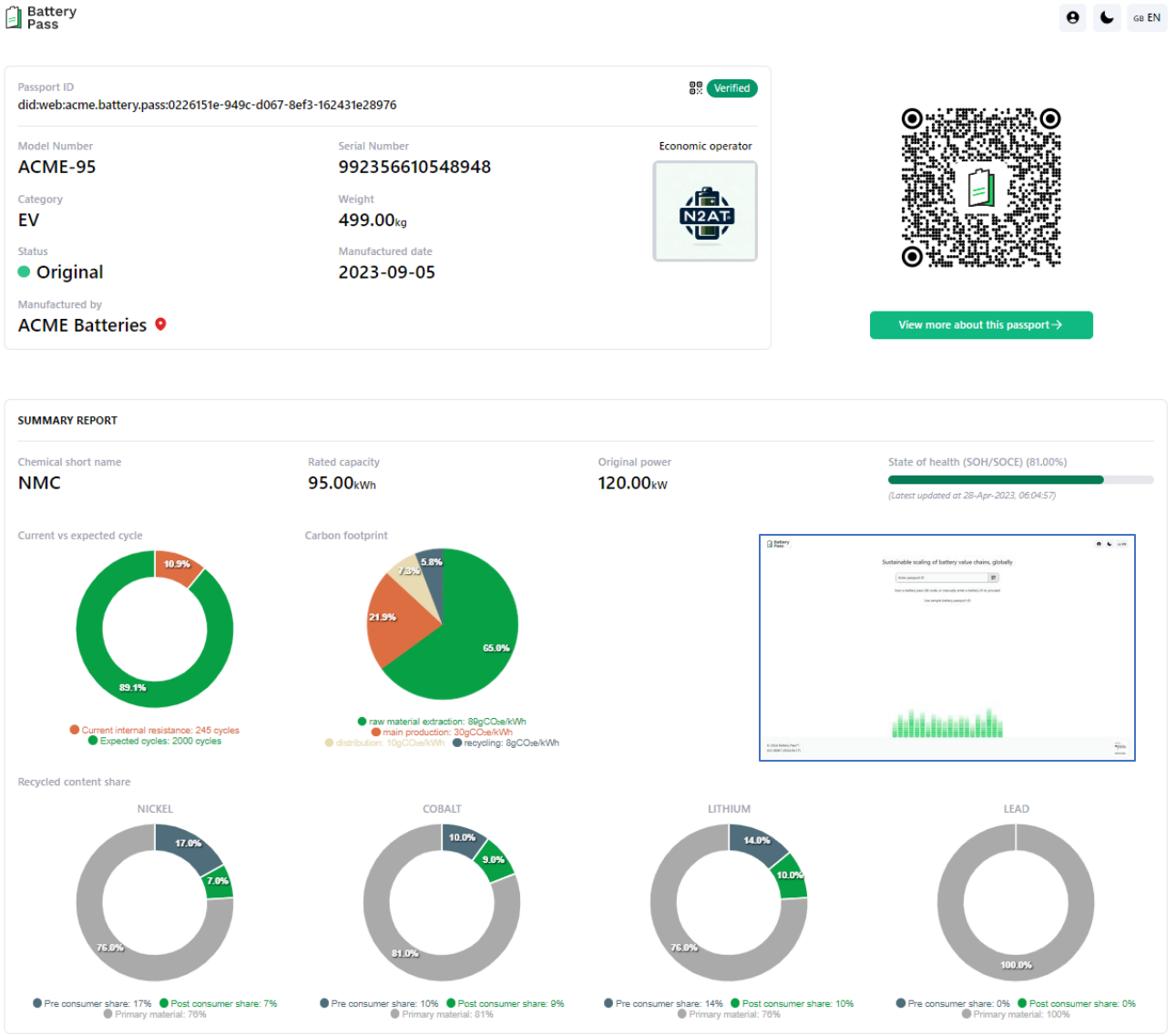
- Verification of ESPR DPP system architecture
- Data protection due to identity and access management
- Data verification and validation
- Dynamic data update
- Unified Application Programming Interface

WP4: Battery Pass Demonstrator



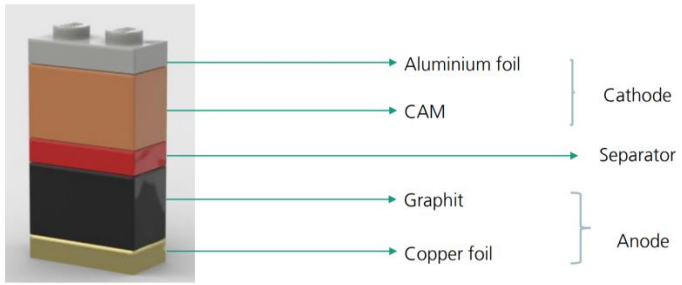
The Battery Pass Viewer to access DPP Data

- Navigate through the battery passport
- Mobile device support
- Multi-lingual
- Direct access via QR-Code of battery passport ID:

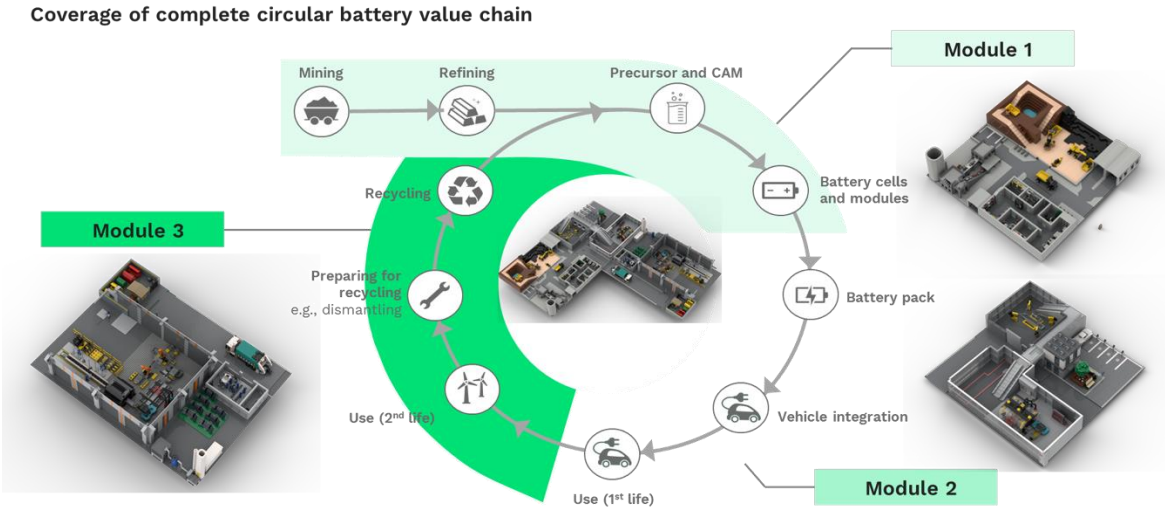


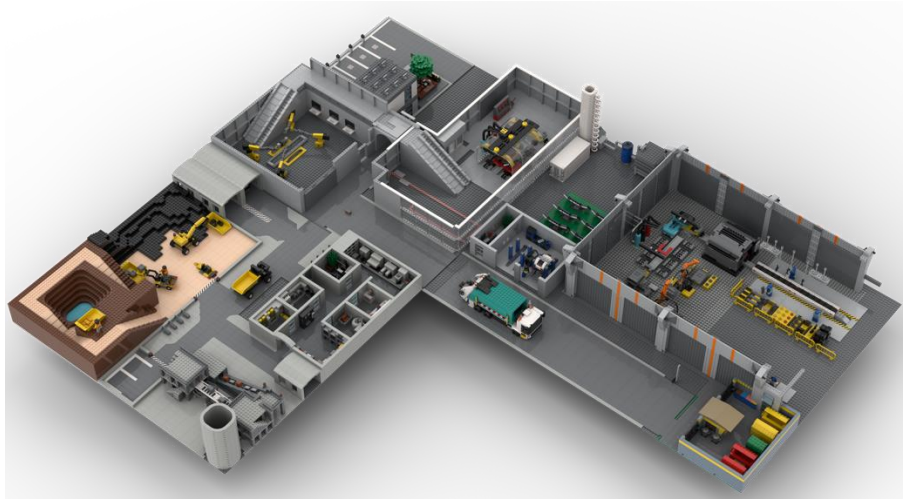
Grasping Battery Pass Principles through Lego®

- Serious gaming approach
- Tangible view on the abstract concept of the battery pass even for non-experts
- Understanding of the intended circular value chain and its data connection to the battery pass
- Battery Cell represented with Lego™ bricks:



- Follow the battery material through the circular battery value chain





Interested in further details? Find the full results here!

Scan for additional **Battery Pass resources** on the:

- **Battery Passport Content Guidance and DIN DKE SPEC 99100**
- **Battery Passport Technical Guidance**
- **Battery Passport Value Assessment**
- **and Software Demonstrator**