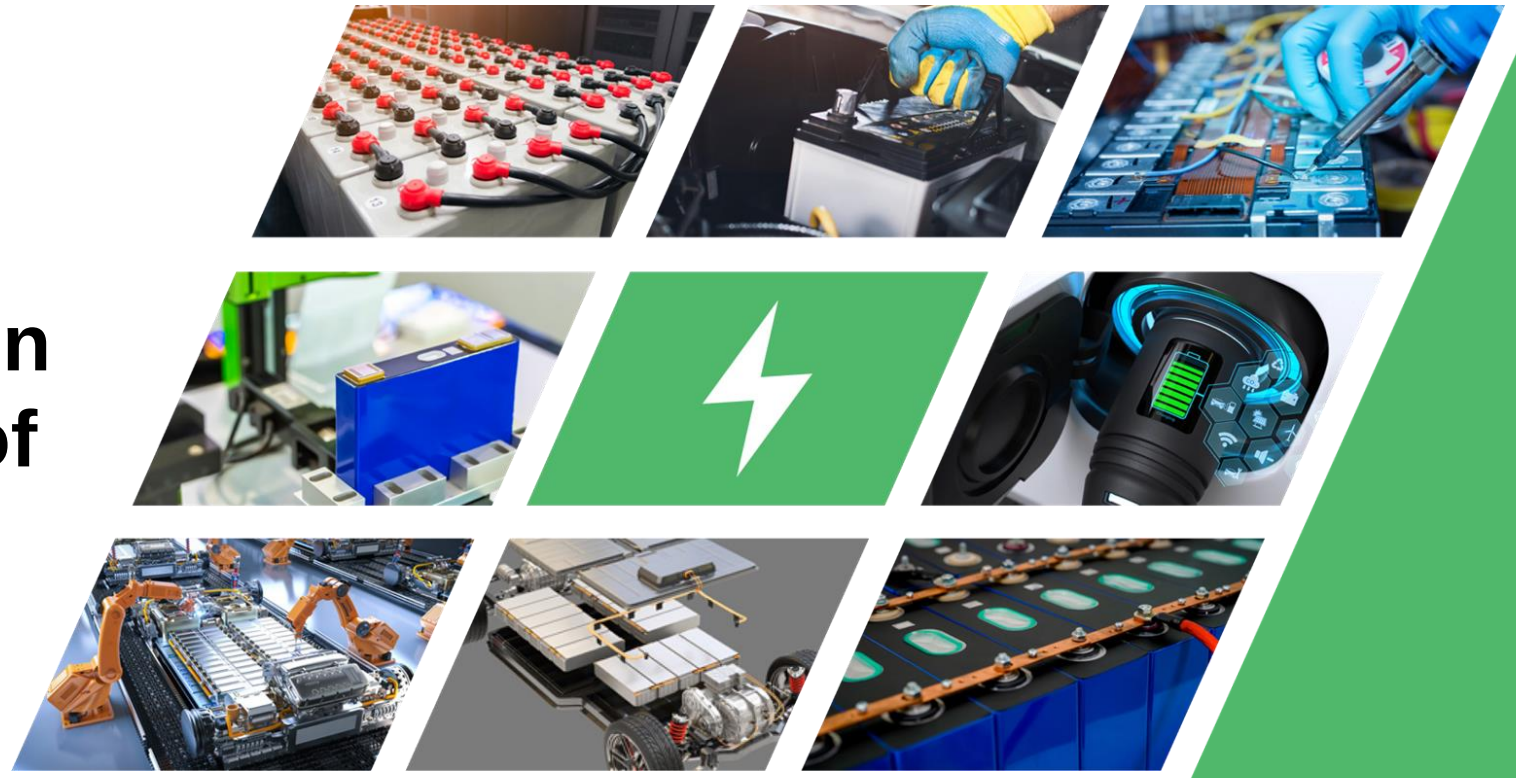
BA⚡E

Battery Passport for
Transparency and Circularity

Battery Passport for Resilient Supply Chain and Implementation of Circular Economy



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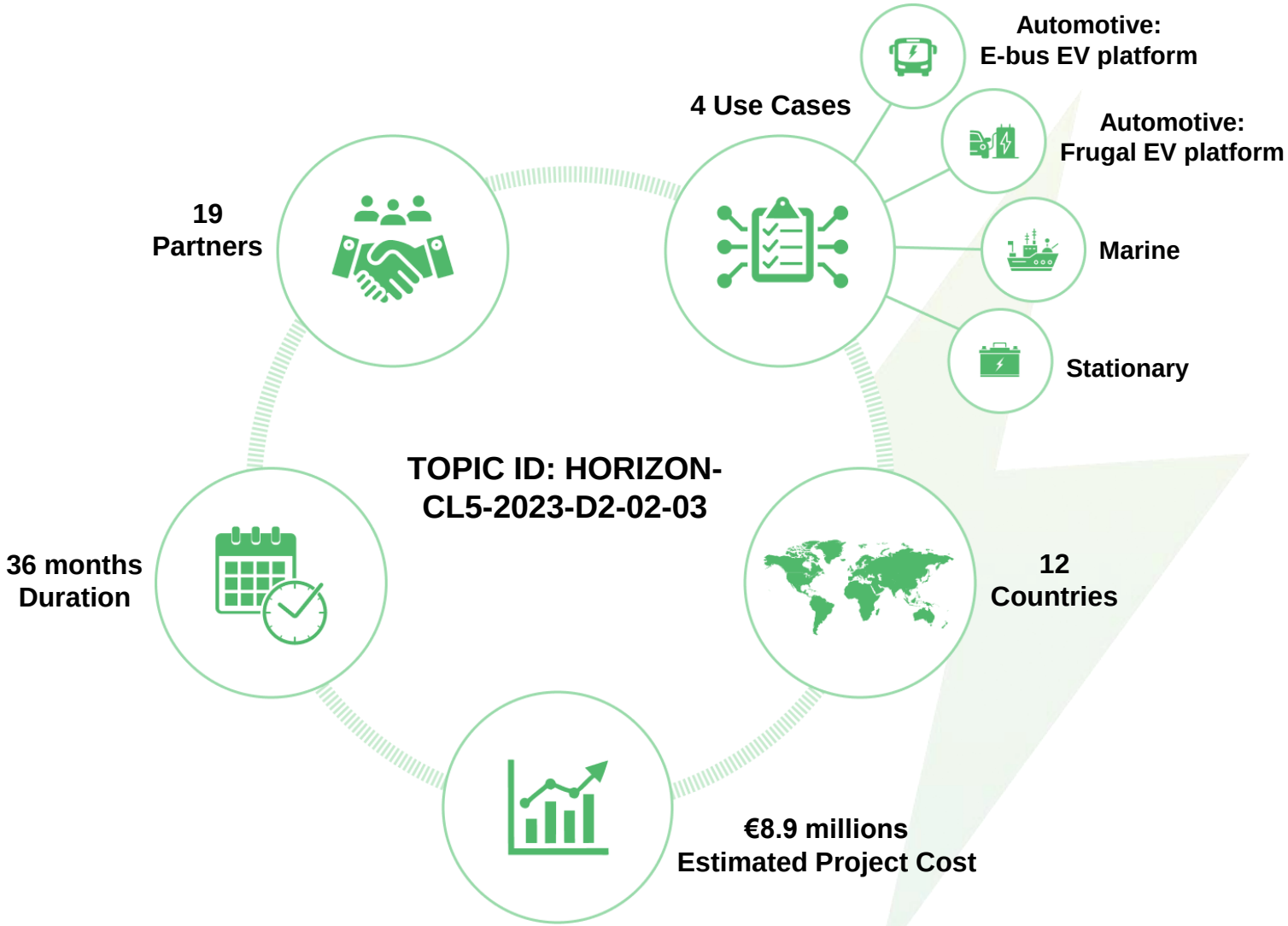
Project Information



Consortium Partners

- Fraunhofer
- TECHNOVATIVE SOLUTIONS
- cleantron cleantech batteries
- Seraph.
- ARTECH International BVBA
- FORD OTOSAN
- Corvus Energy
- Mercedes-Benz
- adscensus
- NAVTEK NAVAL TECHNOLOGIES INC.
- EXITCOM recycling for future
- ELECTRIFYINGFUTURE BePlanet factory
- SQM Solutions for human progress
- GENEVA GRADUATE INSTITUTE
- ROK METALS
- aspilsan Teknolojinin Enerjisi
- UNIVERSITY OF SURREY
- european eLi Lithium Institute
- Parakeet BV

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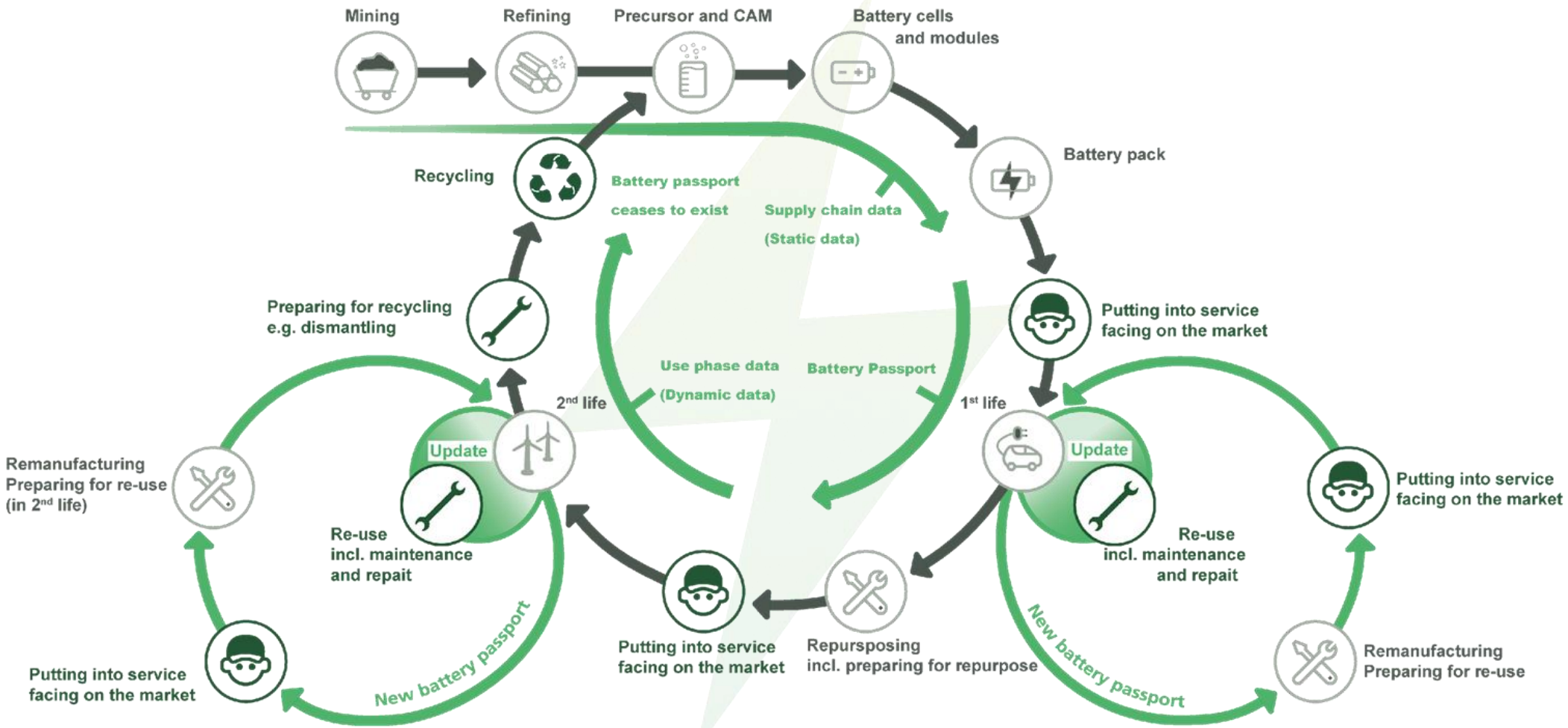
Project Goal

Develop, validate, and implement a working Digital Battery Passport (DBP) service, as mandated by the “EU Regulation”.

Implications of Digital Battery Passport in Battery Lifecycle



Adopted from Battery Pass (2023)

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Challenges

Lack of traceability and sustainability of supply chain

Lack of resiliency in the supply chain

Lack of circularity in the battery value chain

Objectives

- Develop a trusted, interoperable DBP framework and platform
- Ensure value chain track and traceability throughout the DBP lifecycle
- Employ advanced analytical and AI techniques to estimate battery performance and safety indicators
- Develop circularity indicators by accounting the 4R (Reduce, Repair, Reuse, and Recycle) aspects
- Develop harmonised Environmental, Social, Governance, and Economic (ESGE) indicator
- Develop a business model to promote circular economy in the battery value chain exploiting DBP
- Demonstrate and validate the DBP concept

Impacts

- Development and implementation of DBP through Distributed Ledger Technology (DLT)
- Develop transparent calculation methods for battery indicators
- Encourage new business models in different parts of battery value chains and circular data extraction
- Improvement of battery transportation and workforce safety
- Tested solution throughout the entire battery value chain
- Promote sustainability and circularity through the adoption of 4R strategies
- Contribution to the boost of the use of recycled and reusable materials
- Increase the competitiveness of the European battery industry across the value chain
- Reduce strategic dependencies for Critical Raw Materials (CRM) by promoting resource efficiency

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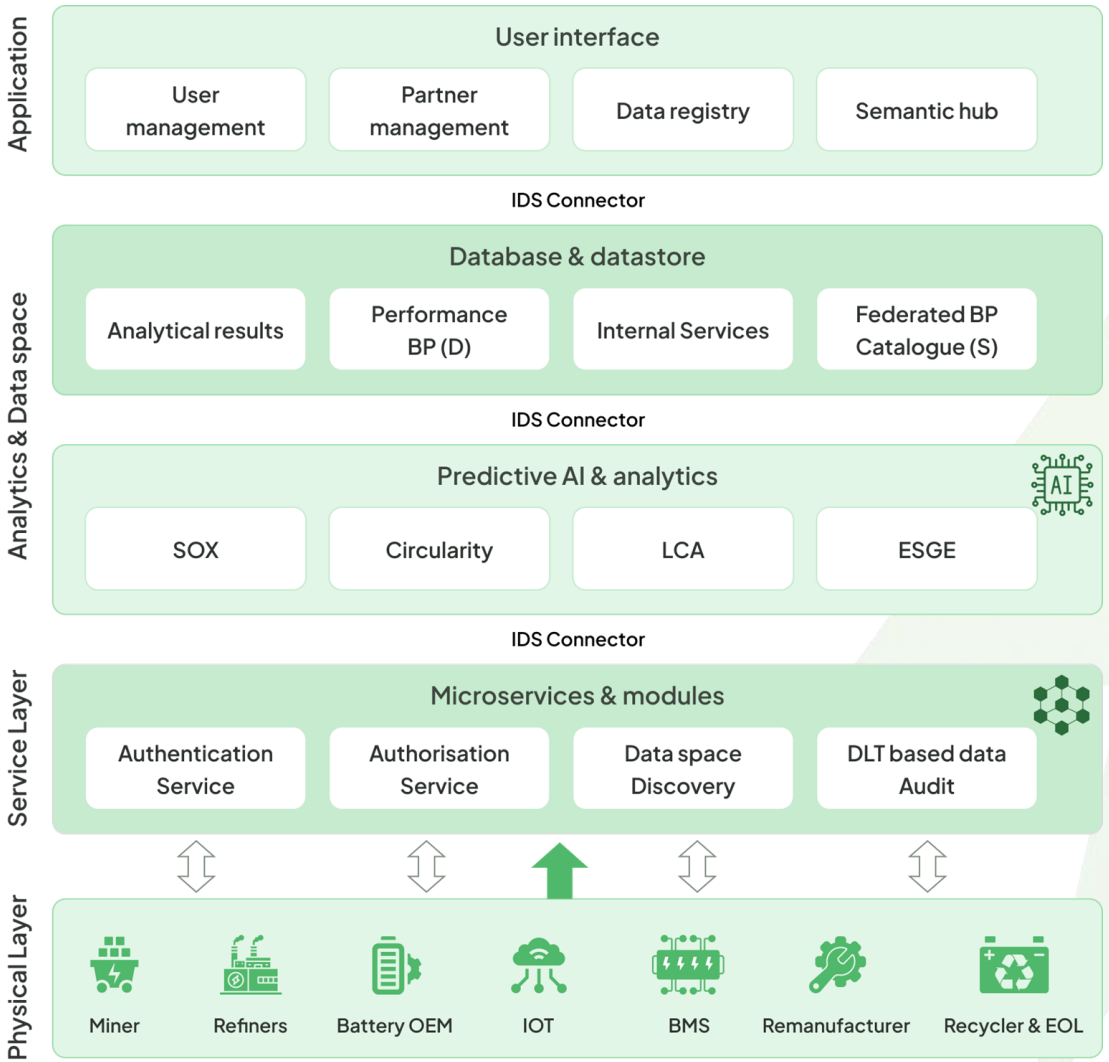
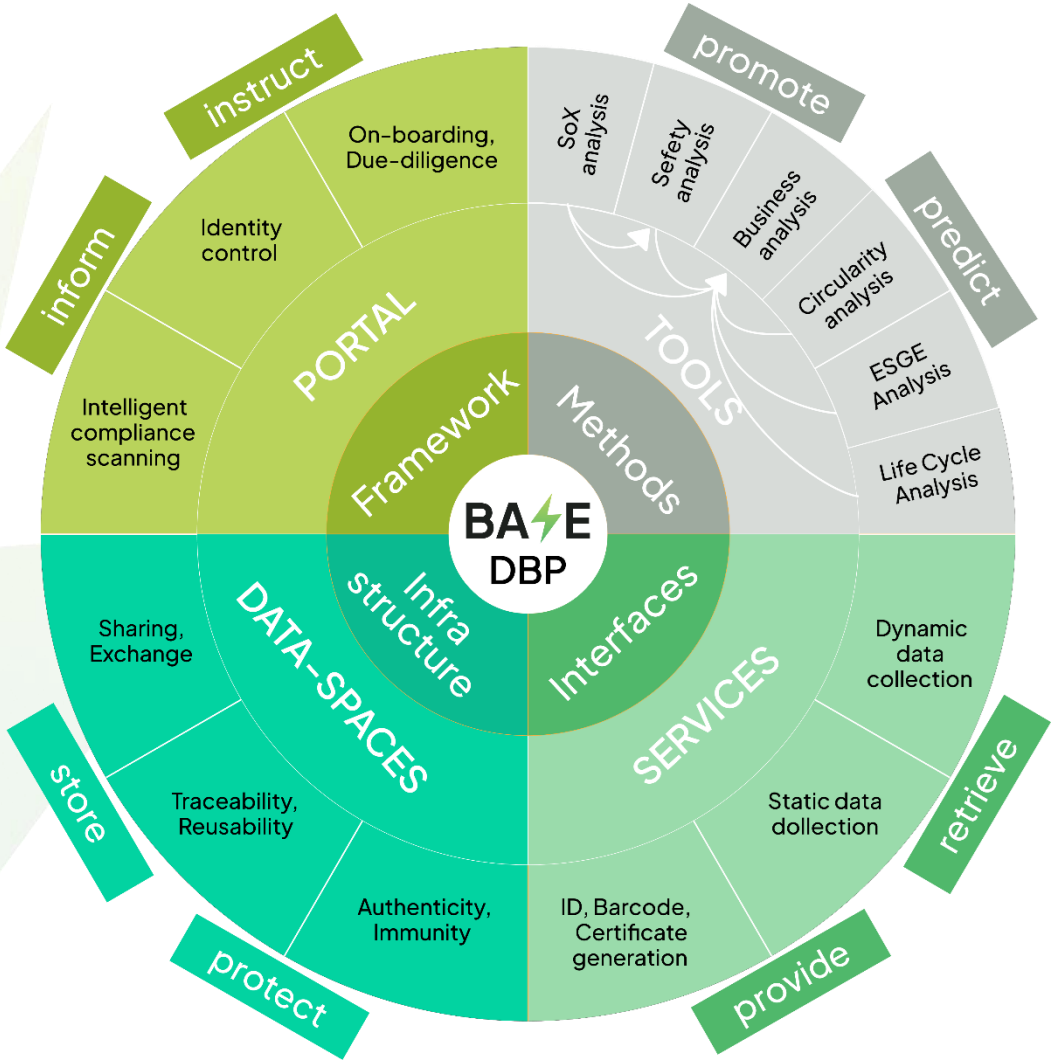
Concept & Architecture





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BASE Use Cases and Demonstration Methodology

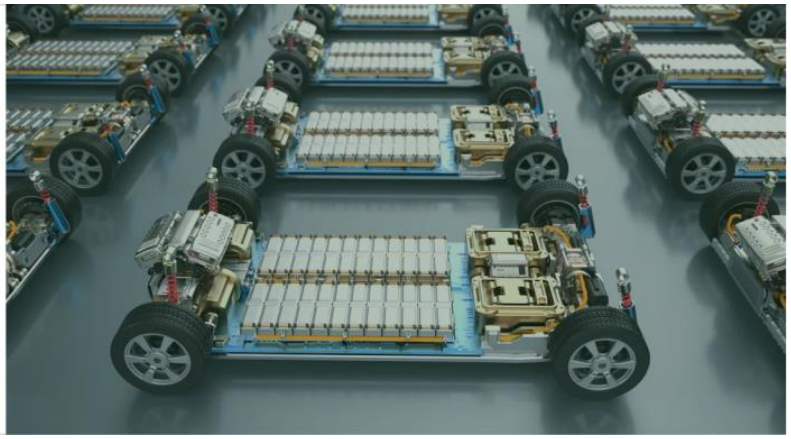
General Objectives for each Pilot

- Secure and reliable access to federated DBP infrastructure
- Systematic immutable data inputs to DBP
- Transparency, accuracy, and reliability of battery indicators
- DBP data provisions with a realistic product development lifecycle
- Interoperable data sharing among value network members
- Real physical data for circularity index tuning, ESGE analysis and business impact analysis

Use-Case-1

Automotive: E-bus EV platform production pilot for MARCEDES-BENZ

Use-Case-2



Automotive: frugal EV platform production pilot for FORD Motors

Use-Case-3

Marine: electric tugboat production pilot

Use-Case-4

Stationary: 2nd-life electric energy storage production pilot

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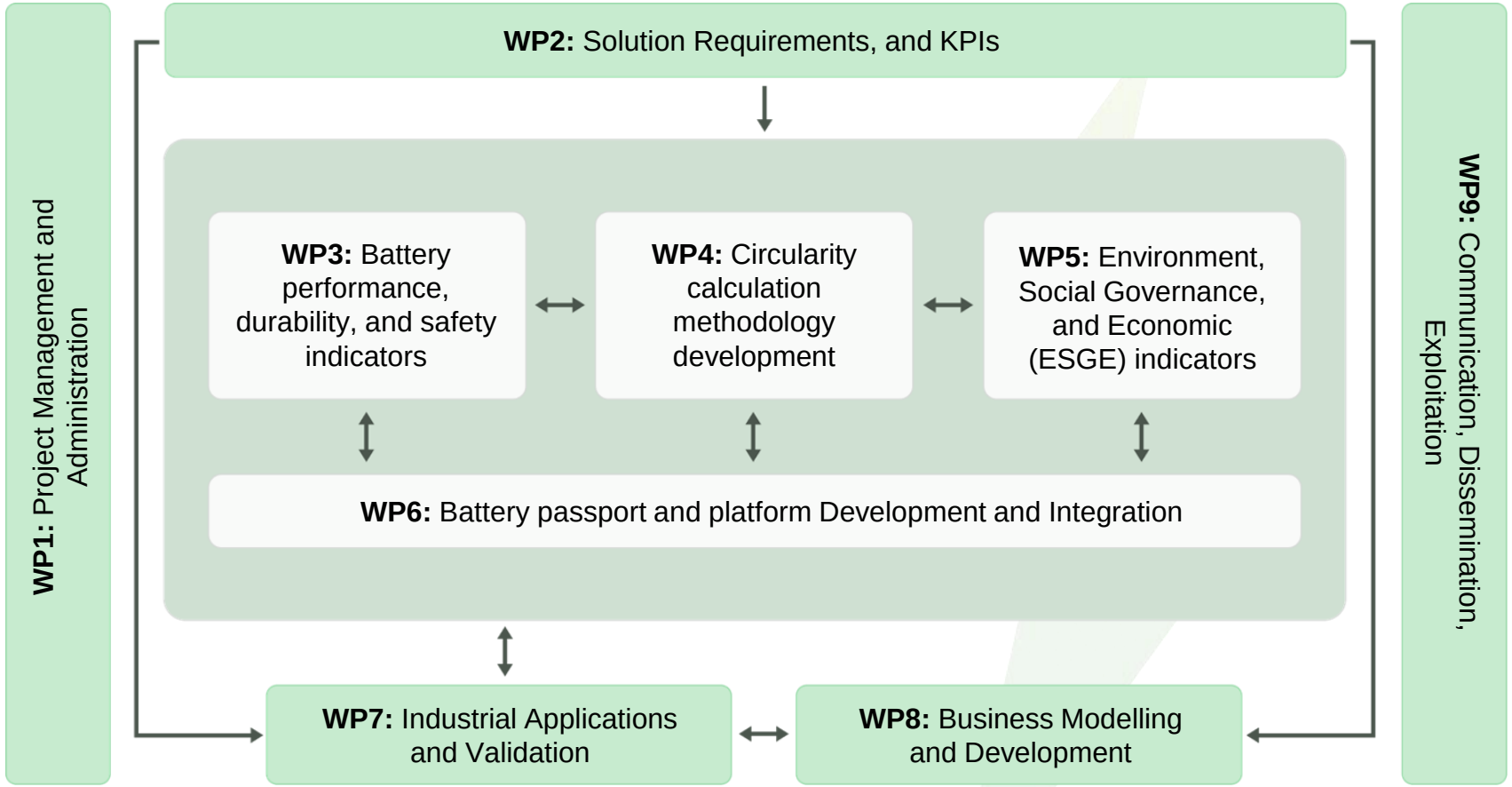
Work Packages



Work Package Leaders

WP1: Fraunhofer IEG

WP2: Technovative Solutions Limited

WP3: Fraunhofer ISE

WP4: Parakeet

WP5: The Geneva Graduate Institute

WP6: Technovative Solutions Limited

WP7: Adscensus

WP8: Artech International

WP9: Fraunhofer IEG

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