



NETWORK OF RESEARCH PILOT LINES FOR LITHIUM BATTERY CELLS

LiPLANET webinar 1st July, 2021

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LiPLANET Expert Groups

Konrad Bendzuck, Technische
Universität Braunschweig

The LiPLANET Network hosts a number of **Expert Groups** for topic specific work

Purpose of the LiPLANET Expert Groups

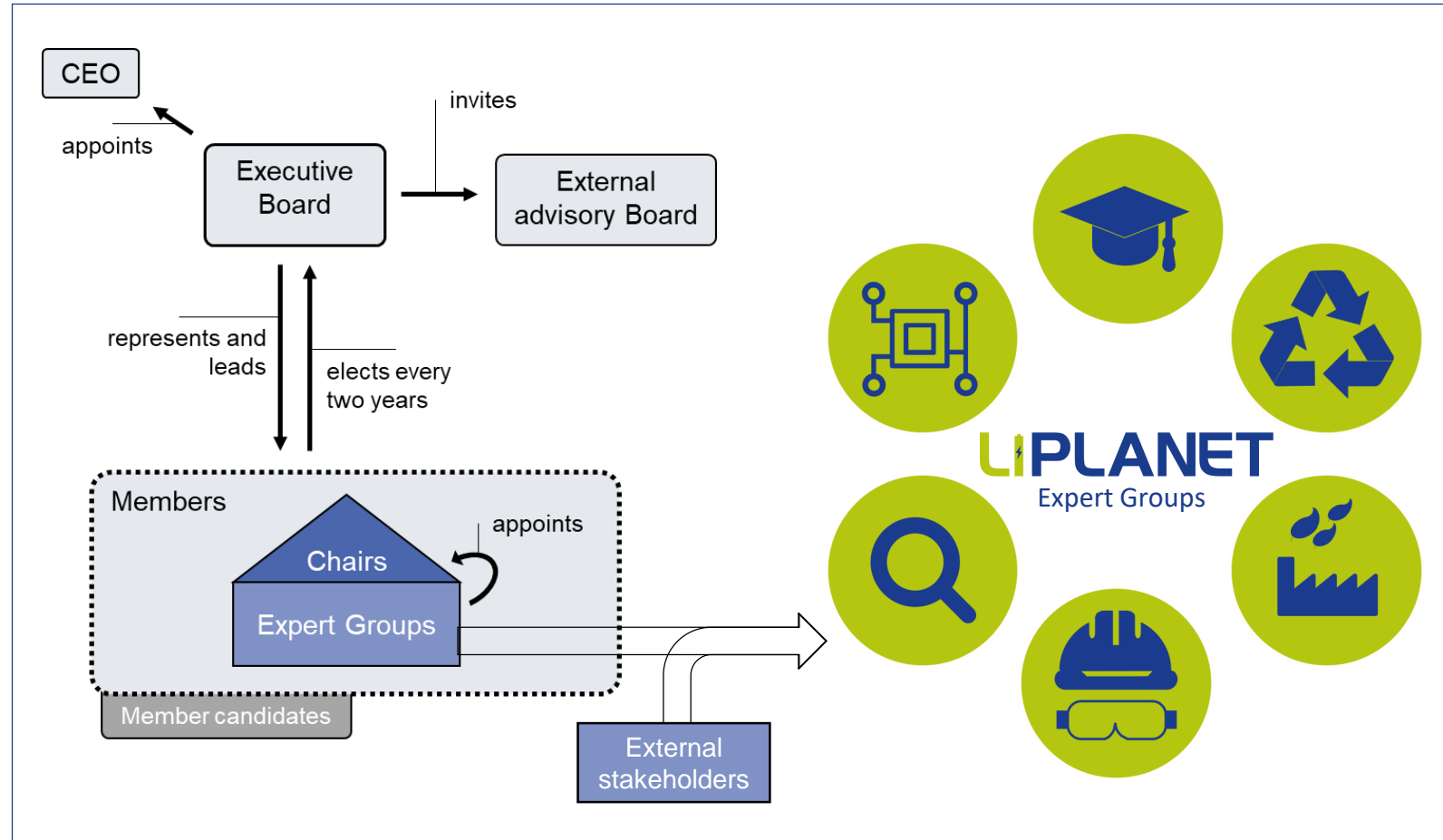
- The **LiPLANET Expert Groups** are the main discussion platform within the **LiPLANET Network**
- The **LiPLANET Network** hosts a total of six Expert Groups which started in April 2021
- The **Expert Groups** will foster, concentrate and structure the exchange between the Networks members regarding relevant issues
- The **Expert Groups** will develop standards/operation procedures for safe operation of pilot lines, reproducible characterization of electrodes and cells
- The Groups will work on short- and long-term goals that benefit the Group members and the whole European battery community
- The Expert Groups will be the go-to point for outside stakeholders with specialised requests



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Structure of the Expert Groups

- Each group is hosted by a chair who will steer the group in suitable directions
- The chair stays in close contact with the other chairs and the Executive Board
 - Regular meetings of the **Expert Group Chairs** and the **Executive Board** are foreseen
- Each group holds a monthly meeting for an hour



The LiPLANET Network structure with the different Expert Groups

LiPLANET Expert Groups with their Chairs and topics



Materials Processing and Safety



Dr. Alice Hoffmann
ZSW

- Processing of materials (process steps from material mixing to electrode coating)
- Development of new materials and process technologies
- Battery performance and safety
- National- and EU regulations on safety
- Exchange of data and knowledge



Production Technology and Sustainability



Dr. Ing. Felipe Cerdas
TU Braunschweig

- Production Technology (laser processes, flexible production processes, optimization, circular production)
- Production quality aspects
- Tracking and optimizing resource and energy efficiency
- Life Cycle Assessment, Life-cycle Costing



Digitalization, Measurement methods and Quality



Prof. Dr. Alejandro A. Franco
Université de Picardie
Jules Verne

- Modelling (physics-based, multiscale & multiphysics, cyberphysical)
- Machine Learning tools (AI, data mining, SOC & SOH prediction, big data)
- Standardization of APIs, data standardization
- Quality controlling (intermediate and end product)
- In-line measurement methods

LiPLANET Expert Groups with their Chairs and topics



Education & Training



Jan Verveckken
KIC InnoEnergy

- Development of workshops and educational materials
- Training of experts and pilot line operators
- Trans-disciplinary teaching programs



Cell Design & Recyclability



Rajapandian Rajagopal
Avesta Battery & Energy Engineering (ABEE)

- Cell Design, Cell format, Cell chemistries, Casings
- Design for Recycling strategies/ second life / upcycling
- Safety in Recycling
- Tracking of new legal requirements (e.g. new battery directive)
- End-of-Life strategies for battery cells and circular economy approaches



Scientific Exchange (Round Robin)



Roman Korzynietz
VDI/VDI-IT

- Knowledge and data transfer
- Benchmarking and identification of knowledge gaps
- Standards and protocols
- Technology trends (e.g. Post Lithium cells) and long-term challenges



Goals for this Expert Group

- Data manufacturing standardization, how to report data in publications to ensure reproducibility, how to standardize machine-related data
- Sensors and automatic quality characterization
 - Approaches to automatize the quality characterization of produced electrodes and cells
- Have a common pool of manufacturing data
 - For advanced machine learning efforts or assessments
- Interoperable digital tools for manufacturing data assessments
 - Have an open online app-store for manufacturing tools
 - Ensure compatibility between the tools



"The Expert Groups will bring together Battery Pilot Lines and Experts from complementary disciplines. Transdisciplinarity is the key to strengthen the whole European battery landscape"

Prof. Dr. Alejandro A. Franco

Université de Picardie Jules Verne, Chair of the LiPLANET Expert Group "Digitalization, Measurement Methods & Quality"

Realization in the EG

Division of the Group in three "sub-groups"

1. Data specs & quality characterization
2. Computational tools (app-store implementation)
3. Roadmap for implementation
4. Standards for characterization methods