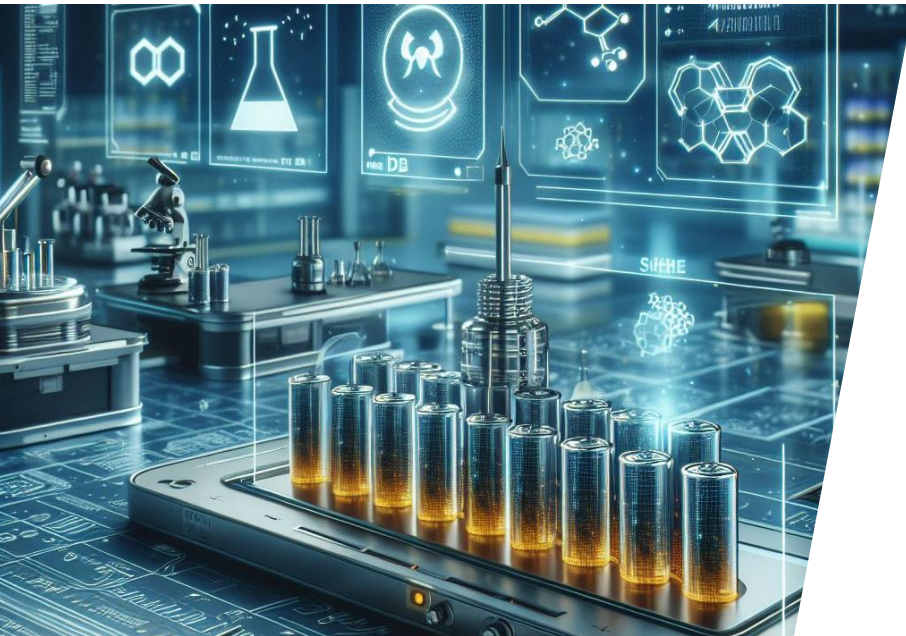




Innovating the batteries of the future

Prof. Dr. Corsin Battaglia

Empa – Swiss Federal Laboratories for Materials Science & Technology
ETHZ – Department of Information Technology and Electrical Engineering
EPFL – School of Engineering, Institute of Materials

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Energiekongress 2026
St. Gallen, 13.5.2026

Laboratory Materials for Energy Conversion

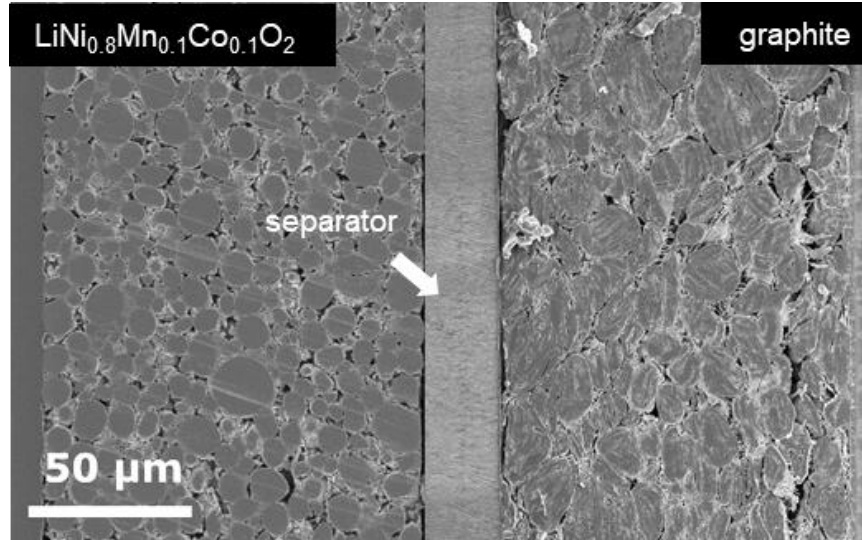


- Team of 30 researchers, postdocs, PhD students, and visiting students
- State-of-the-art battery labs located at Empa campus in Dübendorf
- Affiliated with ETHZ D-ITET and EPFL STI IMX



guided lab tour

State-of-the-art lithium-ion batteries

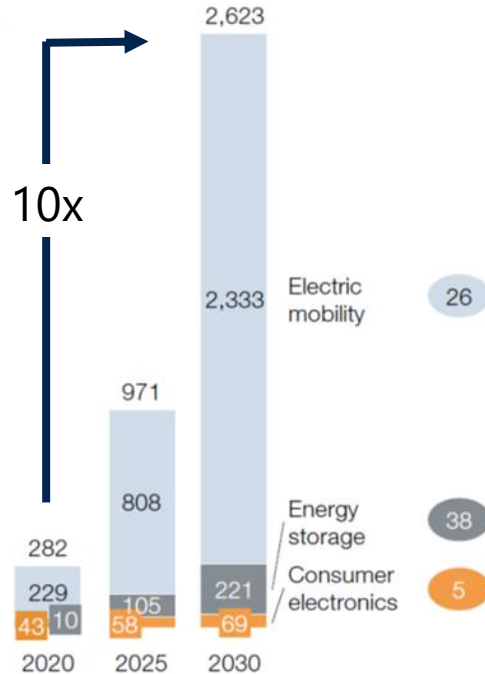


- Enable the electrification of the mobility sector
- Enable the integration of renewables into the electric grid

Global battery demand

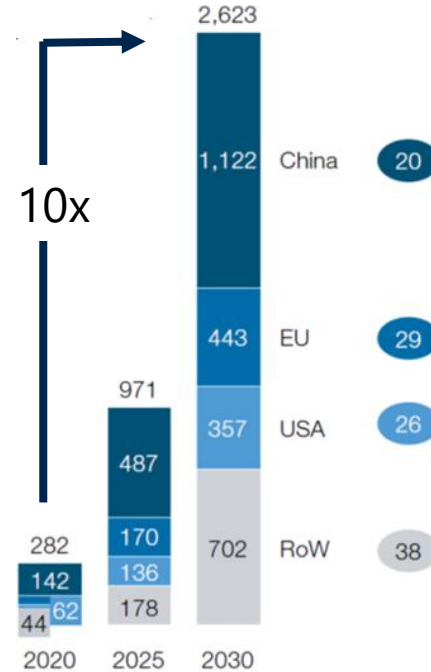
Global battery demand by application
GWh in 2030, base case

CAGR,
% p.a.



Global battery demand by region
GWh in 2030, base case

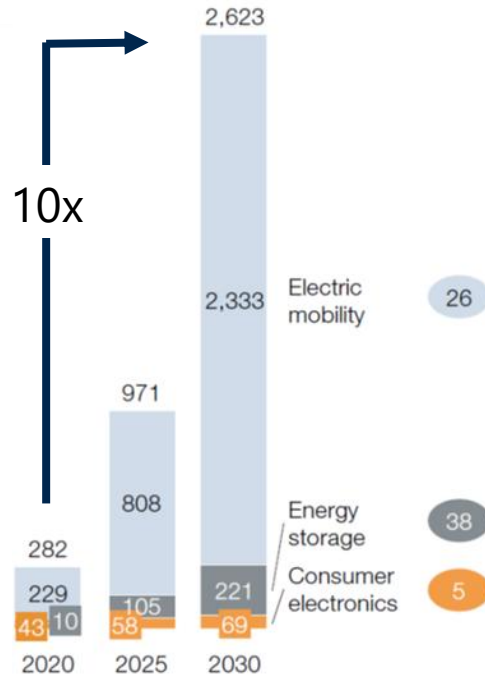
CAGR,
% p.a.



Global battery demand

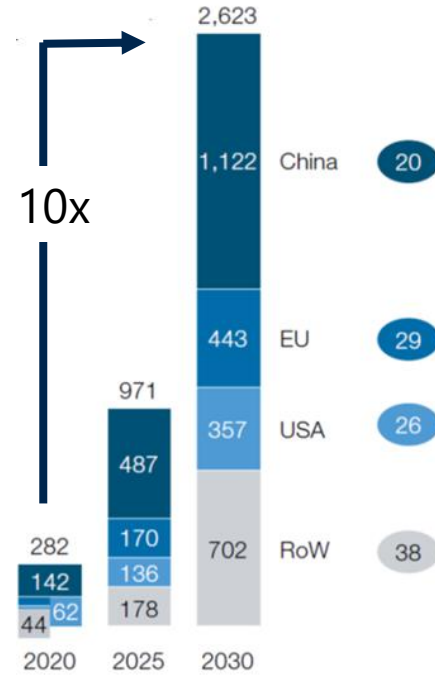
Global battery demand by application
GWh in 2030, base case

CAGR,
% p.a.

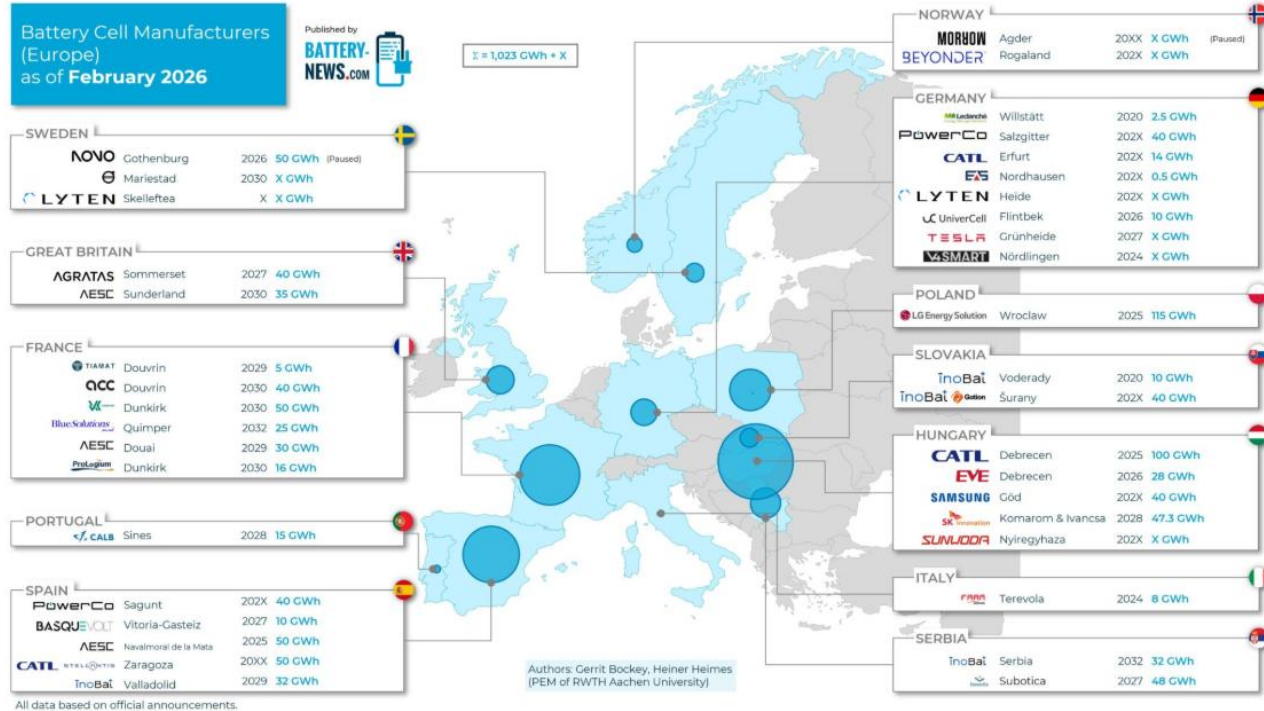


Global battery demand by region
GWh in 2030, base case

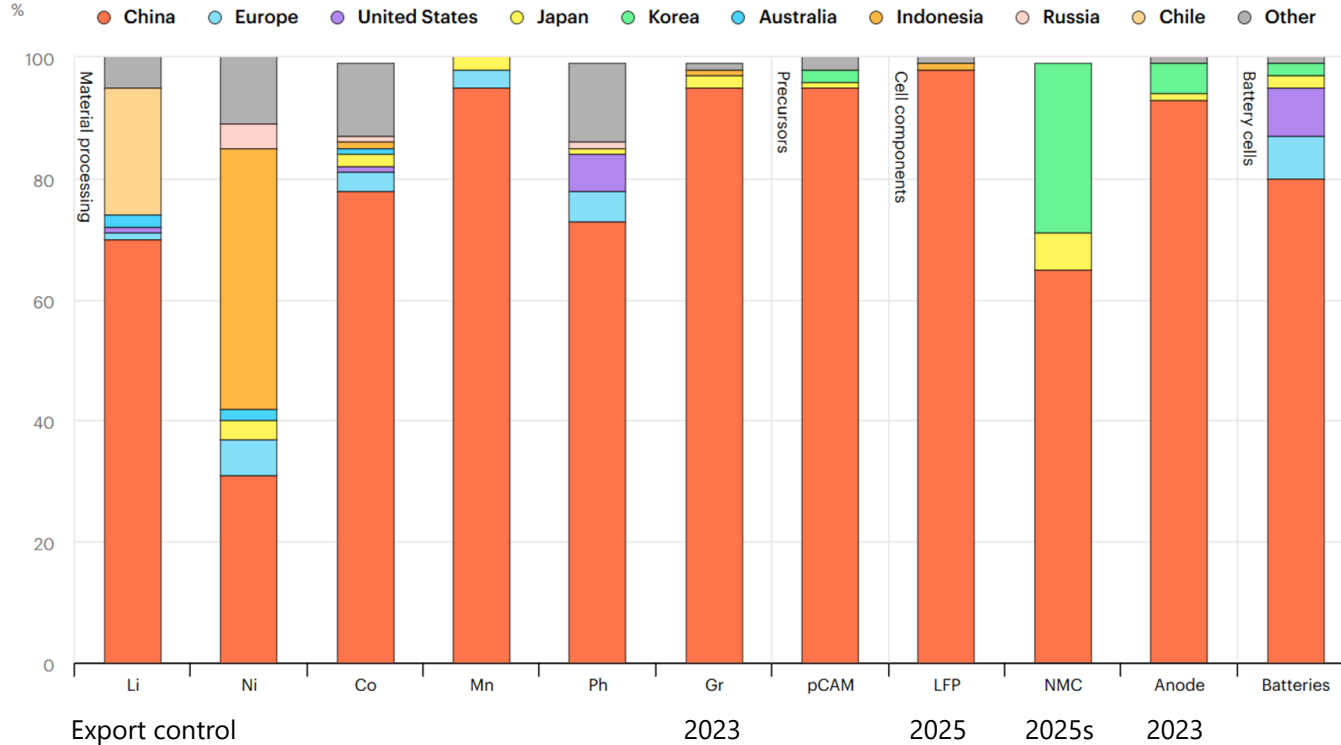
CAGR,
% p.a.



Battery gigafactories in Europe

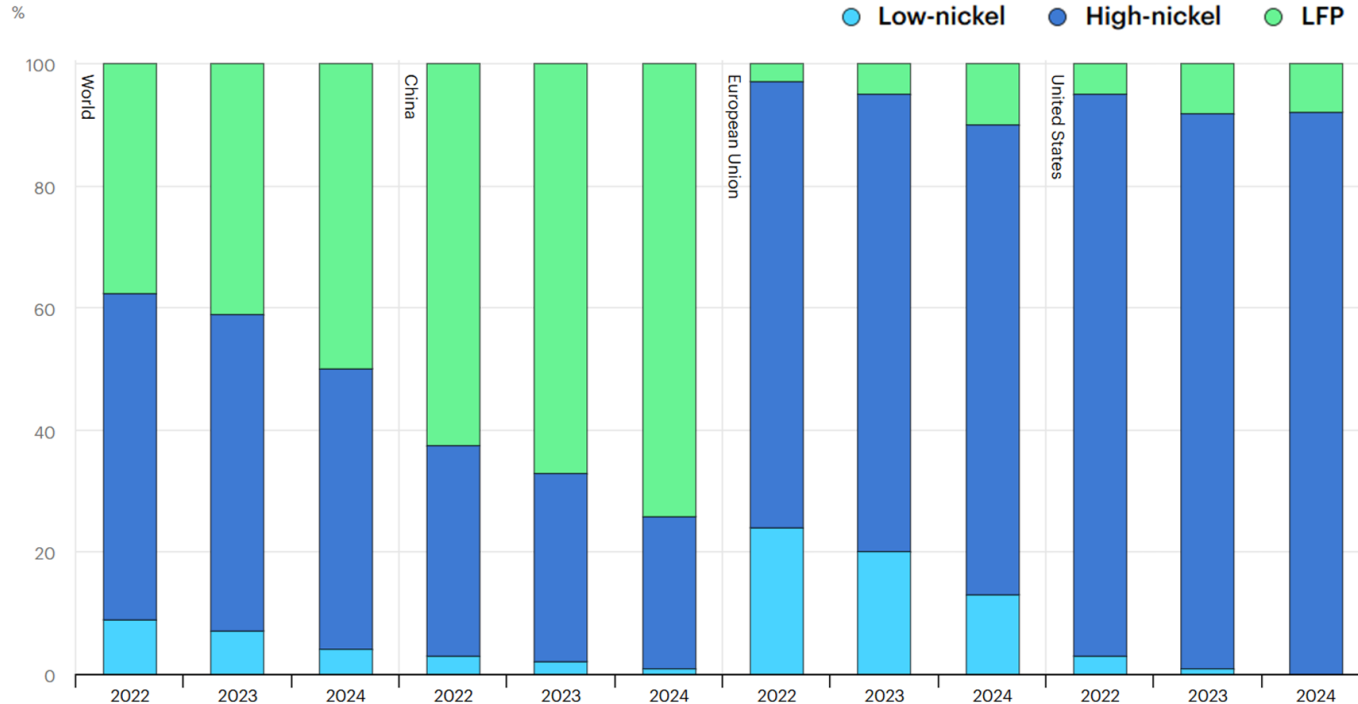


Battery materials provenance



adapted from International Energy Agency

Trends in battery cell chemistries



The magic of the LFP cell chemistry



The magic of the LFP cell chemistry



<https://www.byd.com/mea/news-list/byd-unveils-super-e-platform-with-megawatt-flash-charging>

USD 150 billion market in 2025



arxada



BÜHLER



 **Leclanché**
Energy Storage Solutions



ABB



 **KYBURZ**



HES
for better mobility




DUFOUR AEROSPACE



 **libattion**
Smart Cycles

Swiss Battery Association iBAT



Home

Overview, Mission & Infos
at a glance

Association

Organization, Partners,
Bylaws

Events

Battery Tuesdays,
Association & Partner
Events

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Get in Touch with
the iBAT Association

Join us

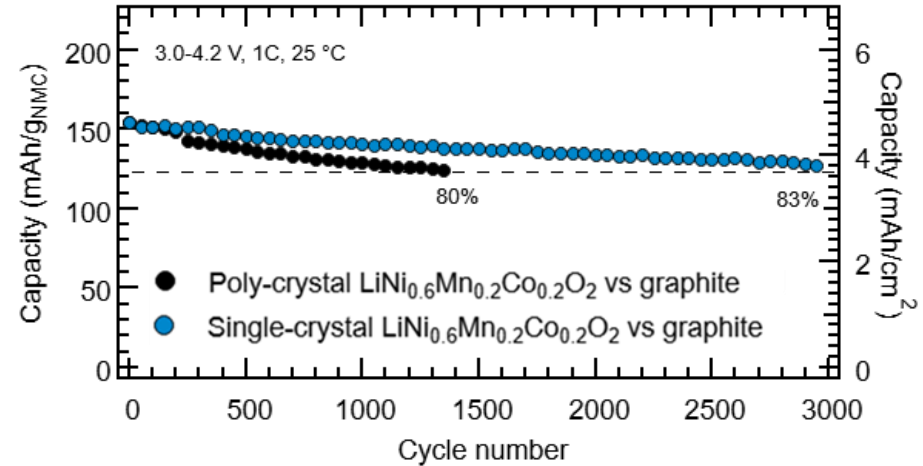
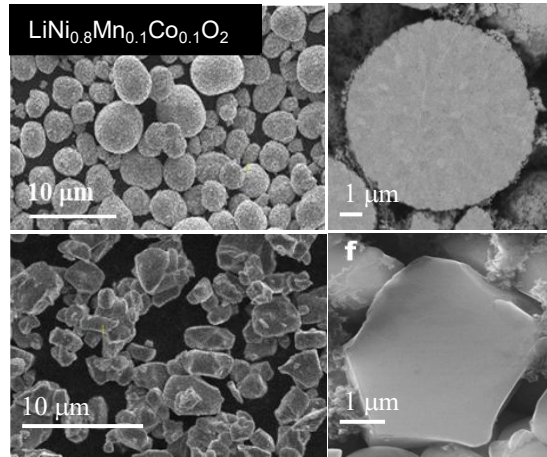
Become a member &
drive technology forward

Swiss Battery Association iBAT

Ensures the competitiveness of the Swiss Industry in the field of Battery
Applications & Technologies

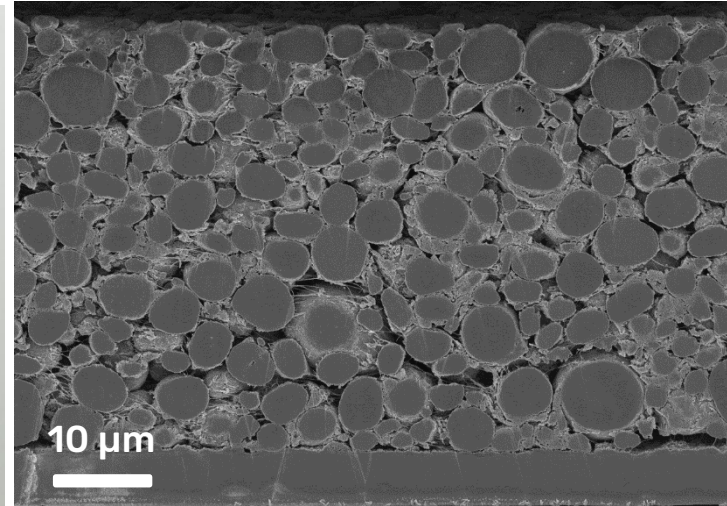


Extend battery cycling life



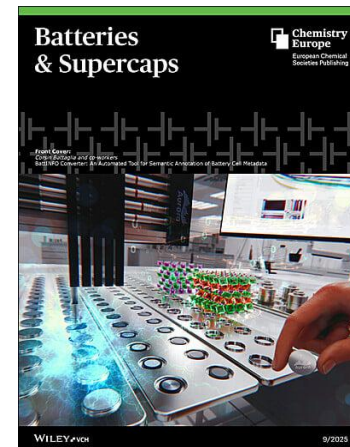
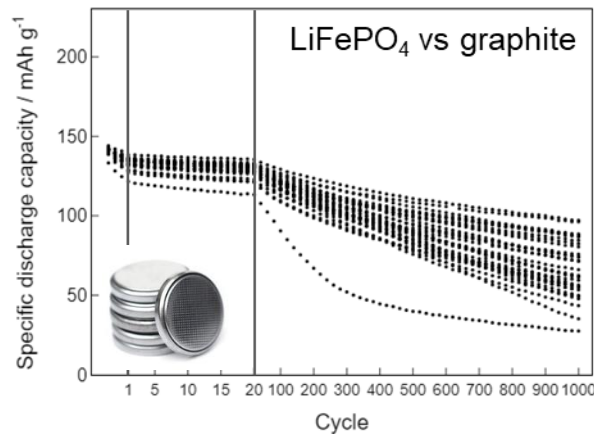
- Understand electrode/electrolyte interphase
- Develop protective interphases

Sustainable battery manufacturing



- Dry process eliminates need for solvents and energy-intensive drying step
- Reduces CO₂ footprint of battery cell manufacturing by 40%
- Already scaled to 150 kg/h corresponding to 1 GWh/y

Accelerating battery materials research



- Developed robotic battery materials research platform Aurora
- Automates electrolyte formulation, cell assembly, and cell cycling on >1280 channels
- Autonomously plan, execute, and analyse experiments

collaboration w/
Chemspeed Technologies

BATTERY
2030+

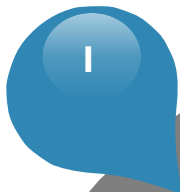


This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 957189

From science to market



**Synthetic fuels
for long distance
and long time scale**



**Green
batteries
(GenX)**



**Solid-state
batteries
(Gen4)**



**Li-ion
batteries
(Gen3b)**



SNSF, SFOE, InnoSuisse
ETH Board, Horizon Europe,
Metrohm and Göhner Foundation

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