



REWIMET Symposium

What does circular economy mean for batteries?

Clausthal-Zellerfeld 23.08.2023

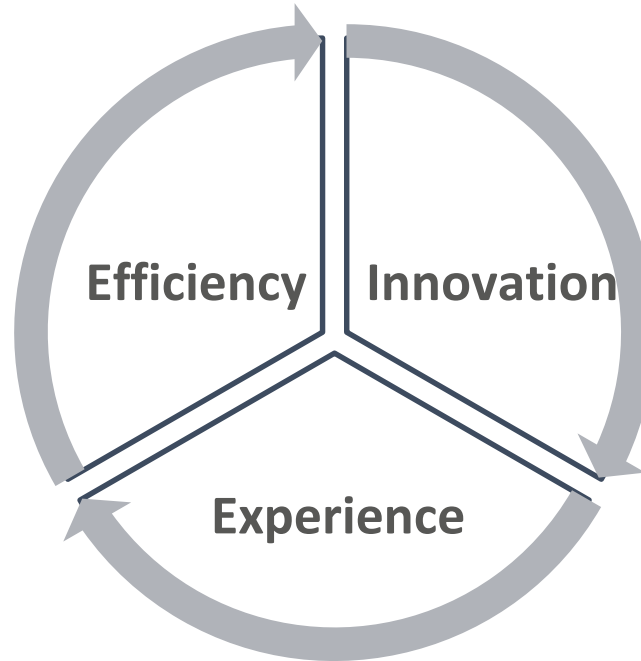
# Battery Damage Service

Speaker



**Lukas Block**

CEO & Co-Founder



**Mikhail Kasiyanov**

CTO

**NO WASTE PHILOSOPHY. ZERO WASTE TECHNOLOGY.**

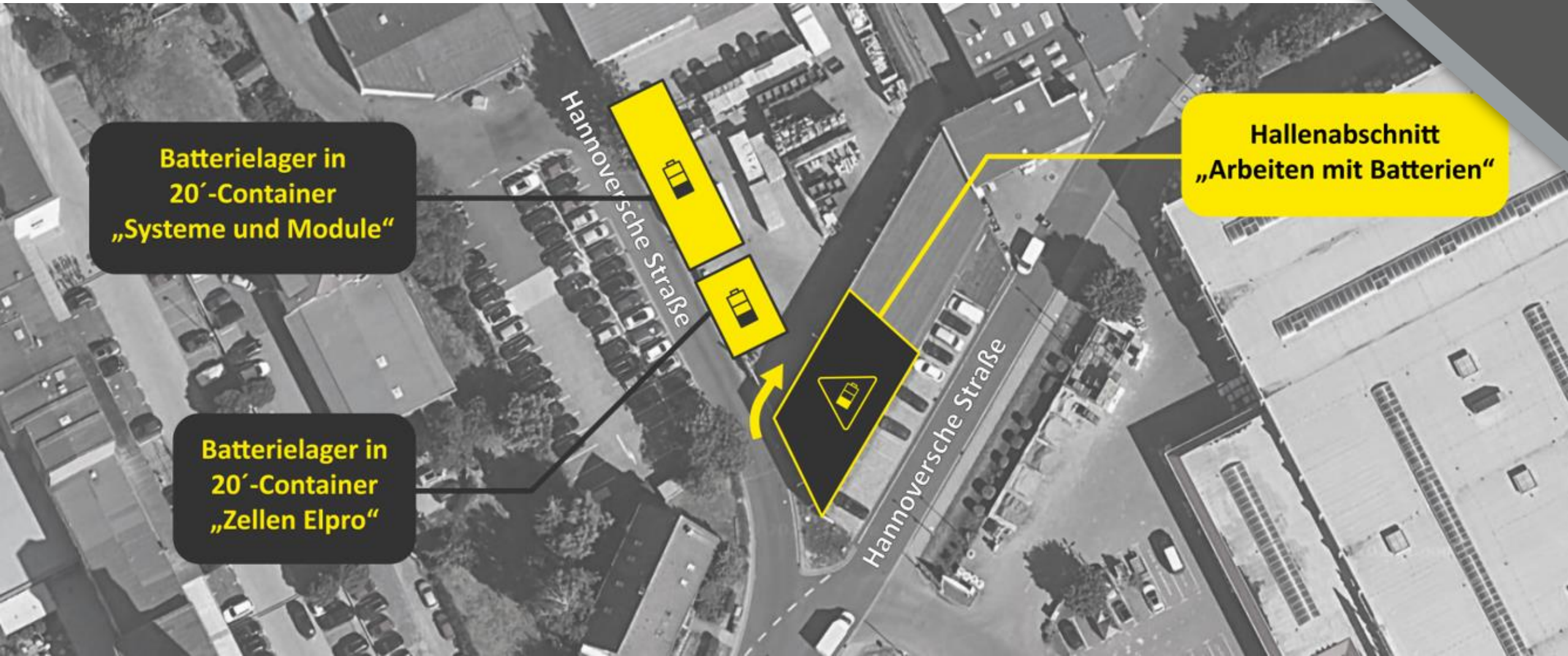
# Battery Damage Service

Solutions for the Battery Industry



# Battery Damage Service

Discharge & Dismantling of Industrial Batteries



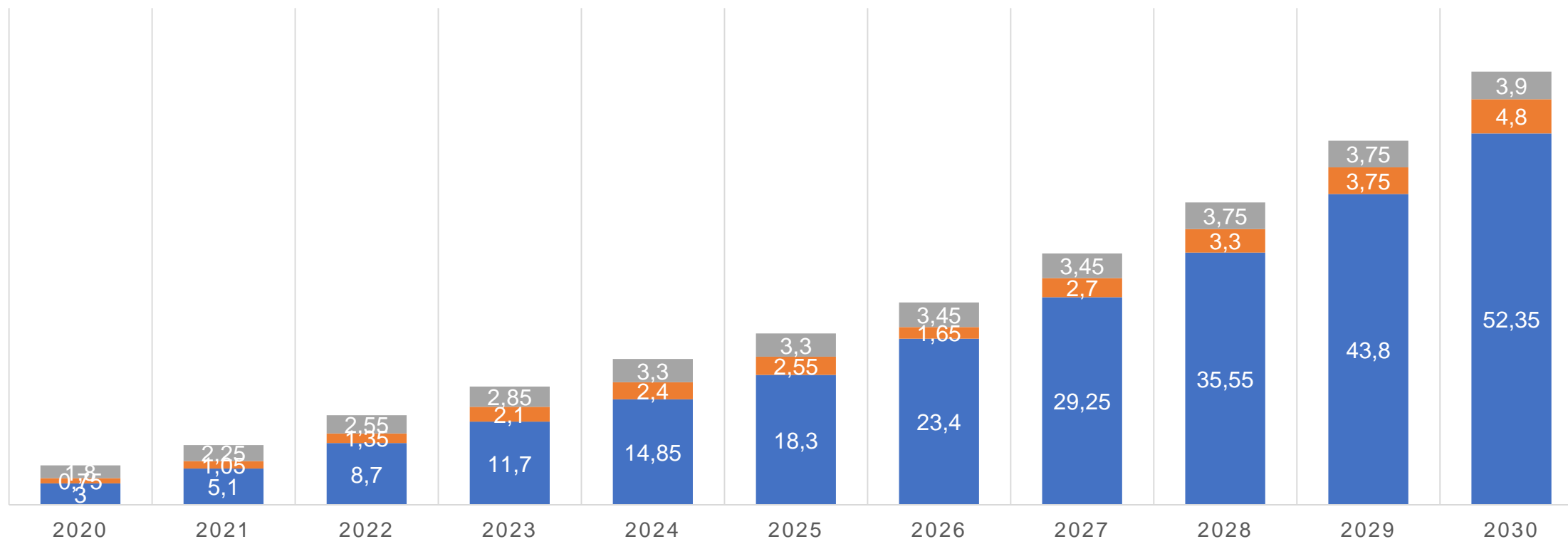
# Development battery market

Market ramp-up - Lithium batteries



## FORECAST DEMAND FOR BATTERIES BY APPLICATION IN MEGA TONS FROM 2020 TO 2030

■ Mobility ■ Energy Storage ■ Consumer Electronics

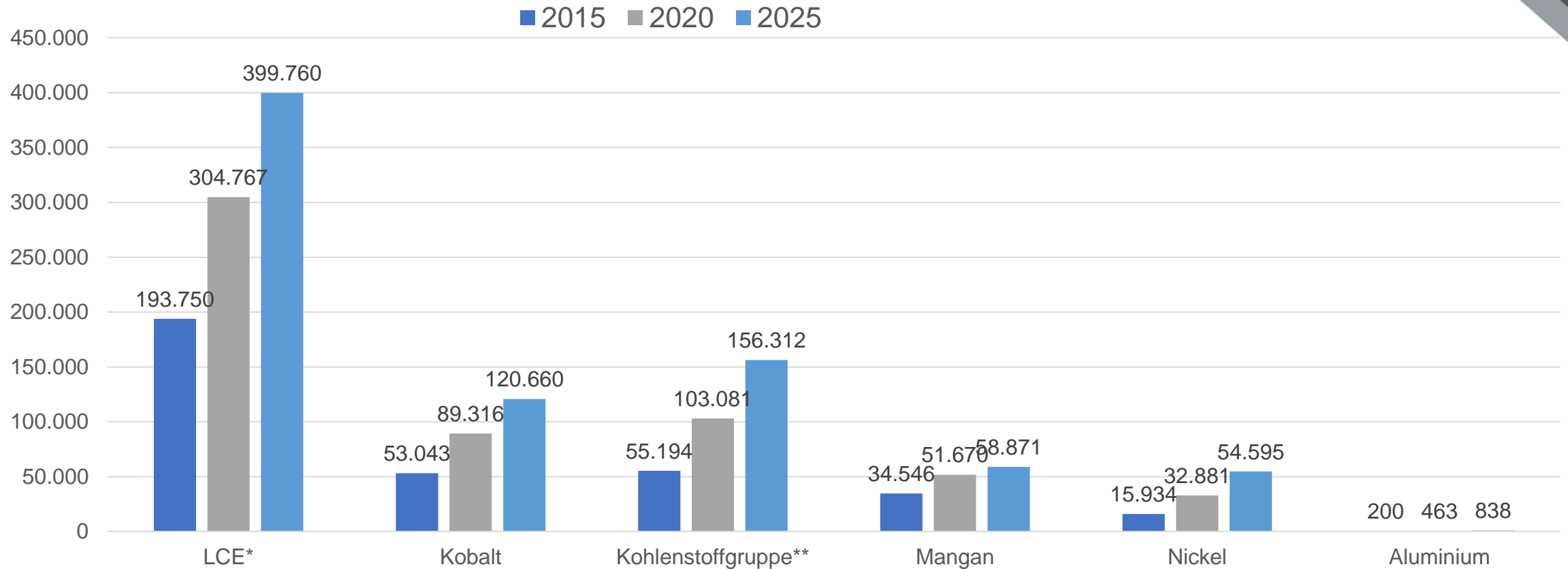


# Development battery market

## Resources

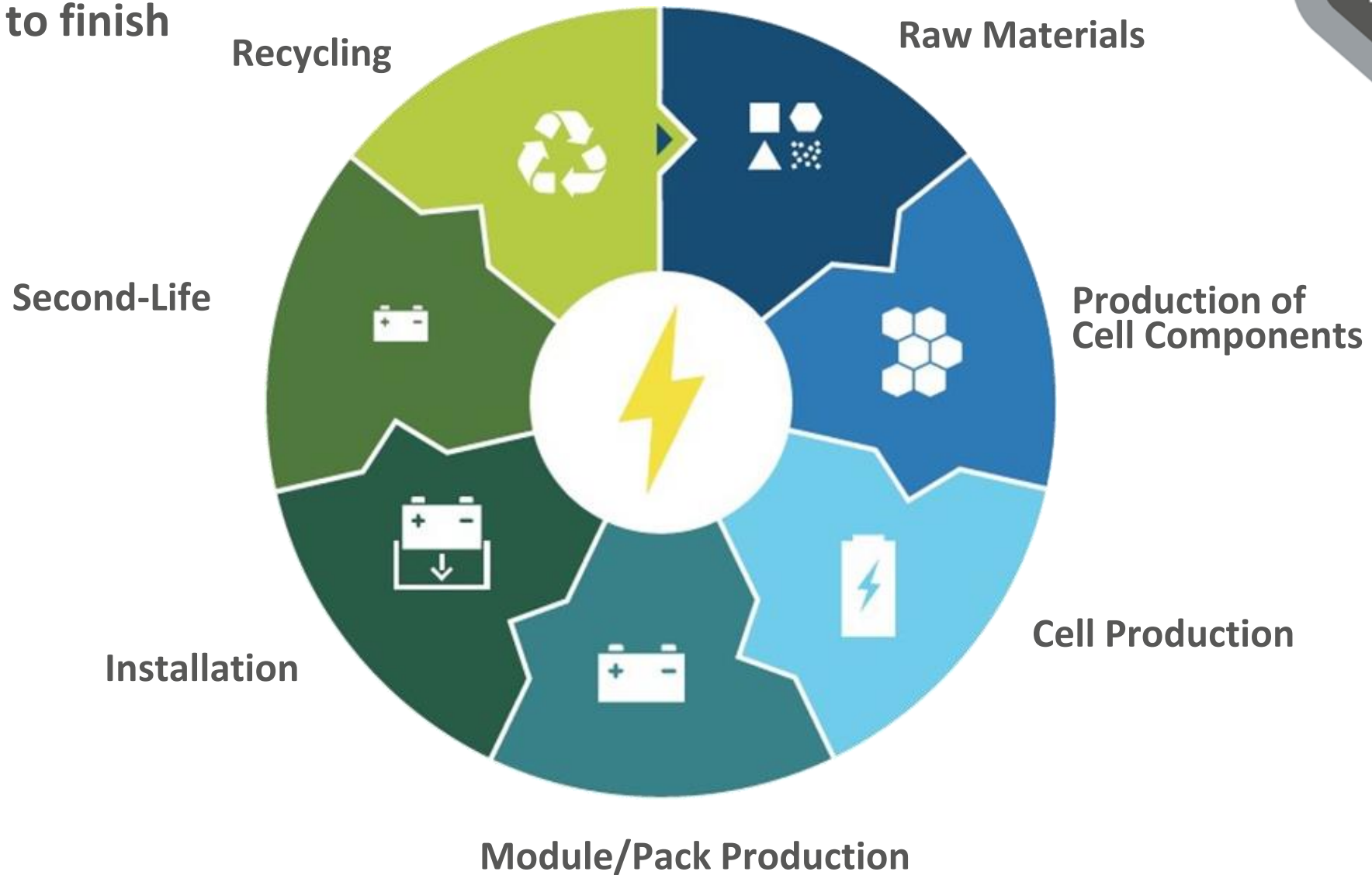


RAW MATERIAL QUANTITIES IN LITHIUM-ION BATTERIES BY RAW MATERIALS IN T WORLDWIDE BY 2025



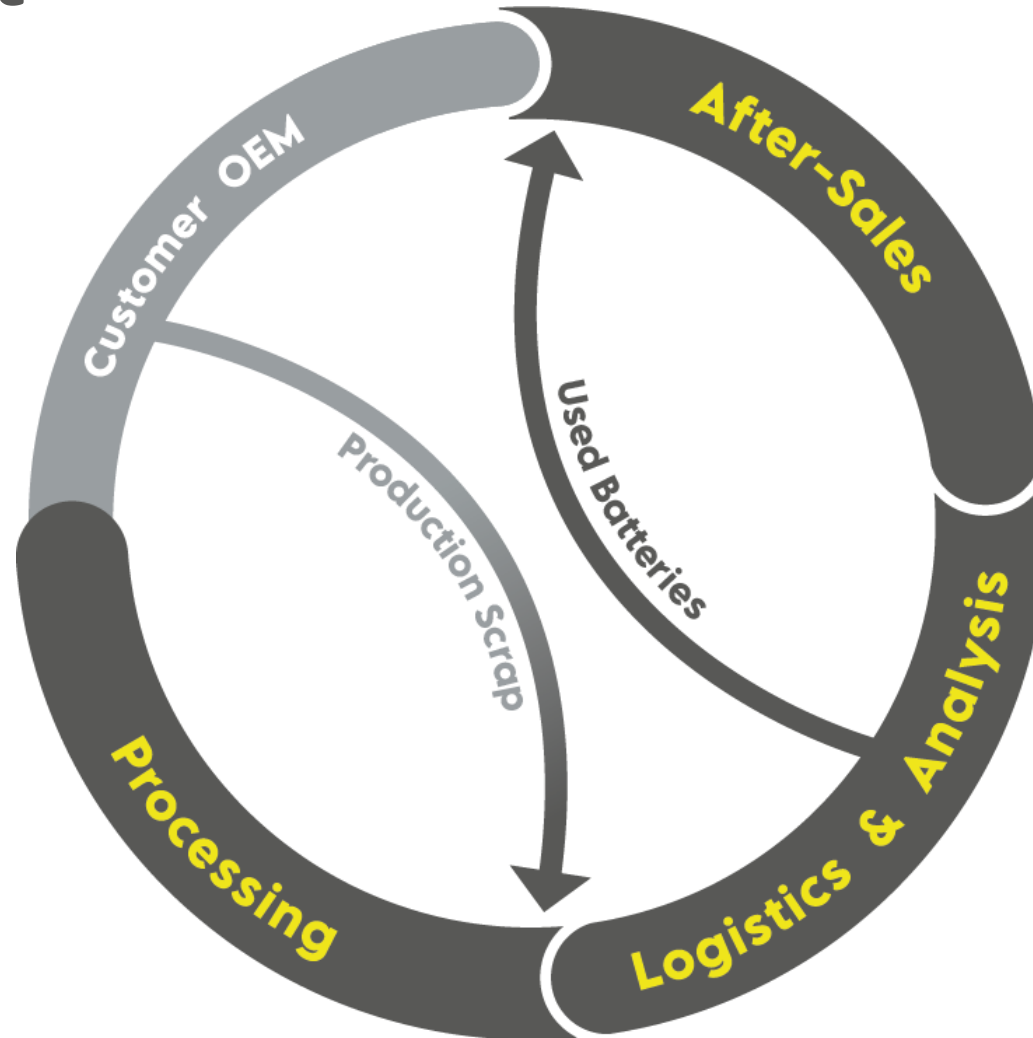
# Battery life cycle

From start to finish



# Battery life cycle

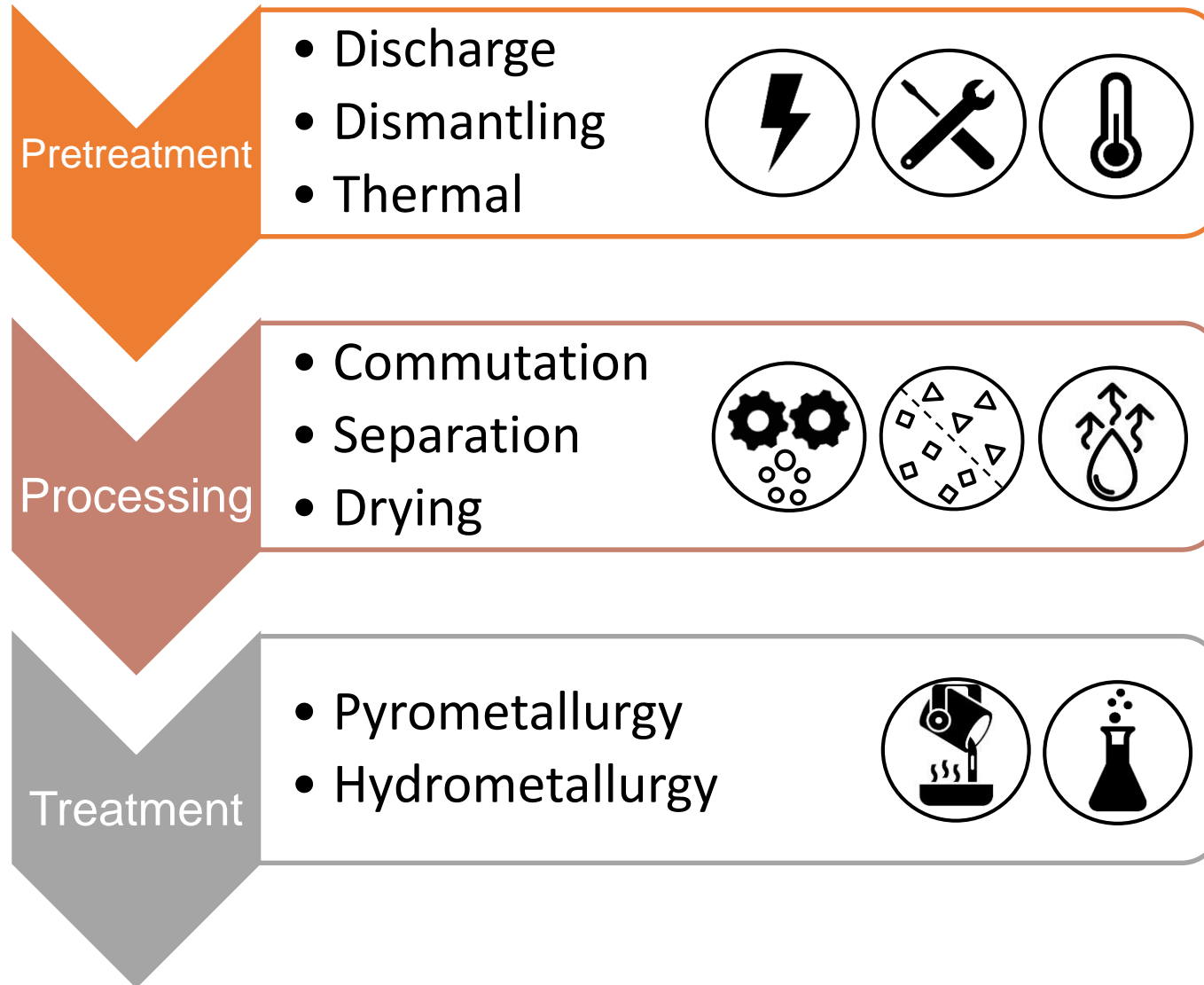
Battery Damage Service



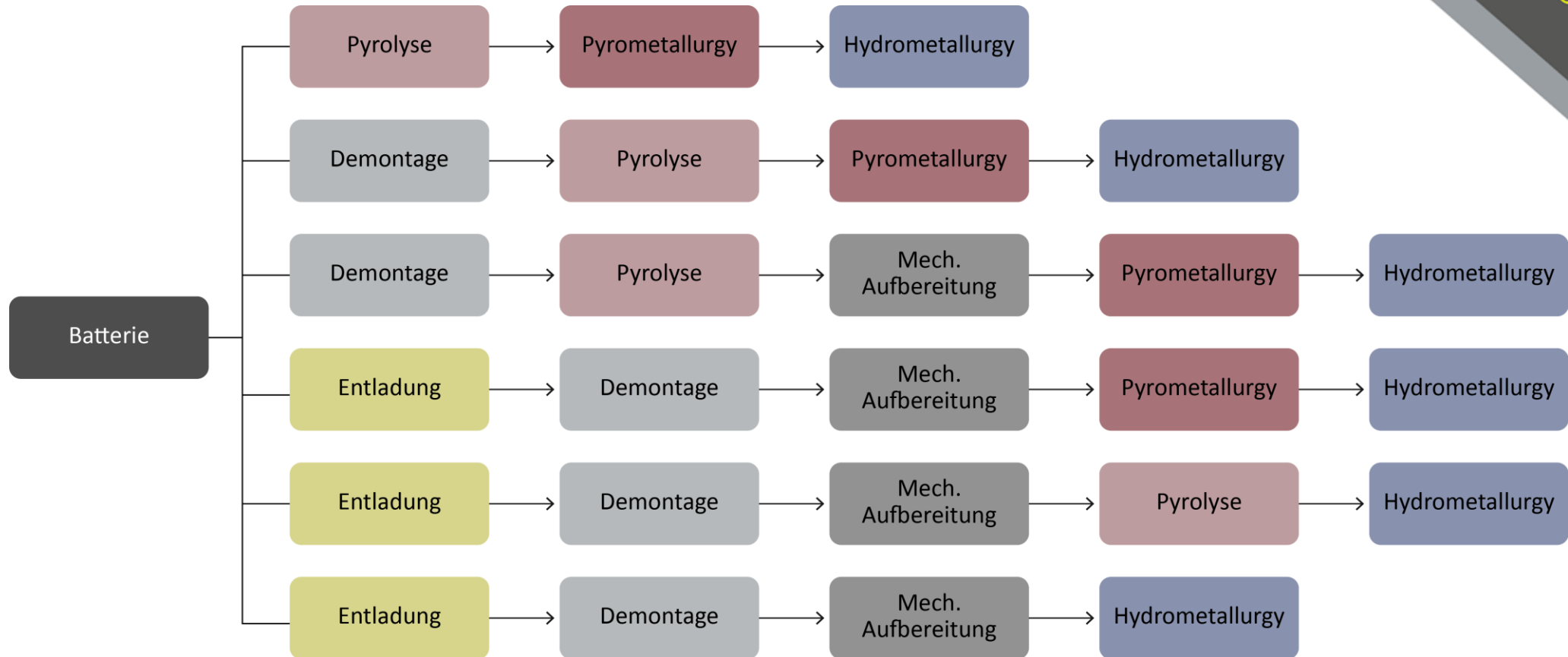


# Recycling

## Procedure



# Recycling Procedure



# Legal framework

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL: on batteries and waste batteries of 28.06.2023



Collection Targets  
(depending on  
type)

----- 45% ----- 51-79% ----- 61-85%

Recovery Rates  
(total Li battery  
weight)

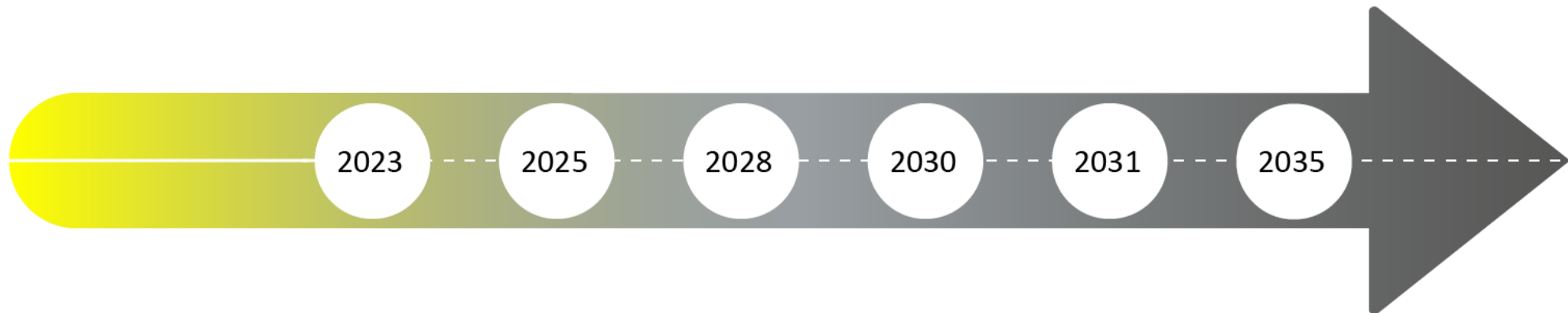
Ni 90%  
Li 50%  
-----  
Cu 90%  
Co 90%

Ni 95%  
Li 80%  
-----  
Cu 95%  
Co 95%

Minimum  
Recycled Content

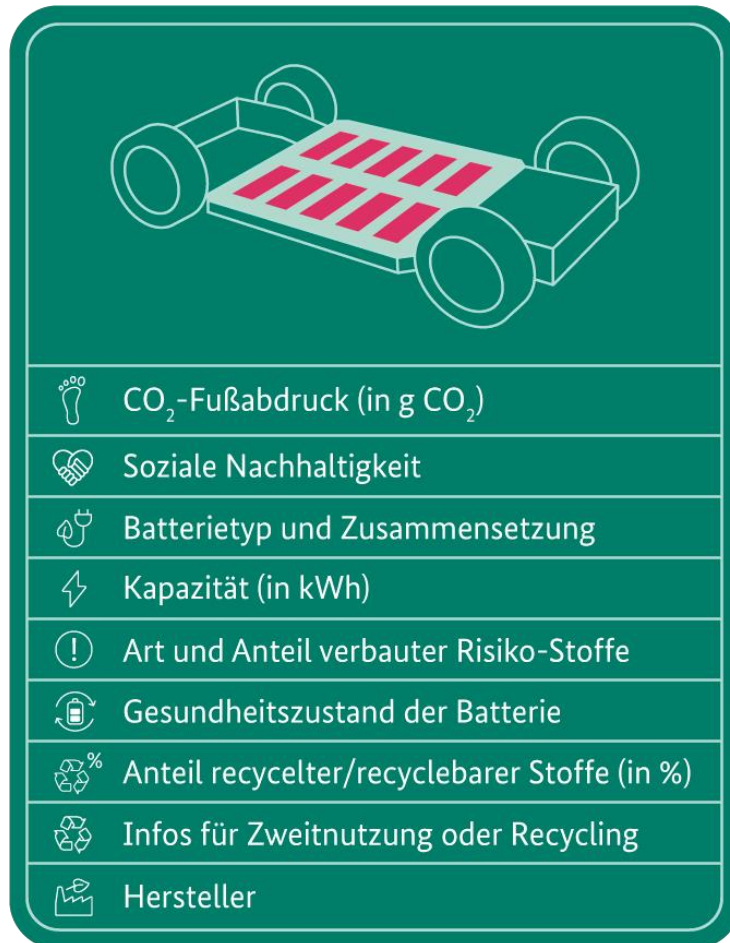
Ni 6%  
Li 6%  
-----  
Co 16%

Ni 6%  
Li 6%  
-----  
Co 16%



# Digitization in recycling

## Battery Pass



## Recycling challenge:

- **Material validation**
- **Gaining skilled workers**
- **Optimization of logistics**
- **Analysis and evaluation of the recyclate**
- **Data collection**



# Questions & Answers

# Sources



1. Prognostizierte Nachfrage nach Batterien weltweit nach Anwendung von 2020 bis 2030 (in Gigawattstunden) [Graph], Statista, 24. Juni, 2021. [Online]. Verfügbar: <https://de.statista.com/statistik/daten/studie/1330168/umfrage/prognostizierte-nachfrage-nach-batterien-nach-anwendung/>
2. <https://www.consilium.europa.eu/de/press/press-releases/2023/07/10/council-adopts-new-regulation-on-batteries-and-waste-batteries/>
3. Rohstoffvolumina in Lithium-Ionen-Batterien nach Rohstoffen weltweit im Jahr 2015 und Prognosen für die Jahre 2020 und 2025 (in Tonnen) [Graph], DERA, 27. Juni, 2017. [Online]. Verfügbar: <https://de.statista.com/statistik/daten/studie/998867/umfrage/rohstoffmengen-in-lithium-ionen-batterien-nach-rohstoffen-weltweit/>
4. [BMWK - Lebenszyklus einer Batterie](#)
5. [BMWK - Darum geht's beim Batteriepass für Elektroautos](#)
6. Doose, S.; Mayer, J.K.; Michalowski, P.; Kwade, A. Challenges in Ecofriendly Battery Recycling and Closed Material Cycles: A Perspective on Future Lithium Battery Generations. Metals 2021, 11, 291. <https://doi.org/10.3390/met11020291>