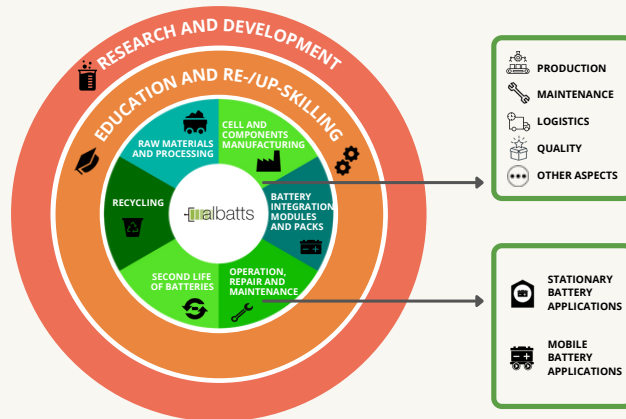




RECOMMENDATIONS FOR THE EUROPEAN BATTERY SECTOR

D3.6 – Sectoral Skills Intelligence and Strategy – Release 1

Recommendations and considerations are mapped against the battery value chain or areas of interest and propose actions to improve the re-/up-skilling of the workforce or point out to issues that need to be considered when it comes to the skills agenda of the sector. They follow the structure of the sectoral intelligence part of the report.



RECYCLING AND SUSTAINABILITY



Target groups: Educational institutions, government agencies, companies in the battery recycling business, recruitment companies, head-hunters, consultants.

Recruitment needs - According to the ALBATTTS project findings, the most extensive recruitment challenges currently concern the hiring of engineers and researchers. In the set-up phase of recycling plants, most staff are university-educated white-collar employees. However, after a plant becomes more established, the share of blue-collar employees with vocational education increases.

Recycling technology and processes: with the battery recycling-related positions, it is important to know battery technologies and recycling processes (chemical/physical) themselves. Therefore, it is recommended to provide education and training in the following areas: **(1)** Environmental management and circular economy concepts; **(2)** Battery design - Battery components: Cell, anode, cathode, electrolyte and Precursor design, Electrode design, Separator design; **(3)** Battery material (material science) - Battery fluids and chemistry (Lithium-ion) and other materials and their properties; **(4)** Vehicle and other battery systems; **(5)** Material flow including procurement; **(6)** Battery testers; **(7)** Recycling knowledge to enable developing recycling programs - Recycling processes and technologies, R&D, Automation; **(8)** Production Planning.



In terms of **skills** needs in the battery recycling processes, the following should be paid attention to: **(1)** Logistics including battery collection; **(2)** Battery Removal; **(3)** Characterisation Techniques; **(4)** Cell Structure and evaluation; **(5)** Battery Charge/Discharge; **(6)** Battery Dismantle; **(7)** Equipment and Tools Handling (recycling related); **(8)** Automation; **(9)** Material Operation & Handling; **(10)** Supply/Material Planning; **(11)** Hazardous materials, waste handling; **(12)** Chemical/physical recycling processes.

Environment and legal: Regarding environmental legislation, it is important to understand related national and EU directives. We have also discovered the importance of safety. Therefore, we recommend providing education and training in the following knowledge areas:

- Promotion and training of sustainability
- Safety
 - Safety Procedures
 - Functional Safety
 - Hazardous Materials
- Legislation
 - Related EU/national directives
 - Battery Passport

The related **skills** fall into the following areas:

- Ensuring Public Safety
- Waste Management Legislation

Resources-related and supporting skills:

- Strategies for battery collection, methods, and systems
- Language skills (English)