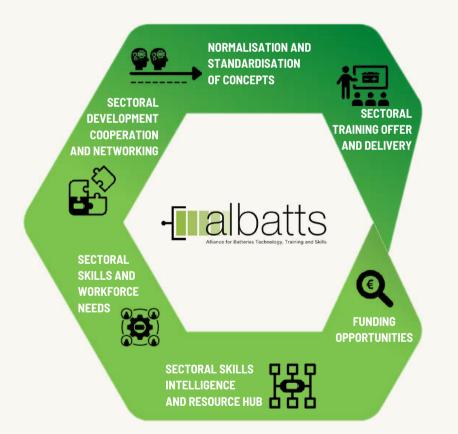
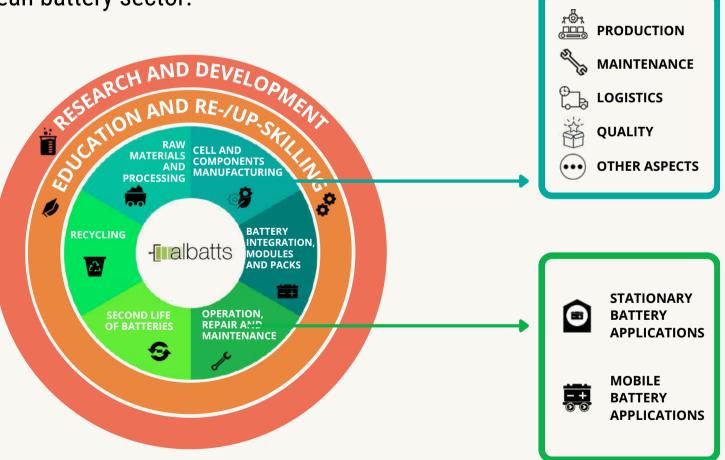
# SECTORAL SKILLS INTELLIGENCE & STRATEGY FOR THE EUROPEAN BATTERY SECTOR

D3.10 – Sectoral Skills Intelligence and Strategy – Release 2

This is the **second** release of the sectoral skills intelligence and strategy covering the whole European battery value chain from raw materials to recycling of batteries in terms of skills needs, job roles needs and recommendations.



The report also provides quantitative and qualitative overviews of the skills and the job roles needs per identified areas of interest consisting of the battery value chain steps, as well as specific aspects of production, quality or safety tailored to the battery production or other processes that are happening within the European battery sector.



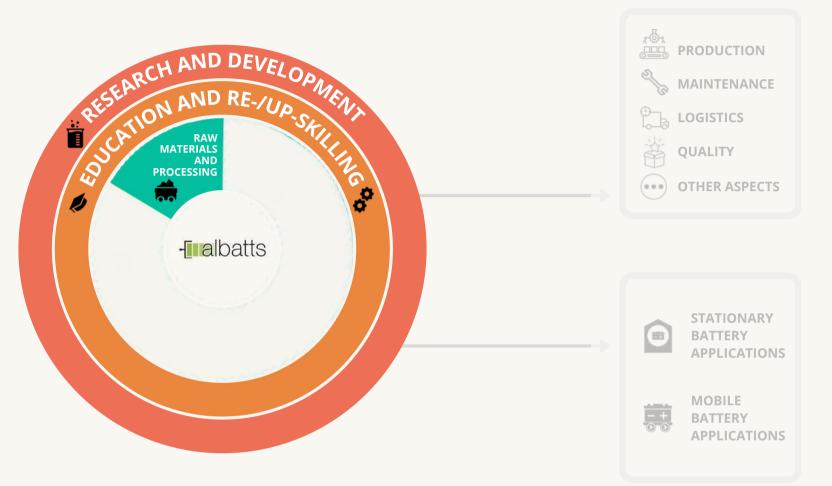
Readers will find designated actions needed in the sector to boost the overall re-/up-skilling activities as well as cooperation, information sharing and provision and many more.

This factsheet provides a summary of the report in what regards raw materials extraction and processing.

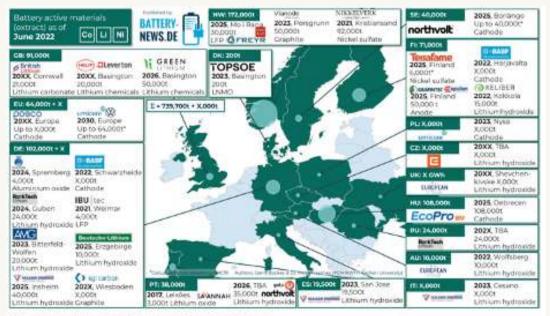
+ INFORMATION Alliance for Batteries Technology, Training and Skills ALBATTS – Project number 612675-EPP-1-2019-1-SE-EPPKA2-SSA-B. The European Commission support for the production of this publication under the Grant Agreement No www.project-albatts.eu 2019-612675 does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.



#### **RAW MATERIALS EXTRACTION AND PROCESSING**



#### **STAKEHOLDERS/COMPANIES**



The role of **RAW MATERIALS** in the growth of the European battery value chain is, as it is well known, quite critical. A battery cell producer cannot function in a competitive market without or with too expensive raw materials. In addition, the level of dependence on Asia, Australia and the American continent is extreme. According to the last EU raw materials criticality list from 2020, 74 % of all battery raw materials originate in China, Latin America, and Africa and this trend is expected to proliferate with increased European demand for expanding cell production. Only aluminum, manganese, copper, and nickel are not listed as directly critical for European supply. There are, however, many European initiatives on the policy level to remediate this situation, by new European sourcing (mines, concentrator, and refining facilities) and a very high level of recycling.

Currently, a European cell producer typically gets raw materials through: **a**) import from companies on other continents, b) new European sourcing as a desirable alternative to remediate the situation, c) recycling operations to take care of the raw materials used optimally.

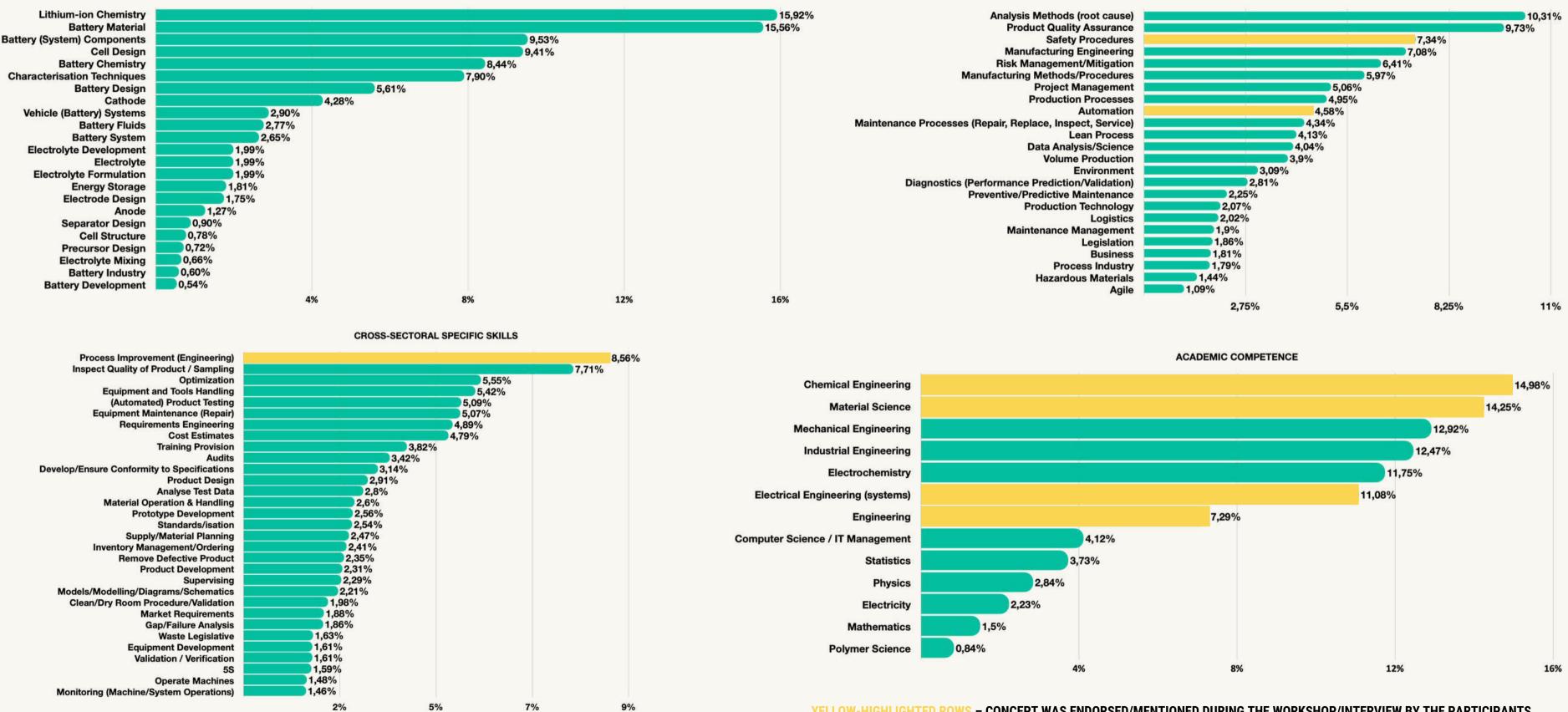
**TARGET GROUPS**: Prospecting and mining companies, refineries, and their white- and blue-collar workforce; branch organisations; and authorities involved in exploration permits and mining concessions.

Source: www.batterv-atlas.eu: abstract, no claim of completenes



SECTOR SPECIFIC COMPETENCE

#### **SKILLS, COMPETENCES & KNOWLEDGE NEEDS**



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#### YELLOW-HIGHLIGHTED ROWS – CONCEPT WAS ENDORSED/MENTIONED DURING THE WORKSHOP/INTERVIEW BY THE PARTICIPANTS

#### CROSS-SECTORAL SPECIFIC KNOWLEDGE

GO TO REPORT

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#### **JOB ROLES**

**DEVELOPMENT ENGINEER - HIGH-VOLTAGE COMPONENTS BLUEPRINT DATA SCIENTIST** PLANNING AND LOGISTICS MANAGER DIRECTOR OF SUPPLY CHAIN MAINTENANCE SPECIALIST SENIOR SCIENTIST MATERIALS TECHNOLOGY ENGINEER SHIF MANAGER UPSTREAM ELECTROLYTE ENGINEER ELECTROCHEMISTRY LEAD - BATTERY MATERIALS MATERIAL ENGINEER CATHODE UPSTREAM PRODUCTION ENGINEER CONTROLS ENGINEER **ISO INTERNAL AUDITOR INSPECTION ENGINEER AUTOMATION ENGINEER** SENIOR CELL MATERIAL ENGINEER-ELECTROLYTE SHIFT LEAD MATERIALS MANAGEMENT MAINTENANCE ENGINE **RESEARCH & DEVELOPMENT BATTERY CHEMIST ODUCTION ENGINEER** SENIOR AUTOMATION ENGINEER MANUFACTURING ENGINEER BATTERY MATERIALS ENGINEER BATTERY TECHNICAL LEAD LEAN MANUFACTURING ENGINEER INDUSTRIAL ENGINEER SENIOR CATHODE ENGINEER **EQUIPMENT ENGINEER** MANUFACTURING ENGINEER, LI-ION ENGINEER SAFETY MANAGER SUPPLY CHAIN MANAGER FOR RAW MATERIALS SAFETY SPECIALIST WHITE-COLLAR MATERIAL ENGINEER – ELECTRODE JUNIOR PROCESS ENGINEER MANAGER OF BATTERY MAINTENANCE BATTERY MATERIALS ENGINEER HIGH DENSITY ANODES

BLUE-<u>Collar</u>

MATERIAL EXPERT/SPECIALIST LOCALISATION SPECIALIST

**PLANNER** METROLOGIST MATERIAL SCIENCE MAINTENANCE PERSONNEL MAINTENANCE TECHNICIAN SHIFT LEAD MATERIAL PLANNER MATERIAL HANDLER **PROCESS OPERATOR - UPSTREAM** CALIBRATION TECHNICIAN CLEAN ROOM SPECIALIST SENIOR PLANNER LITHIUM MAINTENANCE TECHNICIAN MACHINE OPERATOR **OPERATOR PRODUCTION ASSEMBLER OPERATOR AUTOMATION / PROCESS OPERATOR** 

> INVENTORY AND RECEIVING SPECIALIST **BATTERY PRODUCTION TECHNICIAN**

> > +) INFORMATION Alliance for Batteries Technology, Training and Skills ALBATTS – Project number 612675-EPP-1-2019-1-SE-EPPKA2-SSA-B. The European Commission support for the production of this publication under the Grant Agreement No www.project-albatts.eu 2019-612675 does not constitute an endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.



## - albatts Sectoral skills intelligence & strategy for the European Battery sector - release 2

#### **CONSIDERATIONS / RECOMMENDATIONS**

Strengthening the awareness on the critical raw materials questions for **Europe and connected emerging trends.** 

Development of new skills needs (and relevant training material) for mining and refining raw materials.

Manpower is required in mining, concentrator and chemical plants, maintenance, laboratories, logistics, and supportive/administrative functions.

Basic education required includes process, chemical, mechanical, electricity, and automation engineering as well as geology and chemistry.

## **LINKS & RESOURCES**

- Processing

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# • Sectoral Skills Intelligence and Strategy - Raw Materials and

### See the list of the ALBATTS SKILLS CARDS





