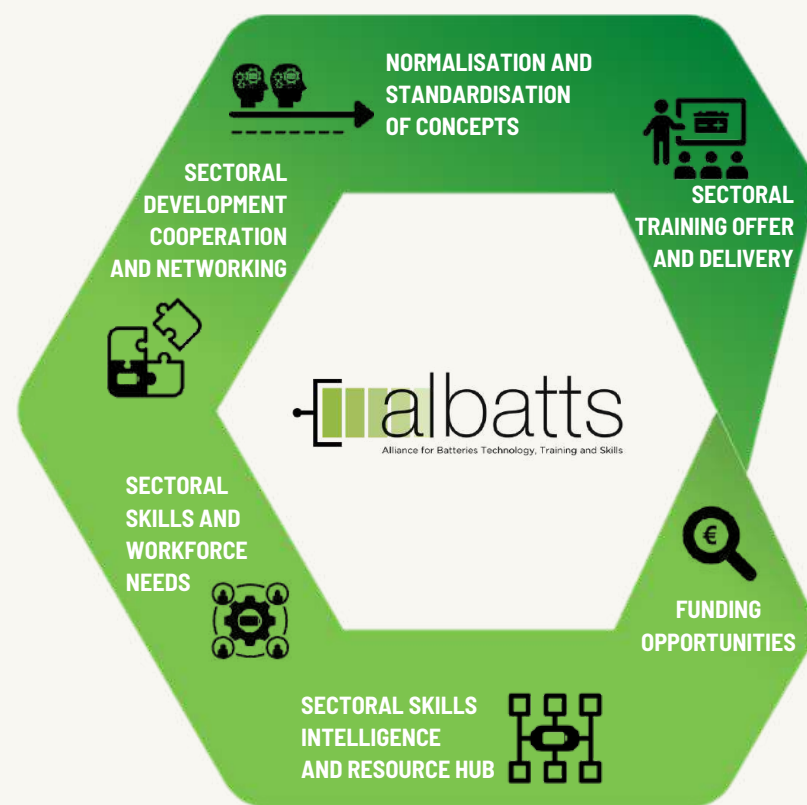


## SECTORAL SKILLS INTELLIGENCE & STRATEGY FOR THE EUROPEAN BATTERY SECTOR

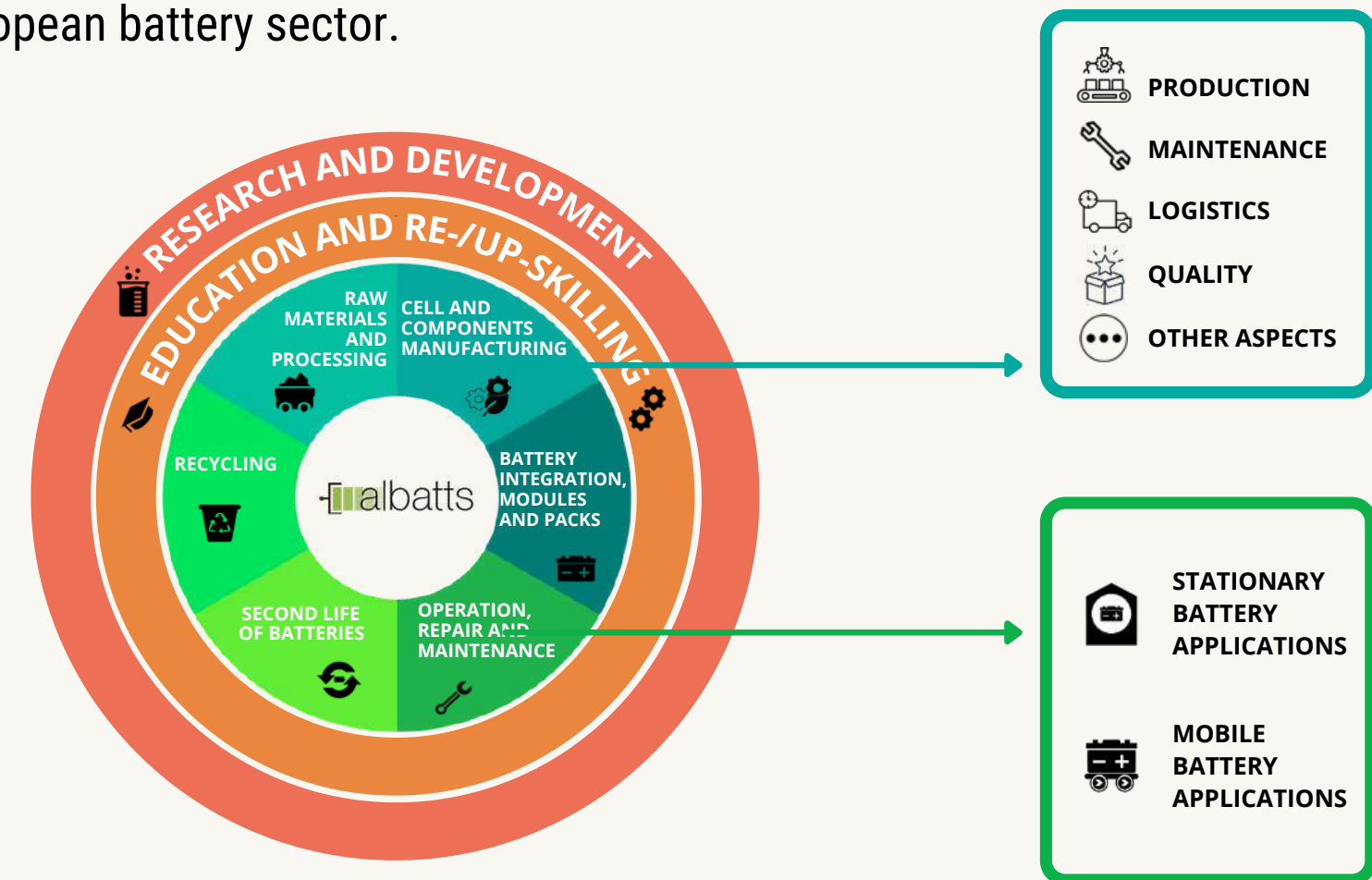
### D3.10 – Sectoral Skills Intelligence and Strategy – Release 2

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.



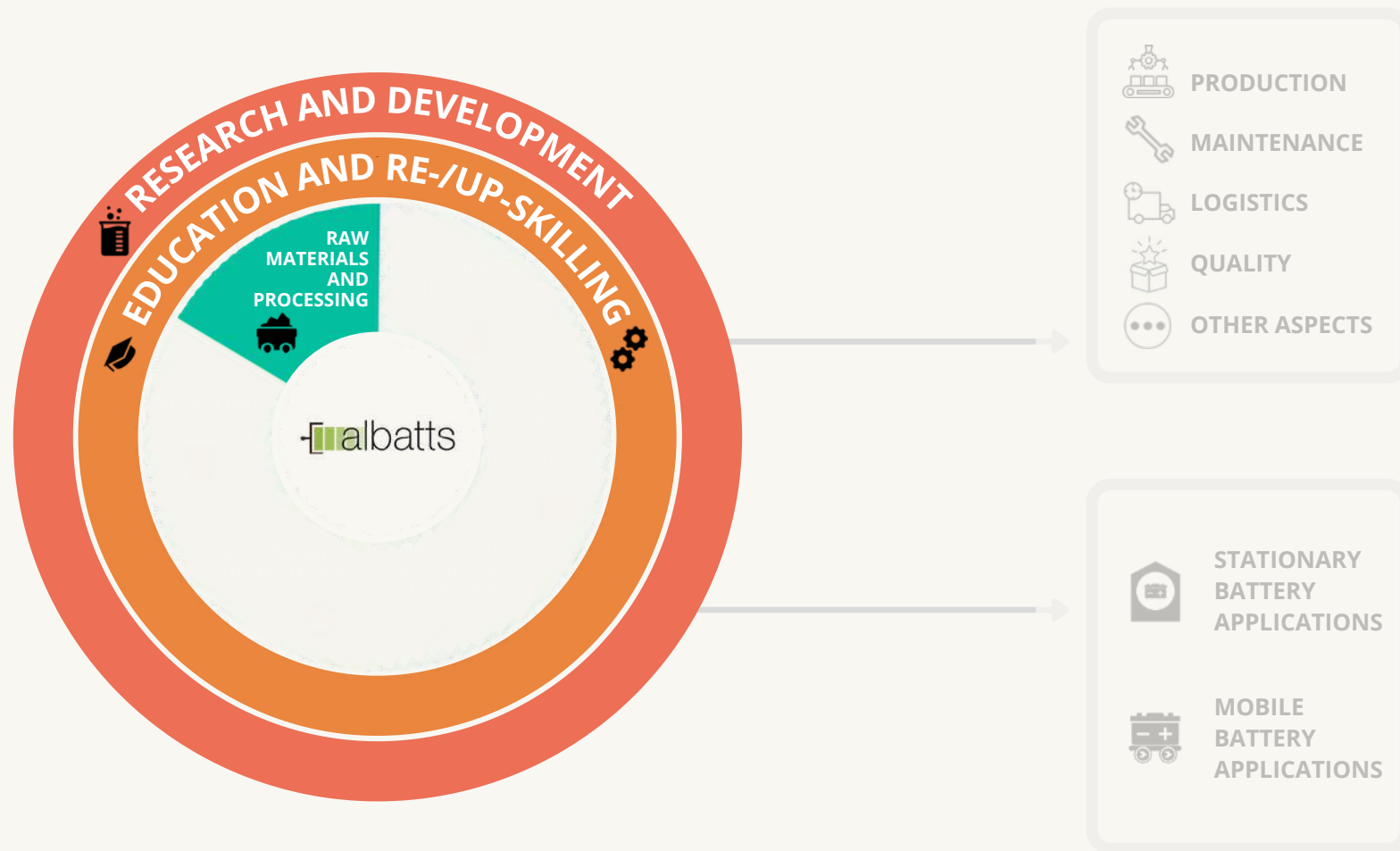
Readers will find designated actions needed in the sector to boost the overall re-/up-skilling activities as well as cooperation, information sharing and provision and many more.

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.



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

## RAW MATERIALS EXTRACTION AND PROCESSING



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.

## STAKEHOLDERS/COMPANIES



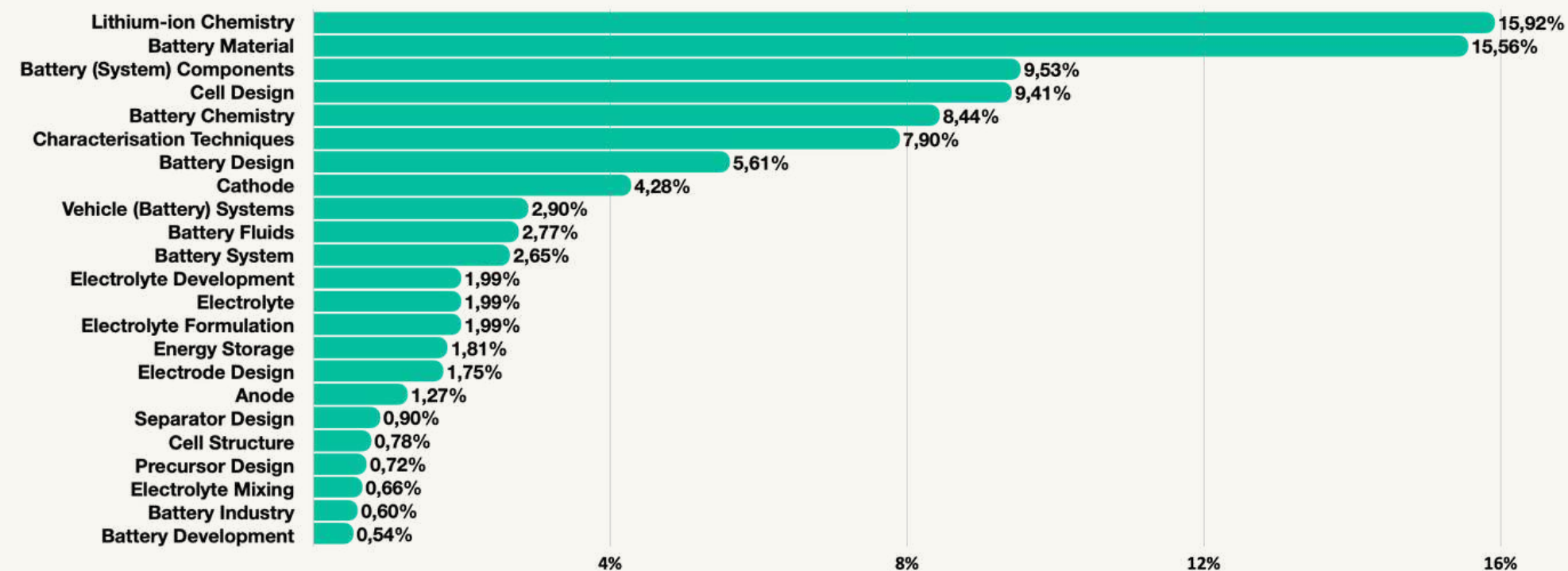
Currently, a European cell producer typically gets raw materials through: **a)** import from companies on other continents, **b)** new European sourcing as a desirable alternative to remediate the situation, **c)** recycling operations to take care of the raw materials used optimally.

**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.

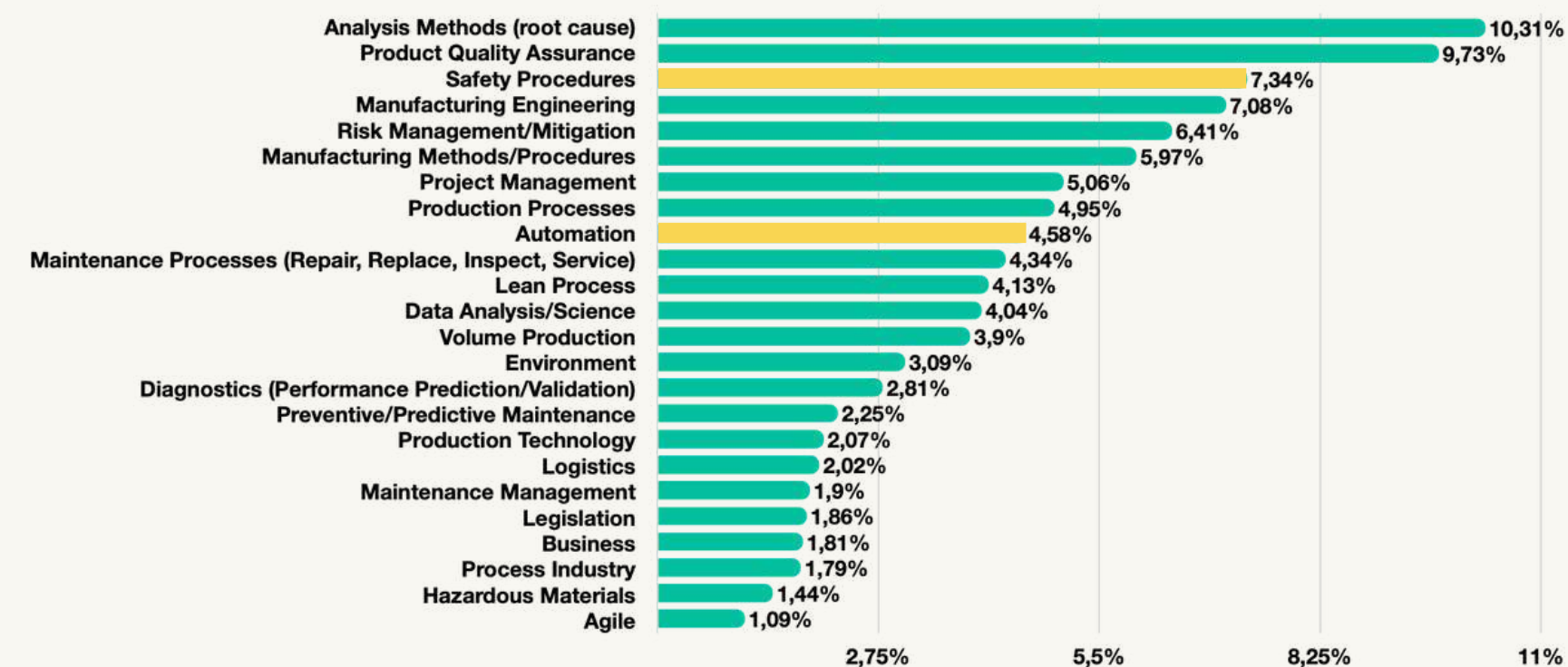


## SKILLS, COMPETENCES & KNOWLEDGE NEEDS

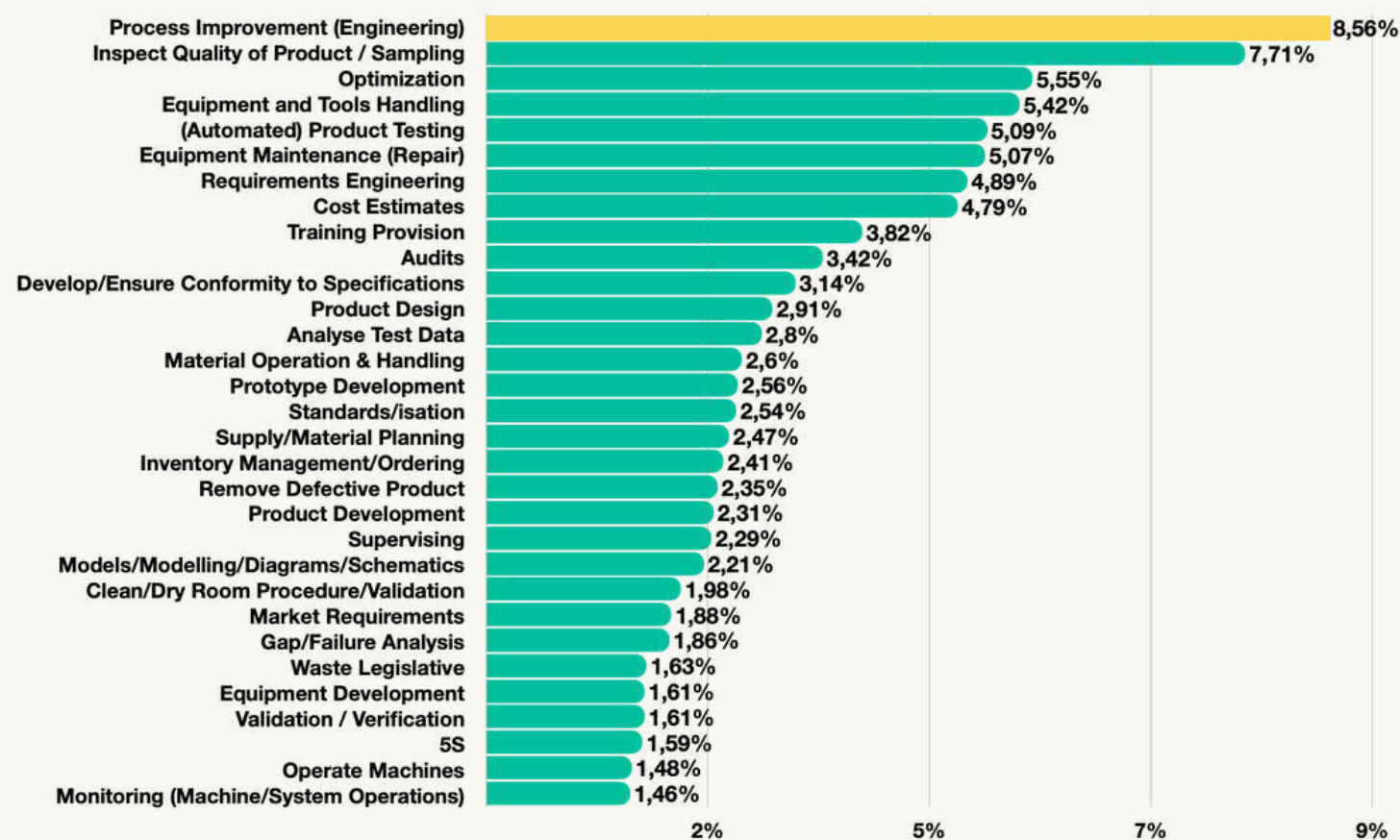
SECTOR SPECIFIC COMPETENCE



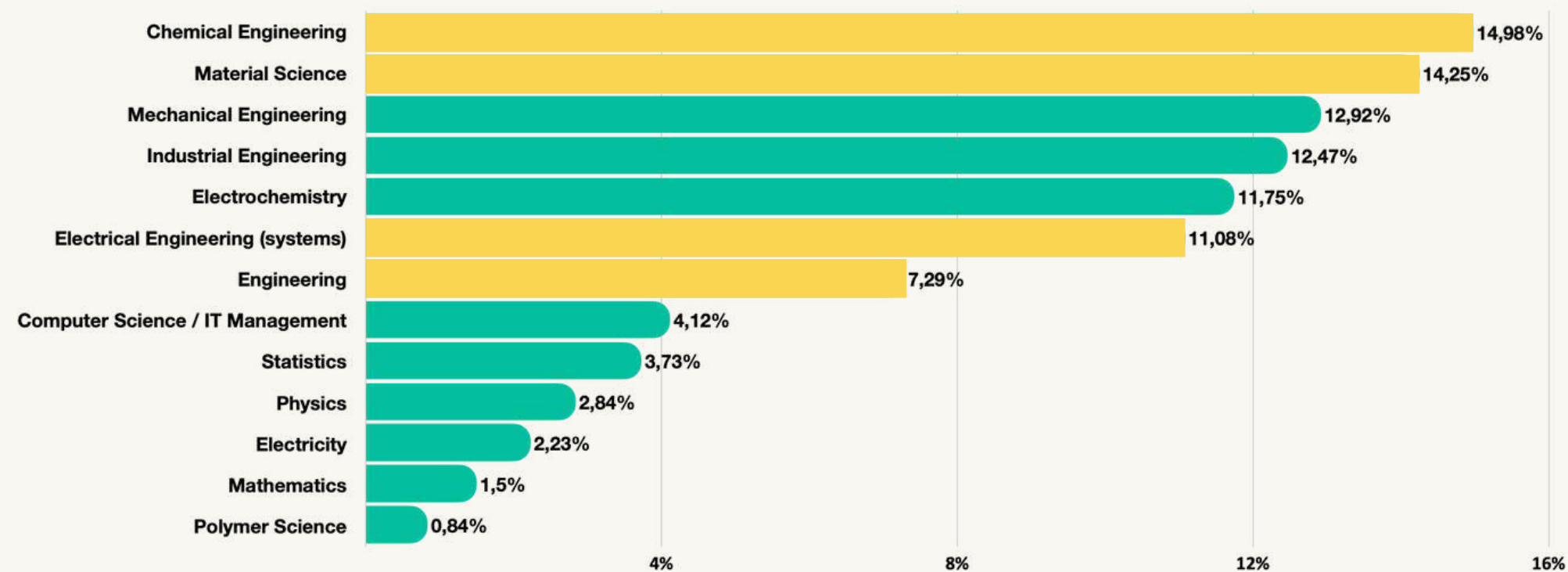
CROSS-SECTORAL SPECIFIC KNOWLEDGE



CROSS-SECTORAL SPECIFIC SKILLS



ACADEMIC COMPETENCE



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

JOB ROLES

BLUE-COLLAR

MATERIAL EXPERT/SPECIALIST LOCALISATION SPECIALIST  
METROLOGIST PLANNER  
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  
OPERATOR MACHINE OPERATOR  
PRODUCTION ASSEMBLER OPERATOR  
AUTOMATION / PROCESS OPERATOR  
INVENTORY AND RECEIVING SPECIALIST  
BATTERY PRODUCTION TECHNICIAN

WHITE-COLLAR

DEVELOPMENT ENGINEER - HIGH-VOLTAGE COMPONENTS BLUEPRINT DATA SCIENTIST  
MAINTENANCE SPECIALIST PLANNING AND LOGISTICS MANAGER DIRECTOR OF SUPPLY CHAIN  
SHIFT MANAGER UPSTREAM MATERIALS TECHNOLOGY ENGINEER SENIOR SCIENTIST  
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 ENGINEER  
RESEARCH & DEVELOPMENT BATTERY CHEMIST  
PRODUCTION ENGINEER  
SENIOR/STAFF BATTERY ENGINEER MANUFACTURING ENGINEER  
SENIOR AUTOMATION ENGINEER  
LEAN MANUFACTURING ENGINEER QUALITY ENGINEER BATTERY TECHNICAL LEAD  
BATTERY MATERIALS ENGINEER  
INDUSTRIAL ENGINEER SENIOR CATHODE ENGINEER  
MANUFACTURING ENGINEER, LI-ION ENGINEER EQUIPMENT ENGINEER  
SAFETY SPECIALIST SUPPLY CHAIN MANAGER FOR RAW MATERIALS SAFETY MANAGER  
PROCESS ENGINEER MATERIAL ENGINEER - ELECTRODE JUNIOR  
MANAGER OF BATTERY MAINTENANCE BATTERY MATERIALS ENGINEER HIGH DENSITY ANODES



## CONSIDERATIONS / RECOMMENDATIONS

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

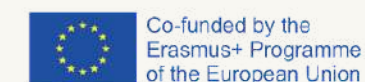
Development of new skills needs (and relevant training material) for mining and refining raw materials.

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

- [Sectoral Skills Intelligence and Strategy - Raw Materials and Processing](#)
- See the [list of the ALBATTs SKILLS CARDS](#)



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