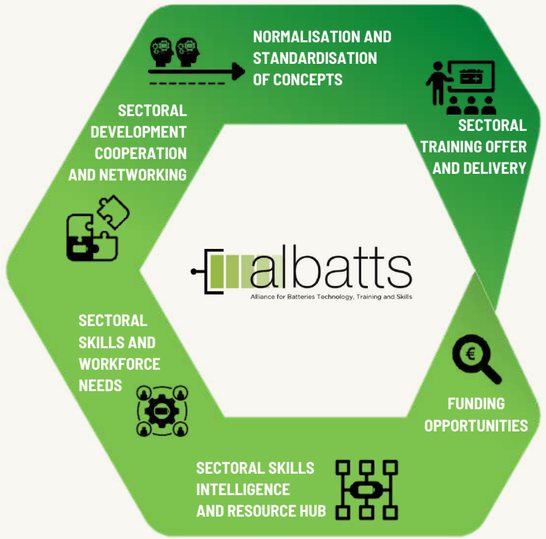
SECTORAL SKILLS INTELLIGENCE & STRATEGY FOR THE EUROPEAN BATTERY SECTOR

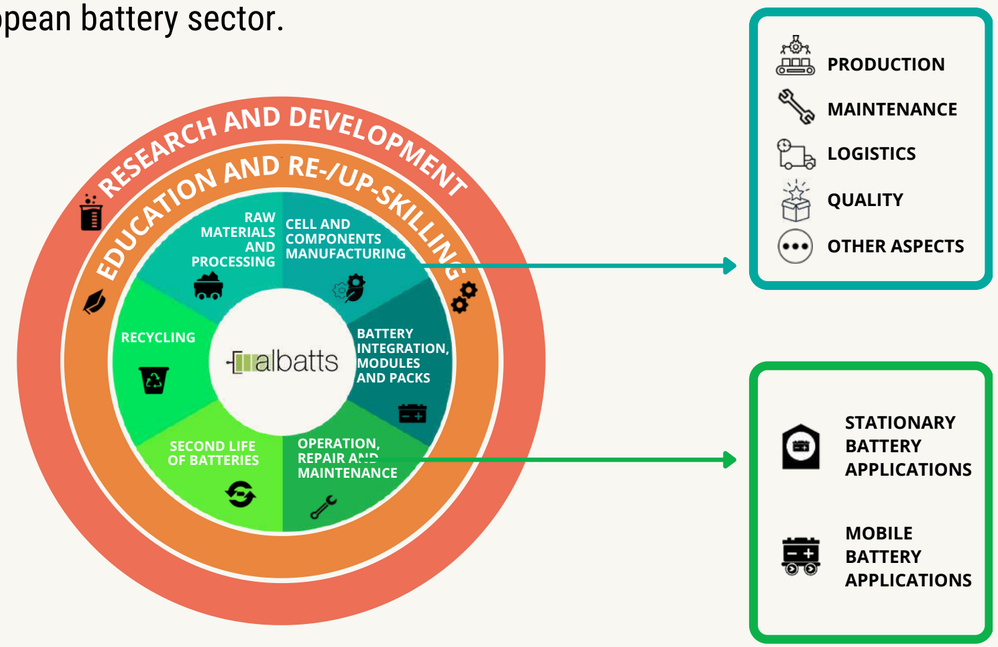
D3.10 – Sectoral Skills Intelligence and Strategy – Release 2

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 **battery integration modules and packs**.

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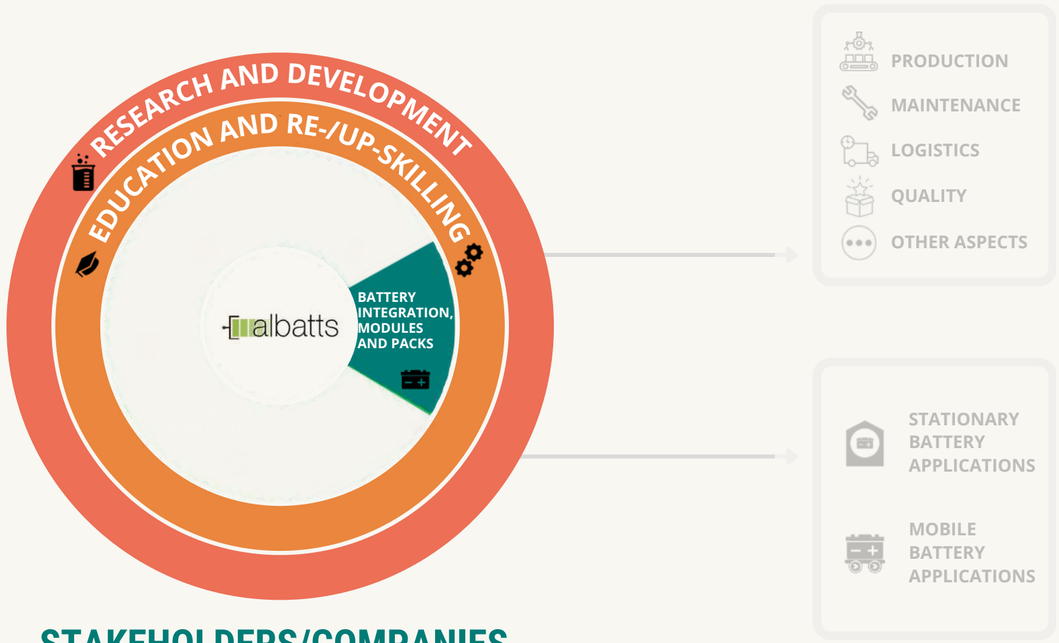
BATTERY INTEGRATION MODULES AND PACKS



BATTERY INTEGRATION covers the process of pack compilation, where the pack usually consists of several blocks of battery modules, battery management systems, and other systems, for example, thermal regulation systems.

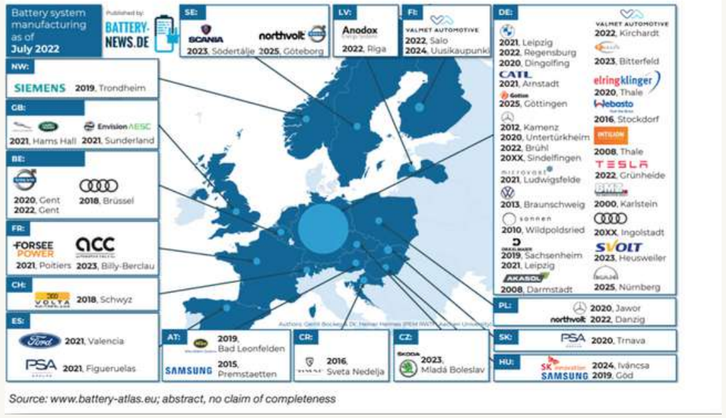
This part of the value chain concerns different aspects such as: **(1)** testing and validation (end of line testing and other related tests – functional testing, performance testing, connection scanning, electrical testing, calibration, part checks); **(2)** electronics packaging (electrical insulation, mechanical links, and other, optimization in terms of heat transfer); or **(3)** safety aspects and risk mitigation (related mainly to the thermal runaway and explosion), which is being assured by BMS, where different topologies may be implemented to keep the battery within the safety operation region in terms of voltage, current, and temperature during the charge, discharge, and some instances at open circuit.

Furthermore, regarding the BMS, other features and functions are observed and implemented: **(1)** monitoring of voltage; **(2)** contactor control; **(3)** isolation monitoring; **(4)** temperature measurement and control; **(5)** state of charge, health, and other metrics' measurements.

TARGET GROUPS: battery integrators; BMS manufacturers; modules and packs manufacturers and integrators; and other system manufacturers.

STAKEHOLDERS/COMPANIES

MODULE AND PACK MANUFACTURERS



Source: www.battery-atlas.eu; abstract, no claim of completeness

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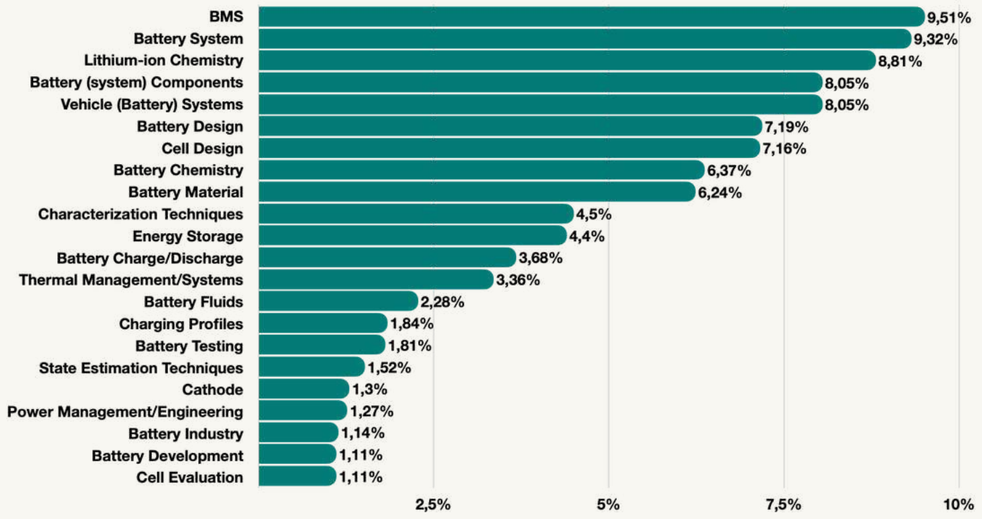
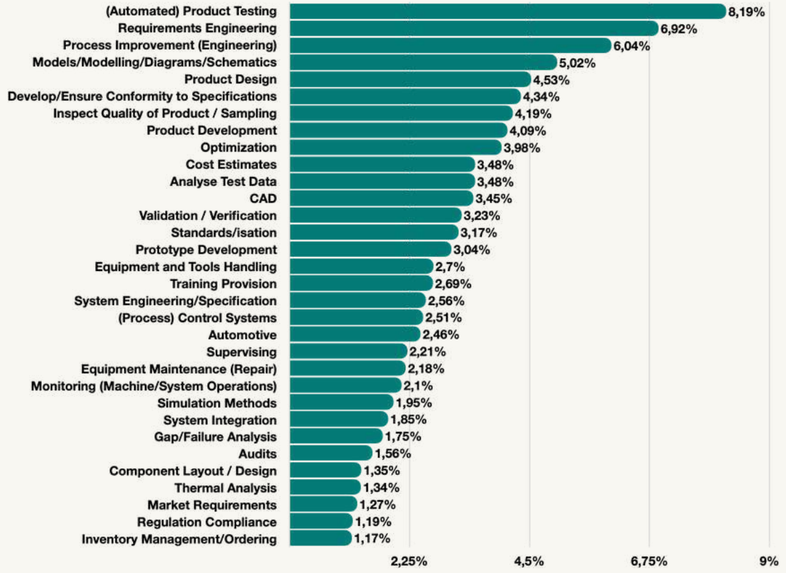
SKILLS, COMPETENCES & KNOWLEDGE NEEDS

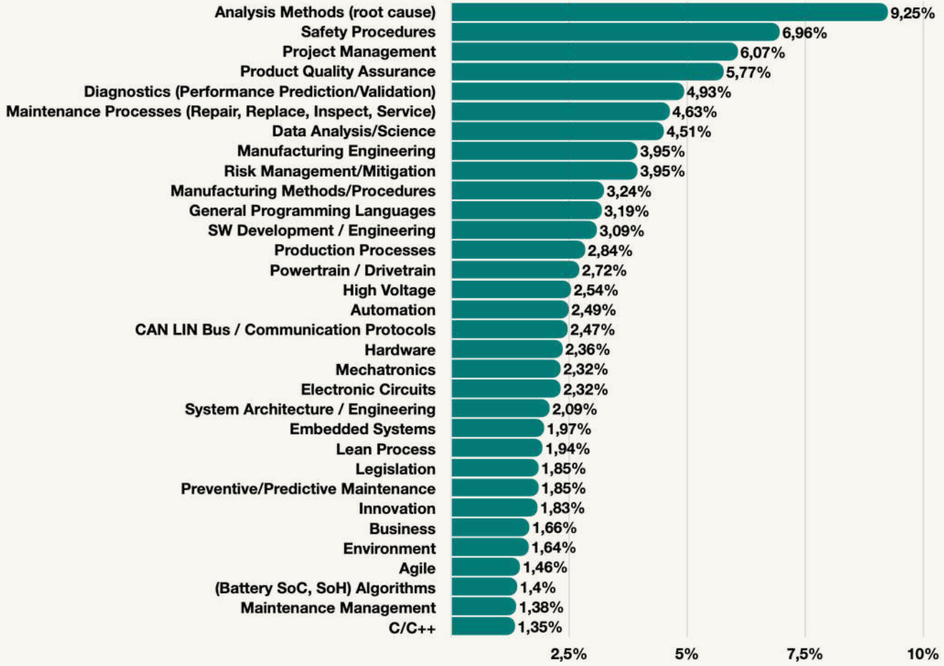
SECTOR SPECIFIC COMPETENCE



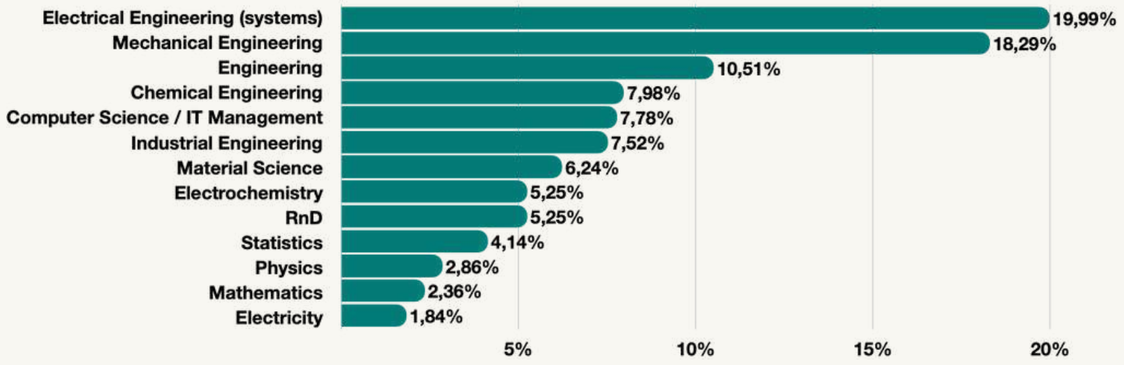
CROSS-SECTORAL SPECIFIC SKILLS



CROSS-SECTORAL SPECIFIC KNOWLEDGE



ACADEMIC COMPETENCE



INFORMATION
www.project-albatts.eu
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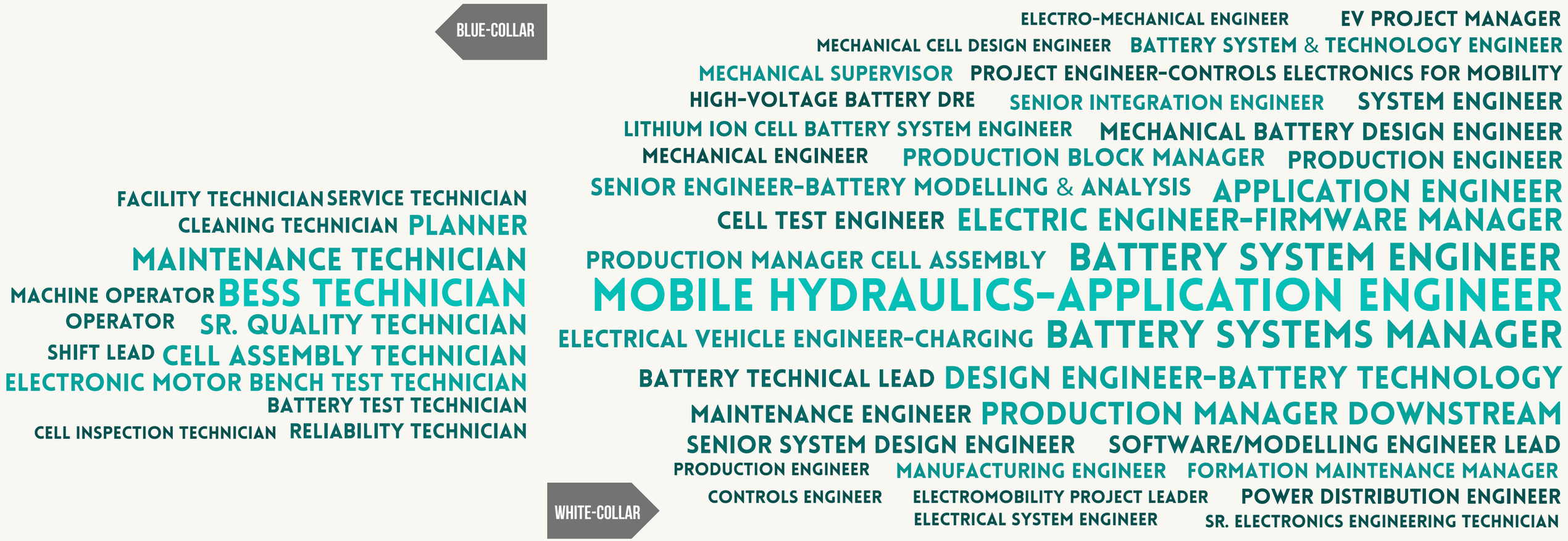
JOB ROLES



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GO TO REPORT

CONSIDERATIONS / RECOMMENDATIONS

- Strengthening competence in BMS development to achieve development in efficiency, predictable behaviour, and risk mitigation – concern is a battery system safety
- Development of competence within the standardization and frameworks for integration process and procedures of battery modules and whole systems
- Understanding the battery systems topologies and components
- Development and improvement of a framework for quality assessment and assurance
- Research and development within the BMS – concern is a battery system safety; efficiency and more advanced features of the system
- Battery integration & control - testing of integrated battery system within the application
- Development of more efficient SoC & SoH algorithms
- Strengthening of cooperation between integrators, manufacturers, and BMS suppliers
- Overall digital skills
- Development and research on BTMS - thermal management issues and other aspects – (1) safety; (2) physical or mechanical performance; (3) durability; (4) ripple current; (5) accuracy of measuring instruments; (6) materials for fire resistance and electronics packaging;

LINKS & RESOURCES

- Sectoral Skills Intelligence and Strategy - Battery Integration, Modules, and Packs
- See the list of the ALBATTS **SKILLS CARDS**

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