



BATTERY POWERED

TOUR FOR SKILLS

Enabling a prepared education network for the battery ecosystem in Europe

Education and Training development for the battery value chain within ALBATTs

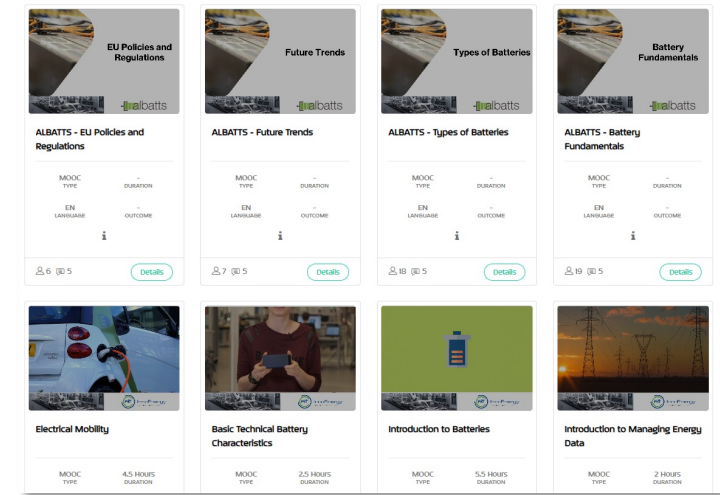
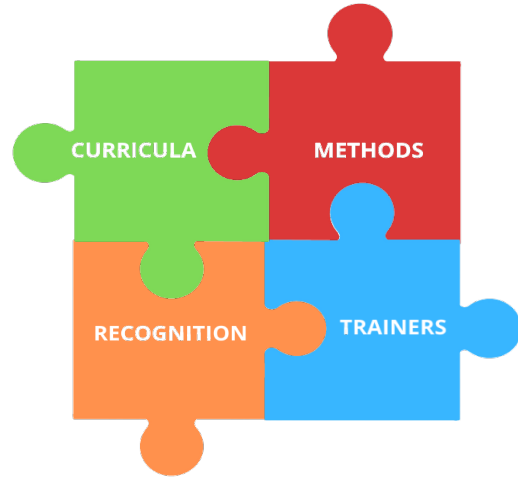
João Alves, ATEC



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ALBATTTS Tackles Two Main Questions



2

HOW CAN WE ADDRESS CURRENT CHALLENGES?

EDUCATION & TRAINING

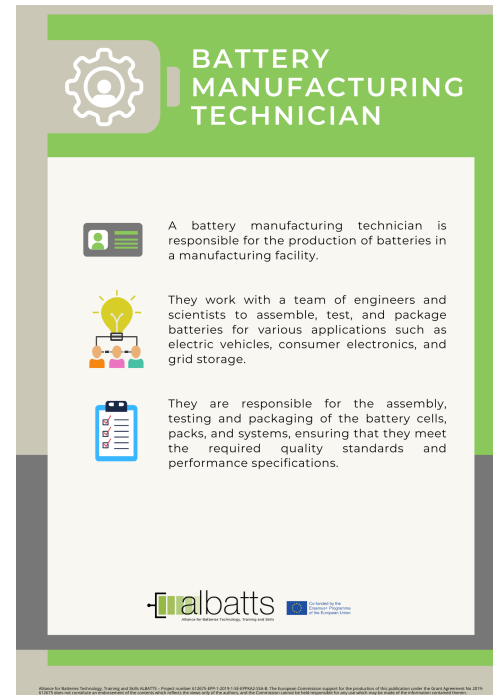
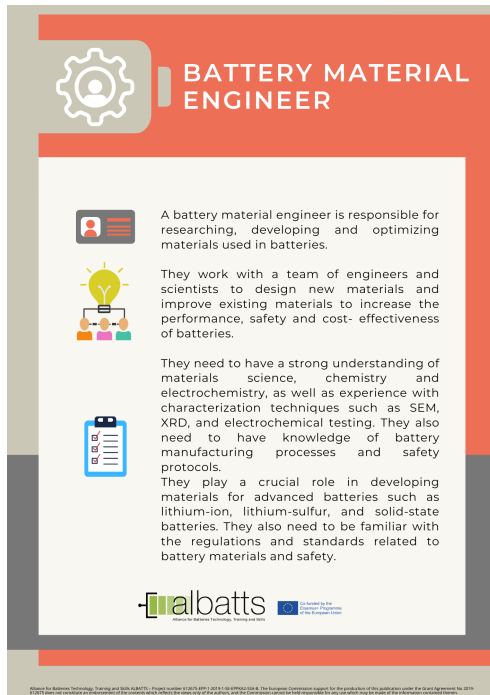
- **FOCUSING ON** Vocational Education and Training (**VET**) & Higher Education (**HE**) **AIMED AT initial training and re-skilling and up-skilling of workforce**

Skills Cards

26 job skills cards produced
(15 on HE level and 11 on VET level)

Each card has short description of the job role and

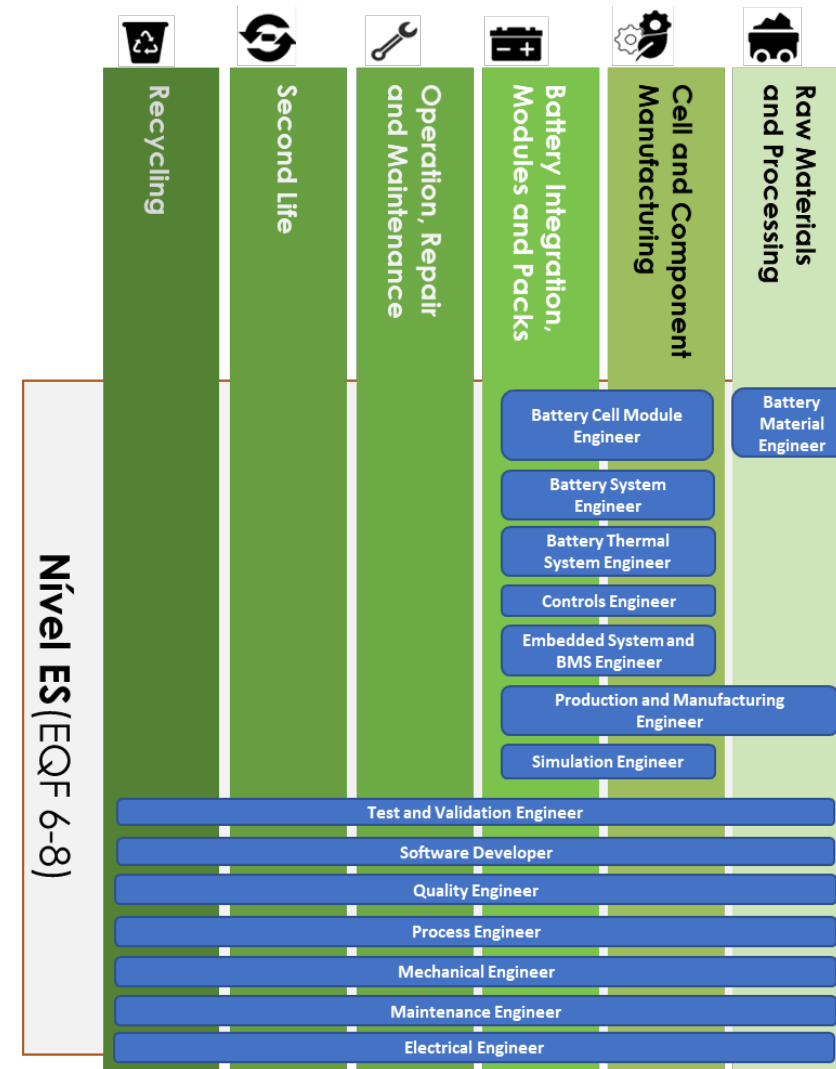
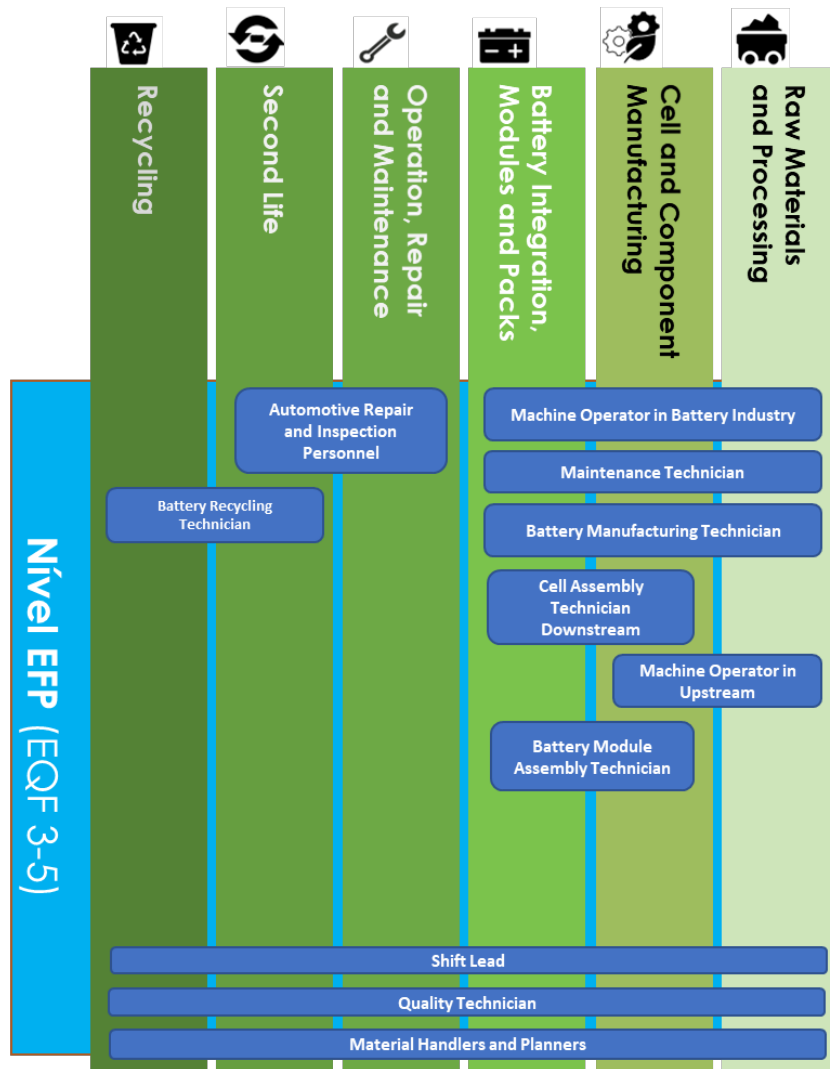
- Cross-sectoral specific competences
- Sector specific competences (has a big importance)
- General transversal competences
- Academic competences



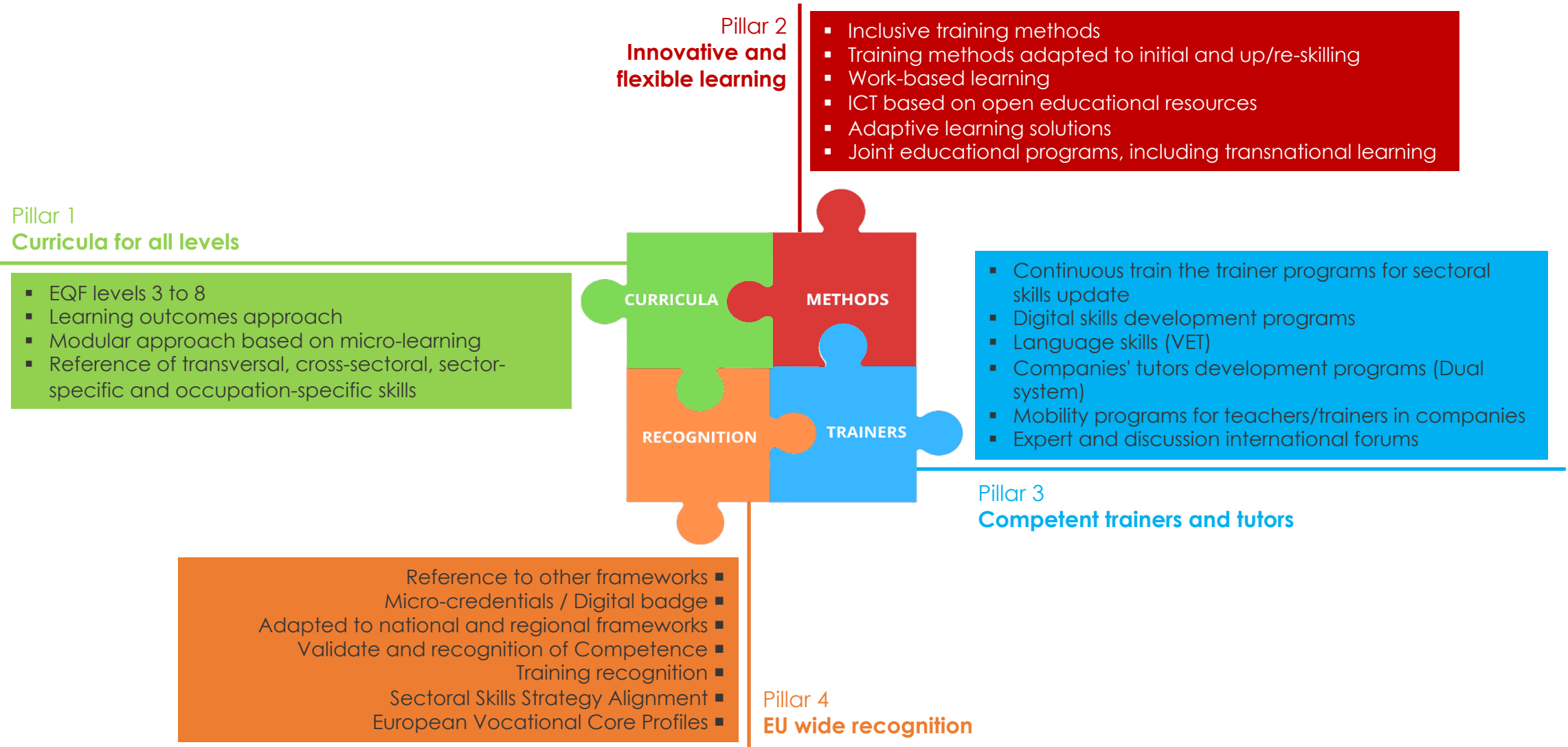
ALBATTs SKILLS CARDS

Summaries of Skills Cards (available in our website)

Skills Cards



Education & Training Framework



Courses

11 Courses already
available



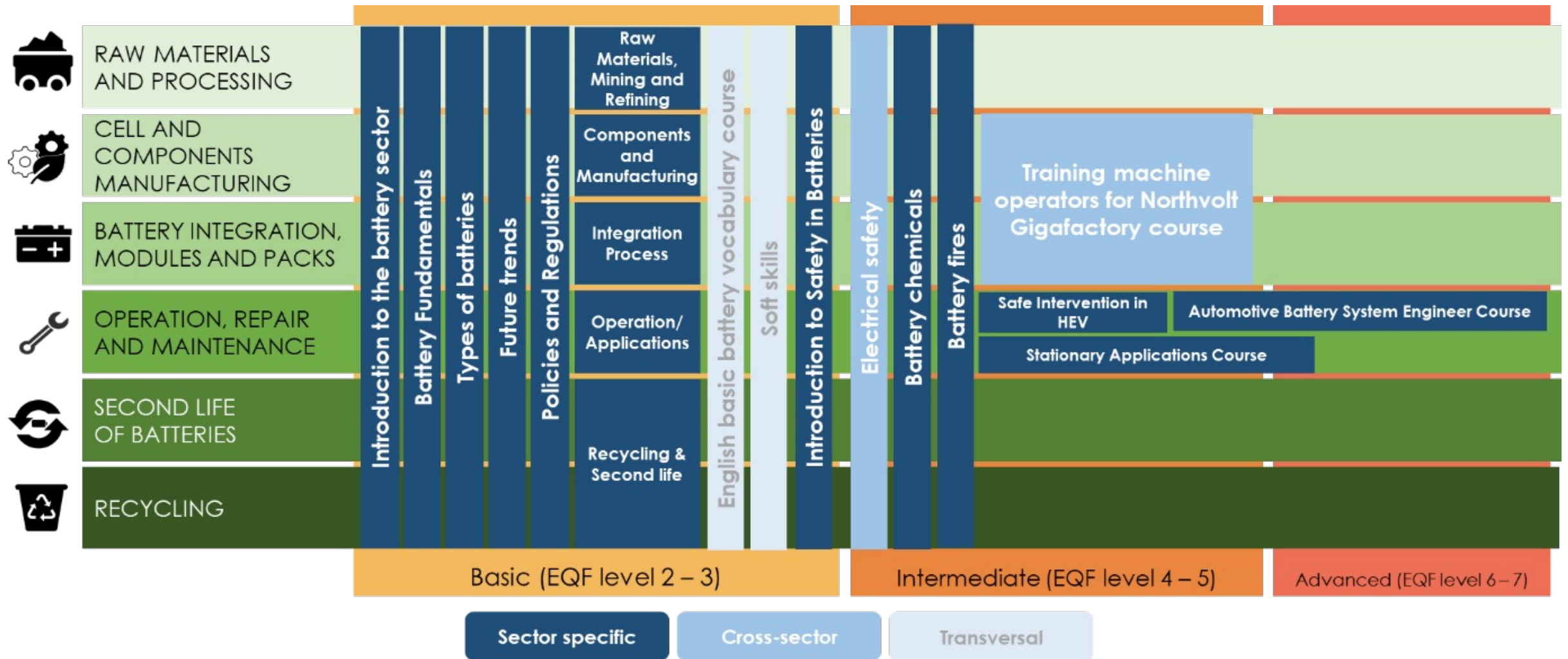
Examples of available courses

Available through the Automotive Skills Alliance (ASA), an association created through the bridging of the projects ALBATTS and DRIVES activities and to sustain project results



ALBATTS COURSES

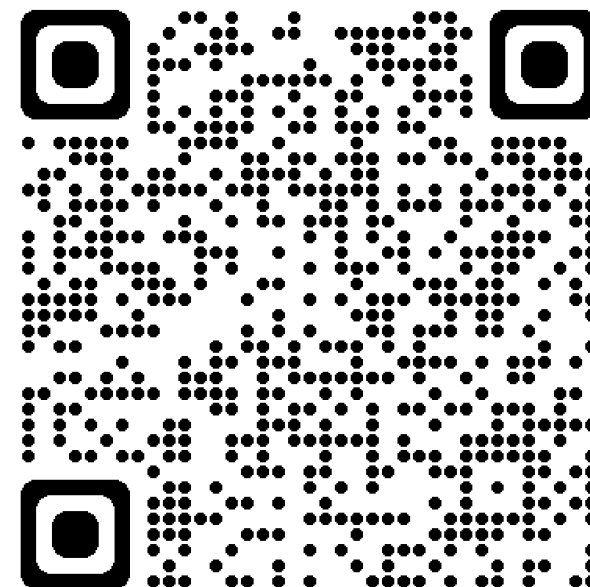
ALBATTs courses



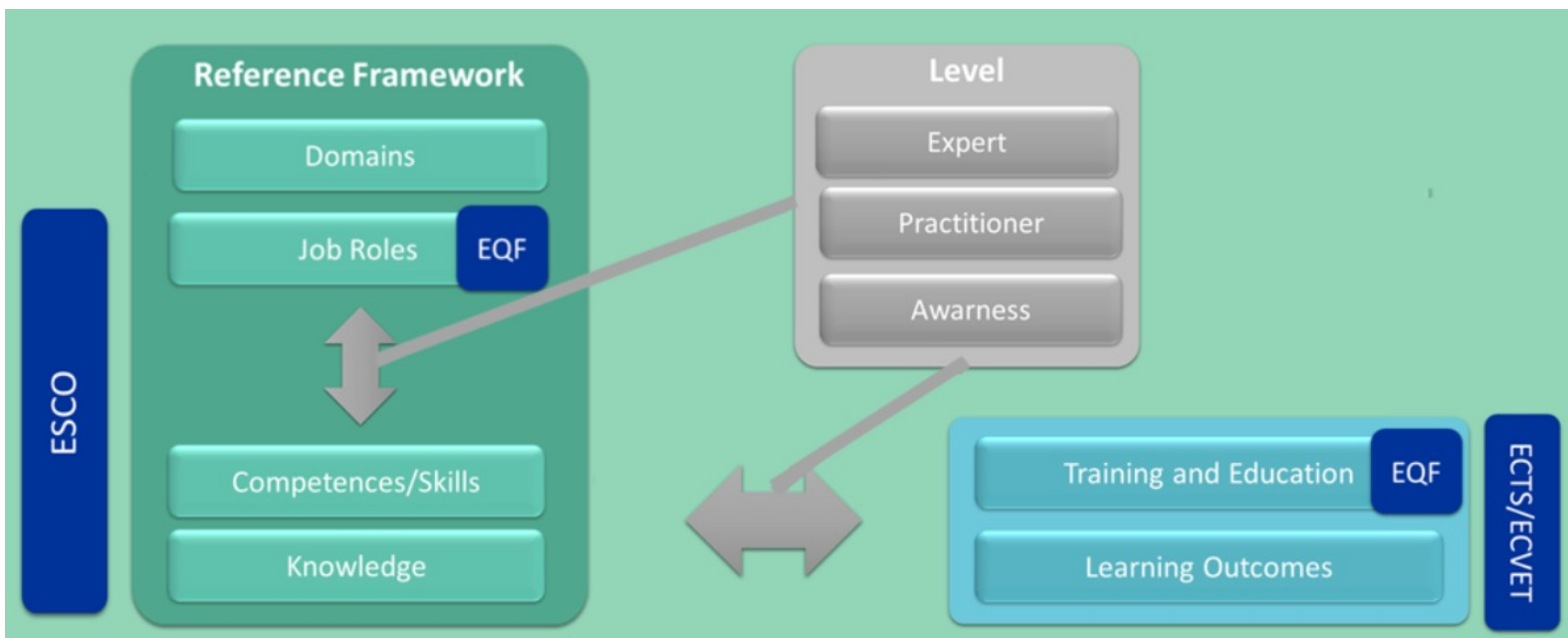
Learning Platform



- Database for **training courses**
- Definition and **recognition of job roles** and skills/competence concepts using micro-badges.



learn.skills-framework.eu



Training for VET Teachers

COLLABORATION

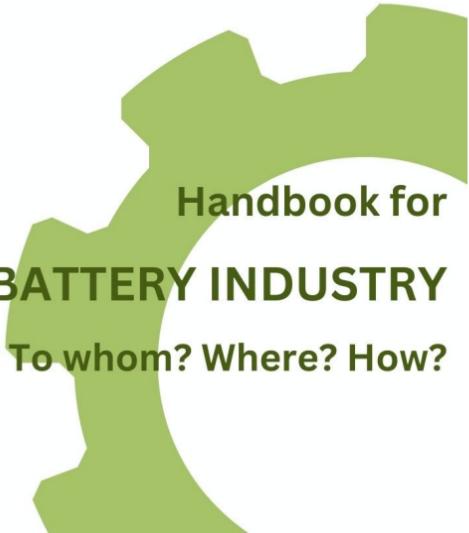
BEST PRACTICES &
FUNDRAISING

Support of Knowledge Sharing

About BaTT Forum

- The Batteries Teachers & Trainers Forum (BaTT Forum) is an initiative launched by ALBATTs
- Upskilling and sharing of the best practices among VET teachers to support Batteries education and training (especially EQF 3-5)





Handbook for
TRAINING IN THE BATTERY INDUSTRY
Why? What? To whom? Where? How?

Will be published in March 2024

**Will be found on Albatts
homepage [https://www.project-
albatts.eu/en/home](https://www.project-albatts.eu/en/home)**

**Target group: VET schools,
teachers, companies**

Recommendations



Battery Training Courses & Skills Collaborations

- ⚡ Need for urgent and continuous training courses offer and update & Need for active and sustainable collaborations, e.g.: **New Eba Academy – InnoEnergy Skills Institute**



An initiative of the European Commission



Thank you!



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<https://www.project-albatts.eu>



**@ALBATTs – Alliance for Batteries Technology,
Training and Skills**



@ALBATTs1



@Project ALBATTs

**JOIN OUR NETWORK THROUGH OUR WEBSITE AND GET FIRST-HAND INFORMATION
ABOUT OUR WORK & BATTERY SECTOR SKILLS AGENDA!**



BATTERY POWERED

TOUR FOR SKILLS

Enabling a prepared education network for the battery ecosystem in Europe

Needed Job Roles and Competences in the Battery Industry

Ing. Marek Spányik, MBA (VSB-TUO)

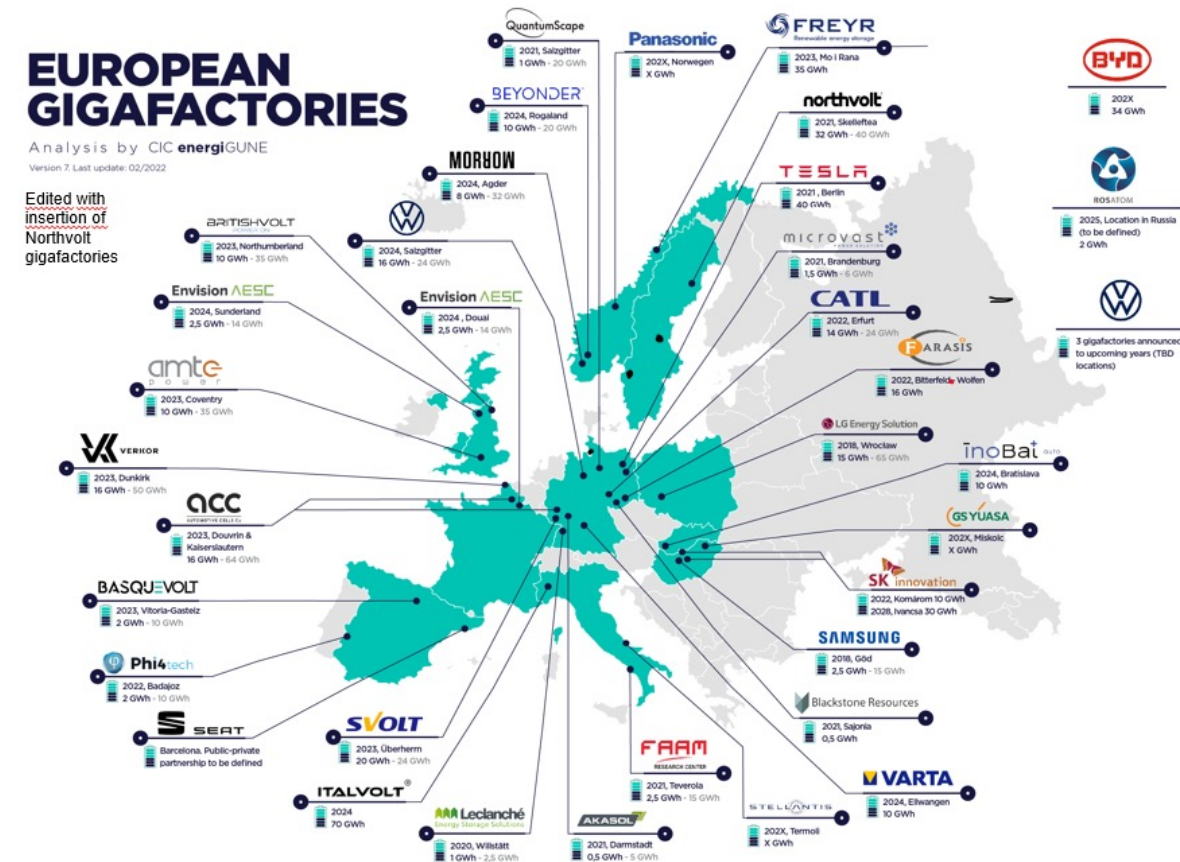


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What is the European Battery Sector?

European Battery Sector



Highly **emerging and rising** sector in Europe
Electromobility is pushing the **European battery sector**

This needs to be supported by the **workforce with the right skills**
Change of needed skills/competences or knowledge during the individuals' career – **the change is constant.**

High demand for workers “The industry estimates that by 2025, this growing **skills shortage** could amount to some **800,000 jobs** across the entire battery value chain.” - EC Vice-President Šefčovič March 12th, 2021

SECOND LIFE APPLICATIONS

EU companies associated with second-life batteries as of May 2023

Published by:

BATTERY-NEWS.DE



- Collection & transport to the plant
- Identification & condition determination
- Selection of End-of-Life strategy
- Technical conditioning
- Integration & Installation

Norway

Corvus Energy

ECOSTOR

GBD
GRÖNVOLD'S
RECYCLING AS

Finland

fortum

Europe

STENA RECYCLING

reneos

Great Britain

ZENOBE
SNAM GROUP
CONNECTED ENERGY
offgrid energy
BMW GROUP
Second EV SERVICES
HONDA
LITHIUM BATTERY
PRAMAC
JAGUAR
LAND-ROVER

$\Sigma = 81$ companies

Belgium

ReVolta
WATT4EVER
OUTUSE
Octave

Spain

ALTABATTI
Be Planet
ABERVIAN
cidetec
+MILLOR

France

Renault Group
BOUYGUES

Portugal

Evolution

Luxemburg

Circu Li-ion

Austria

Italy

CESVI MAP
ANFIA
enel x
e-mobility service

Sweden

cling
BATTERYLOOP

Netherlands

EcarACCU
FNT
SPERS NEW TECHNOLOGIES
BNA BATTERY

Germany

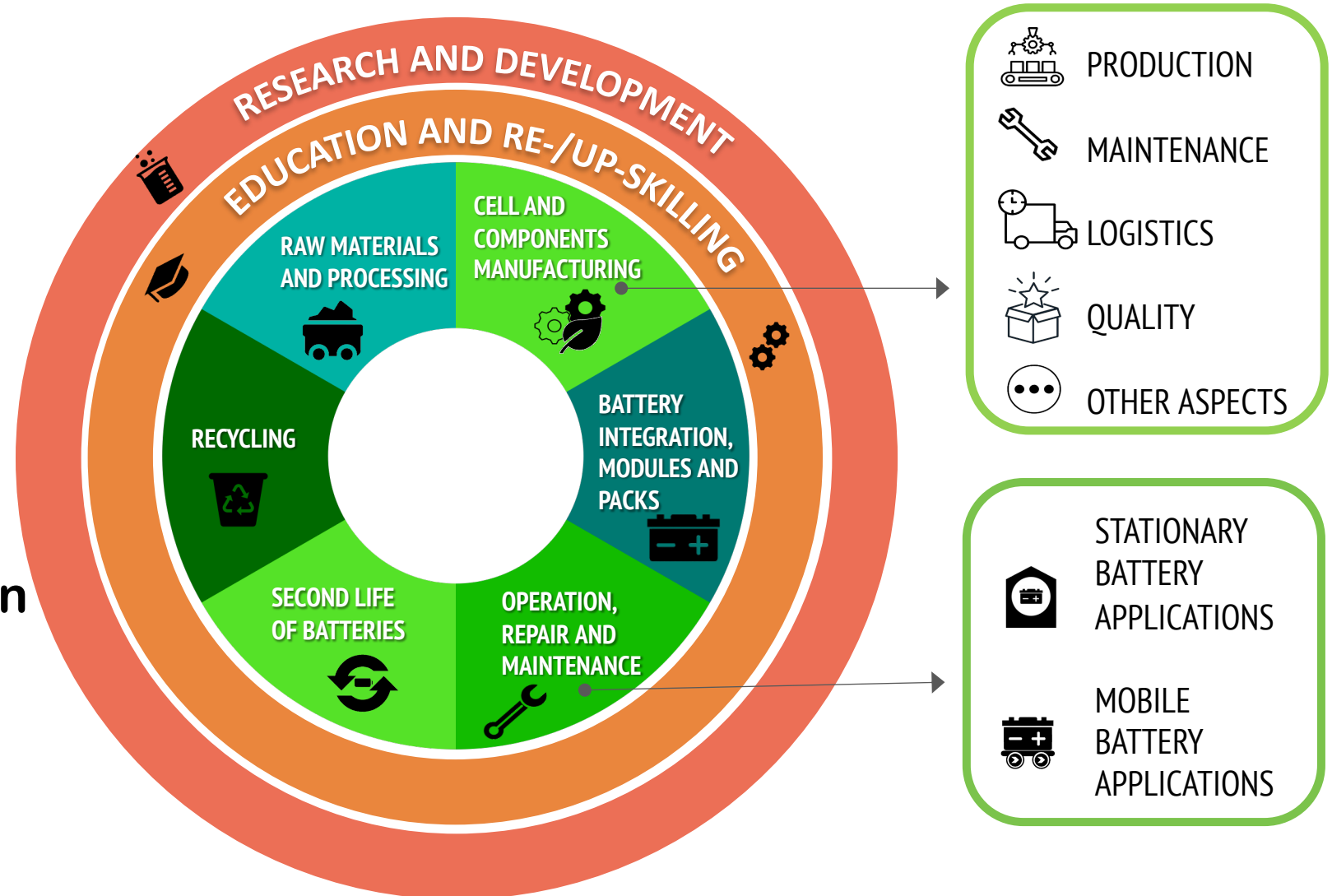
ACCURE
DEKRA
MHP
NOVUM
Q Coulomb
DB SCHENKER
STABL
fenecon
circunomics
FeV
V
num
LUEG.
LogBATT
Elektro-Automatik
VOLUME GRAPHICS
FERCHAU ENGINEERING
Voltafang
encore
betteries
Ixxat
Mercedes Benz Energy GmbH
Audi
deppe
ambibox
gigabatt
DellCon
BELECTRIC
CMS Technology
riello
POWER SYSTEMS

Authors: Merlin Frank & Prof. Heiner Helmes (PEM RWTH Aachen University)

Source:
Battery Atlas Europe

Battery Value Chain

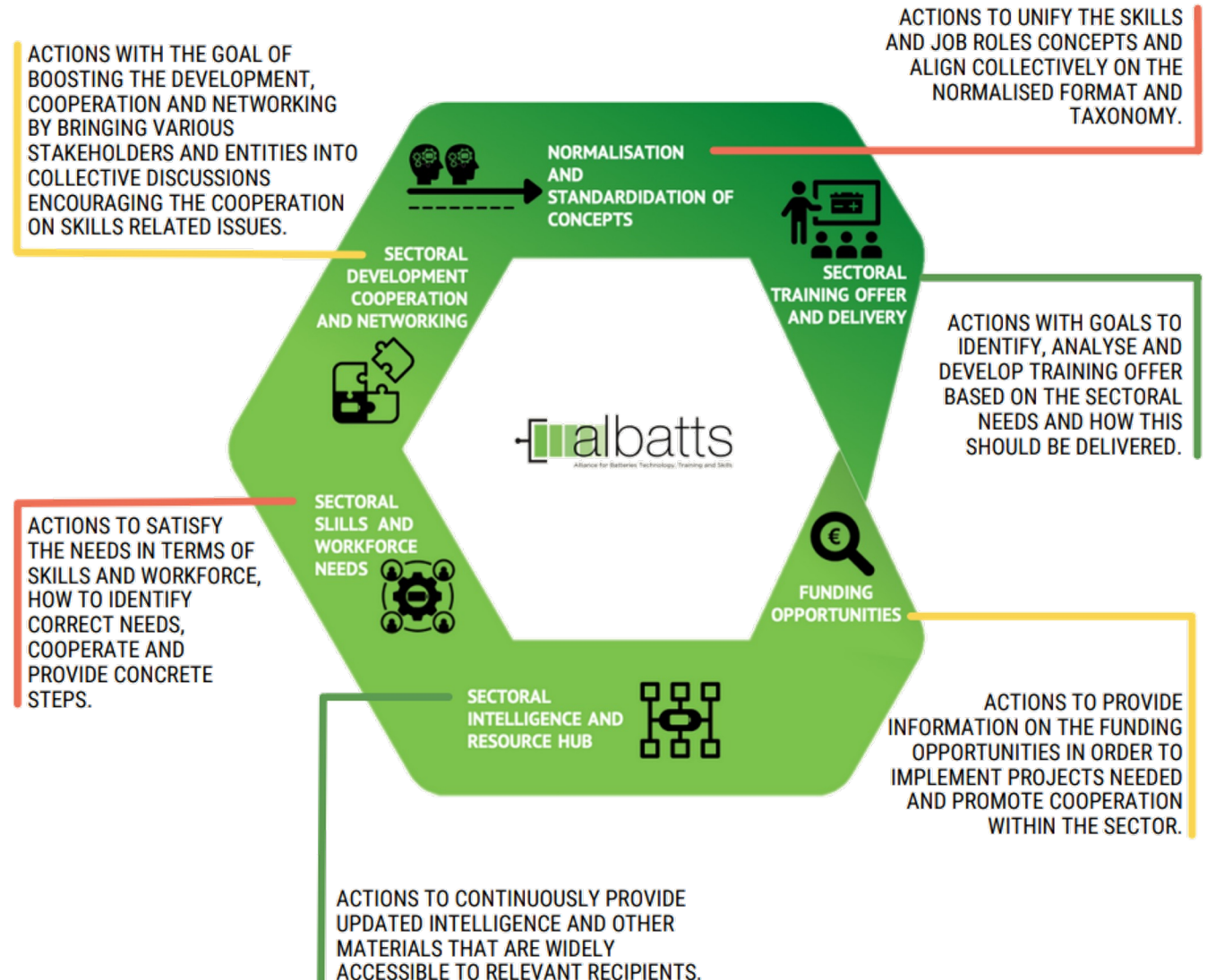
- ⚡ There is a lack of information on needed skills and job roles
- ⚡ We need more collaboration
- ⚡ Needed skills impact on each phase of the production cycle



Skills Agenda and Strategy

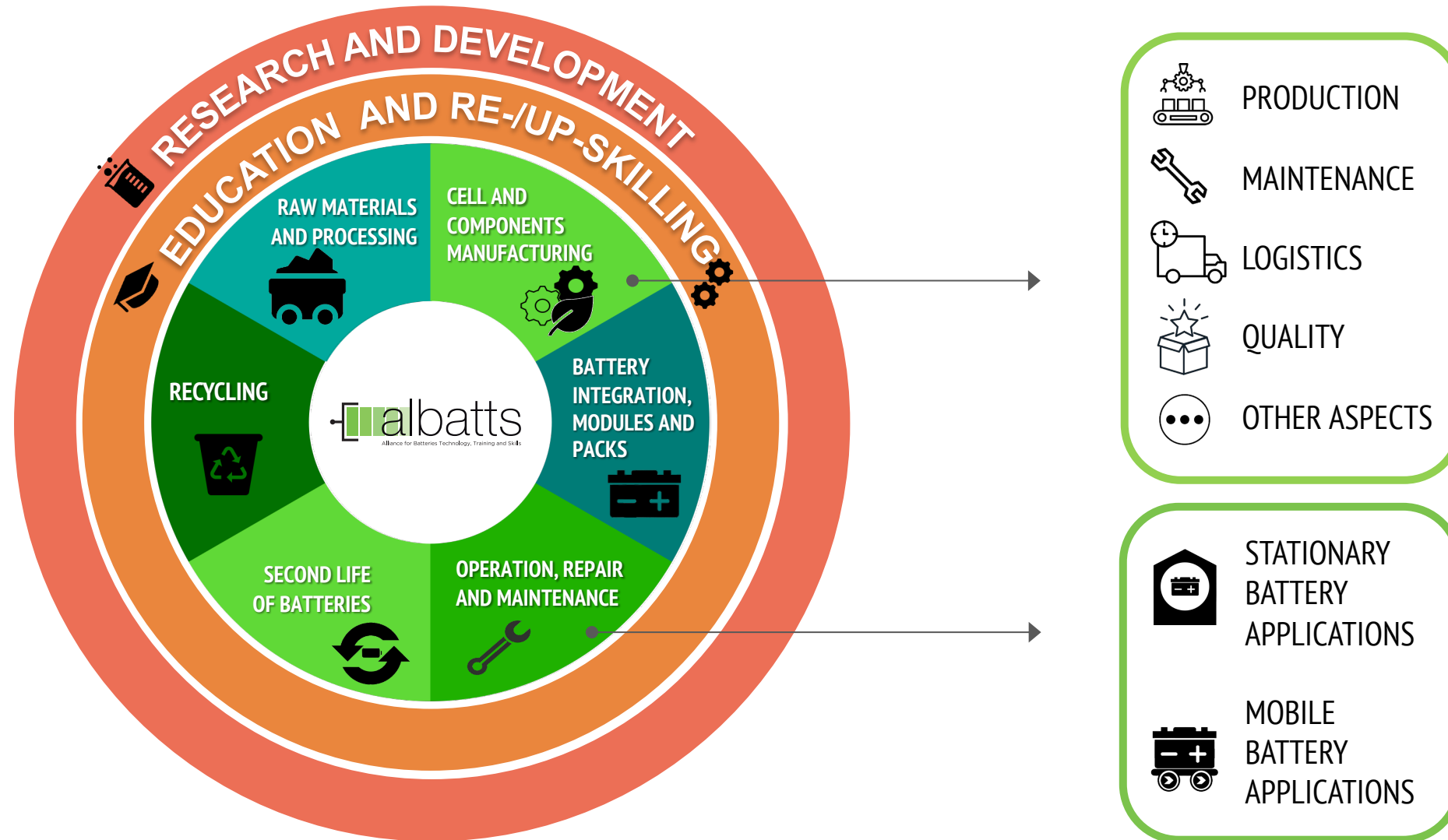


- ⚡ The overall assessment is supported by a strategy
- ⚡ The whole value chain and all levels of education need to be addressed
- ⚡ Competences can be sector specific and cross-sectoral



Glance on Needed Skills

RAW MATERIALS AND PROCESSING



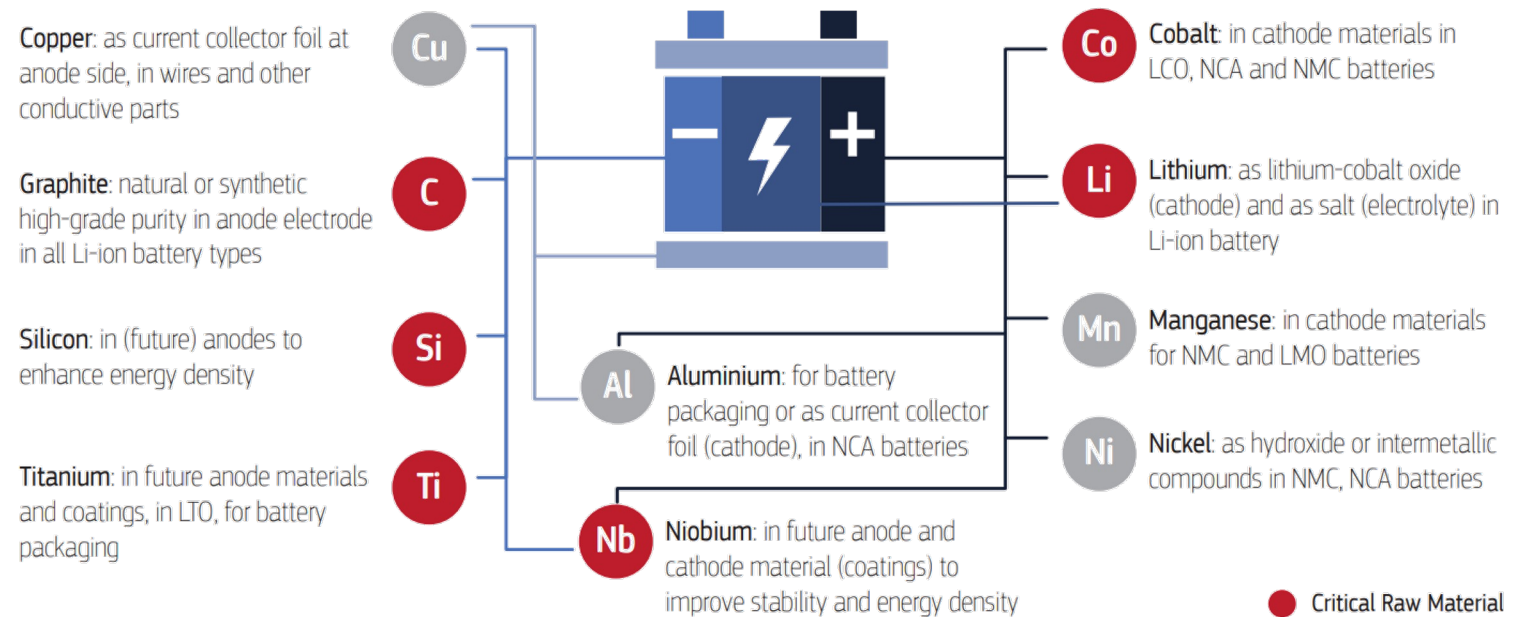
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Raw Materials and Processing



- ⚡ Strengthening the awareness on the critical raw materials questions for Europe and connected emerging trends and issues;
- ⚡ Development of new skills needs for mining and refining of raw materials relevant for the battery production (and relevant training material)
- ⚡ Cooperation on the skills agenda and organization of education events with relevant stakeholders within the sector



Critical Raw Materials for Europe - [DocsRoom - European Commission \(europa.eu\)](https://docsroom.ec.europa.eu/)

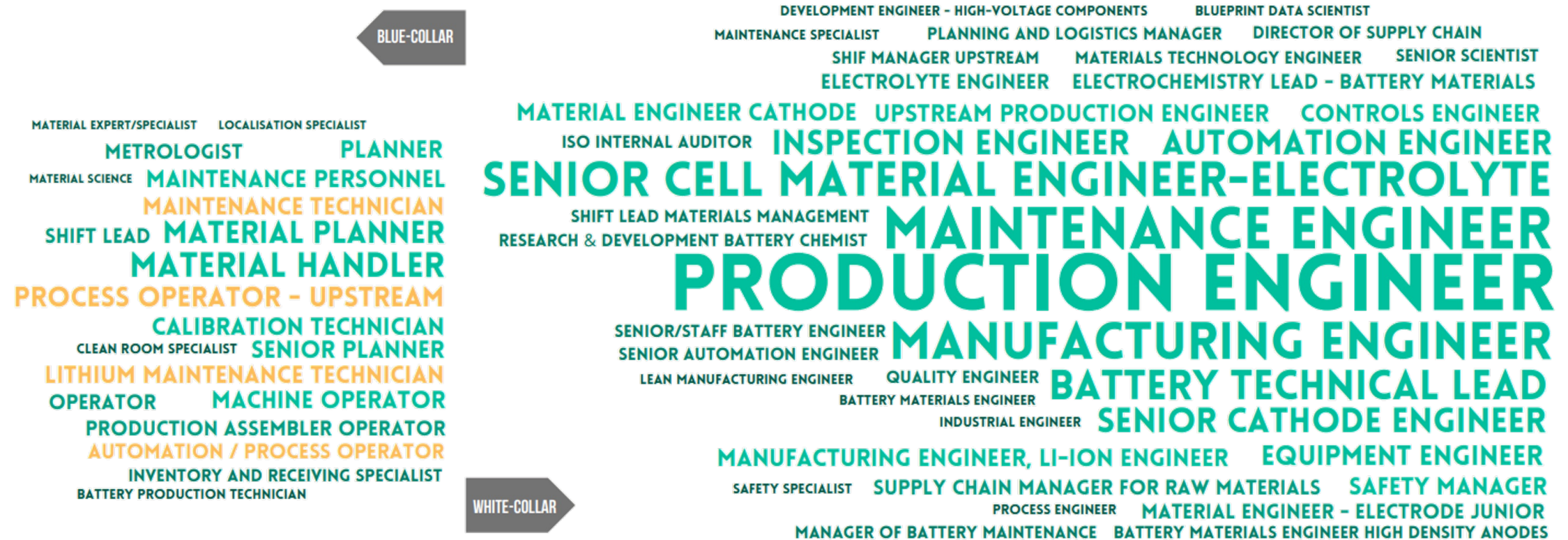


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Raw Materials and Processing – Job Roles

→ What Industry Demands



Blue-collar workers expertise domains: process and machine operation; material planning; calibration and instruments/ equipment; and other.

White-collar workers expertise domains: material engineering (electrode, cathode, electrolytes and other); production control; inspection and quality; supply chain management; production; process and methodology improvement;

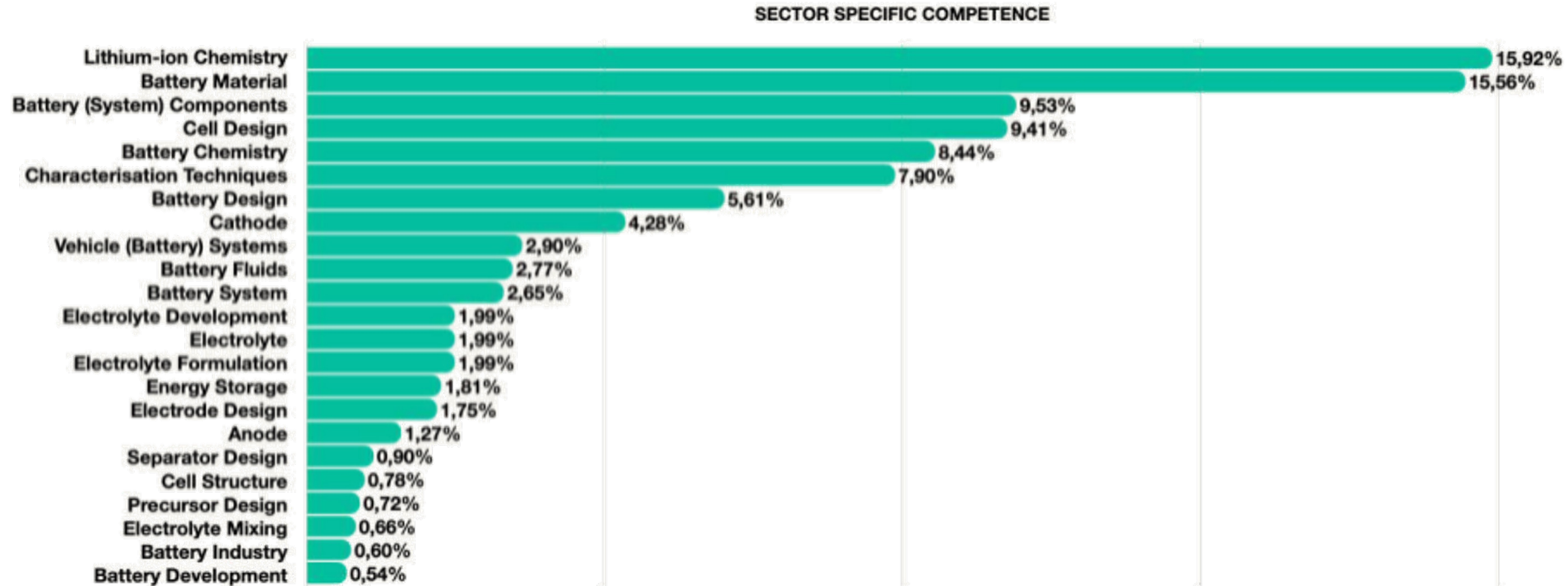


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Raw Materials and Processing – Skills and Competences

→ What Industry Demands

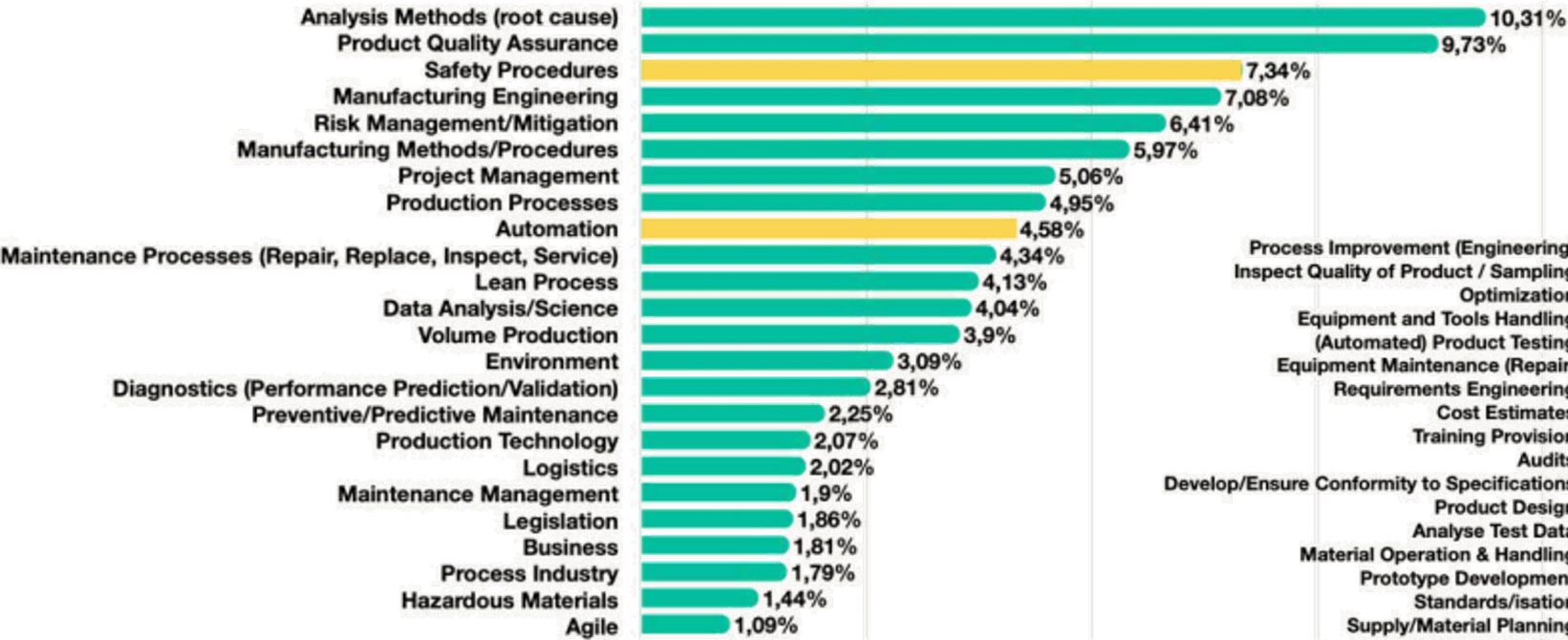


Raw Materials and Processing – Skills and Competences

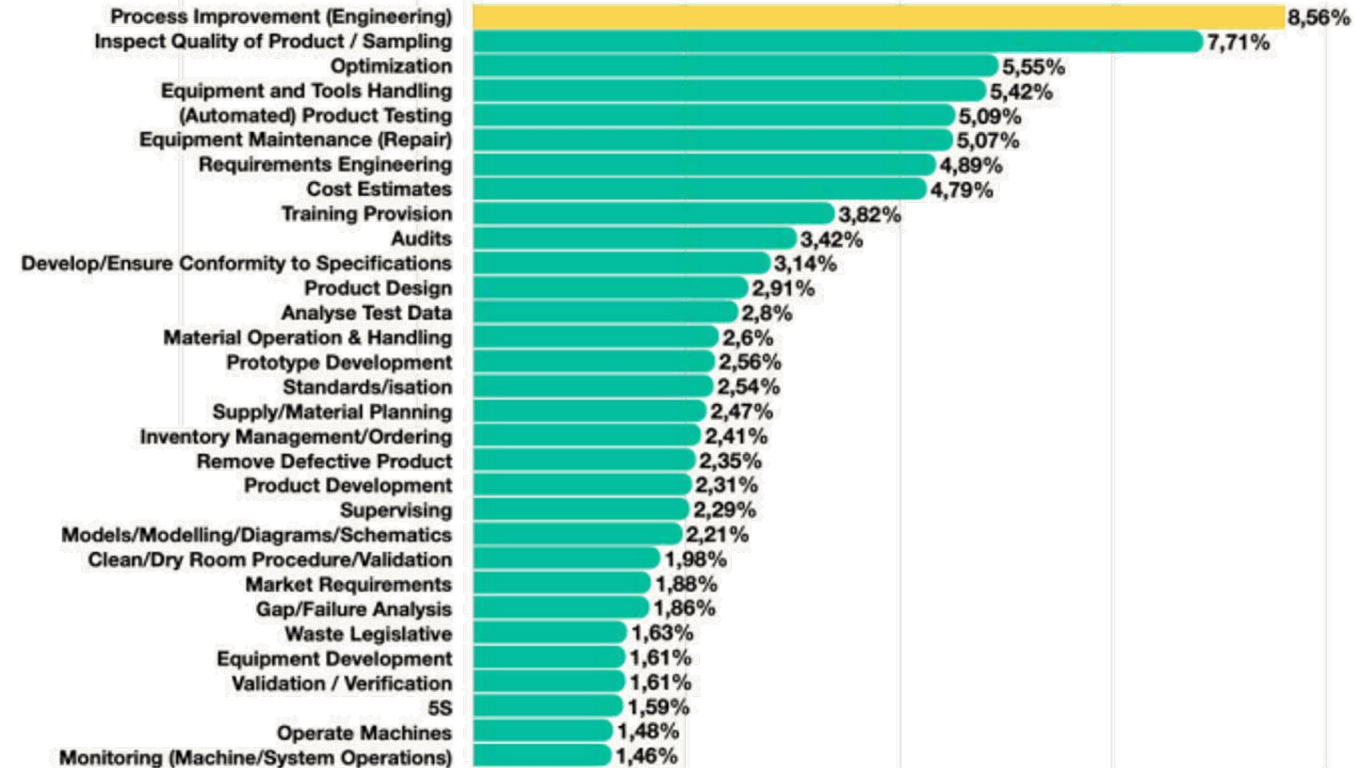


→ What Industry Demands

CROSS-SECTORAL SPECIFIC KNOWLEDGE



CROSS-SECTORAL SPECIFIC SKILLS

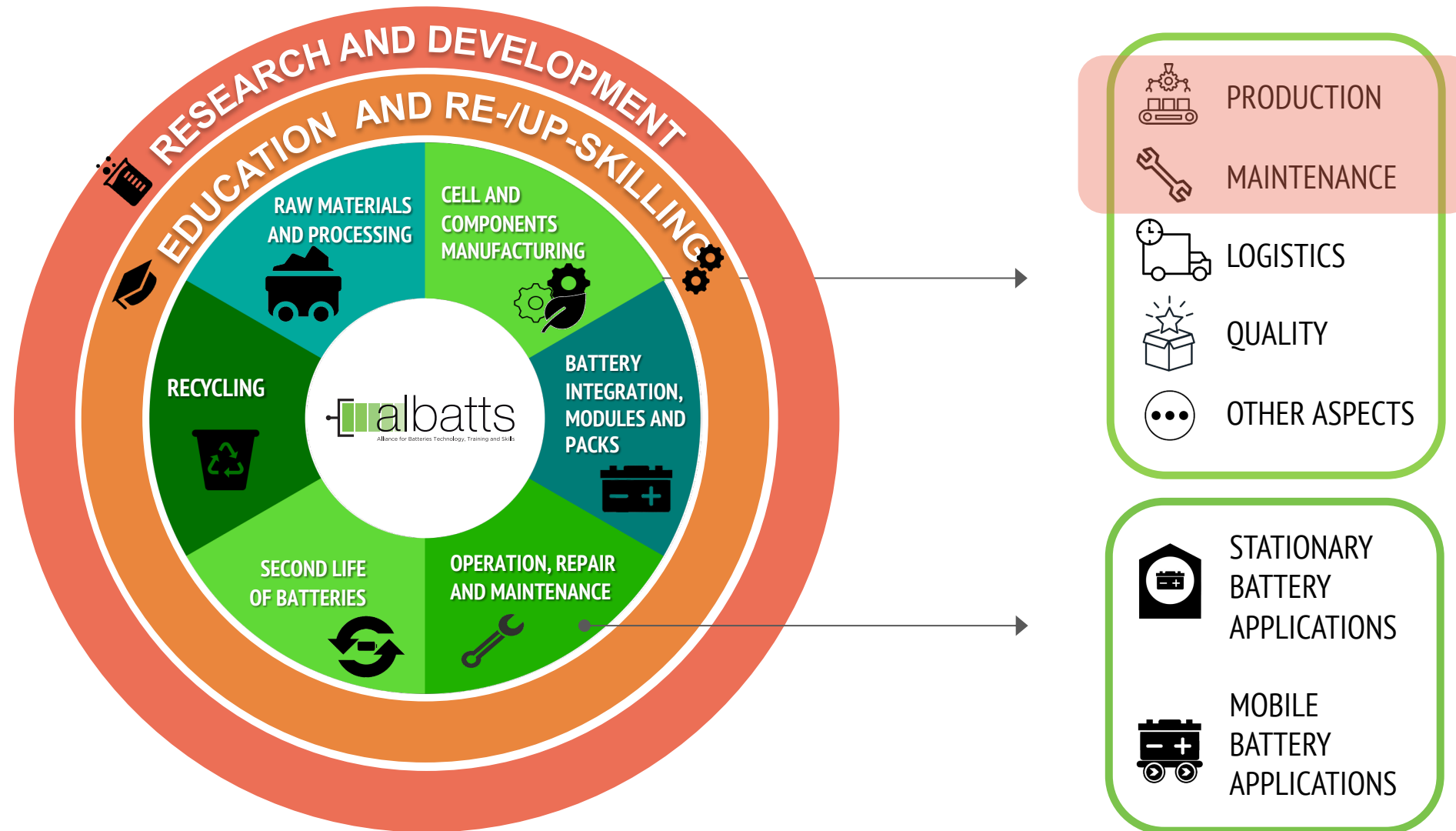


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Glance on Needed Skills

CELLS PRODUCTION & CELLS MAINTENANCE



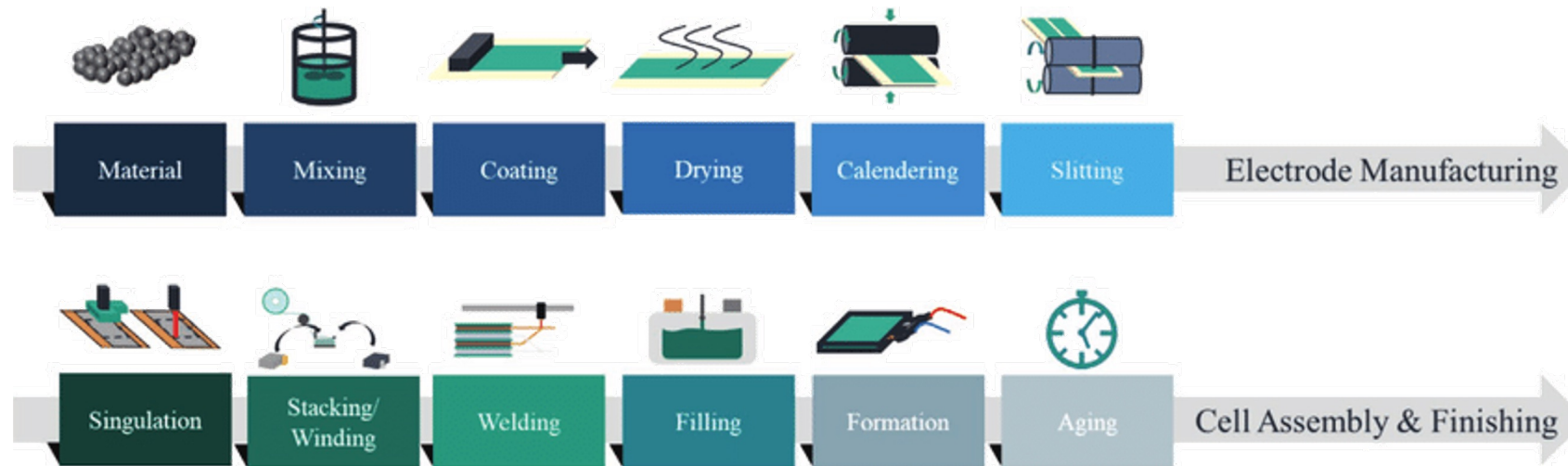
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Cell Production



- ⚡ Understanding in fields **electrochemistry, electronics, mechanical engineering, process engineering, manufacturing technology, automation and digitalization in manufacturing** (data analytics, maintenance and product process optimisation)
- ⚡ In general, to speak and understand foreign languages, mainly English in working environment



Critical Raw Materials for Europe - [DocsRoom - European Commission \(europa.eu\)](https://docsroom.ec.europa.eu/doclib/external_documents.do)



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Cell Production and Maintenance – Specific Needs



→ What Industry Demands

PRODUCTION

- Apart from the general battery-related education, strengthening the skills and competencies to ensure understanding of setting up the production, preparing the related structures, commissioning the machines, chemical, and mechanical assembly, automation experience, and mechanical understanding of the automated systems combined with understanding the related software and calibration.
- Strengthening general IT and data analysis skills to cover future needs.
- Battery skills (also mentioned in the context of Production)
- "Dry and clean room" maintenance (including room contamination measurement)
- Predictive and preventive maintenance
- Diagnostics

WHITE-COLLAR SPECIFIC NEEDS

- Increasing competencies in **production and material engineering, production planning, production management, shift management, process engineering, cell design, machine learning and optimisation, modelling and simulation;**
- Strengthening the focus on **large-scale manufacturing**, understanding of **chemical processes** and **quality, risk and safety management;**
- **Battery industry-related knowledge skills:** battery material, battery chemistry, battery fluids, battery components, battery testing, defective products removal

BLUE-COLLAR SPECIFIC NEEDS

- "Upstream" production - increasing knowledge to understand the **risks, envision the safety issues**, and how **chemicals** behave;
- "Downstream" production - increase **machine understanding, 5S skills**, and the ability to **troubleshoot**;
- Overall production system understanding;
- Knowledge/skills: **material handling, Clean/Dry Room Procedure/Validation, Inspect Quality of Product / Sampling, material pressing, electrode process, fine mechanics, HMI (Human Machine Interface)**



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Production and Maintenance

→ What Industry Demands



BLUE-COLLAR

TECHNICAL ASSEMBLY WORKER
ELECTROMECHANICAL EQUIPMENT ASSEMBLER CMM LAB TECHNICIAN
BATTERY TECHNICIAN OPERATOR
MAINTENANCE TECHNICIAN SHIFT LEAD
LITHIUM MAINTENANCE TECHNICIAN
CALIBRATION TECHNICIAN
CELL ASSEMBLY TECHNICIAN
ELECTRICAL TECHNICIAN
MECHANICAL DRAFTER MACHINE OPERATOR
AUTOMATION/PROCESS OPERATOR
TEAM ASSEMBLER INSTRUMENT TECHNICIAN
PRODUCTION ASSEMBLY OPERATOR BATTERY PRODUCTION TECHNICIAN
COMPUTER-CONTROLLED MACHINE TOOL OPERATOR MATERIAL PLANNER
GENERAL-MACHINIST

WHITE-COLLAR

DEVELOPMENT ENGINEER HIGH-VOLTAGE STORAGE COMPONENTS BATTERY CELL SIMULATION ENGINEER
CELL SIMULATION ENGINEER SR. BATTERY CELL ENGINEER MAINTENANCE ENGINEER
ELECTROCHEMISTRY LEAD-BATTERY MATERIALS SR. ELECTRONICS ENGINEER TECHNICIAN
FORMATION MAINTENANCE MANAGER CONTROLS ENGINEER CELL TEST ENGINEER
MECHANICAL CELL DESIGN ENGINEER ELECTRICAL ENGINEER
BATTERY MECHANICAL ENGINEER SENIOR CELL DESIGN ENGINEER
LITHIUM ION CELL BATTERY SYSTEM ENGINEER
CELL ASSEMBLY PROCESS ENGINEER MANUFACTURING ENGINEER
EQUIPMENT ENGINEER
MECHANICAL ENGINEER PRODUCTION ENGINEER
MECHANICAL BATTERY DESIGN ENGINEER
SENIOR/STAFF BATTERY ENGINEER ELECTRO-MECHANICAL ENGINEER
PRINCIPAL MECHANICAL DESIGNER TOP CAP ENGINEER CELL DESIGN ENGINEER
CELL MECHANICAL ENGINEER DESIGN ENGINEER-BATTERY TECHNOLOGY
MECHANICAL DESIGN ENGINEER MANUFACTURING ENGINEER, LI-ION ENGINEER
PRODUCT MANAGER CELL ASSEMBLY ENERGY STORAGE PRINCIPAL ENGINEER
PRODUCTION MANAGER DOWNSTREAM PRODUCTION MANAGER CELL ASSEMBLY
AUTOMATION ENGINEER SENIOR ENGINEER-BATTERY MODELLING & ANALYSIS
ELECTRICAL DESIGN ENGINEER SENIOR BATTERY MECHANICAL ENGINEER

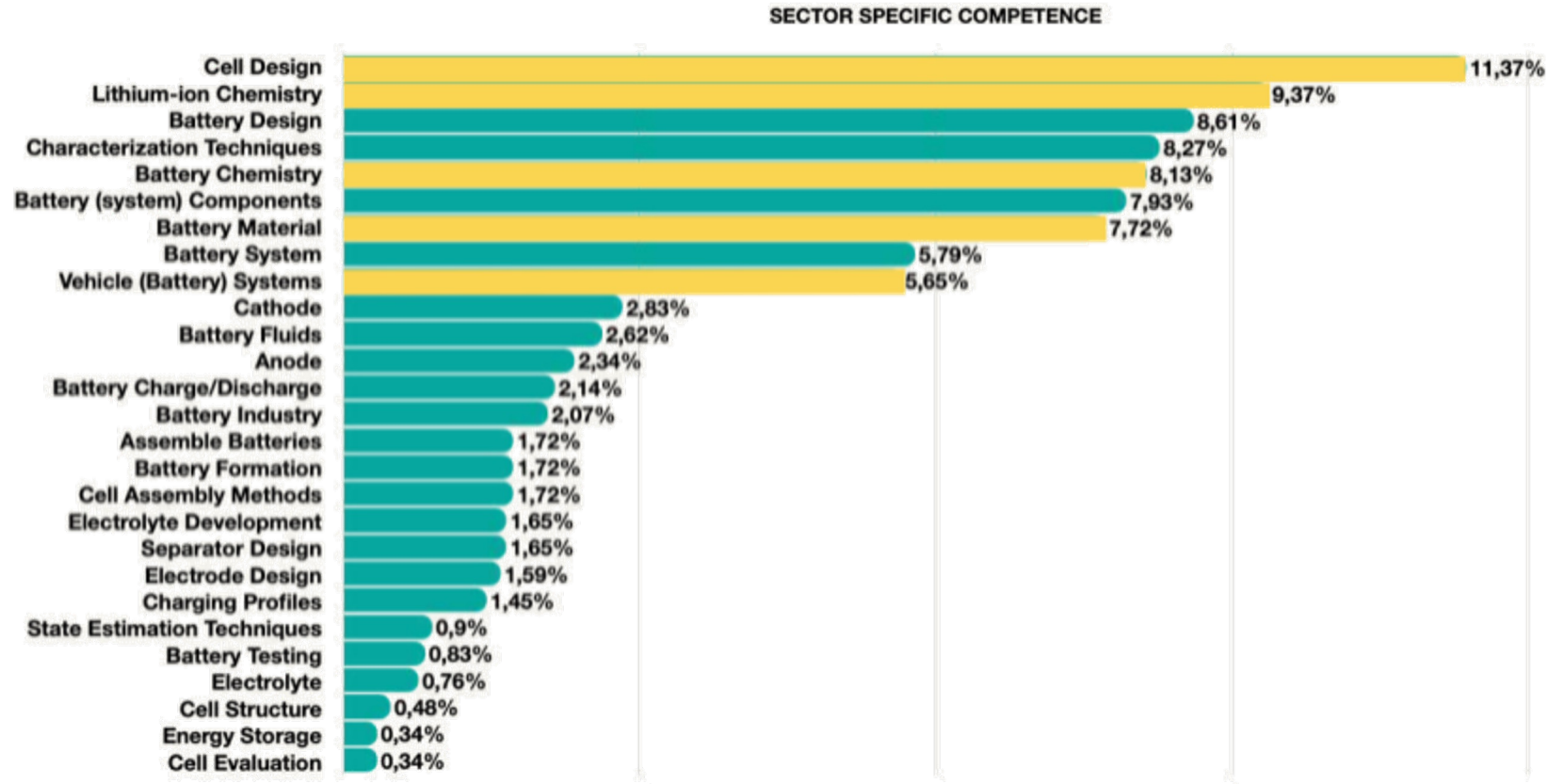


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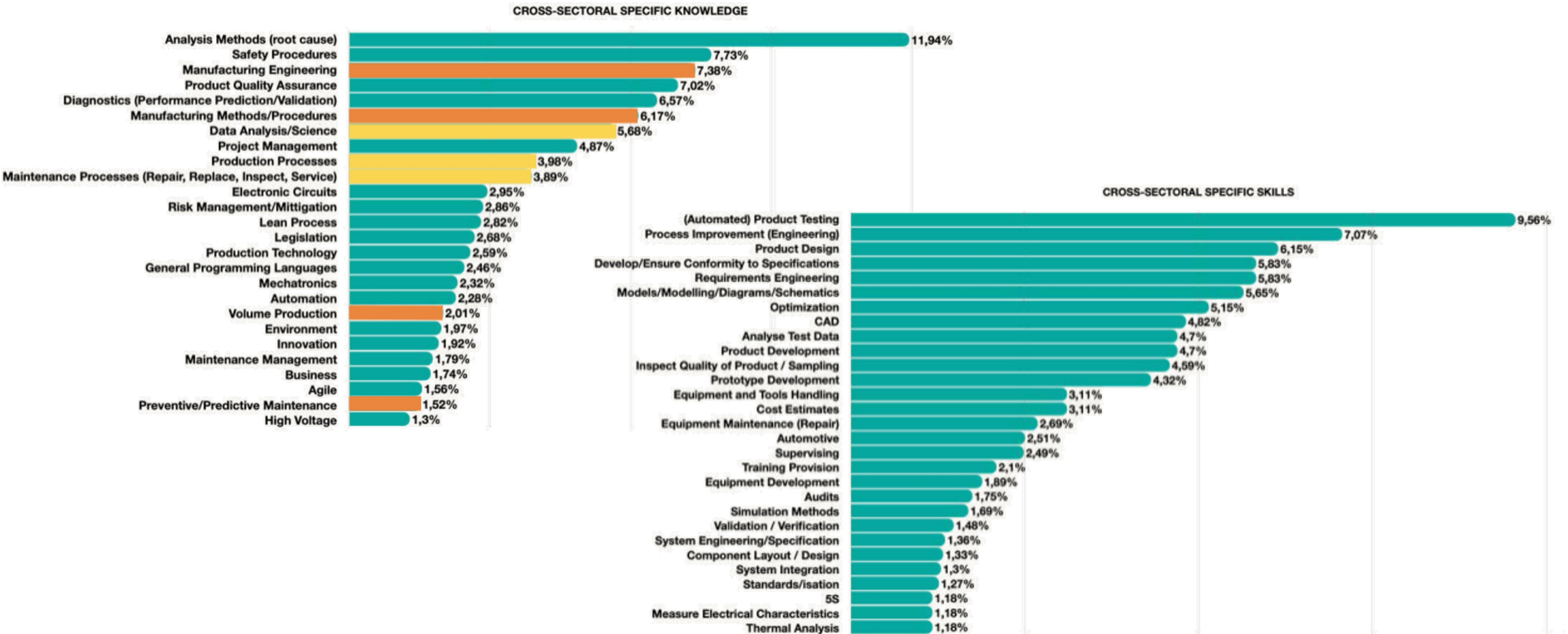
Production and Maintenance– Skills and Competence

→ What Industry Demands



Production and Maintenance– Skills and Competence

→ What Industry Demands

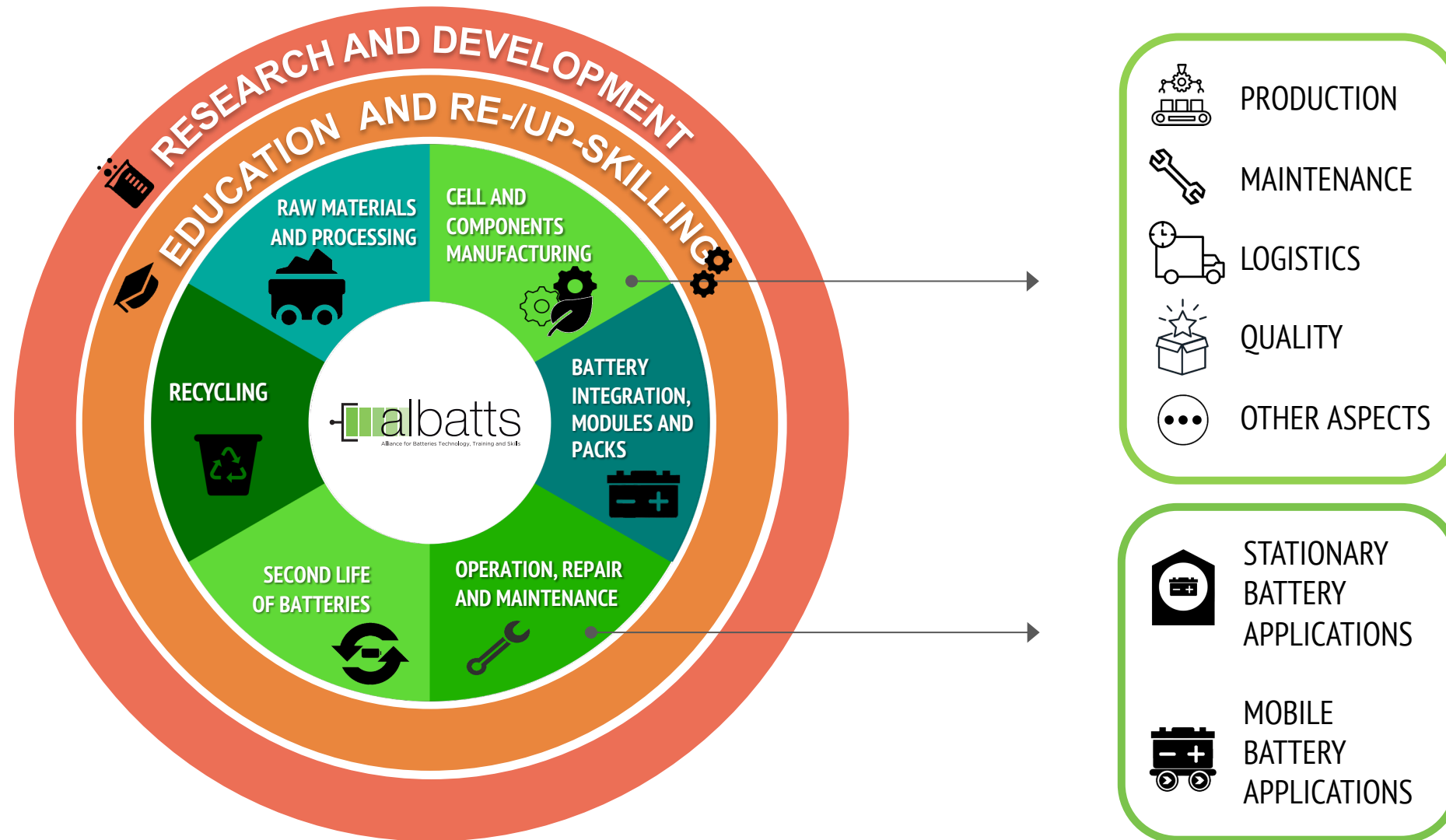


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Glance on Needed Skills

BATTERY INTEGRATION, MODULES & PACKS



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Battery Integration, Modules, and Packs



→ What Industry Demands

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;



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Battery Integration, Modules, and Packs



→ What Industry Demands

BLUE-COLLAR

FACILITY TECHNICIAN SERVICE TECHNICIAN
CLEANING TECHNICIAN **PLANNER**
MAINTENANCE TECHNICIAN
MACHINE OPERATOR **BESS TECHNICIAN**
OPERATOR **SR. QUALITY TECHNICIAN**
SHIFT LEAD **CELL ASSEMBLY TECHNICIAN**
ELECTRONIC MOTOR BENCH TEST TECHNICIAN
BATTERY TEST TECHNICIAN
CELL INSPECTION TECHNICIAN **RELIABILITY TECHNICIAN**

WHITE-COLLAR

ELECTRO-MECHANICAL ENGINEER EV PROJECT MANAGER
MECHANICAL CELL DESIGN ENGINEER **BATTERY SYSTEM & TECHNOLOGY ENGINEER**
MECHANICAL SUPERVISOR PROJECT ENGINEER-CONTROLS ELECTRONICS FOR MOBILITY
HIGH-VOLTAGE BATTERY DRE SENIOR INTEGRATION ENGINEER **SYSTEM ENGINEER**
LITHIUM ION CELL BATTERY SYSTEM ENGINEER **MECHANICAL BATTERY DESIGN ENGINEER**
MECHANICAL ENGINEER **PRODUCTION BLOCK MANAGER** **PRODUCTION ENGINEER**
SENIOR ENGINEER-BATTERY MODELLING & ANALYSIS **APPLICATION ENGINEER**
CELL TEST ENGINEER **ELECTRIC ENGINEER-FIRMWARE MANAGER**
PRODUCTION MANAGER CELL ASSEMBLY **BATTERY SYSTEM ENGINEER**
MOBILE HYDRAULICS-APPLICATION ENGINEER
ELECTRICAL VEHICLE ENGINEER-CHARGING **BATTERY SYSTEMS MANAGER**
BATTERY TECHNICAL LEAD **DESIGN ENGINEER-BATTERY TECHNOLOGY**
MAINTENANCE ENGINEER **PRODUCTION MANAGER DOWNSTREAM**
SENIOR SYSTEM DESIGN ENGINEER **SOFTWARE/MODELLING ENGINEER LEAD**
PRODUCTION ENGINEER **MANUFACTURING ENGINEER** **FORMATION MAINTENANCE MANAGER**
CONTROLS ENGINEER **ELECTROMOBILITY PROJECT LEADER** **POWER DISTRIBUTION ENGINEER**
ELECTRICAL SYSTEM ENGINEER **SR. ELECTRONICS ENGINEERING TECHNICIAN**

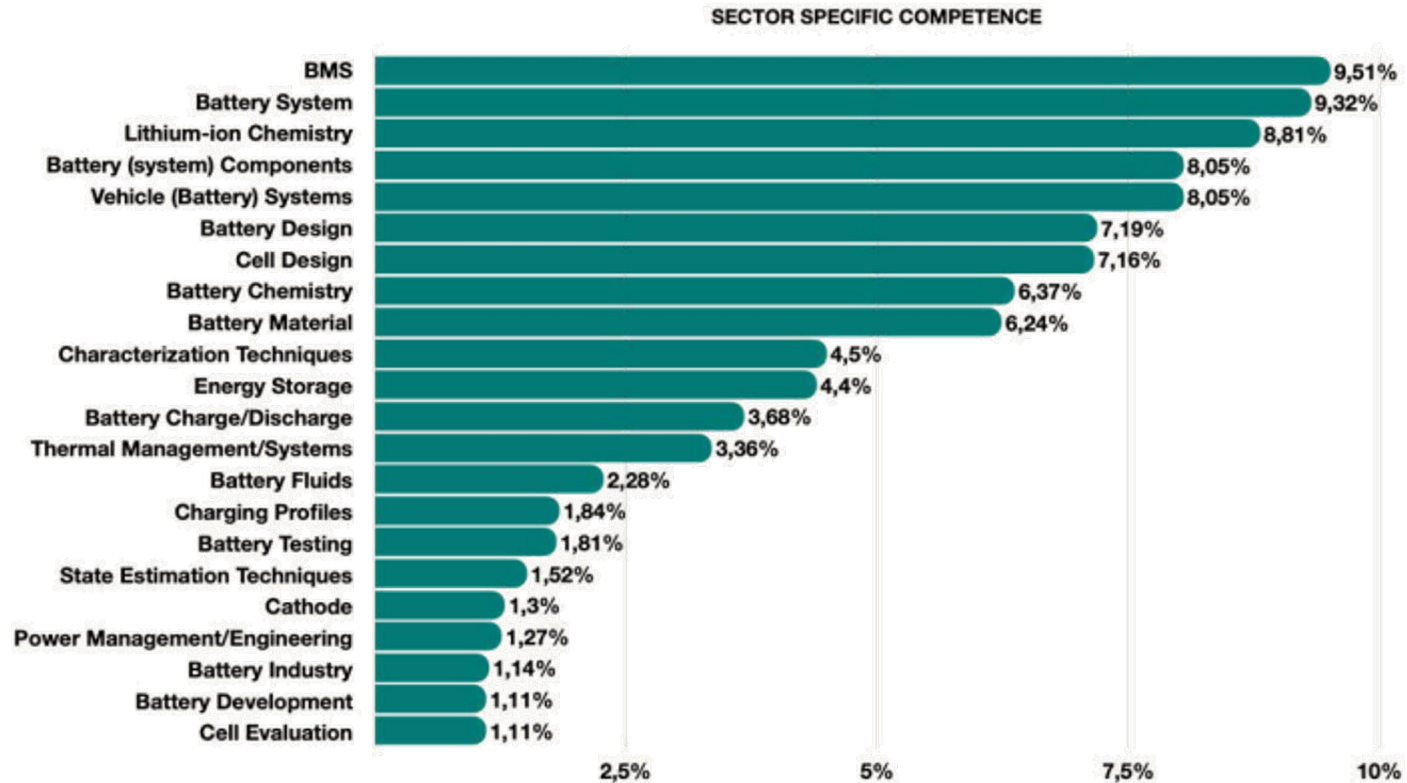


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Battery Integration, Modules, and Packs – Skills and Competence

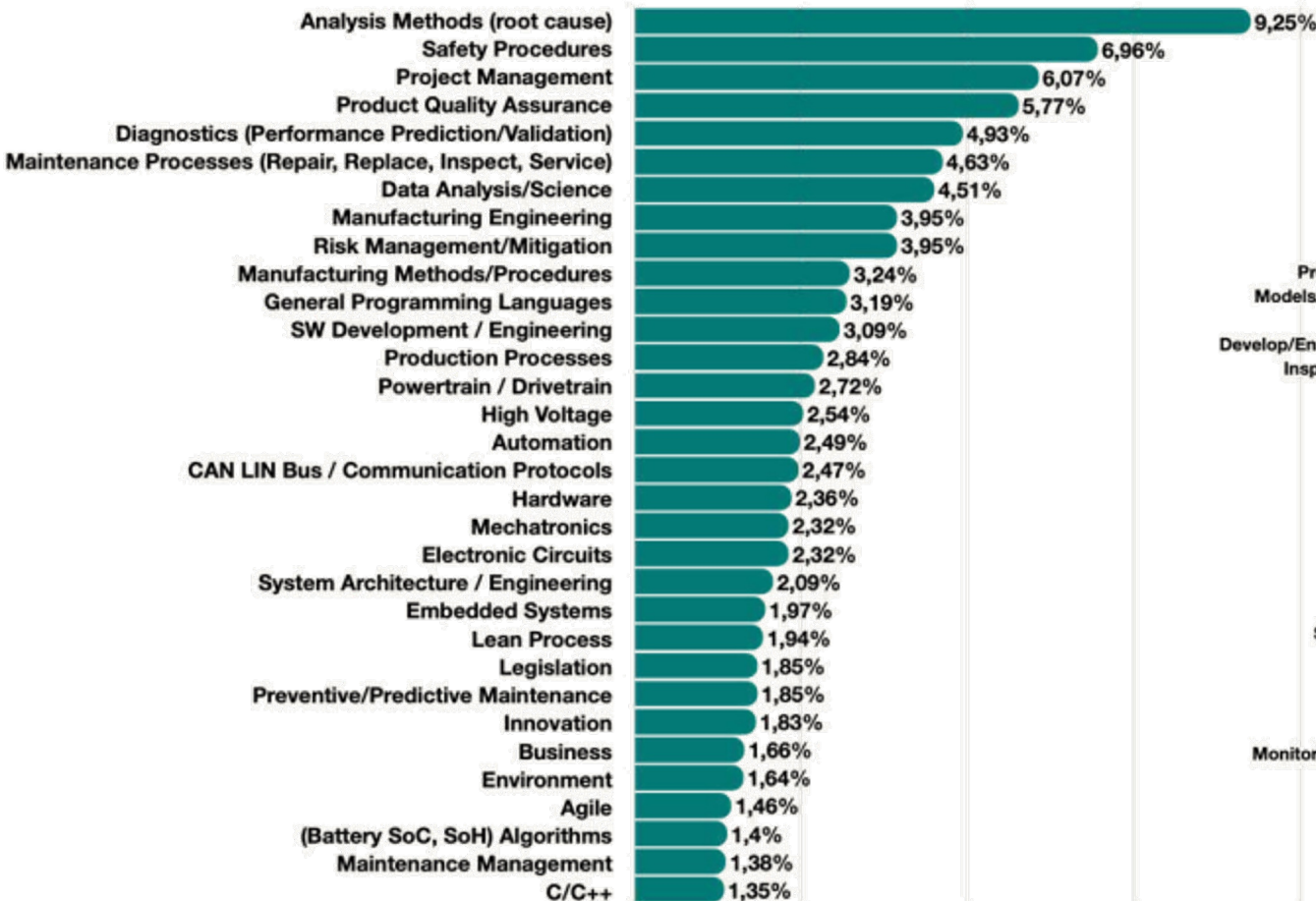
→ What Industry Demands



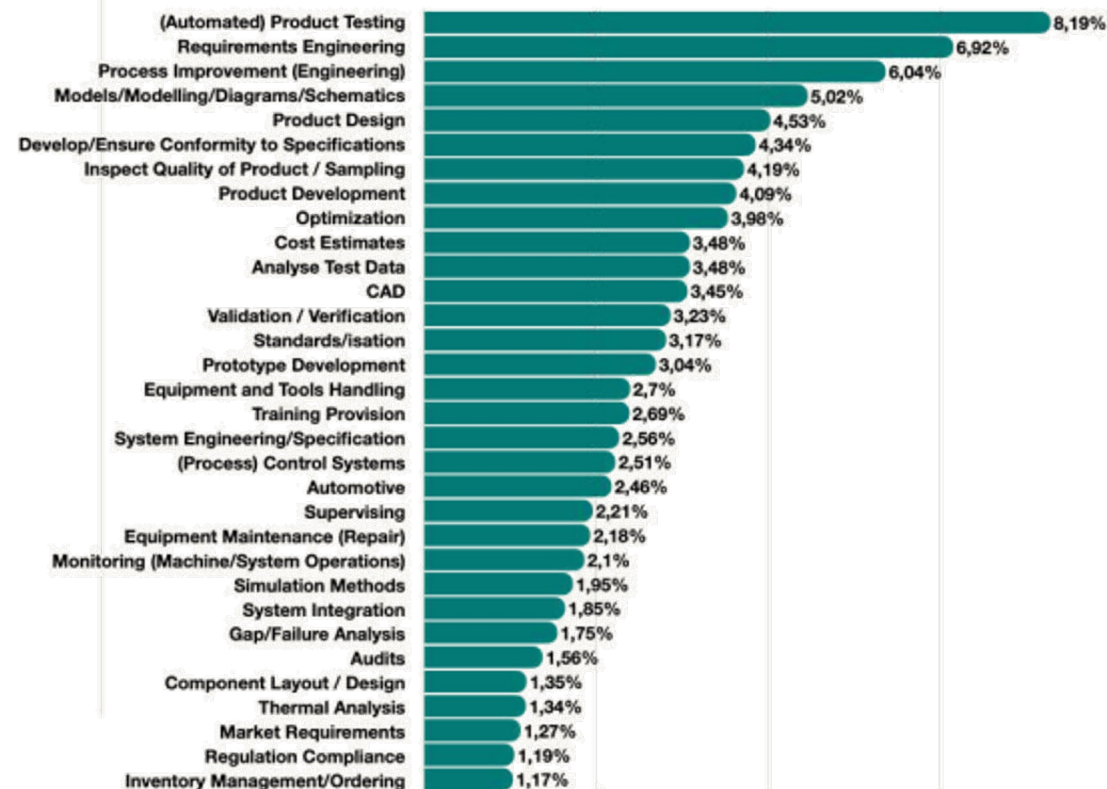
Battery Integration, Modules, and Packs – Skills and Competence

→ What Industry Demands

CROSS-SECTORAL SPECIFIC KNOWLEDGE

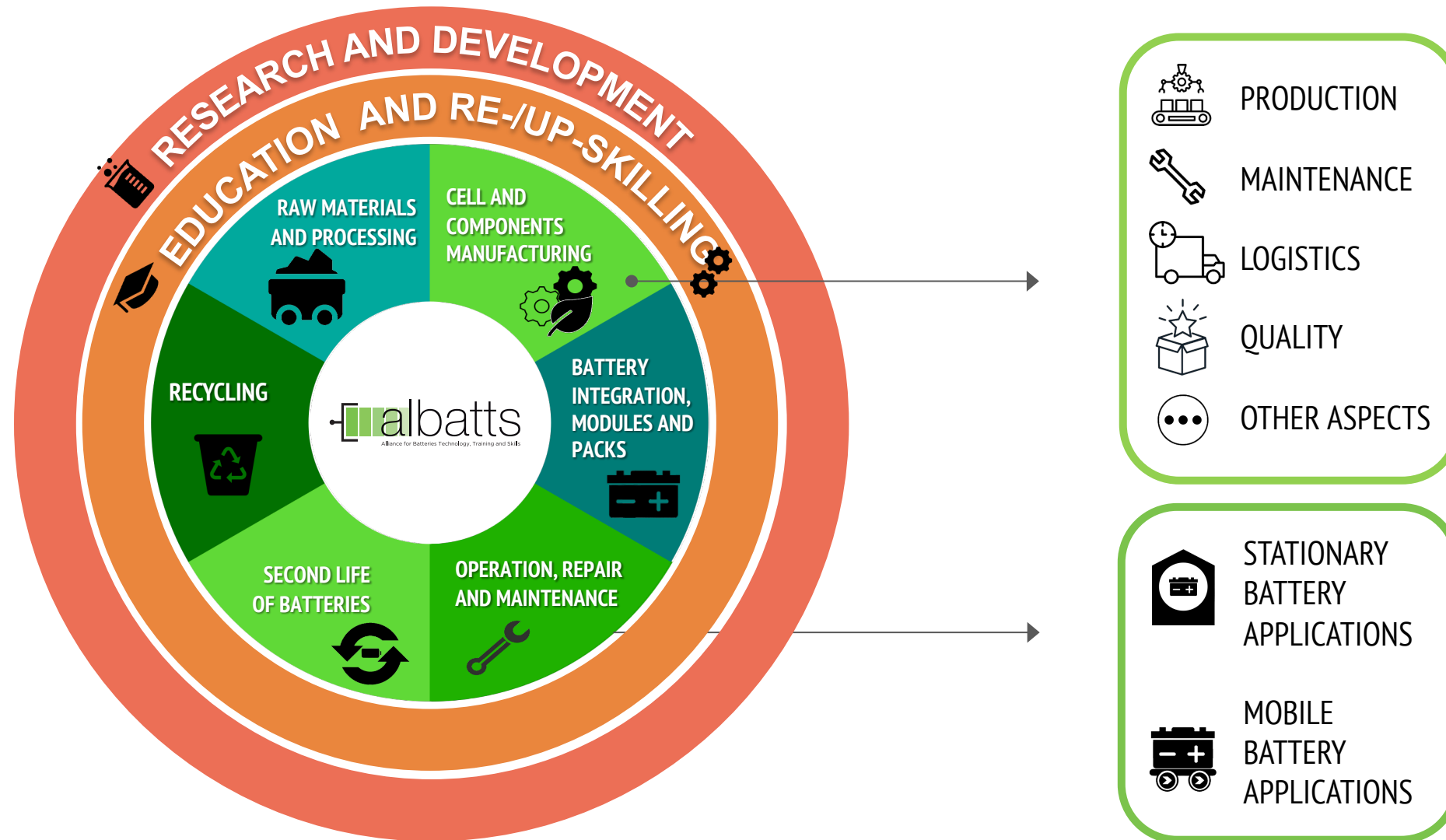


CROSS-SECTORAL SPECIFIC SKILLS



Glance on Needed Skills

Recycling and Second Life



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Battery Integration, Modules, and Packs



→ What Industry Demands

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.

With the battery recycling-related positions, it is important to know battery technologies and recycling processes (chemical/physical) themselves.

Regarding environmental legislation, it is important to understand related national and EU directives. Safety is also important.

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.



Battery Integration, Modules, and Packs



→ What Industry Demands

BLUE-COLLAR

RECYCLING TECHNICIAN
QUALITY TECHNICIAN
MACHINE OPERATOR
MATERIAL HANDLER
CELL INSPECTION TECHNICIAN
AUTOMATION/PROCESS OPERATOR
MATERIAL PLANNER
DIRECT LINE WORKER

WHITE-COLLAR

LOGISTICS MANAGER
TECHNICAL PRODUCT MANAGER SAFETY MANAGER
ISO INTERNAL AUDITOR SENIOR SCIENTIST
INDUSTRIAL PRODUCTION MANAGER SENIOR AUTOMATION ENGINEER
PROCESS ENGINEER QUALITY PROCESS ENGINEER
POWER SYSTEM REGULATORY ENGINEER MECHANICAL ENGINEER
CERTIFICATION & HOMOLOGATION MANAGER
INTERNAL LOGISTICS MANAGER AUTOMATION ENGINEER
DATA ANALYST ELECTRICAL ENGINEER
SAFETY SPECIALIST BLUEPRINT DATA SCIENTIST
BATTERY TEST ENGINEER MAINTENANCE ENGINEER
QUALITY ENGINEER BATTERY MATERIALS ENGINEER
ENGINEERING TECHNICIAN COMPLIANCE ENGINEER

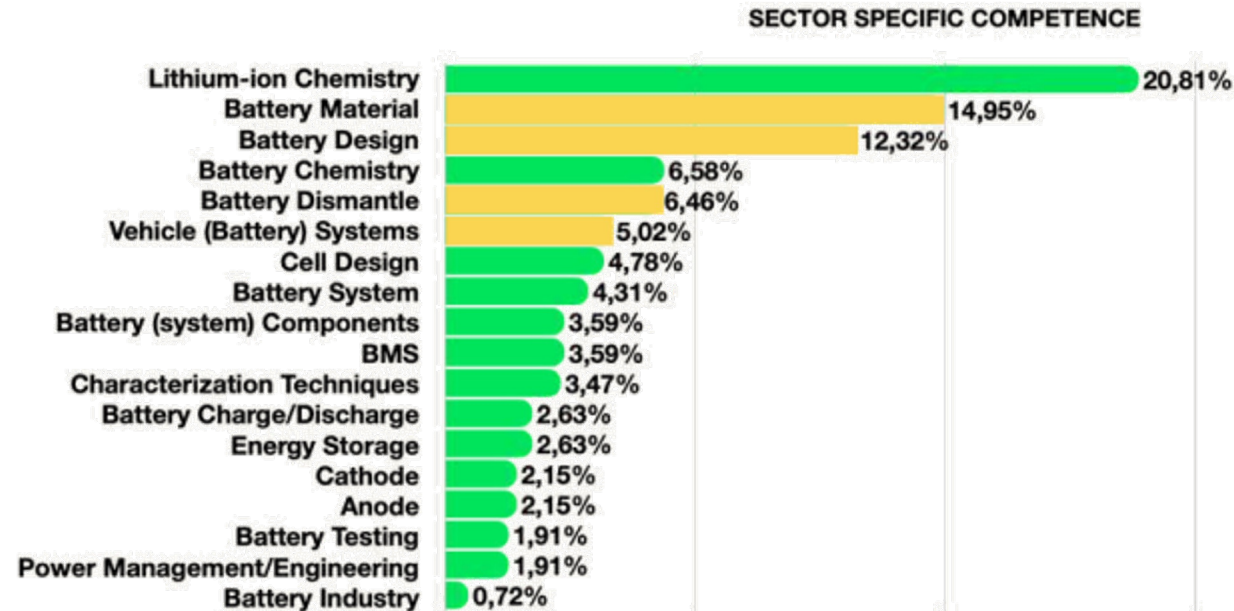


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Battery Integration, Modules, and Packs – Skills and Competence

→ What Industry Demands

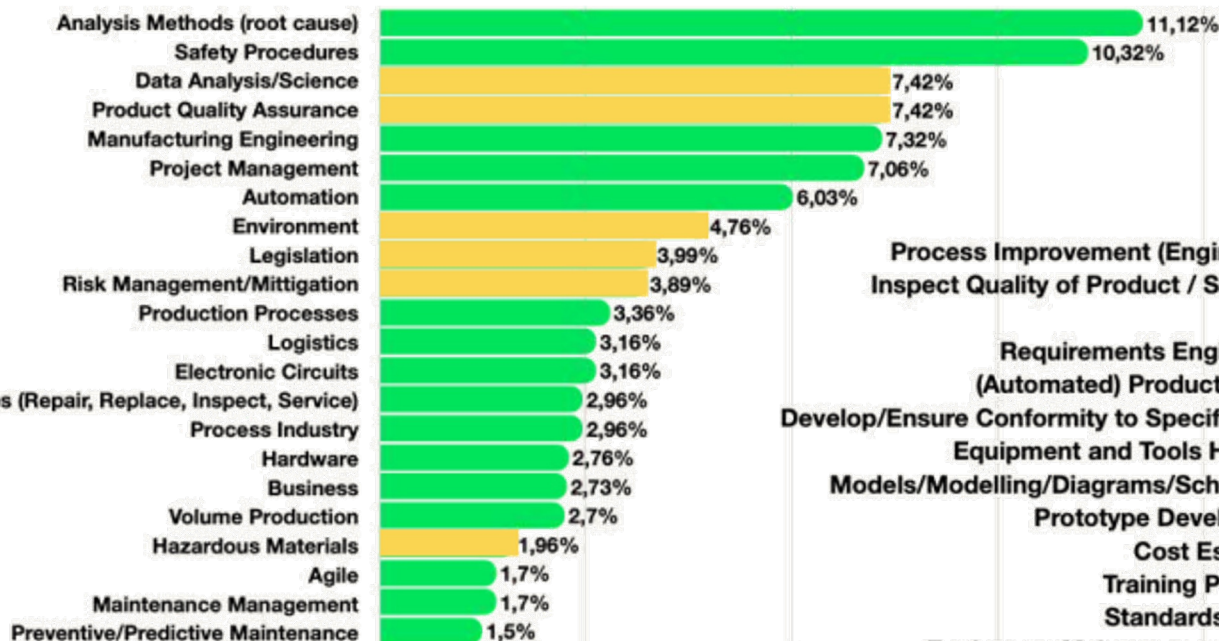


Battery Integration, Modules, and Packs – Skills and Competence

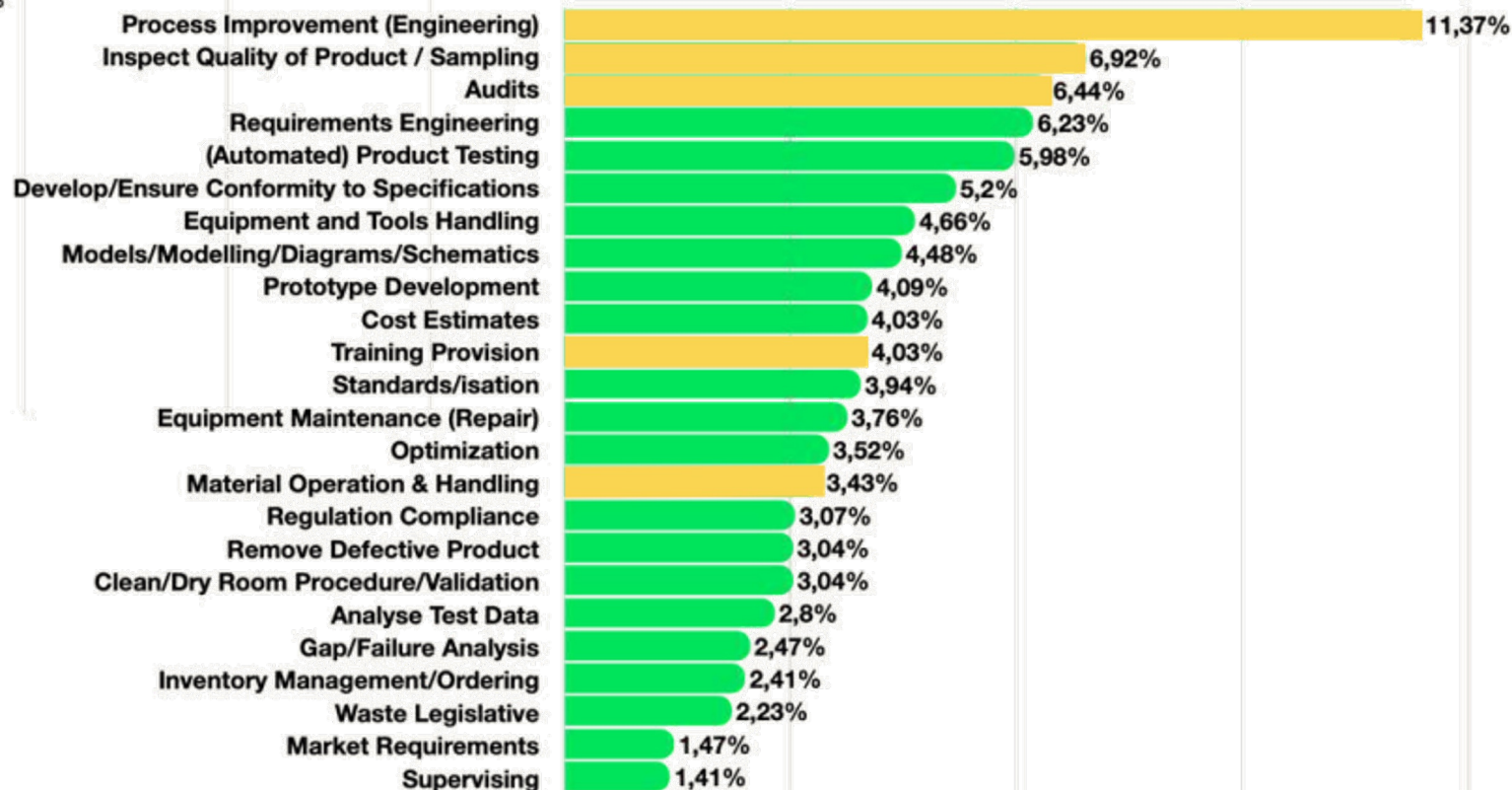
→ What Industry Demands



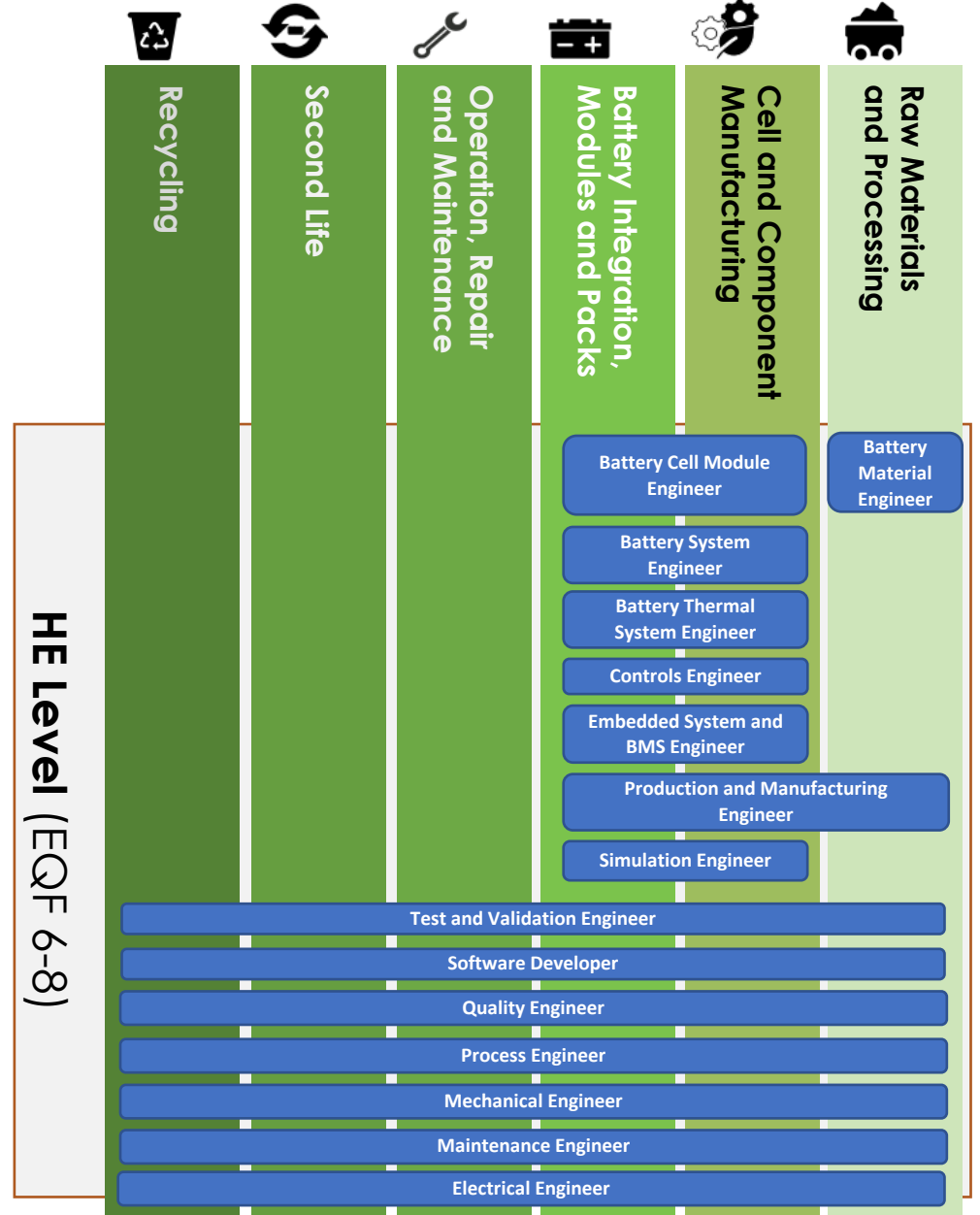
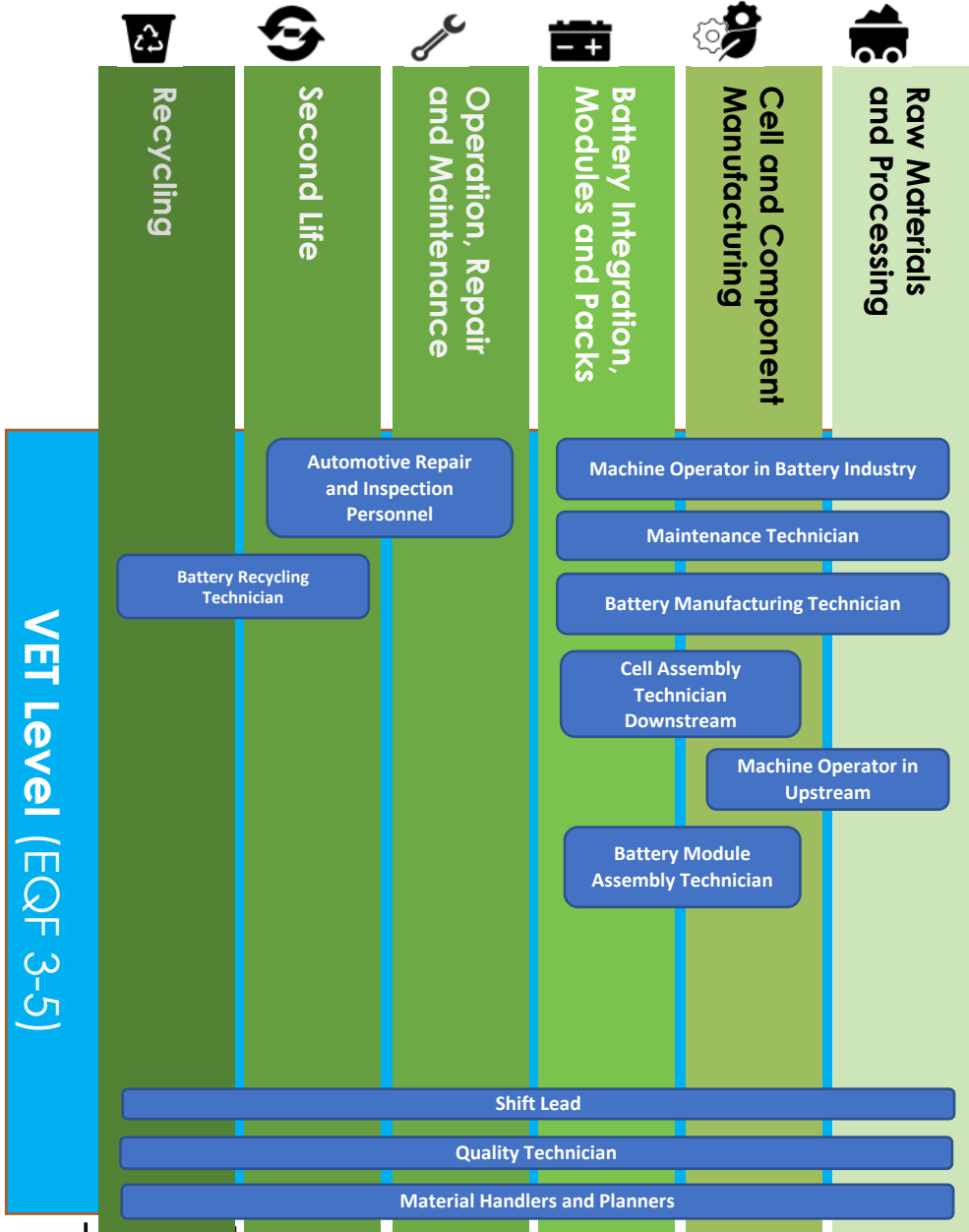
CROSS-SECTORAL SPECIFIC KNOWLEDGE



CROSS-SECTORAL SPECIFIC SKILLS



Defined Job Roles

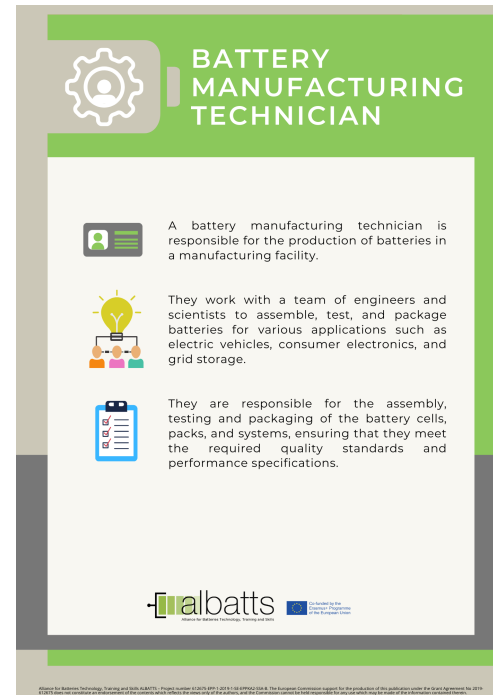
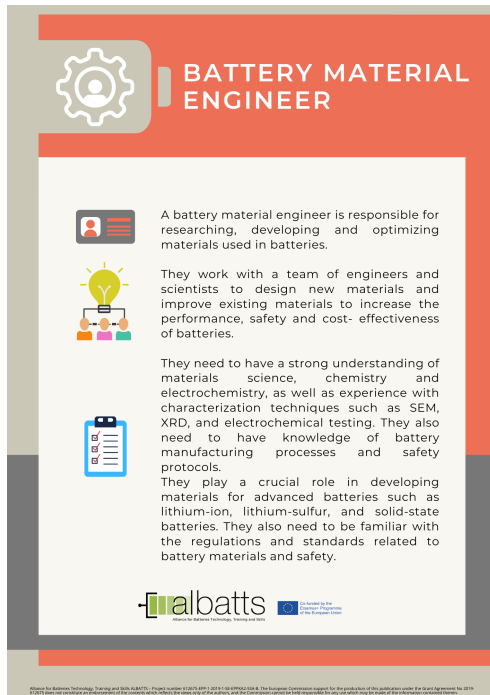


Skills Cards

26 job skills cards produced
(15 on HE level and 11 on VET level)

Each card has short description of the job role and









- Cross-sectoral specific competences
- Sector specific competences (has a big importance)
- General transversal competences
- Academic competences



ALBATTs SKILLS CARDS

Summaries of Skills Cards (available in our website)

Reports

<p>Intelligence in Mobile Battery Applications</p> <p>R&D and technological perspectives for the battery sector</p> <p>  Co-funded by the Erasmus+ Programme of the European Union</p>	<p>Sectoral Intelligence</p> <p>Intelligence in Battery Manufacturing and Battery Technology</p> <p>  Co-funded by the Erasmus+ Programme of the European Union</p>
<p>Stationary & Industrial Applications</p> <p>Intelligence in Stationary and Industrial Battery Applications</p> <p>  Co-funded by the Erasmus+ Programme of the European Union</p>	<p>Education and Training</p> <p>State-of-art of job roles and education in the batteries' sector</p> <p>  Co-funded by the Erasmus+ Programme of the European Union</p>

Examples of reports released



REPORTS' HIGHLIGHTS

Thank you!



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Training and Skills**



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**JOIN OUR NETWORK THROUGH OUR WEBSITE AND GET FIRST-HAND INFORMATION
ABOUT OUR WORK & BATTERY SECTOR SKILLS AGENDA!**

BATTERY POWERED TOUR FOR SKILLS

Enabling a prepared education network for the battery ecosystem in Europe



Catalunya: enfoque del ecosistema regional hacia las habilidades.

#CPs CATALOGO DE ESPECIALIDADES

- Un **certificado profesional** es un documento oficial que certifica que una persona tiene las habilidades profesionales necesarias para llevar a cabo una actividad laboral específica (GRADO C del sistema de FP)
- Las **especialidades del catálogo** se refieren a los diversos programas de formación incluidos en el Catálogo de Especialidades Formativas, un documento creado por el Servicio Público de Empleo Estatal (SEPE)



#CPs CATALOGO DE ESPECIALIDADES

serveiocupacio.gencat.cat



**Cercador de cursos, especialitats
i centres de formació**

Quina especialitat t'interessa?

Tenim 2620 especialitats disponibles

[Veure-les totes](#)

Tria entre les famílies professionals disponibles

- | | | |
|--|---|--|
| <input type="checkbox"/> ACTIVITATS FÍSQUES I ESPORTIVES | <input type="checkbox"/> ADMINISTRACIÓ I GESTIÓ | <input type="checkbox"/> AGRÀRIA |
| <input type="checkbox"/> ARTS GRÀFIQUES | <input type="checkbox"/> ARTS I ARTESANIA | <input type="checkbox"/> COMERÇ I MARKETING |
| <input type="checkbox"/> COMPETÈNCIES TRANSVERSALS | <input type="checkbox"/> EDIFICACIÓ I OBRA CIVIL | <input type="checkbox"/> ELECTRICITAT I ELECTRÒNICA |
| <input type="checkbox"/> ENERGIA I AIGUA | <input type="checkbox"/> FABRICACIÓ MECÀNICA | <input type="checkbox"/> FORMACIÓ COMPLEMENTÀRIA |
| <input type="checkbox"/> FUSTA, MOBLE I SURO | <input type="checkbox"/> HOSTALERIA I TURISME | <input type="checkbox"/> IMATGE I SO |
| <input type="checkbox"/> IMATGE PERSONAL | <input type="checkbox"/> INDÚSTRIA ALIMENTÀRIA | <input type="checkbox"/> INDÚSTRIES EXTRACTIVES |
| <input type="checkbox"/> INFORMÀTICA I COMUNICACIONS | <input type="checkbox"/> INSTAL·LACIÓ I MANTENIMENT | <input type="checkbox"/> MARÍTIM PESQUER |
| <input type="checkbox"/> QUÍMICA | <input type="checkbox"/> SANITAT | <input type="checkbox"/> SEGURETAT I MEDI AMBIENT |
| <input type="checkbox"/> SERVEIS SOCIOCULTURALS I A LA COMUNITAT | <input type="checkbox"/> TÈXTIL, CONFECCIÓ I PELL | <input type="checkbox"/> TRANSPORT I MANTENIMENT DE VEHICLES |
| <input type="checkbox"/> VIDRE I CERÀMICA | | |

#CPs CATALOGO DE ESPECIALIDADES



TRANSPORT I MANTENIMENT DE VEHICLES

Sensibilització en vehicles d'alt voltatge

🕒 8 hores

📊 Nivell 1

Codi

TMVG0039

TRANSPORT I MANTENIMENT DE VEHICLES

Prevenió de risc elèctric en la manipulació de vehicles amb alt voltatge. Nivell I

🕒 60 hores

📊 Nivell 2

Codi

TMVG0041

TRANSPORT I MANTENIMENT DE VEHICLES

Prevenió de risc elèctric en la manipulació de vehicles amb alt voltatge. Nivell II

🕒 60 hores

📊 Nivell 2

Codi

TMVG0042

TRANSPORT I MANTENIMENT DE VEHICLES

Curs sobre manipulació de sistemes frigorífics que utilitzin refrigerants fluorats destinats a confort tèrmic de persones instal·lats en vehicles

🕒 44 hores

📊 Nivell 2

Codi

TMVG01

TRANSPORT I MANTENIMENT DE VEHICLES

Operacions auxiliars de manteniment en electromecànica de vehicles

🏆 Certificat professional

🕒 310 hores

📊 Nivell 1

Codi

TMVG0109

TRANSPORT I MANTENIMENT DE VEHICLES

Planificació i control de l'àrea d'electromecànica

🏆 Certificat professional

🕒 660 hores

📊 Nivell 3

Codi

TMVG0110

Nuevos Perfiles vs



- Personal de reparación e inspección automovilístico.
- Técnico en fabricación de baterías.
- Técnico en ensamblaje de módulos de baterías.
- Técnico de reciclaje de baterías.
- Técnico de ensamblaje celular en la línea de producción.
- Operario de maquinaria en la industria de baterías.
- Operario de máquinas en la fase de producción inicial.
- Técnico de mantenimiento en la industria de baterías.
- Técnico de almacén, tanto primeras materias como productos finalizados.
- Técnico de calidad
- Jefe de turno.



Nuevos Perfiles vs

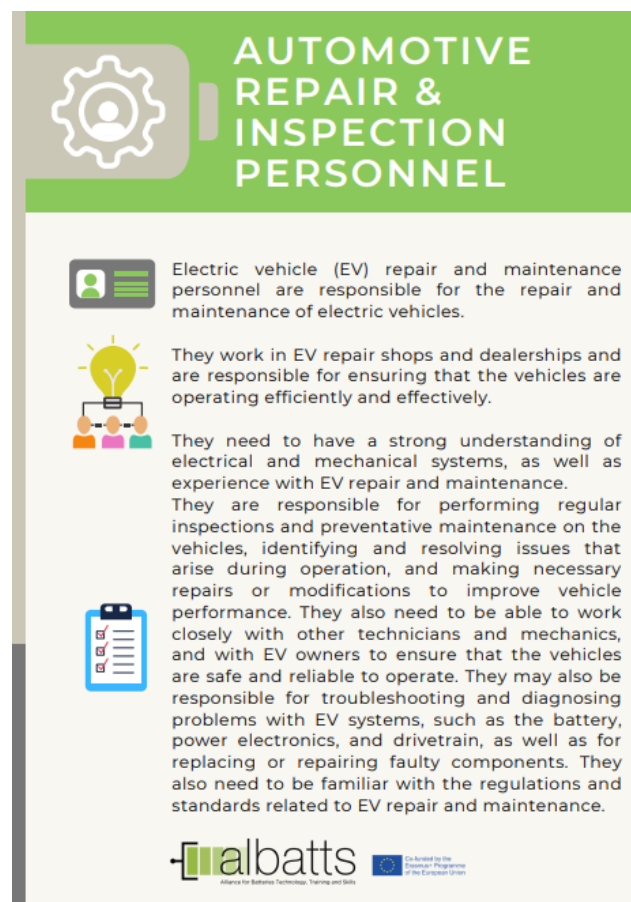


- Personal de reparación e inspección automovilístico.

¿Existe la formación?

No → Colaboración con el SOC / CONFORCAT

Sí → Colaboración con Centros de Formación



AUTOMOTIVE REPAIR & INSPECTION PERSONNEL

Electric vehicle (EV) repair and maintenance personnel are responsible for the repair and maintenance of electric vehicles.

They work in EV repair shops and dealerships and are responsible for ensuring that the vehicles are operating efficiently and effectively.

They need to have a strong understanding of electrical and mechanical systems, as well as experience with EV repair and maintenance. They are responsible for performing regular inspections and preventative maintenance on the vehicles, identifying and resolving issues that arise during operation, and making necessary repairs or modifications to improve vehicle performance. They also need to be able to work closely with other technicians and mechanics, and with EV owners to ensure that the vehicles are safe and reliable to operate. They may also be responsible for troubleshooting and diagnosing problems with EV systems, such as the battery, power electronics, and drivetrain, as well as for replacing or repairing faulty components. They also need to be familiar with the regulations and standards related to EV repair and maintenance.

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European Union

VET

AUTOMOTIVE REPAIR & INSPECTION PERSONNEL



Automotive Repair and Inspection Personnel

Electric vehicle (EV) repair and maintenance personnel are responsible for repair and maintenance of electric vehicles.



FRAMEWORK



SUMMARY

SKILLS CARD

#CPs CENTROS DE FORMACIÓN

- Centros propios (CIFO y Departamento de Educación) y red de centros colaboradores

Troba centres i entitats de formació més properes

Selecioneu una comarca



Selecioneu un municipi



Codi postal

Cercar

Cerca avançada 

Dades de l'entitat

Raó social de l'entitat titular

CIF

Número de cens

Dades del centre

Nom o codi del centre

Escriu el nom o codi del centre

- ☐ Centres acreditats per oferir cursos i especialitats que permeten obtenir un Certificat de Professionalitat



#CPs CENTROS DE FORMACIÓ

- Centros propios (CIFO y Departamento de Educación) y centros colaboradores

Àmbit professional

Família professional

Selecioneu una família ▼

Àrea

Selecioneu l'àrea ▼

Especialitat

Selecioneu l'especialitat ▼

Codi o nom de l'especialitat

Escriu el nom o codi de l'especialitat

Àmbit ocupacional

Codi o nom de l'ocupació

Escriu el nom o codi de l'ocupació



#CPs vs albatts

Manteniment de sistemes de transmissió de força i trens de rodatge de vehicles automòbils	INSTAL·LACIÓ D'ELEMENTS DE FUSTERIA
Manteniment del motor i dels seus sistemes auxiliars	Manteniment d'elements no estructurals de carrosseria de vehicles
Manteniment dels sistemes elèctrics i electrònics de vehicles	Operacions auxiliars de manteniment de carrosseria de vehicles
Gestió i supervisió de la instal·lació i manteniment de sistemes d'electromedicina	Treballs de fusteria i moble
Muntatge i posada en marxa de béns d'equip i maquinària industrial	Muntatge i manteniment d'instal·lacions frigorífiques
Operacions auxiliars de manteniment en electromecànica de vehicles	Activitats auxiliars de magatzem
Operacions auxiliars de muntatge i manteniment d'equips elèctrics i electrònics	Amarratge de port i monoboies
Gestió de residus urbans i industrials	Operacions auxiliars de manteniment i transport intern en la indústria alimentària
Elaboració de productes farmacèutics i afins	Operacions auxiliars d'elaboració a la indústria alimentària
OPERACIONS BÀSIQUES EN PLANTA QUÍMICA	Gestió administrativa i financera del comerç internacional
Operacions de moviments i lliuraments de productes en la indústria química	Gestió i control de l'aprovisionament
Operacions de transformació de polímers termoplàstics	Màrqueting i compravenda internacional
OPERACIONS EN INSTAL·LACIONS D'ENERGIA I DE SERVEIS AUXILIARS	Organització i gestió de magatzems
Operacions de condicionament de productes farmacèutics i afins	Desenvolupament de projectes de sistemes d'automatització industrial
Muntatge i postproducció d'audiovisuals	Desenvolupament de projectes d'instal·lacions de manutenció, elevació i transport
Operacions auxiliars de fabricació mecànica	ASSAIGS FÍSICS I FISICOQUÍMICS
OPERACIONS AUXILIARS DE MANTENIMENT AERONÀUTIC	Vigilància, seguretat privada i protecció d'explosius 97



#CPs PROGRAMAS

Programa	Centros	Alumnos	Especialidades
FOAP	337	31.696	216
CIFO	7	4.057	187
DUAL	65	1.154	190
Forma i Insereix	39	1.498	30
Conveni educació	33	1.004	43



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SCIENTISTS & RESEARCHERS**

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Improve your pitching skills and your
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10:00-13:00

Organised by:  **BEPA**
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[Link to apply before 3 June 2024](#) and be selected to attend the workshop for researchers organised by [BEPA](#) in partnership with the Institute for Innovation and Technology (IIT).

SPAIN

