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Alliance for Batteries Technology, Training and Skills

Alliance for **B**atteries **T**echnology, **T**raining and **S**kills

2019-2023

Presentation at the NVL Conference in Skellefteå
11/04/2024

Dr Anders Norberg,
Coordinator,
Skellefteå Municipality

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THE PROJECT

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THE BLUEPRINT FOR SECTORAL COLLABORATION ON SKILLS IN THE BATTERY SECTOR

What is an ERASMUS+ ”Blueprint” project?

- Based in an action in the ***European Skills Agenda*** 2016; ”Sector Skills Alliances”
- ***One project*** for each sector, 4 years, min 12 partners in 10 countries
- To examine relevant trends, changes, new job roles, new skills demands, education needs, solutions
- To strenghten ***European competitiveness -*** adressing skills mismatches by training and education
- To develop a ***sectoral skills strategy***
- A part of EU ***soft policy*** - all countries have their own education systems
- From 2020, ”alliances” are becoming ”partnerships” in the ***”Pact for Skills”*** initiative

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Examples of ERASMUS+ Blueprints

Wave 1 (2018-2022)

- **Automotive** project-drives.eu
- **Maritime technology** projectmates.eu
- **Space (Geo information)** eo4geo.eu
- **Textile, clothing, leather & footwear** s4tclfblueprint.eu
- **Tourism** nexttourismgeneration.eu

Wave 2 (2019-2023)

- **Additive manufacturing**
- **Construction**
- **Maritime shipping**
- **Steel industry**

Wave 3 (2020-2024)

- **Batteries for electro-mobility**
- **Bio-economy: new technologies & innovation in agriculture**
- **Defence technologies**
- **Digitalisation of the energy value chain**
- **Energy-intensive industries/ industrial symbiosis**
- **Microelectronic manufacturing & design**

ALBATTS CONSORTIUM

Skellefteå municipality

AIA Automotive Industry Association · atec · eupportunity · MERINOVA Technology Centre · vamia

VSB Technical University of Ostrava · ACEA European Automobile Manufacturers Association · InterTradeCard · Corvus Energy · efacec

U.PORTO Universidade do Porto · HE3DA · ISCN · northvolt · Realize it

Spin360 · Univerza v Mariboru · Vaasan yliopisto University of Vaasa · Vestland fylkeskommune

21 partners in
11 countries

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ALBATTS STEERING COMMITTEE

THE ALBATTS STEERING BOARD PROVIDED SUPPORT, GUIDANCE AND OVERSIGHT OF WORK PROGRESS

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ALBATTS Tackles Two Main Questions

1 **WHAT IS ONGOING IN THE BATTERY SECTOR AND HOW DOES IT AFFECT JOB ROLES & SKILLS?**

SECTORAL INTELLIGENCE

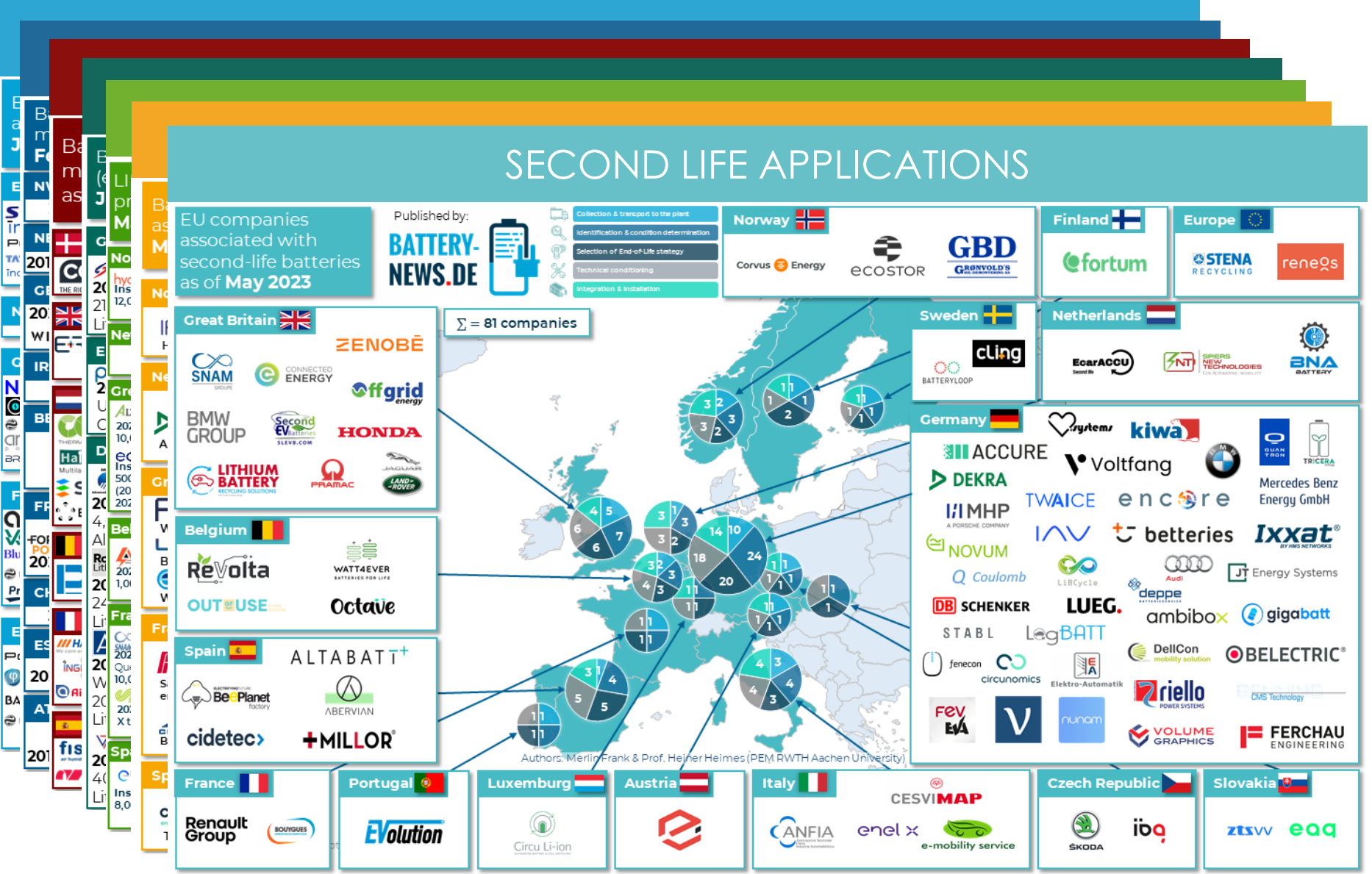
- Gathering **skills needs**
- Detailed description of **skills and job roles**
- Covering the **whole value-chain**
- Covering both **higher education and VET**

2 **HOW CAN WE ADDRESS CURRENT CHALLENGES?**

EDUCATION & TRAINING

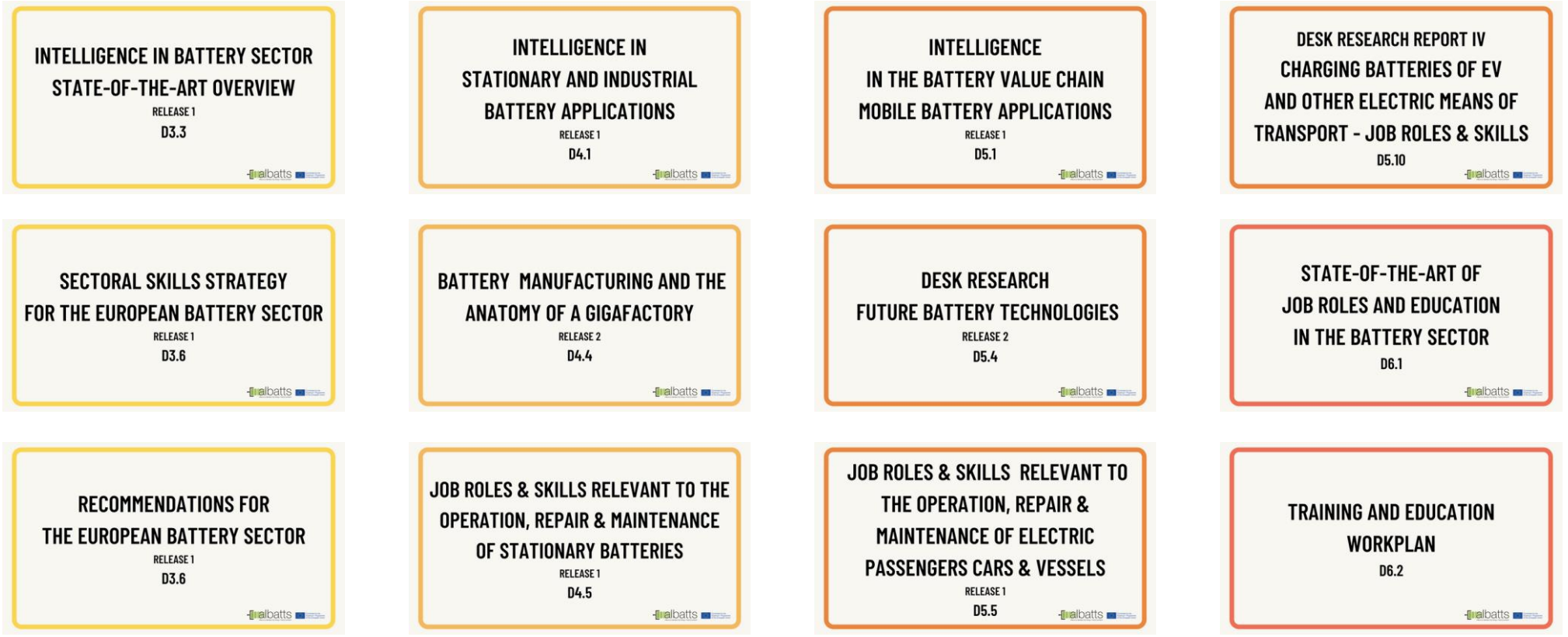
- **FOCUSING ON** Vocational Education and Training (**VET**) & Higher Education (**HE**) **AIMED AT initial training and re-skilling and up-skilling of workforce**

SECOND LIFE APPLICATIONS



Source:
Battery Atlas Europe

ALBATTS REPORTS



MORE THAN 30 REPORTS RELEASED!

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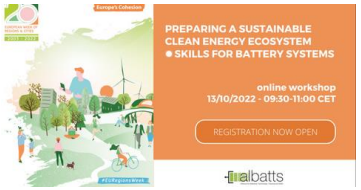
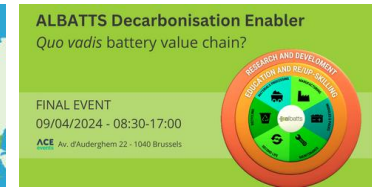
MORE THAN 30 WEBINARS & WORKSHOPS





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SPEAKERS IN WEBINARS & WORKSHOPS

More than 80 speakers helped ALBATTS research over the project's duration.

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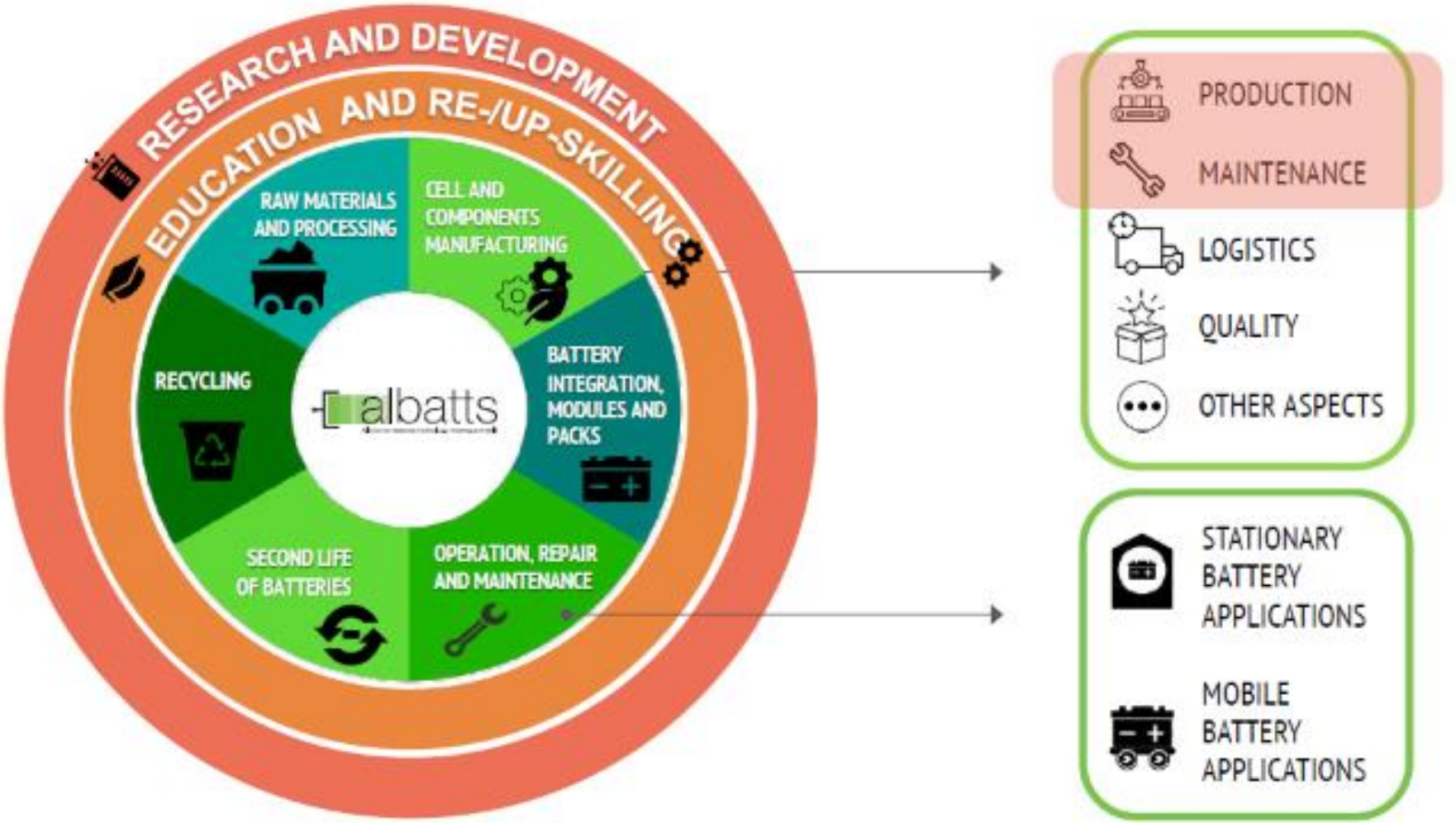
Glance on Needed Skills

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

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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

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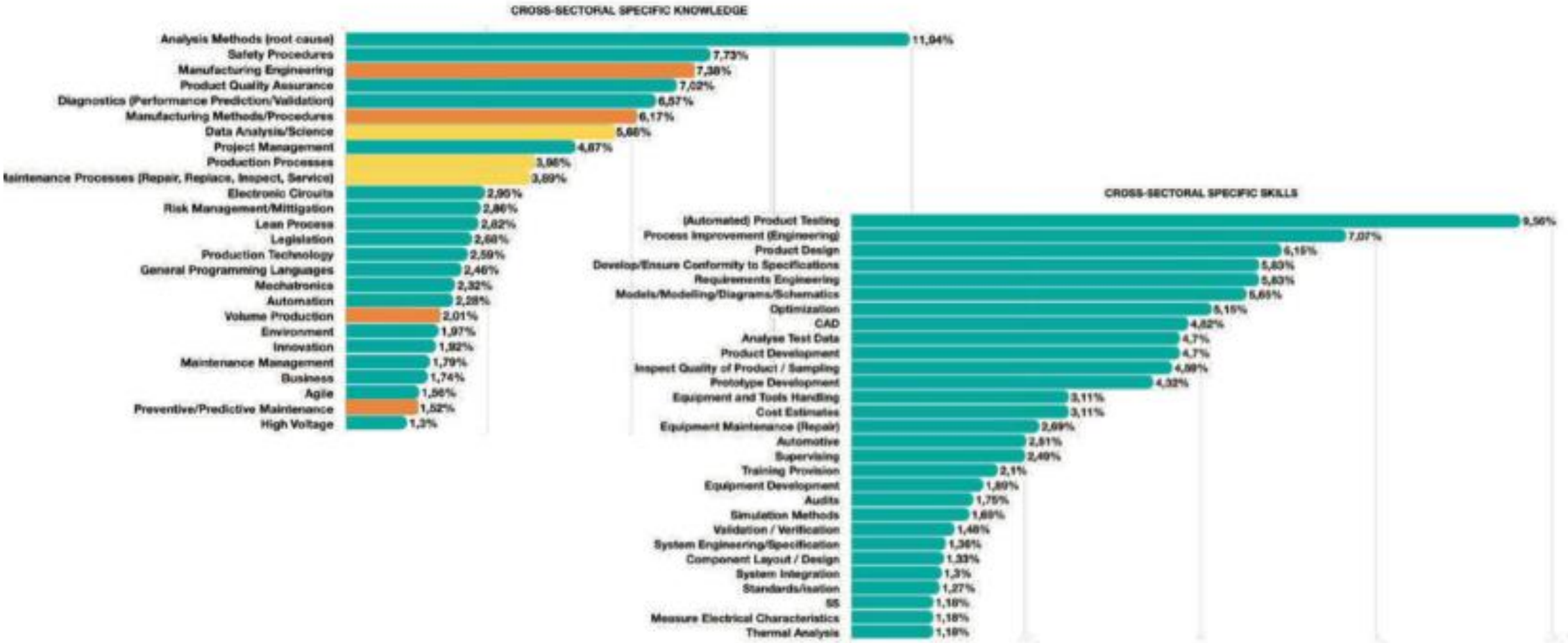
Production and Maintenance– Skills and Competence

→ What Industry Demands



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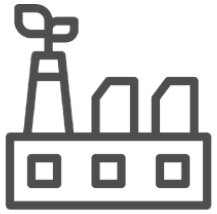
SKILLS CARDS

The Skills Cards are a practical and helpful tool for...



INDUSTRY/COMPANIES

SCHOOLS (VET & HE)

EDUCATION AUTHORITIES

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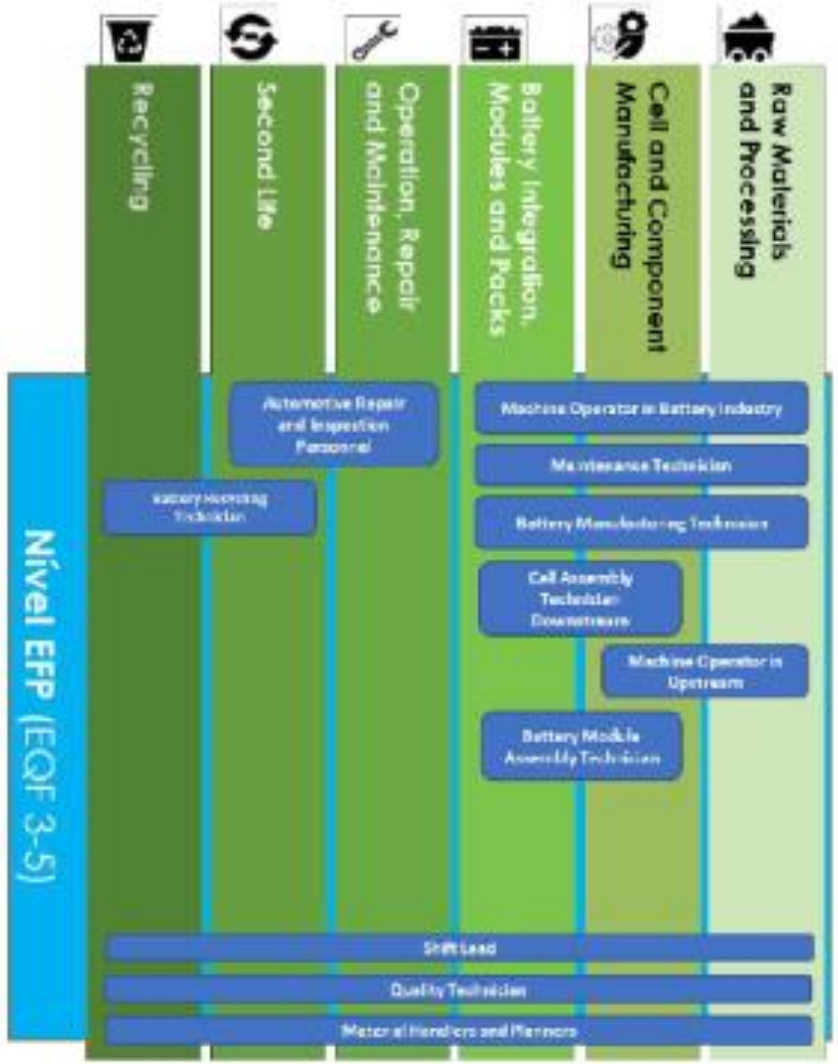
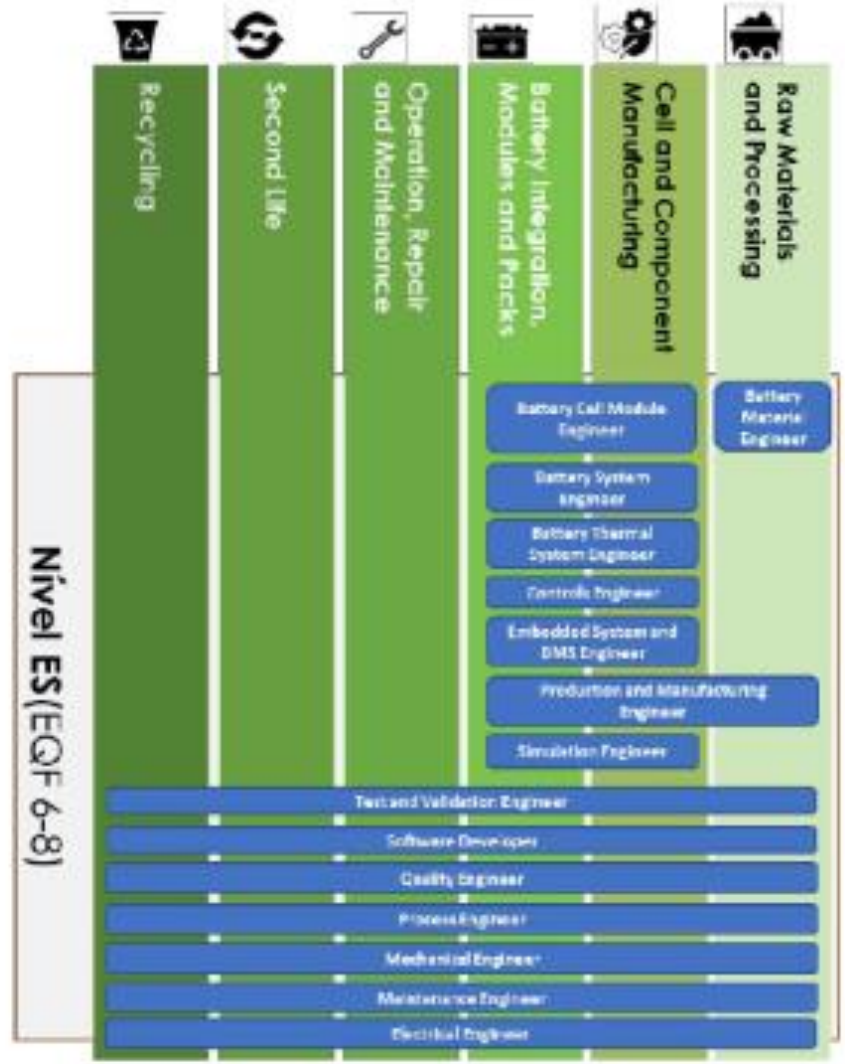
Skills Cards





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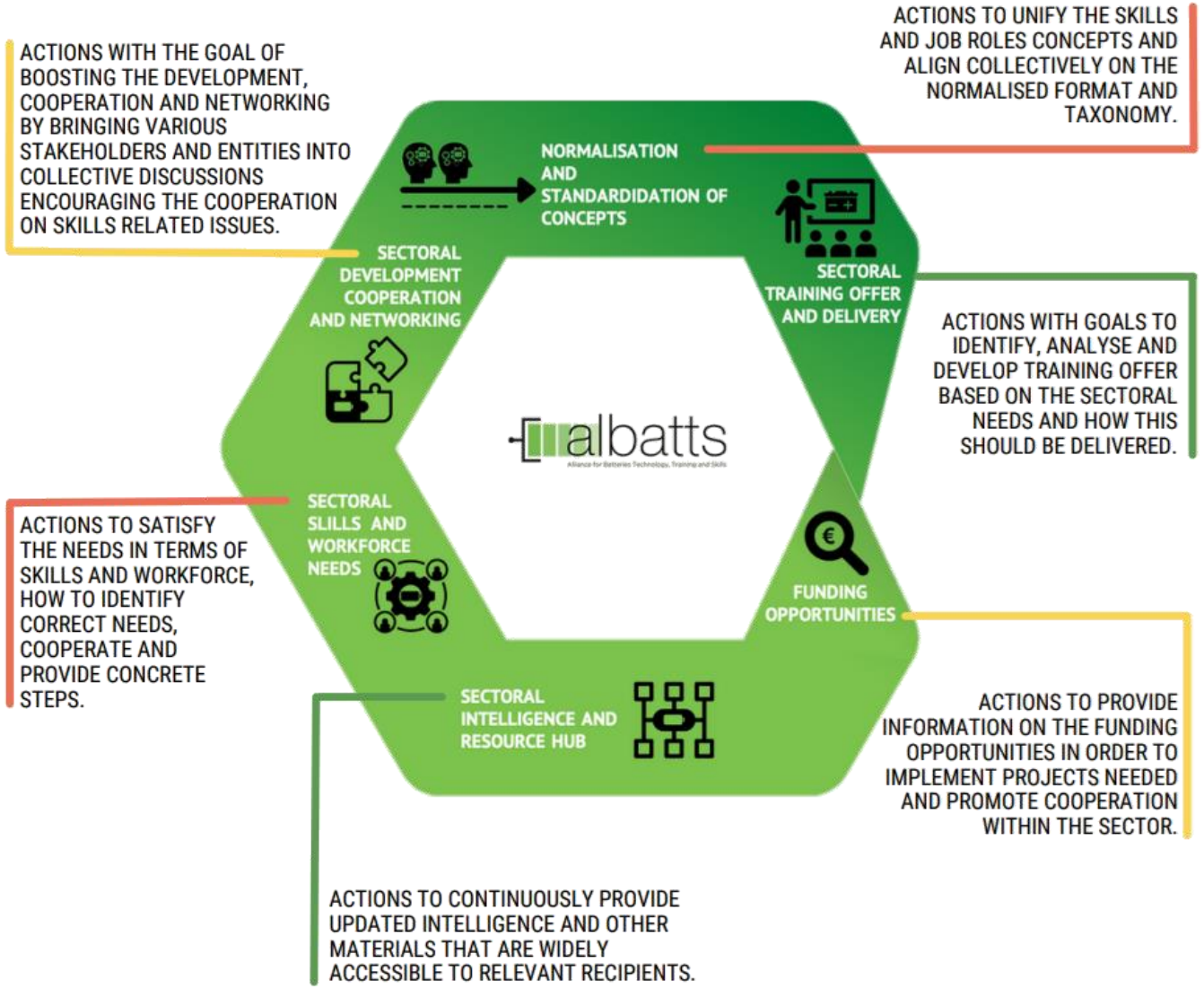
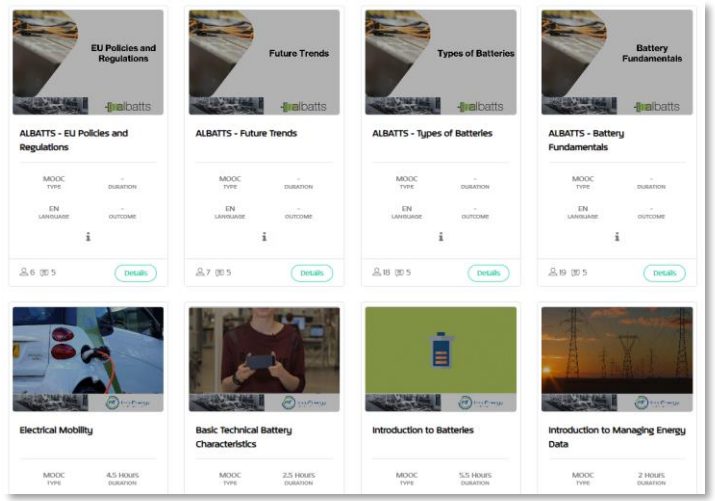
SKILLS AGENDA AND STRATEGY

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



ALBATTS Tackles Two Main Questions

Learning Platform

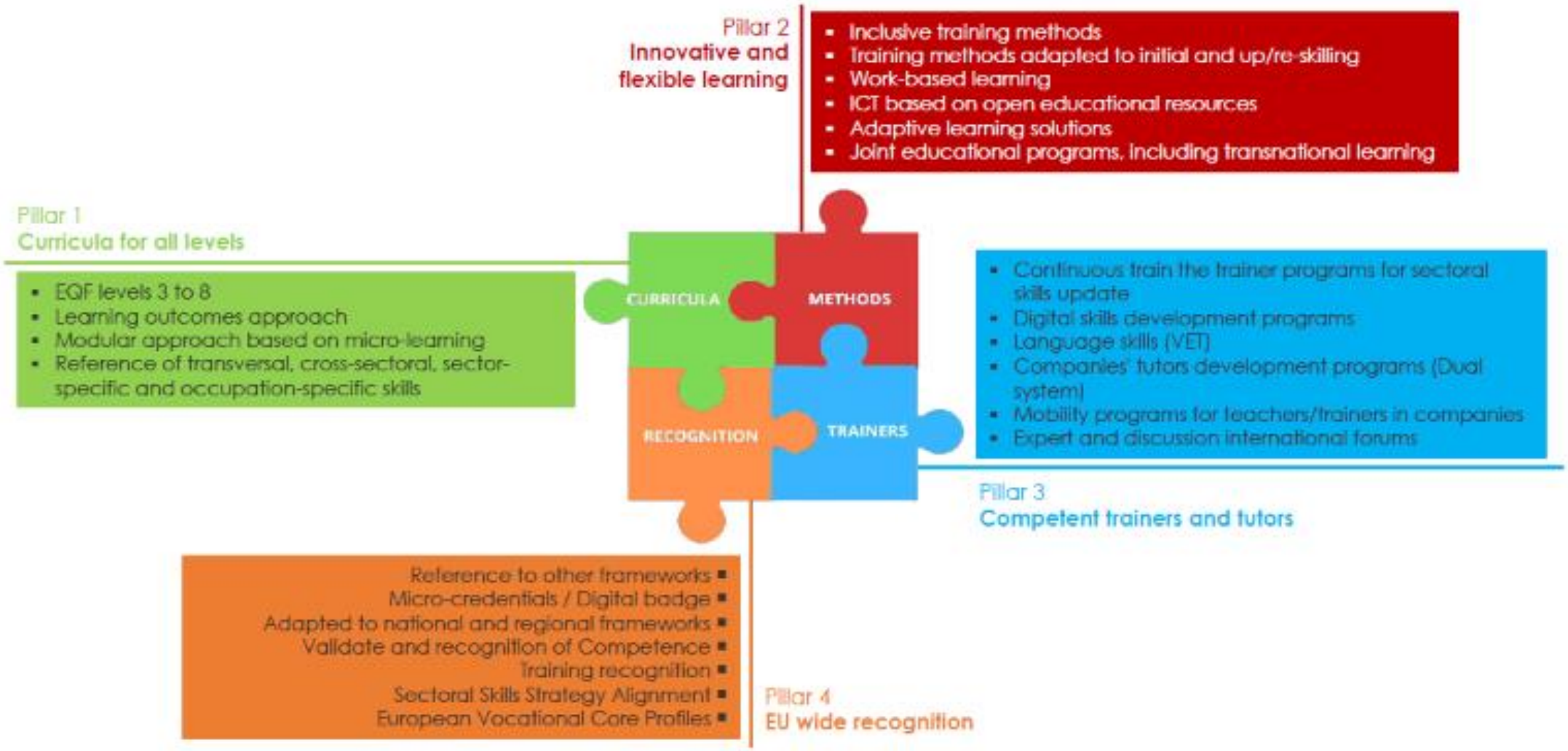


2 HOW CAN WE ADDRESS CURRENT CHALLENGES?

EDUCATION & TRAINING

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

Education & Training Framework



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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

BATTERIES TEACHERS & TRAINERS FORUM

The BaTT Forum is an initiative that was launched by ALBATTS with the purpose of gathering current and future teachers and trainers to share ideas and good practices, work together and deepen their knowledge about the battery sector.

BATTERIES TEACHERS & TRAINERS FORUM

Co-funded by the Erasmus+ Programme of the European Union

The BaTT Forum is now funded and further developed through the CaBatt - Capacity Building for Battery Teachers in VET, an Erasmus funded project developing a sustainable model for offering Erasmus+ courses for VET teachers.

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HANDBOOK

- Published in March 2024
- Available through the ALBATTS website
- Target group: education providers, teachers, companies, education authorities

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Some other outcomes of the ALBATTS project

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FRANCE

Dunkerque, Capital of the new European Battery Valley

8,5 billion €

will be invested over the next few years in the industrial port zone to produce and recycle electric batteries (total production of around 64 GWh by 2030)

DUNKERQUE
L'ÉNERGIE CRÉATIVE

Gains and opportunities with the Albatts project

Raising local awareness about skills and competencies for all the battery value chain

Identifying european cities with common challenges

Saving time!

Further twinning and cooperation (cities, training centres)

A battery school to further grow those talents

ēdlb+

L'école de la batterie

Battery School

Born in France in 2022 with recognised universities and schools
Leading by Verkor
Supported by French Governement

01

1,600 people trained
every year from 2026

02

100 initial & continuous trainings

03

From vocational training to Doctorate

04

At anytime of life

Training for trainers

- Electric vehicle - Level 1 with Verkor, TOLV, WattAlps & PowerUp (2 days)
- Design of test benches courses with Verkor and Critt M2A (8 days))

Operator trainings

- AFPA x Verkor "Battery Operator" training course - 1st class (March-June 23) and 2nd class (Oct-Jan 24)
- Creation of a dedicated "Bac+1" by Cnam

Source: Company information

VERKOR

KOMBiH in battery qualification funding in Germany

Fig. 2: **More skilled labour for the battery industry in Europe - VDI/VDE-IT implements funding.** https://vdivde-it.de/de/mehr-fachkraefte-fuer-die-batterieindustrie-europa-vdivde-it-setzt-foerderung-um

Further information on the battery expertise trios

- Development of battery expertise in Saarland (ABAKOS)
- Battery Education Network Bavaria (B³)
- Bildungsverbund Batterie Mitteldeutschland (BatteryMD)
- Developing expertise for battery cell production in the capital region (KOMBiH)
- Qualification measures in the Baden-Württemberg battery ecosystem (QualiBattBW)
- Qualification and further training of specialists along the entire value chain of sustainable lithium-ion batteries (QuW-LIB)

KOMBiH activities with ALBATTS

Own further training through the webinars

Good basis for shaping the KOMBiH project

Input at the 1st Battery Forum in Berlin-Brandenburg, March 2023

Integration into all German qualification projects (battery trios)

Participation in the ALBATTS teachers' forum

We translate all materials into German

Make these and your own results available via the ALBATTS platform

We discuss the integration of the courses developed by KOMBiH on ALBATTS

Case: New optional unit for battery industry

- EDUFI renew two vocational qualifications in 8/2022-5/2023
  - Vocational Qualification in Mechanical Engineering and Production Technology, 180 cp
  - Vocational Qualification in the Process Industry, 180 cp
- Our vision was to develop these vocational qualifications at the same time and find the similar optional units for these vocational qualifications
- There were lot of talk about battery industry and how we can recognize the needs of battery industry and different kind of job descriptions
- There were not lot of information about job descriptions until we found out about ALBATTS-project and we contacted with Katarina Sandbacka from VAMIA

Examensdel i den finländska läroplanen – Arbete inom batteribranschen 15kp

- Baserat på innehåll från ALBATTS-projektet har det gjorts en examensdel för den nationella läroplanen i Finland.
- Examensdelen träder i kraft 1.8.2O24 för Grundexamen inom Processindustrin och Grundexamen i maskin- och produktionsteknik.
- Examensdelen kommer även att erbjudas till andra grundexamen då de förnyas
- Examensdelarna i Finland kan användas både för grundexamen men även för up-skilling and re-skilling
- Det finns planer på att göra nya examensdelar så fort behov uppstår.

- Grundexamen i maskin- och produktionsteknik - eGrunder (opintopolku.fi)

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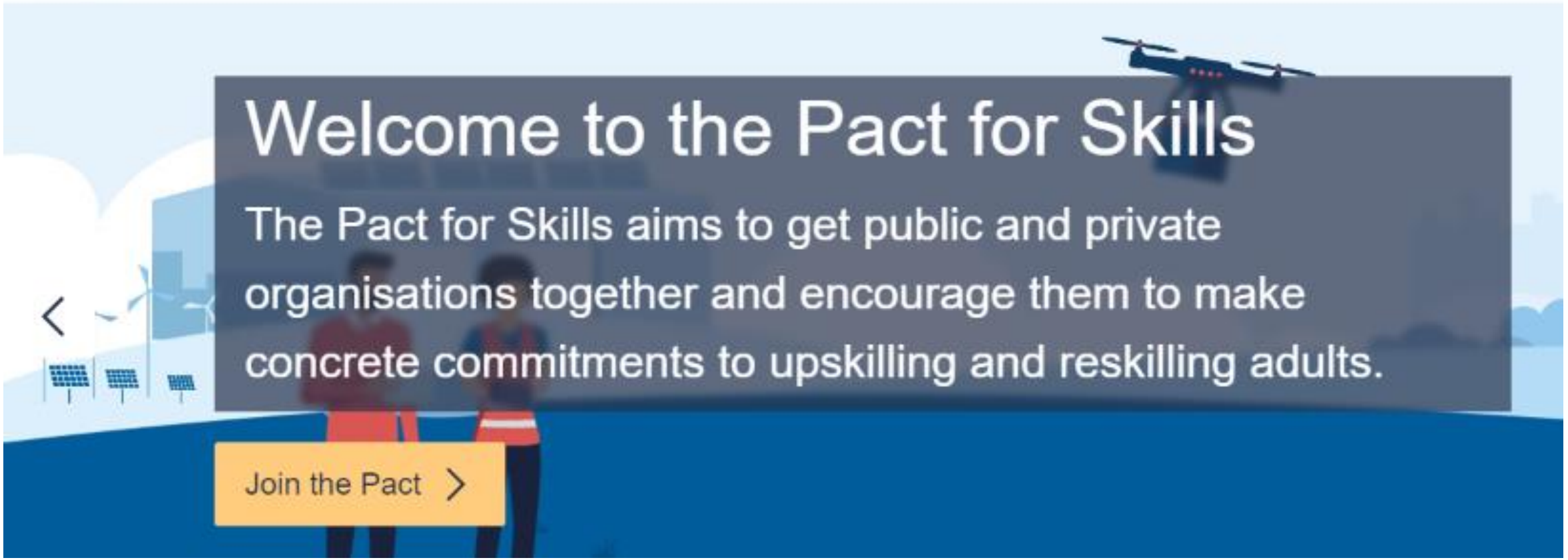
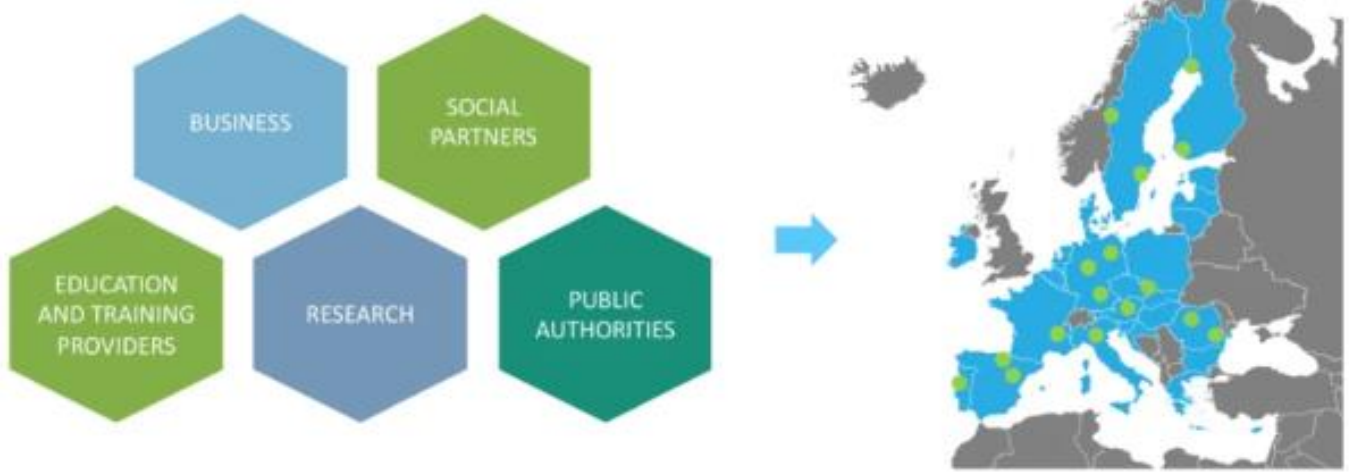

Welcome to the Pact for Skills
The Pact for Skills aims to get public and private organisations together and encourage them to make concrete commitments to upskilling and reskilling adults.
Join the Pact

Automotive Skills Alliance

- **Europe & Stakeholder-wide Partnership** for collaboration on **Skills Agenda in the Automotive-Mobility Ecosystem**
- The ASA was annouced and officially **launched in November 2020**
- **The ASA** became **a legal entity** (non-profit organization) in **January 2022**

The Automotive Skills Alliance (ASA) is focused on the re-skilling and up-skilling of workers in the automotive sector, developing intelligence and fostering dialogue among all relevant partners and stakeholders in the sector, and supporting the elaboration of **specific plans for re-skilling, up-skilling and training of workers in the EU automotive sector**.



What is happening after the ALBATTS project duration?

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Continuation in…

AUTOMOTIVE SKILLS ALLIANCE

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x 190,5 mm

AUTOMOTIVE SKILLS ALLIANCE

- **Large-scale Pact for Skills Partnership in the Mobility-Transport-Automotive Ecosystem** to strengthen collective actions on skills

- Announced and officially **launched in November 2020**
- ASA became **legal entity** (non-profit organization) **in January 2022**

- More than **110 members** up to now

PACT FOR SKILLS Leader

An initiative of the European Commission

ASA STRUCTURE – MEMBERS PARTICIPATION & COLLABORATION

ASA Partnership participate in Topic Committees, Working Groups & Task Forces

&

ASA builds upon the work carried out by strategic projects in the skills agenda for the ecosystem & **promotes and facilitates initiation of new projects/initiatives or support mainstreaming the existing once**

- TECHNOLOGICAL TOPICS
- EDUCATION AND TRAINING & PROMOTION OF INITIAL/LLL EDU
- DIVERSITY & ATTRACTIVENESS & SOCIAL ELEMENTS
- REGIONAL COLLABORATION AND IMPLEMENTATION

DRIVES albatts ECEPE CYBERENG ICaBatt RESIST PASS aLIFEca Flamenco TRIREME VOLTAGE

albatts | Reference Job Roles & Skills | Courses | Certification

ESCO Database

Skills Hub

(Catalogue, Micro-credentials, Reference definitions of Job Roles)

(LMS, hosting free MOOCs)

(hosted by individual providers/universities/VETs on their own costs)

Learning Platform

- Other already existing courses/ Modules
- Training Module 1 (Online)
- Training Module 2 (Online)

- Microlearning modules
- Learning Path -Combination of Modules
- Etc.

- Other already existing courses/Modules across the EU (irrespective of funging – private/public) - Paid or free
- Training Course 1 (on-site, MOOC, VR, Lab Course)
- ...
- Training Course 2 (on-site, MOOC, VR, Lab Course)

- **Learning Path – Combination of Modules/Training Courses** from different Providers to reach desired Job Role/level of Skill (combination of MOOC courses, onsite, etc.)
- **Issue micro-credentials – digital certificates**

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Vocational Education

Support FLEXIBILITY & COLLABORATION => SPEED UP REACTION TO THE CHANGES

EU-level:

- Encourage flexible modular approach
- Encourage cross-disciplinary content
- Promote cooperation between VET & HE
- Funding for labs, on- and offline

Regional/National level:

- Green skills in curriculum
- Flexible modular approach – easy to update and adapt, cross-disciplinary content
- Training in English and soft skills
- Funding for labs, on- and offline, teacher training
- Funding encouraging education providers to cooperate

VET provider level:

- Cooperate – universities - industry, - other VET providers, municipality, authorities
- Be proactive! Don't wait!

Industry /Working life:

- Communicate with VET providers!
- Help with training material and content
- Offer on-site experience for teachers and trainers!

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Recommendations /University Education!

Challenge:

- ***Universities teach only what they research***…but few universities have eg. battery research

- **Incentives** for European universities to cooperate not only in research, but also in education offerings, also on Bachelor level

Recommendations:

- **Subcontract** a research-specialised university for the needed course!

- **Wrap** a MOOC course from a good university!

- **Introduce optional green-skills courses! In all relevant programmes, now!**…while program development speeds up…

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THANK YOU !

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info@project-albatts.eu

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