



Alliance for Batteries Technology, Training and Skills

2019-2023

Dissemination at Training and Education Level

D2.5 Dissemination at Training and Education Level – Final



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

DOCUMENT INFORMATION

Report Title:	Dissemination at Training and Education Level		
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Responsible Project Partner:	Eupportunity	Contributing Project Partners:	All

Date of changes to document:	

Document data:	File name:	D2.5_Dissemination_Training_and_Education_Level_Final		
	Pages:	24	No. of annexes:	0
	Status:	Draft	Dissemination level:	PUBLIC
Project title:	Alliance for Batteries, Technology Training and Skills		GA No.:	2019-612675
WP title:	WP2 DISSEMINATION		Project No.:	612675-EPP-1-2019-1-SE-EPPKA2-SSA-B
			Deliverable No:	D 2.5
Date:	Due date:		Submission date:	31/05/2024
Keywords:	Dissemination, regional, initiatives, events			
Reviewed by:	Carla Velasco Martins		Review date:	28/05/2024
			Review date:	
Approved by:	Anders Norberg		Approval date:	31/05/2024

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EXECUTIVE SUMMARY

This report covers the dissemination activities carried out at training and education level with the purpose of building a skilled workforce capable of supporting the emerging battery ecosystem.

It is the storytelling of the set of undertakings, mostly performed by WP6 partners, with the support of the dissemination team and the contribution of the whole partnership. This collective effort during the four-years span of the project is both the visible and invisible parts of the iceberg in the context of education and training.

The visible part is the easily perceptible information, like the one accessible through the ALBATTs website, social media posts, events organised or participated, factsheets or reports. The invisible but larger part represents deeper and crucial engagement with the ecosystem for truly preparing the workforce for the dynamic demands of this sector.

Among all, it is highlighted ALBATTs strategic approach to fostering collaboration between academic research and training programs to ensure a consistent and high-quality education and training landscape. With that in mind, an important initiative was launched—the Battery Teachers and Trainers Forum. Its impact was so significant that it led to the creation of a spin-off project, CaBATT, supported by the ERASMUS+ Programme.

The drive behind this report is giving credit to the partnership's successful engagement with education and training systems as well industry stakeholders for a thorough assessment of job role descriptions and skills required, and with certification authorities to align job descriptions and standards across Europe. Those were remarkable examples of how the local/national achievements can feature models globally.

Overall, it explores the invisible part of dissemination and WP6 activities and the backside of related reports.

INTRODUCTION

This is the final release of the ALBATTs report D2.5. It refers to the Task 2.5 (Dissemination at Training and Education Level), according to which the ALBATTs partnership would (1) disseminate and work out with the education and vocational training systems as well as engage with VET certification authorities to ensure the take up of common European standards for alignment of job descriptions and (2) disseminate within the academic for a dealing with energy storage and battery technologies. It describes the planning and the implementation of the actions, some more visible than others, primarily carried out by WP6 partners, with support from the dissemination team and the contribution of the entire partnership.

This report highlights the different strands of action, among which stands out an initiative targeted to the specific audience of teachers and training within the batteries sector: the Battery Teachers and Trainers Forum (BaTT Forum). Its purpose was to bring together current and prospective teachers and trainers to share ideas, and best practices, collaborate, and deepen their knowledge of the battery sector.

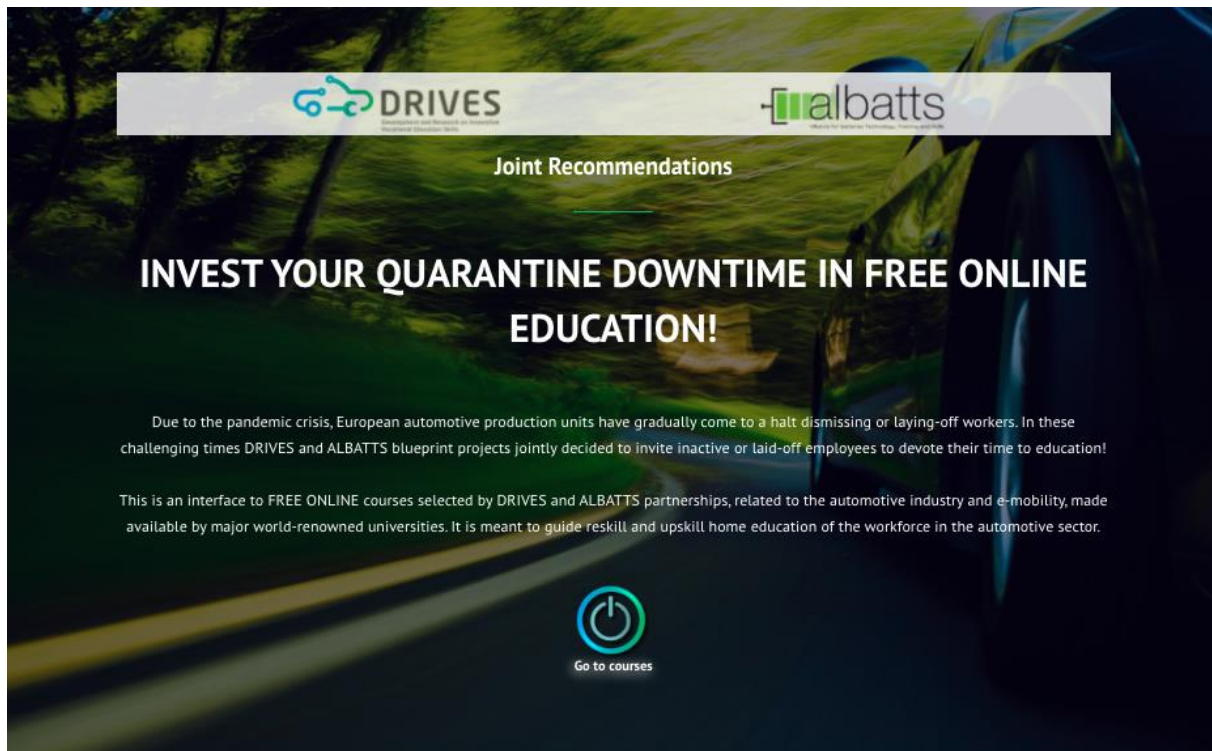
About ALBATTs

The Alliance for Batteries Technology, Training and Skills - ALBATTs is a European Union funded project with the objective of contributing to the electrification of transport and green energy in Europe, by designing a blueprint for competences and training schemes of the future, in the battery and electromobility sector.

The project ran from December 2019 to November 2023 (and was extended until May 2024) with a budget of nearly 4 million euros and included main battery stakeholders comprising industries, R&D organisations, IT companies, public entities, European sectorial associations, VET schools and Universities, from the 10 EU partner countries. 20 European partners from 11 countries were involved. In addition, three Associated partners identified in the original proposal and other three that meanwhile joined the project compose the Steering Board, led by ACEA.

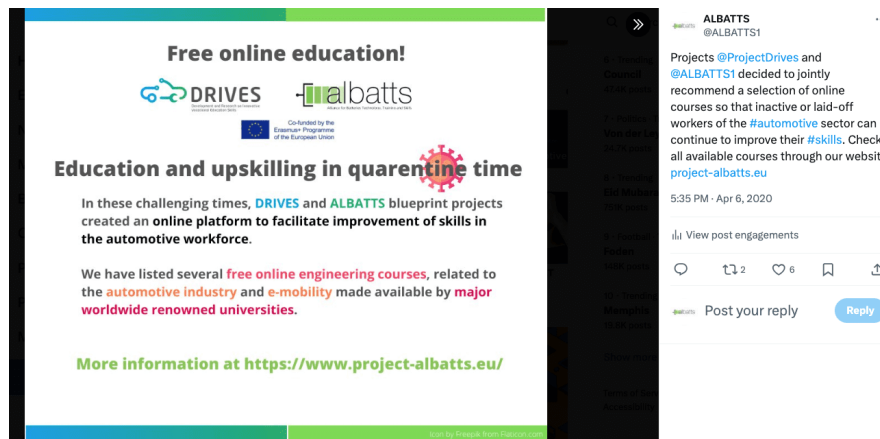
1 ENGAGING WITH EDUCATION AND TRAINING ECOSYSTEMS

Shortly after the ALBATTs project kicked off, the coronavirus outbreak took place, conditioning lives globally, and calling for the best creativity and resilience to continue the daily routine as rational as possible. The partnership reinvented the original strategy and quickly setup a landing page with free online courses to keep workers and students busy and



focused on upskilling. The free online courses that were made available were relevant to both the automotive industry and the e-mobility ecosystems, and raised interest from a significant number of learners. These courses were prepared by major renowned universities and initiatives.

The [Education and Upskilling in Quarantine time!](#) - Access free online reskill and upskill education courses was widely announced on [ALBATTs website](#) and through the project's social media.



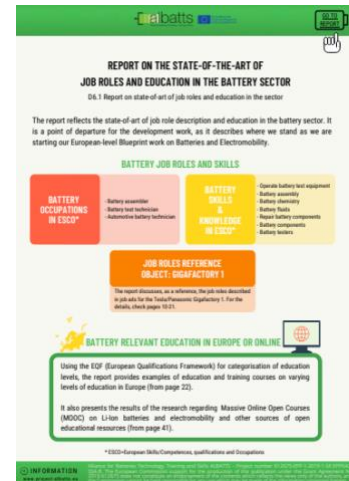
As life gradually went back to normal, the partnership continued to develop the planned activities towards reaching the set goals.

1.1 SKILLS AND OCCUPATIONS – SHOWING THE STATE-OF-THE ART

In report [D6.1 - Report on State-of-Art of job roles and education in sector](#), ALBATTs set the panorama of job roles description and education in the battery sector with an overview of the battery-related skills and occupations according to the European Skills/Competences, Qualifications and Occupations (ESCO). The European Qualifications Framework (EQF) framework was used for categorisation of education levels and the provision of examples of education and training courses on varying levels of education. Enhanced focus was given to high-demand areas in cell factories such as inorganic chemistry and electrochemistry, and also in leveraging online learning platforms and open educational resources.

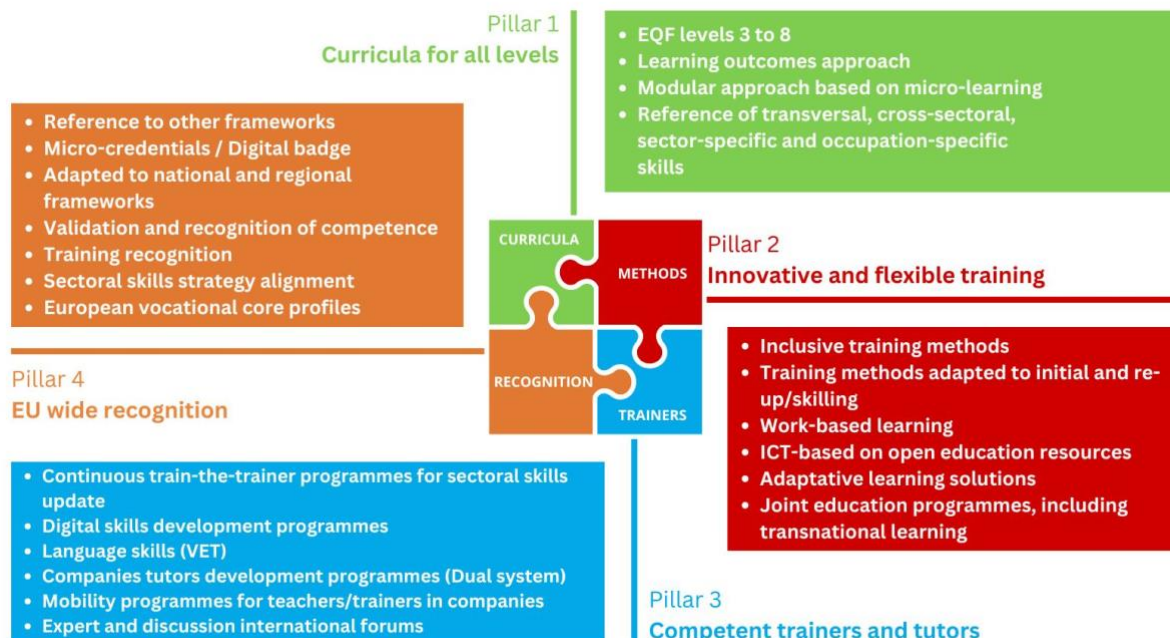
This was a giant step for a comprehensive collection of key competences and skills as well a glance on the job roles in the industry taking as reference the case study for the Tesla/Panasonic Gigafactory 1, which provided major information to the education and training ecosystem.

A [Factsheet](#) was produced with highlights of the report that was much welcome by stakeholders. The factsheet and the report were disseminated to ALBATTs stakeholders by direct mail and through posts in the social media of the project.



1.2 TRAINING AND EDUCATION FRAMEWORK

The conceptual ideas backing the preparatory development of the ALBATTs Education and Training Framework are revealed in [D6.2 - Training and education work plan](#). This report comprises the choice of tools and identifies four central pillars that constitute the guiding principles for the battery sector:



ALBATTs Education and Training Framework

Addressing the education and training community, the report outlines the drivers of change that were identified, such as economic factors, globalisation, social and demographic change and emerging drivers of change. It also goes through European policies and initiatives, such as the New Skills agenda, the EU Digital Action Plan, the EU recovery plan, the Council regulations on VET from November 2020 and the accessibility regulations. Moreover, as the basis of the work are existing frameworks, instruments and tools on the European level, it revises USCED, EQF/NQF, EHEA, EURASHE, ECVET, and Key Competencies and cover application-based issues: I-VET and C-VET; re-skilling and up-skilling; formal, non-formal and not-formal learning, work-based learning and transnational learning.

Aspects like modules and units and micro-credentials were covered, as well as tools for Open Educational Resources (OER) creation and the adaptation of how existing OERs for various cases.

A [Factsheet](#) was produced with highlights of the report that was much welcome by stakeholders. The factsheet and the report were disseminated to ALBATTs stakeholders by direct mail and through posts in the social media of the project.



ALBATTs D6.2 Factsheet

1.3 SKILL CARDS AND CONTINUOUS IMPROVEMENT AND FEEDBACK

Through desk research, surveys, interviews and workshops the project normalised data collected and generalised into the Skills Cards. These were created based on the occurrence of various job roles in literature and on discussions with stakeholders and experts, as well as on job advertisements published by companies.

Skills Cards

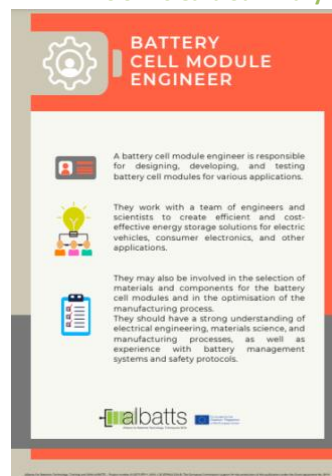


The first ALBATTs Skills Cards were released in the beginning of 2023 together with a call for stakeholders' involvement by providing feedback on the granularity of competences and level of descriptions addressed, as well on identified gaps and level of urgency.

The ALBATTs Skills Cards describe a series of occupational profiles - and corresponding competencies - within the scope of battery manufacturing, e-mobility and stationary battery storage.

A quick grasp of the contents of each Skills Card was provided by the corresponding summary factsheet prepared by the dissemination team.

ALBATTs Skills Card Summary



This content material is an essential resource for stakeholders, companies and national agencies, but particularly for training providers, such as VET providers or universities. It helps them creating training opportunities and improving existing curricula or training programmes.

The Skill Cards were disseminated to ALBATTs stakeholders by direct mail and through posts in the social media of the project.



Image of social media post about the Skills Cards

A [short video](#) explaining how companies, training providers and national agencies can use ALBATTTS Skills Cards was also produced.

Periodic e-mails were sent to stakeholders to keep them informed about updates made on the Skills Cards following the feedback received.

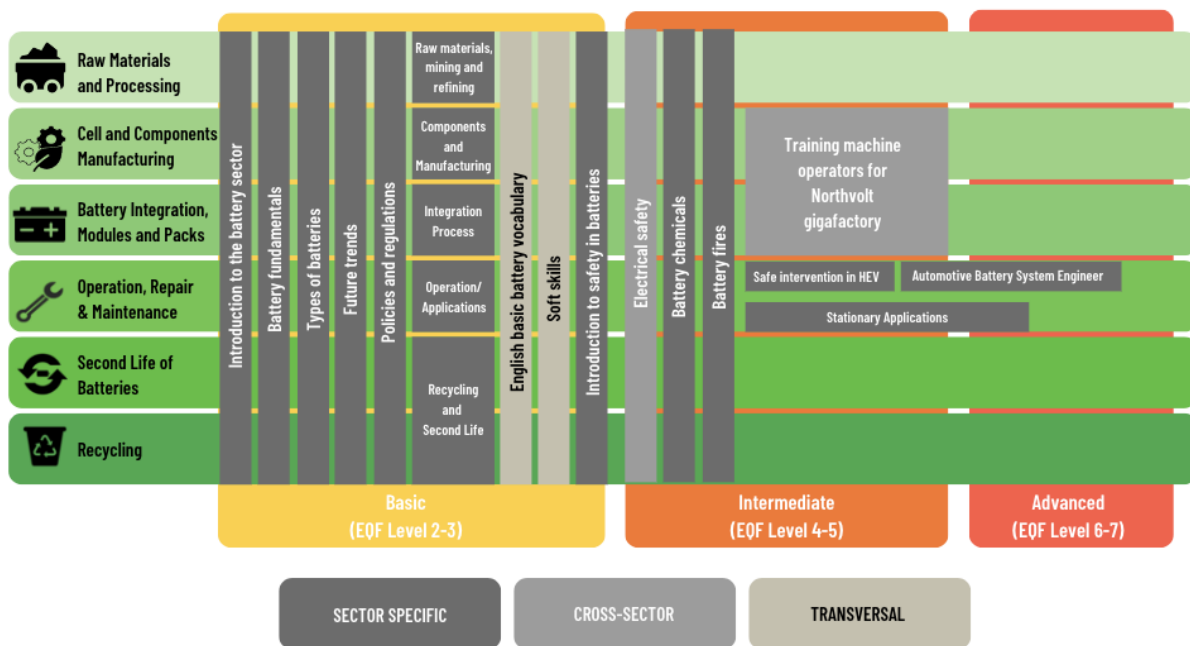
Due to the recognised importance of these resources, a [Skills cards dedicated page](#) was created in the ALBATTTS website, linked by an easy access button added to the website homepage.

2 INFRASTRUCTURE DEVELOPMENT

2.1 CURRICULA FOR ALL LEVELS – TRAINING MODULES AND COURSES

Taking stock from skills intelligence, the analysis of existing curricula and gaps in the battery sector and information from ALBATTTS Framework, training modules and courses were developed. The line was to use a modular approach based on micro-learning and addressing transversal, cross-sectoral, sector-specific, and occupation specific skills. The methodology involved not only the sector educational needs and stakeholder requirements, but also the deep analysis of the developed competency matrix and skill cards to map job roles and skills required.

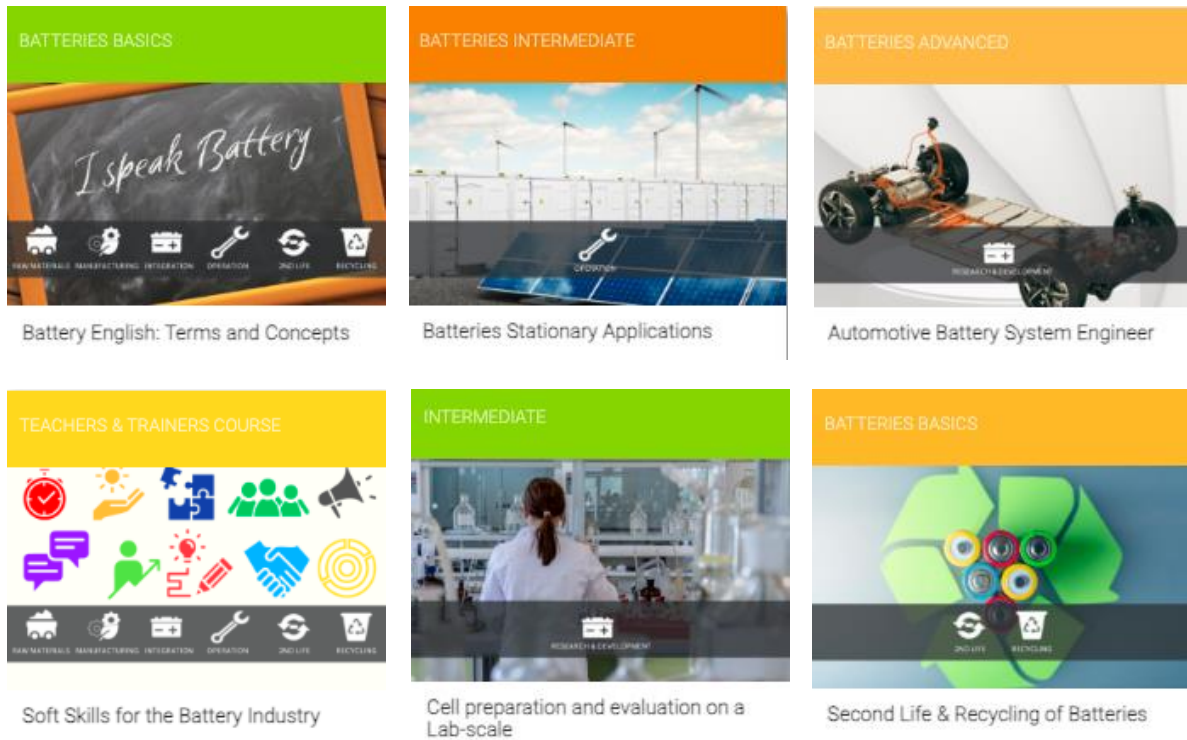
The ALBATTTS course structure is now well known by education and trainers in different EU geographies.



ALBATTTS Course Structure

The work is reflected in [D6.4 - Curriculum analysis and proposed solutions report](#) and resulted in the development of several [training modules and courses](#) designed to meet the needs of the battery sector.

Learning materials include battery's introduction courses for the entire value chain, safety, English for the battery sector, automotive and stationary applications or soft skills for teachers and trainers.



Examples of ALBATTs Courses

The release of the first batch of the ALBATTs Courses was disseminated to ALBATTs stakeholders by direct mail and through a [short video](#) in the social media of the project. The release of each new course was always followed by a corresponding post in social media.





Images of social media courses related posts

2.2 OER AND CONNECTED ADAPTIVE LEARNING LOGISTICS

ALBATTs designed an education and training framework with the goal of providing the battery education network with innovative and flexible learning opportunities, thereby creating training materials for the proposed curricula. That would configure a pack of micro-modules for training providers' use in different settings. They are intended to respond to the short-term needs, for initial and up/reskilling purposes, and to support education and training providers, including training the trainers, and the industry.

D6.5 - [Report on creation of OER and connected adaptive learning logistics](#) provides the details of the learning materials, the usefulness of the MOOC and the relevance of the learning courses.

These modular courses constitute the most prized legacy infrastructure offered to stakeholders and to the education and training system. That is why they are offered in an online learning environment either for self-learning or for teaching/training purposes onsite or in a blended learning environment.

The courses are freely accessible and promoted by the ALBATTs project and the Automotive Skills Alliance (ASA) at the [ASA Learning Platform](#) and shared through the [InnoEnergy Skills Institute \(Free Partner Courses\)](#)

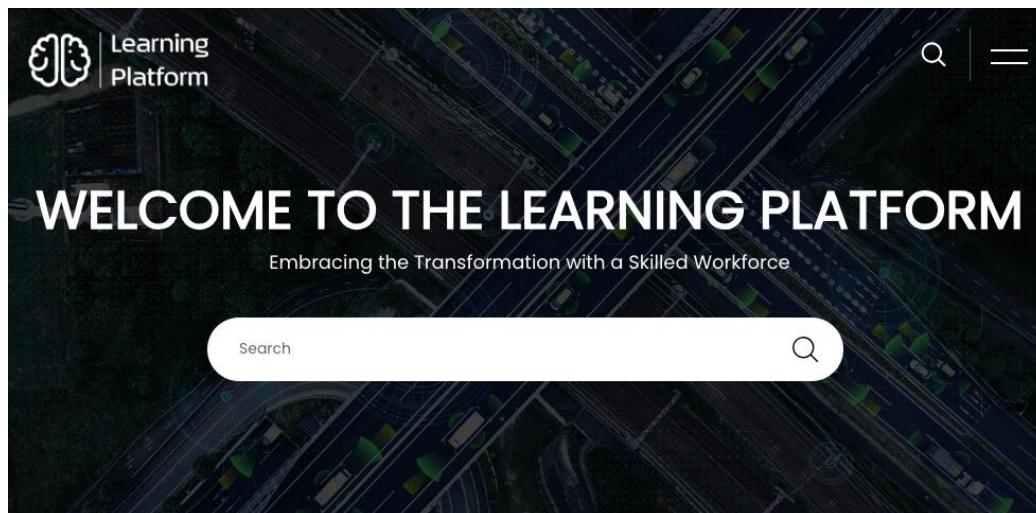


Image of the ASA Learning Platform entry page

To date, more than 1180 users have registered for the courses directly on the platform, and more than 100 have attended trainer training sessions or blended learning settings.

3 VALIDATING AND PROMOTING BEST PRACTICES

ALBATTs training and education expert partners gave special attention to finding suitable solutions to educate workers with new skills and knowledge, focusing on the blue-collar workers that represent approximately 80% of the industry's needs. That pointed efforts for work in vocations like machine operator, with vocational qualifications background whether it was from another technical field or a career change from service to factory work.

Albeit, teachers and engineers with longer/higher education were also taken into account due to their importance in the battery value-chain.

Given the importance of creating impact in the ecosystem, ALBATTs rolled-out the training and education framework on different formats and fora. Further dissemination details are in D2.2 and D2.3.

3.1 PILOTING AND DEMONSTRATION OF COURSES AND MODULES

Reskilling and up-skilling with continuous learning is important to attract blue-collar and white-collar staff for the battery industry. ALBATTs covered competence and skills needs of the entire value chain, by providing training on EQF levels 2-7. All the new courses and modules created in ALBATTs by teachers and partners, equally from VET and HE, after self- and peer-evaluation, were piloted. Several institutions contributed to course creation and training programs for students and teachers in VET, reskilling, and upskilling contexts, notably the VUX VET institute and Northvolt Gigafactory in Skellefteå, who provided valuable learning opportunities for the project.

The feedback received helped ALBATTs teachers improve their courses. Interaction and joint activities, particularly through the network of the BATT Forum (**Error! Reference source not found.** - highlighted under section 4), were essential for developing new courses, and coworking during pilot phases was a key part of this process. The piloting methodology and process as well the pilots evaluated is wide-open in [D6.6 - Report on piloted, demo-ed and delivered courses or modules.](#)

ALBATTs courses evaluation process was accomplished by close interaction with the education and training community, not excluding industry, and was precious to get feedback and confident validation of the clarity, relevance and usefulness of the learning materials

produced. The outcome and positive feedback received, opened a highway to exploitation and wider endorsement for EU-wide adoption.

3.2 ENGAGING WITH VET CERTIFICATION AUTHORITIES

ALBATTs Education and Training Framework was built on the basis of the importance of referencing, using and linking to other frameworks like ESCO, ASA Skills Hub. That mindset paved the way to wide recognition of outcomes, ultimately, the EU-wide recognition. This is comprehensively included in report [D6.3 - Definition and recognition of emerging job roles](#), which besides the mapping all training and education modules against the [ESCO](#) taxonomy, also reference to [EQF](#) and [ISCED](#) levels.

Considering the importance of EU-wide recognition, other key aspects included validating various forms of learning and competencies, utilising digital badges for micro-credentials, adapting to national and regional frameworks, recognising training materials and job roles at the EU level, ensuring recognition of European Vocational Core Profiles, and implementing a sectoral skills strategy.

ALBATTs took the endeavour of engaging with some national VET Certification authorities. The goal was gradually accomplishing adoption of ALBATTs modules as part of national curricula to smoothly growing EU-wide. The first success was reached with the **Finish national curricula** where the adopted module can be found in the national education database e-requirements (e-perusteet: Prosessiteollisuuden perustutkinto - ePerusteet (opintopolku.fi)) and will come into force in 01/08/2024.

A presentation of the full process was given by Jarno Pöntinen (Finnish National Agency for Education) during the [ALBATTs Final Conference](#) in Brussels.

Report D6.3 provides examples of the national curricula adoption process in Finland, Portugal and the Czech Republic. These can be reference models for other European countries and can be used by the European Commission as recommendation for EU-wide procedures.

3.3 GUIDELINES FOR TRAINING THE TRAINER

The interaction with battery related stakeholders, particularly the cooperation with education and trainers and coworking during pilot phases, arose the importance to assist in developing teaching and training competence in Vocational Education and Training (VET) institutions. The purpose was to help VET teachers provide training for the European battery sector.

Consequently, a handbook was produced and steps were documented in [D6.7 - Guidelines for train the trainer](#).

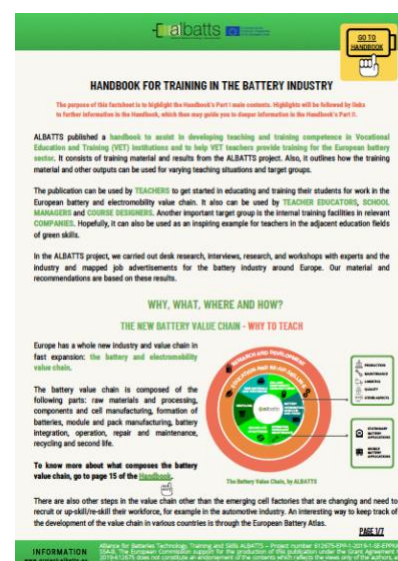


This handbook outlines how the training material and other outputs can be used for varying teaching situations and target groups.

In practice, the handbook is intended primarily for teachers in the VET sector and is meant to be of help to teachers who are or will be teaching students for actual and future jobs in the emerging battery and electromobility value chain industries.

University teachers can also use the handbook for their orientation and courses at the undergraduate level, as well as for upskilling and reskilling courses.

Given the importance of the Handbook for Training in the Battery Industry, a comprehensive 7-page [factsheet](#) was produced with the main highlights, chapters and material guidance, while directing to the main report for more complete information.



The release of the Handbook was widely disseminated by the partners in the ALBATTs roll-out events. The same release was disseminated through the project's social media.

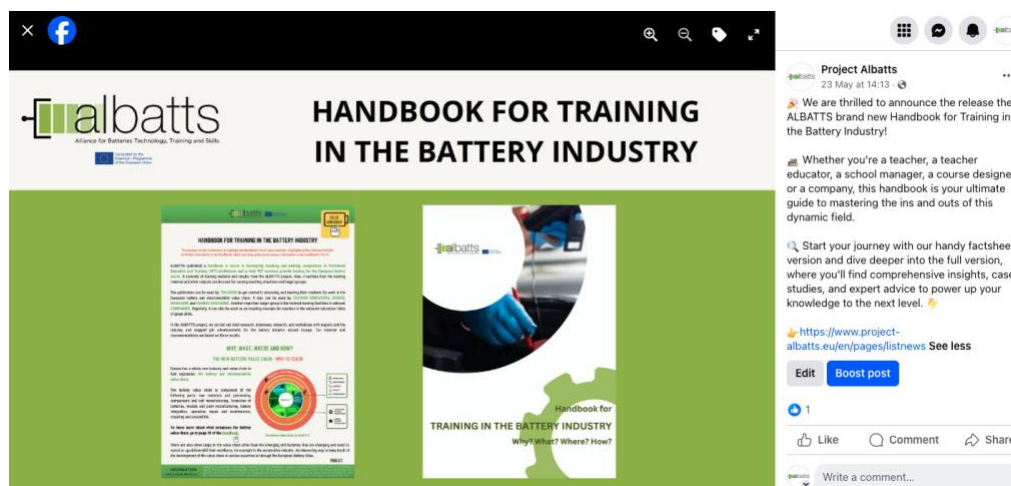


Image of social media post about the Handbook

4 BATTERIES' TEACHERS AND TRAINERS FORUM

The Batteries' Teachers and Trainers Forum (BaTT Forum) is an initiative that was launched by ALBATTs. Its primary objective is to bring together current and prospective teachers and trainers to share ideas and good practices, collaborate, and deepen their knowledge about the batteries sector.

The BaTT Forum emerged as a solution to the challenges encountered in organising work-based learning and gaining access to companies' premises, and was one of the most demanded and welcomed activities from the ecosystem as the battery is an emerging sector and the knowledge and education system is yet to be settled.

The BaTT Forum played a central role in piloting courses developed by ALBATTs partners. The training model designed and piloted during the project relied heavily on the involvement of teachers, who were crucial in evaluating and refining the courses. Learners also valued interaction and expressed a desire for more of it in blended learning courses.

4.1 COMMUNICATION METHODOLOGY

The first step for communicating this initiative was the production of its logo, which was based on the ALBATTs logo.



Image 6: BATT Forum logo

The second step was the establishment of a private LinkedIn Group, followed by the launch of a call for teachers and trainers to join. The call was sent to the ALBATTs stakeholders data base, and also announced on the project social media to engage all potential interested teachers and trainers.

Finally, the project started working on the organisation of in-person forums with the objective of showcasing a dynamic partnership between the education and industry sectors, and of drawing keen interest from scores of teachers and trainers. The information about these events together with invitations to register for them was disseminated within the LinkedIn Group. It was also sent by e-mail to schools, training centres, and other organisations potentially interested in participating in the learning forums.

The following section encompasses information about the BaTT Forum events organised during the ALBATTs project duration period.

The BaTT Forum turned into a spin-off of ALBATTs project and 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. Because of that, the ALBATTs dissemination team supported the CaBatt common partners with some of the graphics adopted by the new project.

4.2 BATT FORUM EVENTS

The partnership organised the first two BaTT Forums that took place so far.

No.	DATE	DEDICATED TO AN AUDIENCE IN
1	October 2022	Sweden
2	May 2023	Czech Republic
3	December 2023	Norway
4	May 2024	Sweden

Table 3: Batt Forum Events

4.2.1 First BaTT Forum in Sweden

This forum about **batteries production** was held in Sweden in October 2022.

Number of participants: 36

Origin of participants: Sweden, Finland, Norway, Germany, Czech Republic, Slovenia, Portugal, Iceland

4.2.2 Second BaTT Forum in the Czech Republic

This 3-day forum about **batteries in the automotive industry** was held in Mladá Boleslav, Czech Republic, in May 2023.

Number of participants: 31

Origin of participants: Sweden, Finland, Norway, Denmark, Germany, Czech Republic, Slovenia, Portugal



Pictures of BaTT Forum in Czechia (2023)

4.2.3 Monitoring dissemination

Regarding the BaTT Forum LinkedIn Group, established in 2022, we are delighted to report a steady growth in membership since its inception, with the current count standing at 88 members.

In addition, the two BaTT Forums convened under the auspices of ALBATTs have united 67 participants from Sweden, Finland, Norway, Denmark, Germany, Czech Republic, Slovenia, and Portugal. These gatherings served as vital platforms for professionals to stay up-to-date of the latest advancements in Europe's battery industry.

5 CONCLUSIONS

ALBATTs partnership made its best effort to follow the mandate for coordinated approach involving education and vocational training systems, industry stakeholders, and VET certification authorities towards aligning job descriptions and fostering collaboration between academic research and training programs. This would not only convene the current demands of the battery industry but also prepare for future advancements and challenges as well ensure a consistent and high-quality education and training landscape in the sector.

Since the ALBATTs project kicked off at the turn of the year 2019-2020, there have been significant developments in online learning. The COVID-19 pandemic accelerated the shift to online education, presenting great opportunities for adult learners in higher education and those pursuing self-directed continuous learning. However, vocational education and training (VET) faced significant challenges. VET requires practical assignments and industry-based training, which are difficult to deliver online.

For the teachers involved in the ALBATTs project, this shift resulted in a substantial increase in workload. This extra burden caused delays in the creation of educational materials, which were completed later than initially expected.

The implementation of the ALBATTs Education and Training Framework which included the BATT Forum events, showcased a dynamic partnership between the education and industry sectors, drawing keen interest from scores of teachers and trainers. Attendees were eager to remain abreast of the latest advancements in Europe's burgeoning battery industry, fostering a vibrant exchange of knowledge and skill enhancement opportunities.

The positive turnout on the BaTT Forum reflects the interest and relevance of the project findings, and the successful mobilisation of national and regional stakeholders within the battery value chain.

Engagement with the training and education networks confirmed the relevance of making happen experiences at local and national levels to magnify the success globally.

6 ALBATTs CONSORTIUM AND STEERING BOARD

COORDINATOR



FULL MEMBERS



STEERING BOARD

