TRiREME

DIGITAL & GREEN SKILLS TOWARDS FUTURE OF THE MOBILITY ECOSYSTEM

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Sectoral Collaboration on Skills Agenda in the Automotive-Mobility Ecosystem

Dr. Jakub Stolfa, ASA, President, js@skills-alliance.eu

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AUTOMOTIVE-MOBILITY ECOSYSTEM IN TRANSFORMATION

Overview

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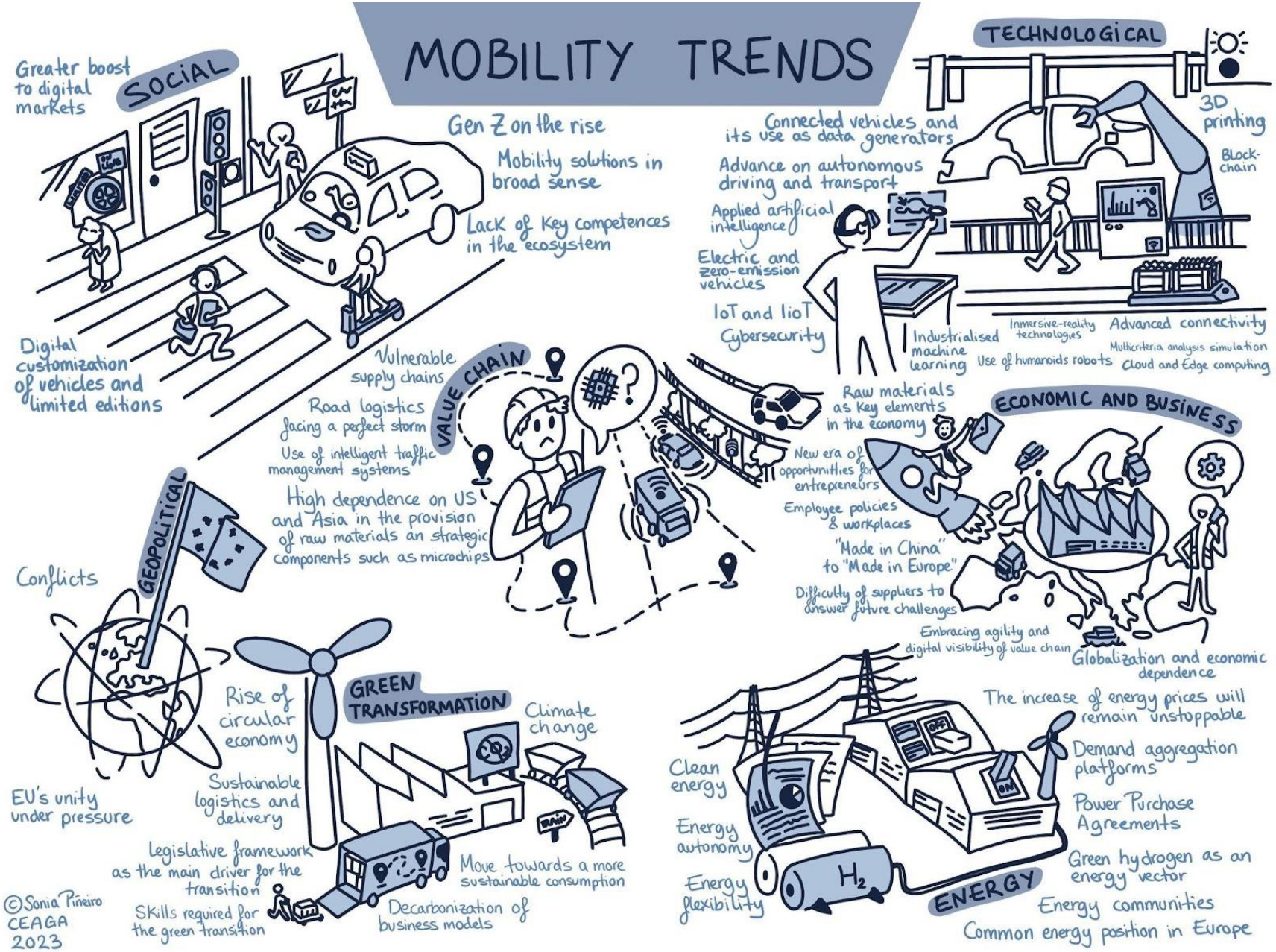
MOBILITY TRENDS
SOCIAL
Greater boost to digital markets
Gen Z on the rise
Mobility solutions in broad sense
Lack of key competences in the ecosystem
Digital customization of vehicles and limited editions
TECHNOLOGICAL
Connected vehicles and its use as data generators
3D printing
Block-chain
Advance on autonomous driving and transport
Applied artificial intelligence
Electric and zero-emission vehicles
IoT and IioT
Cybersecurity
Industrialised machine learning
Immersive-reality technologies
Advanced connectivity
Use of humanoids robots
Multicriteria analysis simulation
Cloud and Edge computing
VALUE CHAIN
Vulnerable supply chains
Road logistics facing a perfect storm
Use of intelligent traffic management systems
High dependence on US and Asia in the provision of raw materials an strategic components such as microchips
ECONOMIC AND BUSINESS
Raw materials as key elements in the economy
New era of opportunities for entrepreneurs
Employee policies & workplaces
"Made in China" to "Made in Europe"
Difficulty of suppliers to answer future challenges
Embracing agility and digital visibility of value chain
Globalization and economic dependence
GEOPOLITICAL
Conflicts
EU's unity under pressure
GREEN TRANSFORMATION
Rise of circular economy
Climate change
Sustainable logistics and delivery
Legislative framework as the main driver for the transition
Move towards a more sustainable consumption
Skills required for the green transition
Decarbonization of business models
ENERGY
The increase of energy prices will remain unstoppable
Clean energy
Demand aggregation platforms
Energy autonomy
Power Purchase Agreements
Energy flexibility
Green hydrogen as an energy vector
Energy communities
Common energy position in Europe
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Source:

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INTRODUCTION TO TRIREME PROJECT

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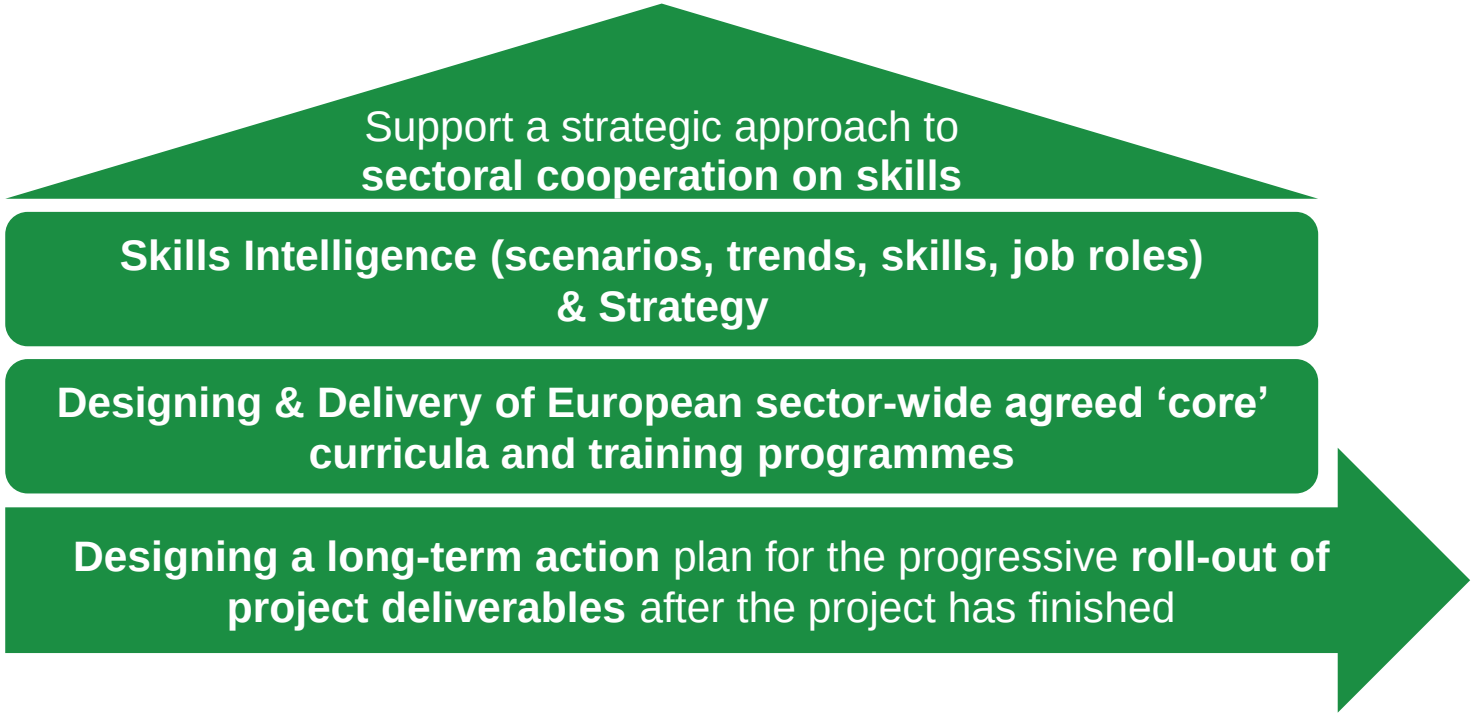
Project Information

4-year ERASMUS+ Blueprint Project (2024 – 2028)

31 project partners from the Automotive Skills Alliance partnership



Support skills agenda in the Automotive-Mobility Ecosystem through the Large-scale Pact for Skills Partnership

AUTOMOTIVE SKILLS ALLIANCE

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Partnership

AUTOMOTIVE SKILLS ALLIANCE

acea
cecra
The voice of European vehicle dealers and repairers
CLEPA
European Association of Automotive Suppliers
Ceemet
European Tech & Industry Employers
Wirtschaftsförderung Region Stuttgart
ISCN
International Software Consulting Network
MŰEGYETEM 1782
HETEL
sernauto
ETRMA
EUROPEAN TYRE & RUBBER manufacturers' association
VSB TECHNICAL UNIVERSITY OF OSTRAVA
APTE
ASSOCIATION FOR PROMOTING ELECTRONICS TECHNOLOGY
University of Maribor
NEWTON UNIVERSITY
InterTradeCard
East Automotive Alliance
UCRS
MOBINOV :: Automotive Cluster PORTUGAL
TRANSILVANIA IT CLUSTER
Adecco
industriAll
EUROPEAN TRADE UNION
eupportunity
SPIN360
Fondazione Giacomo Brodolini Srl SB
atec
EUIO SPI²
TU Graz
SISTEMI FORMATIVI CONFINDUSTRIA
vamia
AVANCE 1829
CHALMERS
UNIVERSITY OF TECHNOLOGY

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Project Scope: Trends Influencing the Ecosystem

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Digitalisation

- Connected vehicles (Internet of Things, V2X coms, Cloud)
- Autonomous Driving (ADAS, Full Autonomy, sensors)
- AI, Machine Learning, Data Analytics
- Cybersecurity (vehicle security, data privacy)
- Digital twins and simulation
- Industry 4.0/5.0
- Virtual/augmented reality (VR/AR)

Green, Sustainability and Circular Economy

- Electromobility (electric vehicles)
- Hybrid Vehicles (PHEVs, mild hybrids)
- Other alternative fuels and propulsion (hydrogen, e-fuels, CNG, etc.)
- Circular economy (sustainable manufacturing, green manufacturing practices, lifetime maximisation through predictive maintenance, repair and remanufacturing, use of recycled materials)
- Charging Infrastructure (expansion of fast-charging networks, development of smart grids for EV charging, V1G, V2G)
- Eco-Friendly Innovations (material innovation, tyre performances, aerodynamic design, energy efficiency)
- Corporate sustainability goals (life cycle assessment and management, carbon footprint reductions, carbon neutrality)
- Public perception of Green Transition
- Supply chain sustainability (corporate sustainability due diligence, due diligence vs deforestation and forced labour)

Resiliency of Value Chains

- Supply Chain Optimalisation (AI & IoT use for real-time monitoring)
- Local Sourcing and Production (local supply, dependency reduction, diversification of suppliers)
- Inventory Management (just-in-time inventory systems, advanced analytics for demand forecasting)
- Risk Management (scenario planning, strategic stockpiling)
- Manufacturing and production technologies innovation (robotisation, scaling and production ramp-up)
- Predictive maintenance
- Testing and approval (homologation, current vehicle norms and standards, legislation)

New Business Models

- Digital Retail (online sales platform, virtual showrooms, dynamic customer retail models, car-configurators)
- Subscription Services (vehicle subscriptions, flexible leasing options)
- Mobility as a Service (ride-hailing services, car-sharing platforms, integrated mobility solutions)
- Tyre as a Service
- Maintenance as a Service
- Aftermarket Services (digital platforms for maintenance and repairs, on-demand parts and service delivery),
- Dynamic customer preferences (Total Cost of Ownership, Total Cost of Mobility, infotainment)
- Customer services innovations and adaptations (aftersales, car modifications, EV-cars maintenance, etc.)
- Fleet management

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Project Scope: Educational and training challenges and needs

- **Needed education and training provision methods** and mechanisms, e.g. VR/AR, Blended learning, adaptive learning, inclusive training other
- **Formats of effective training**, e.g. timewise, structure, multimedia, platforms, etc. and how to improve effectiveness
- **Flexibility of the training system** and certification – recognition on the EU level, micro-credentials, micro-learning, etc.
- **Collaboration** among key stakeholders on all levels
- **Social aspects** of the transformation

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Use of the Project Results

Project results will be **freely available**

- Project results such as:
  - **Skills Needs analysis** (**yearly updated** trends, scenarios, skills needs, etc.)
  - **Updated and new Skills & Job Roles descriptions** (electronic version of the competence matrix)
  - **Actions and recommendations** towards all involved stakeholders (including policy recommendations)
  - **Newly created curricula and training courses** (training structure, training materials, test, etc.) – more than 60 training modules
  - Recognition for the training courses – based on **micro-credentials (digital certificates)** for Skills & Job Roles descriptions
  - Update of the EU-wide DB of training courses – **Learning Path/Journey** (combination of different providers, etc.)
  - **Best practices in up-/re-skilling** around in the Automotive-Mobility ecosystem around Europe – to be mainstreamed or reused

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Example of Results from Previous Initiatives

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Freely available

CONNECTED VEHICLES TECHNICIAN	pdf	pdf	Browser
AUTOMOTIVE CYBERSECURITY ENGINEER	pdf	pdf	Browser
AUTOMOTIVE CYBERSECURITY TESTER	pdf	pdf	Browser
AUTOMOTIVE CYBERSECURITY MANAGER	pdf	pdf	Browser
RUBBER TECHNOLOGIST - BASIC LEVEL	pdf	pdf	Browser
ADVANCED POWERTRAIN ENGINEER	pdf	pdf	Browser
FUNCTIONAL SAFETY MANAGER STRATEGY LEVEL	pdf	pdf	Browser
FUNCTIONAL SAFETY PROJECT MANAGER	pdf	pdf	Browser
FUNCTIONAL SAFETY ENGINEER	pdf	pdf	Browser
HIGHLY AUTOMATED DRIVE ENGINEER	pdf	pdf	Browser
AUTOMOTIVE MECHATRONICS MANAGER AWARENESS LEVEL	pdf	pdf	Browser
AUTOMOTIVE MECHATRONICS MANAGER BASIC LEVEL	pdf	pdf	Browser
AUTOMOTIVE MECHATRONICS EXPERT	pdf	pdf	Browser
AUTOMOTIVE MECHATRONICS DEVELOPER	pdf	pdf	Browser
ADVANCED MANUFACTURING PRESS LINE SET-UP	pdf	pdf	Browser
AUTOMOTIVE ENGINEER IN QUALITY AND METROLOGY	pdf	pdf	Browser

Source:

DRIVES
Development and Research on Innovative Vocational Education Skills

Source:

albatts
Alliance for Batteries Technology, Training and Skills

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ONLINE SURVEY IS OPEN

Share your view!

Co-funded by the European Union

TRiREME

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the European Union

Go to the survey here
or scan the QR code

Survey 2024

Goals:

- Gather comprehensive information on the **trends and drivers** of change
- Understanding the **real needs** of sectoral stakeholders

15 MIN

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the European Union

Go to the survey here
or scan the QR code

Survey 2024

Why participate?

- Contribute to shaping the future of skills and competencies in the automotive-mobility industry.
- Ensure that the sector's needs and challenges are accurately represented.
- Help create a more robust and responsive workforce.

15 MIN

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TRIREME PROJECT PART OF THE OVERALL COLLABORATION

Automotive Skills Alliance

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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, established by ACEA, CECRA, CLEPA, ETRMA**

- 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 – Development and Research on Innovative Vocational Education Skills
albatts – Alliance for Batteries Technology, Training and Skills
PIECE – Empowering Sustainable Skills
FAST
ECEPE
CYBERENG
ICaBatt
EUROCLUSTERS
RESIST
PASS – Unlocking potential
aLIFEca
Flamenco – Forward Looking Approaches for Green Mobility Ecosystem Network Collaboration
TRiREME – Digital & Green Skills Towards Future of the Mobility Ecosystem
Voltage

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- TECHNOLOGICAL TOPICS
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PIECE – EMPOWERING SUSTAINABLE SKILLS
FAST
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EURO CLUSTERS
RESIST
PASS
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Flamenco – Forward Looking Approaches for Green Mobility Ecosystem Network Collaboration
TRiREME – DIGITAL & GREEN SKILLS TOWARDS FUTURE OF THE MOBILITY ECOSYSTEM
Voltage

AUTOMOTIVE SKILLS ALLIANCE

TOOLS TO SUPPORT TRAINING AND EDUCATION

To offer training courses up to date and relevant

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**

TOOLS

Learning Platform

- Online platform for hosting online courses
- More than 60 online courses now and growing
- Free of charge

Erasmus+

DRIVES
Development and Research on Innovative Vocational Education Skills

albatts
Alliance for Batteries Technology, Training and Skills

ECEPE

aLIFEca

CYBERENG

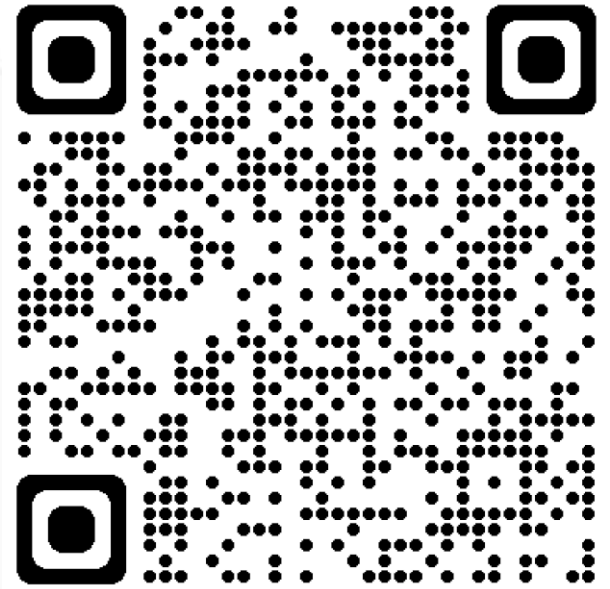
EURO CLUSTERS

RESIST

eit InnoEnergy
Skills Institute

Courses Free of Charge

Learning Platform



learn.skills-framework.eu

…and more coming

Learning Platform

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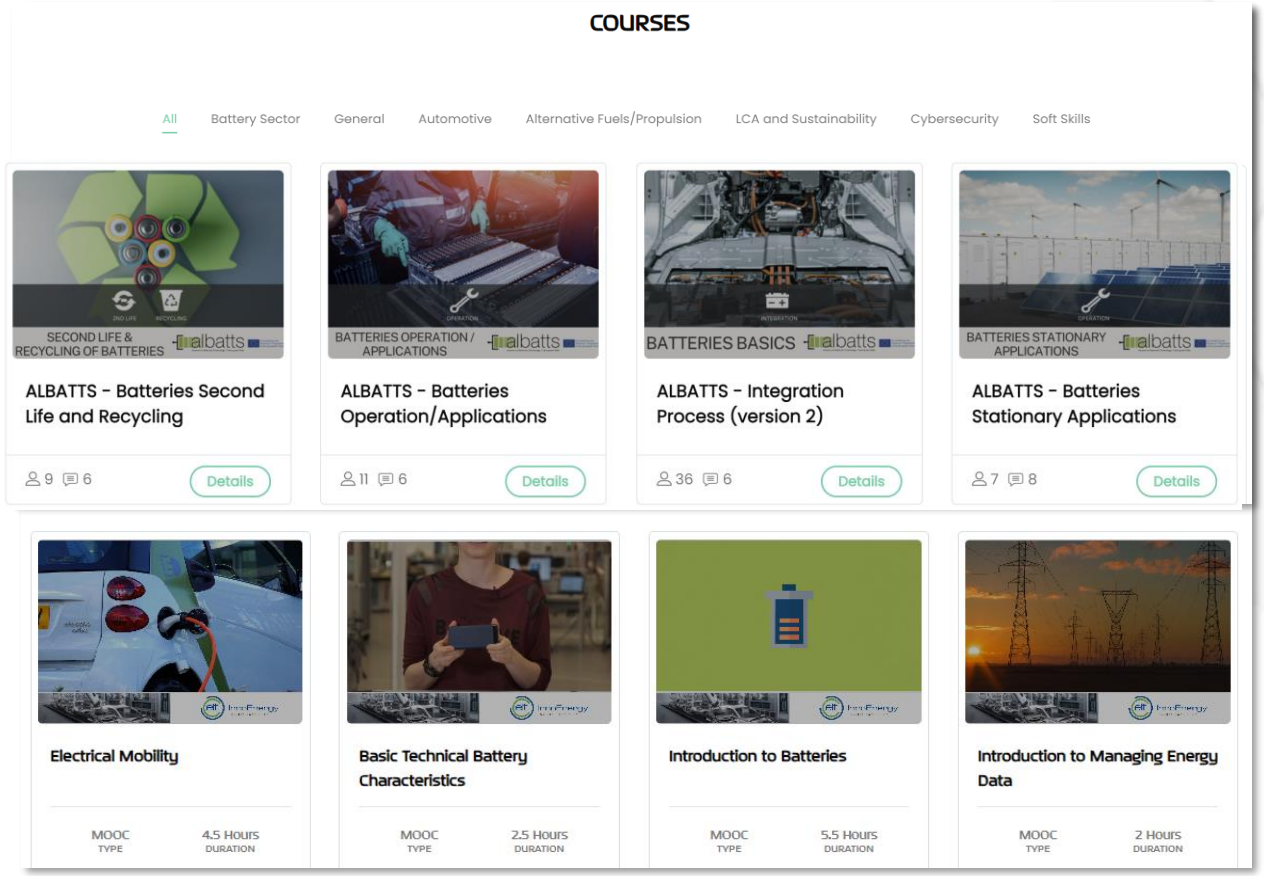

Learning Platform

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TOOLS

Skills Hub

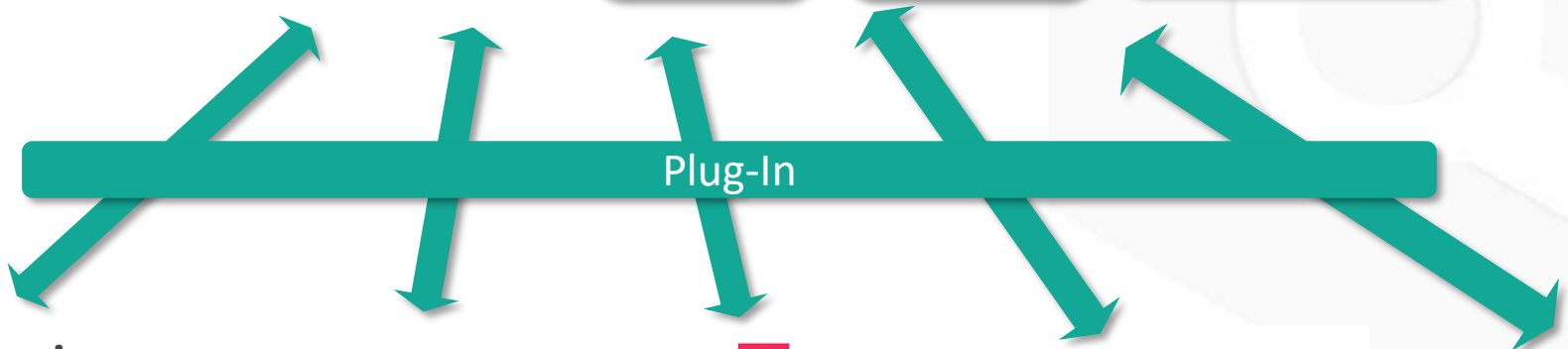
- **One-stop shop database for training courses** in the Automotive-mobility ecosystem
- Definition and **recognition of job roles** and skills/competence concepts using **micro-credentials (digital badges)**.
- More than **180 courses linked** - by providers according to coherent structure and mapping exercise

Skills Hub

Courses catalogue

Reference Job Roles Definitions

Digital Badges (microcredentials) in addition to existing full cert



Learning Platform

EURO SPI² Academy

TU Graz

educam

...and much more

https://skills-framework.eu

Skills Hub

- **One-stop shop database for training courses** in the Automotive-mobility ecosystem
- Definition and **recognition of job roles** and skills/competence concepts using **micro-badges**.
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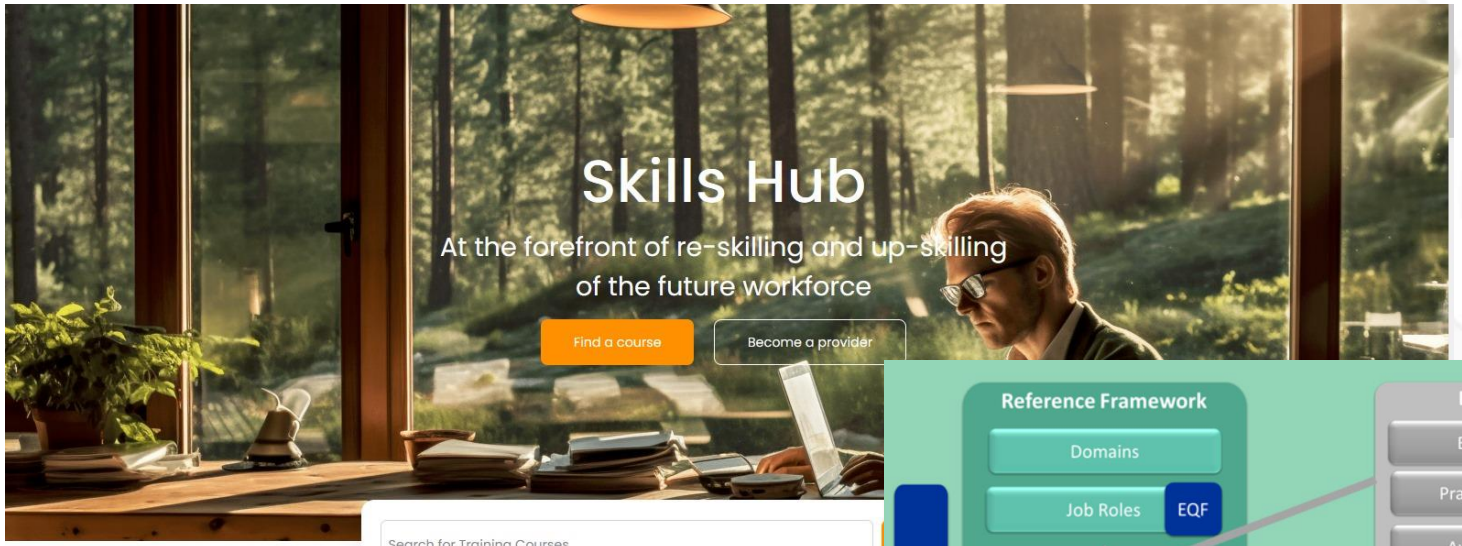

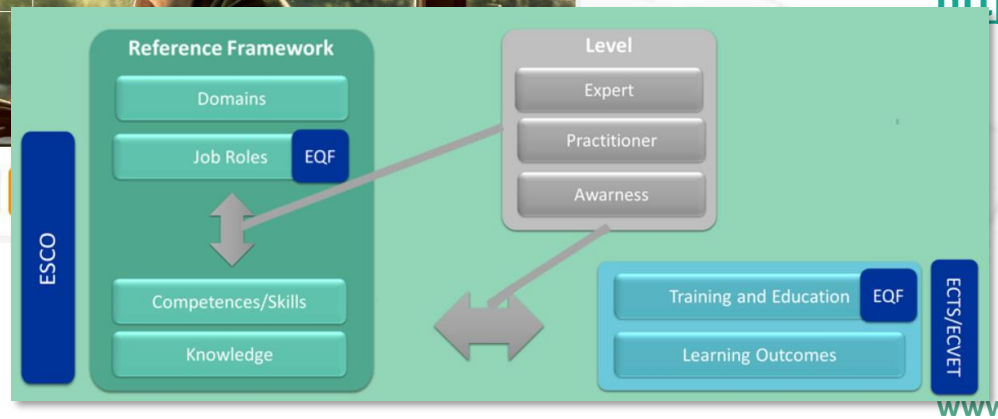

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THANK YOU!

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