TRiREME

DIGITAL & GREEN SKILLS TOWARDS FUTURE OF THE MOBILITY ECOSYSTEM

Co-funded by the European Union

Sectoral Collaboration on Skills Agenda in the Automotive-Mobility Ecosystem

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

AUTOMOTIVE-MOBILITY ECOSYSTEM IN TRANSITION

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EU Automotive Sector

- Employs almost **13 million Europeans in direct and indirect jobs**; **6.8% of total EU employment**
- **10.5% of EU manufacturing jobs** are directly and indirectly in Automotive
- **Turnover** represents over **7% of EU GDP**
- **31% of all EU R&D** spending is in **Automotive**
- Link to other sectors – **multiplier effect** – steel, chemicals, textiles, batteries, ICT, chips, repair, and mobility services

Source: ACEA, EUROSTAT & EC

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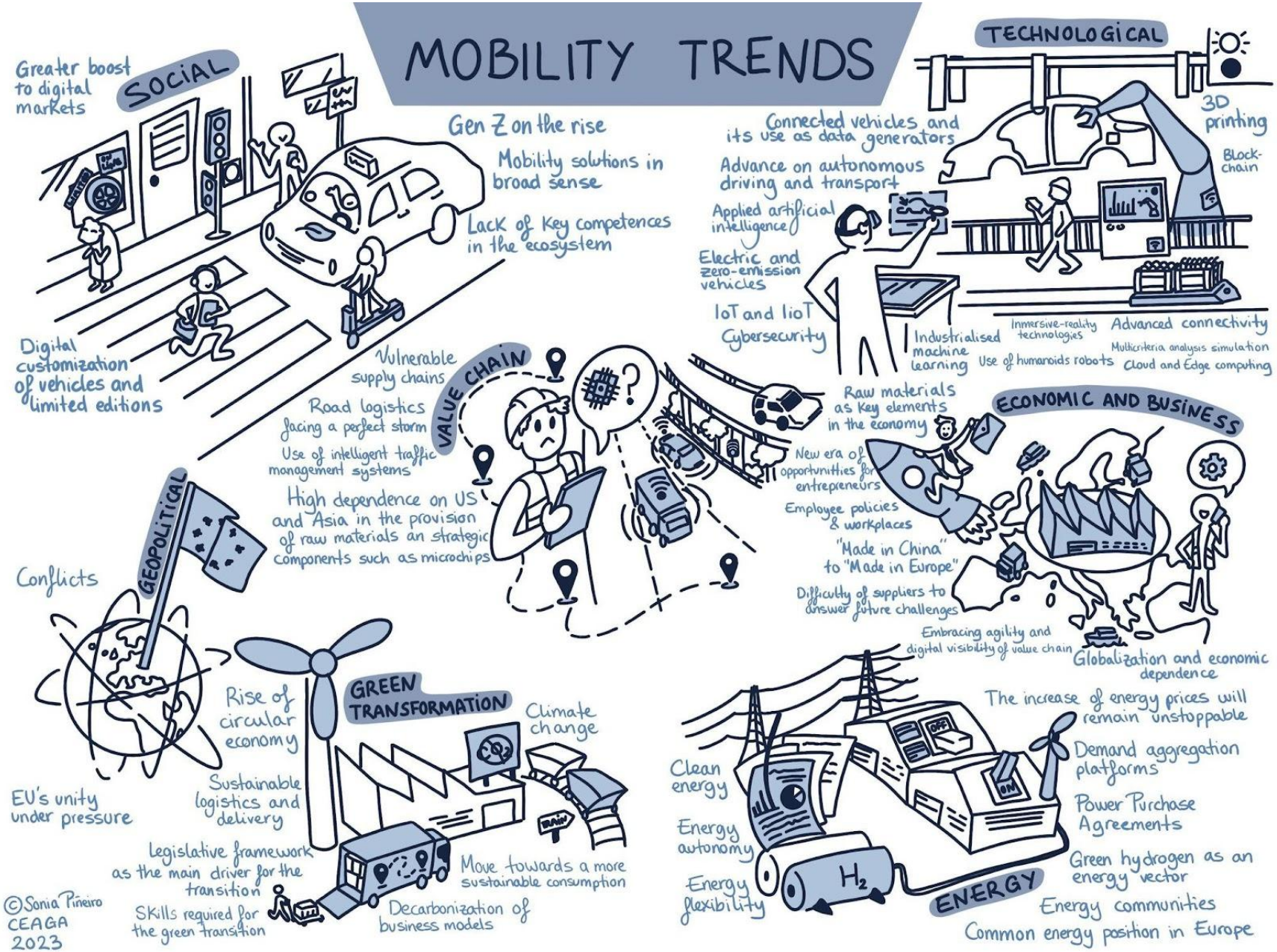

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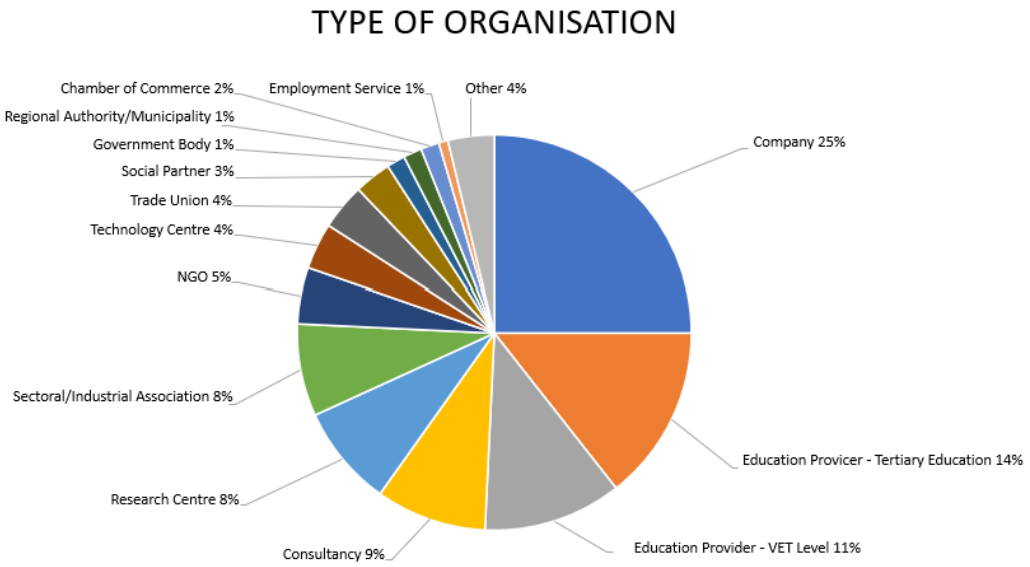
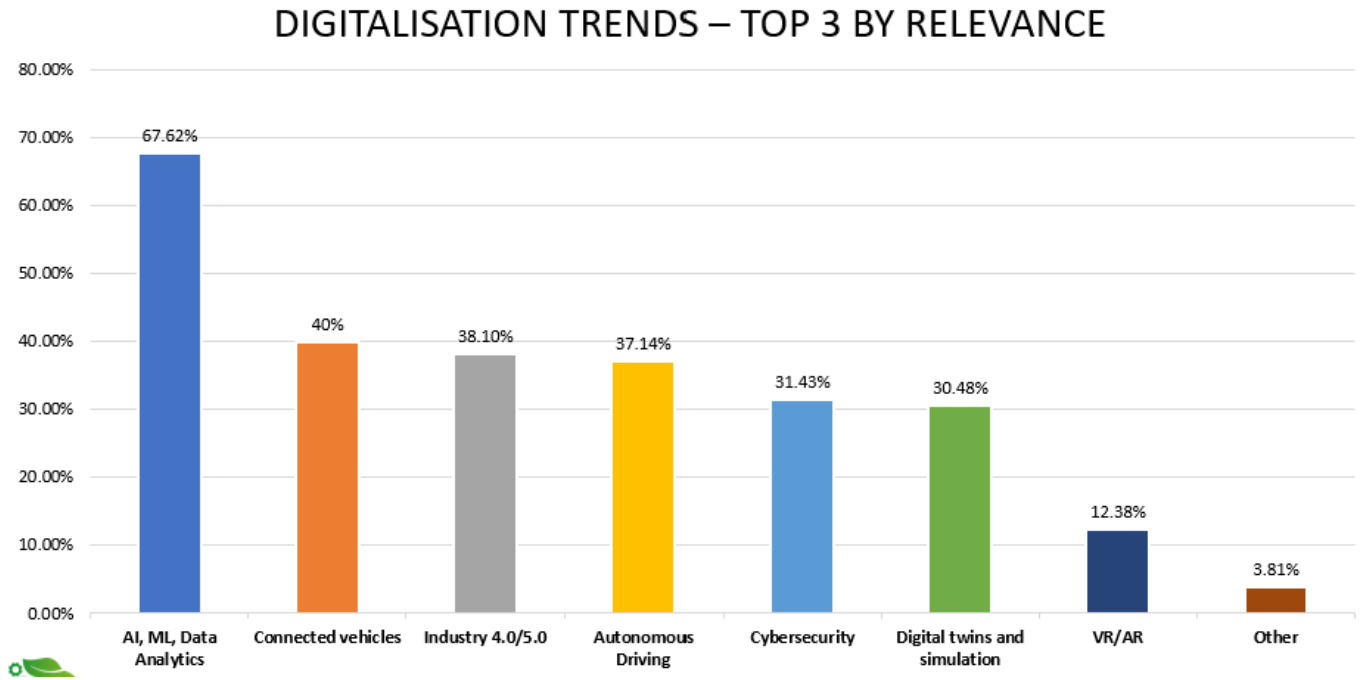
What skills we need - Digitalisation? Survey September 2024





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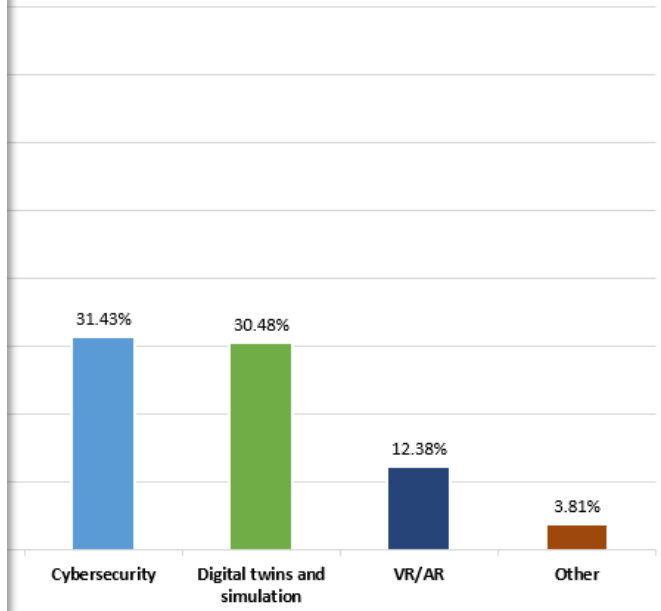
What skills we need - Digitalisation? Survey September 2024

TYPE OF ORGANISATION

Chamber of Comr
Regional Authority/Munici
Government
Social P
Trade
Technology C
Sectoral/Industrial Assoc
Research

Which job roles and skills do you think will be impacted the most by digitalisation trends in the near future?

– TOP 3 BY RELEVANCE



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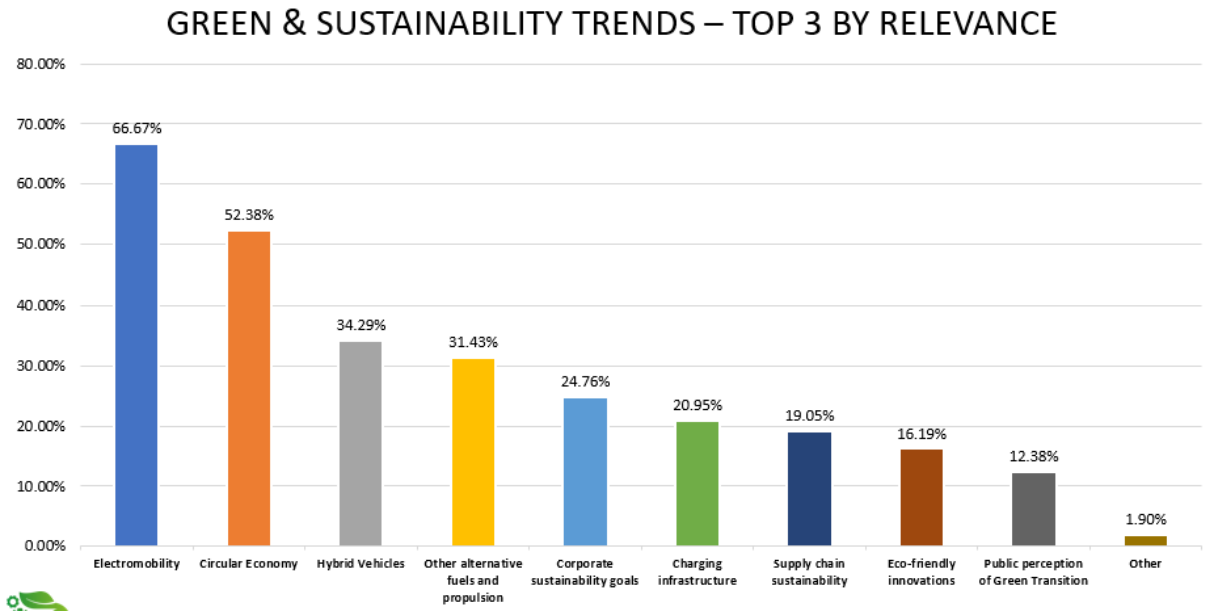
What skills we need - GREEN, SUSTAINABILITY AND CIRCULAR ECONOMY? Survey September 2024



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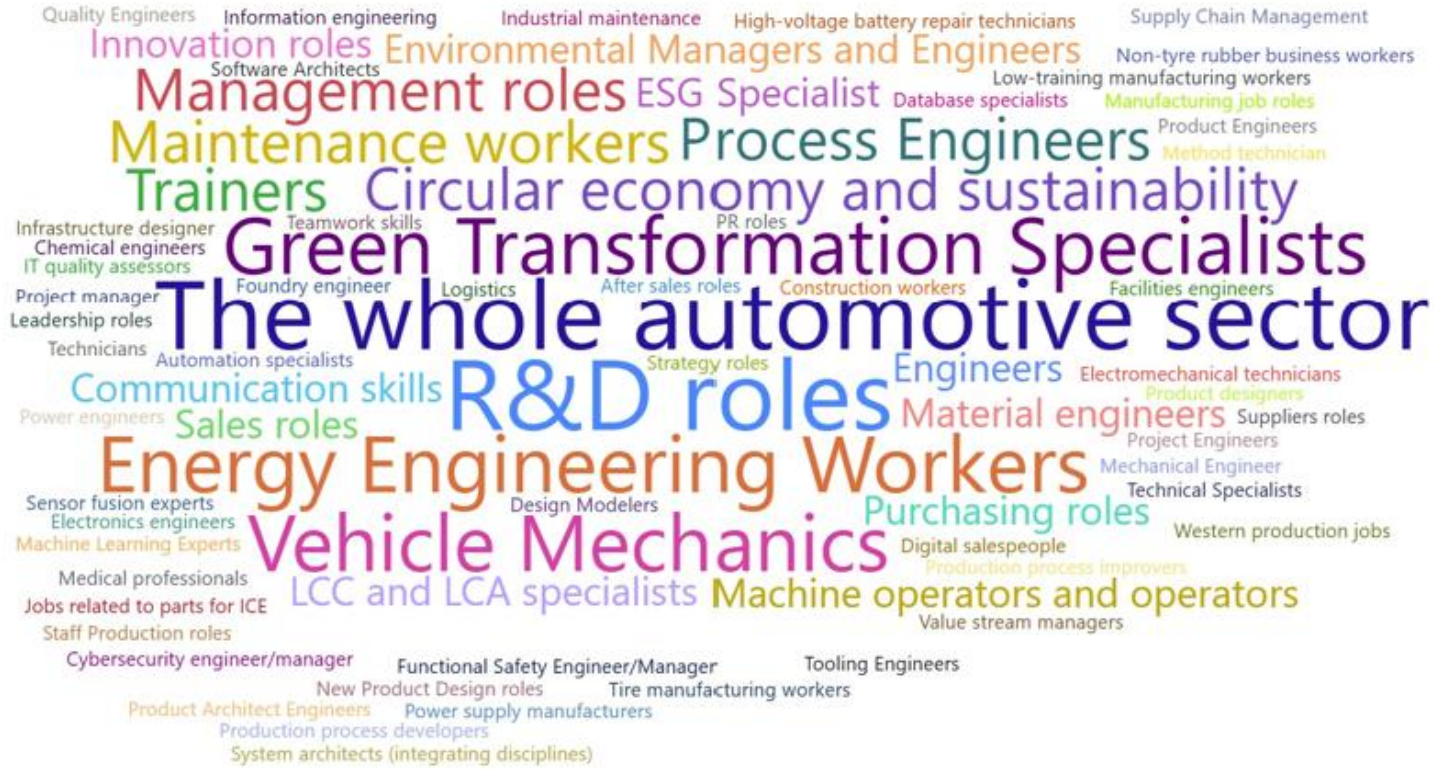
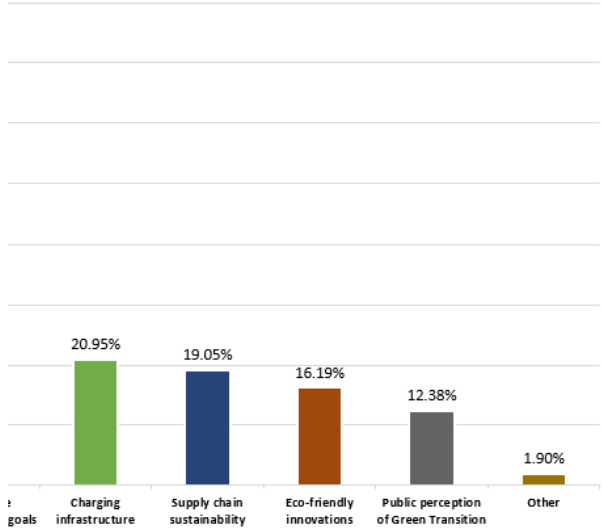
What skills we need - GREEN, SUSTAINABILITY AND CIRCULAR ECONOMY? Survey September 2024

Name which job roles and skills do you think will be impacted the most by Green and sustainability trends in the near future?



ENDS – TOP 3 BY RELEVANCE



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What skills we need - GREEN, SUSTAINABILITY AND CIRCULAR ECONOMY? Survey September 2024

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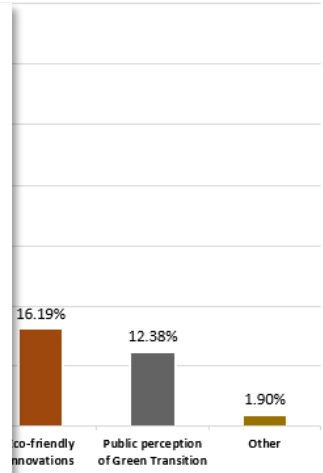
Full report is available here on TRIREME website



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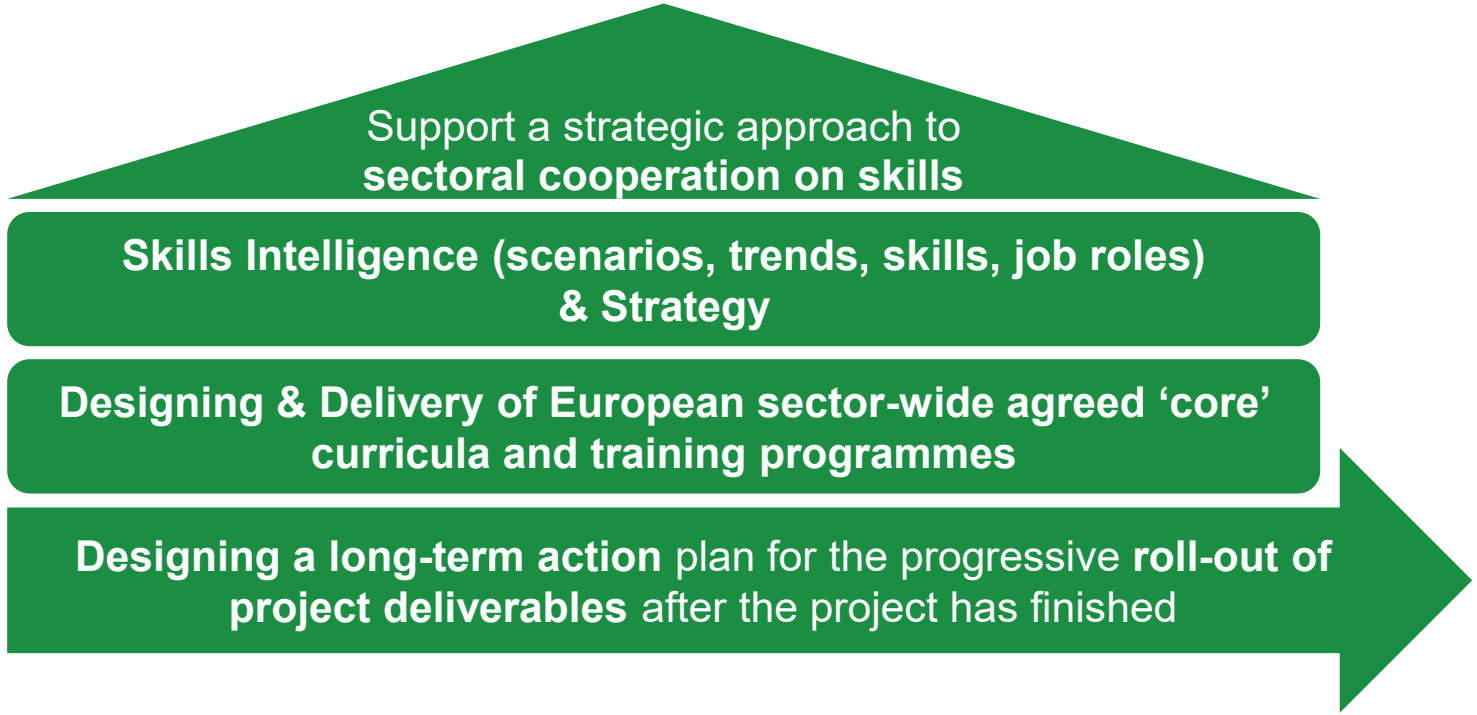
Project Information

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

31 project partners from the Automotive Skills Alliance partnership

www.project-trireme.eu



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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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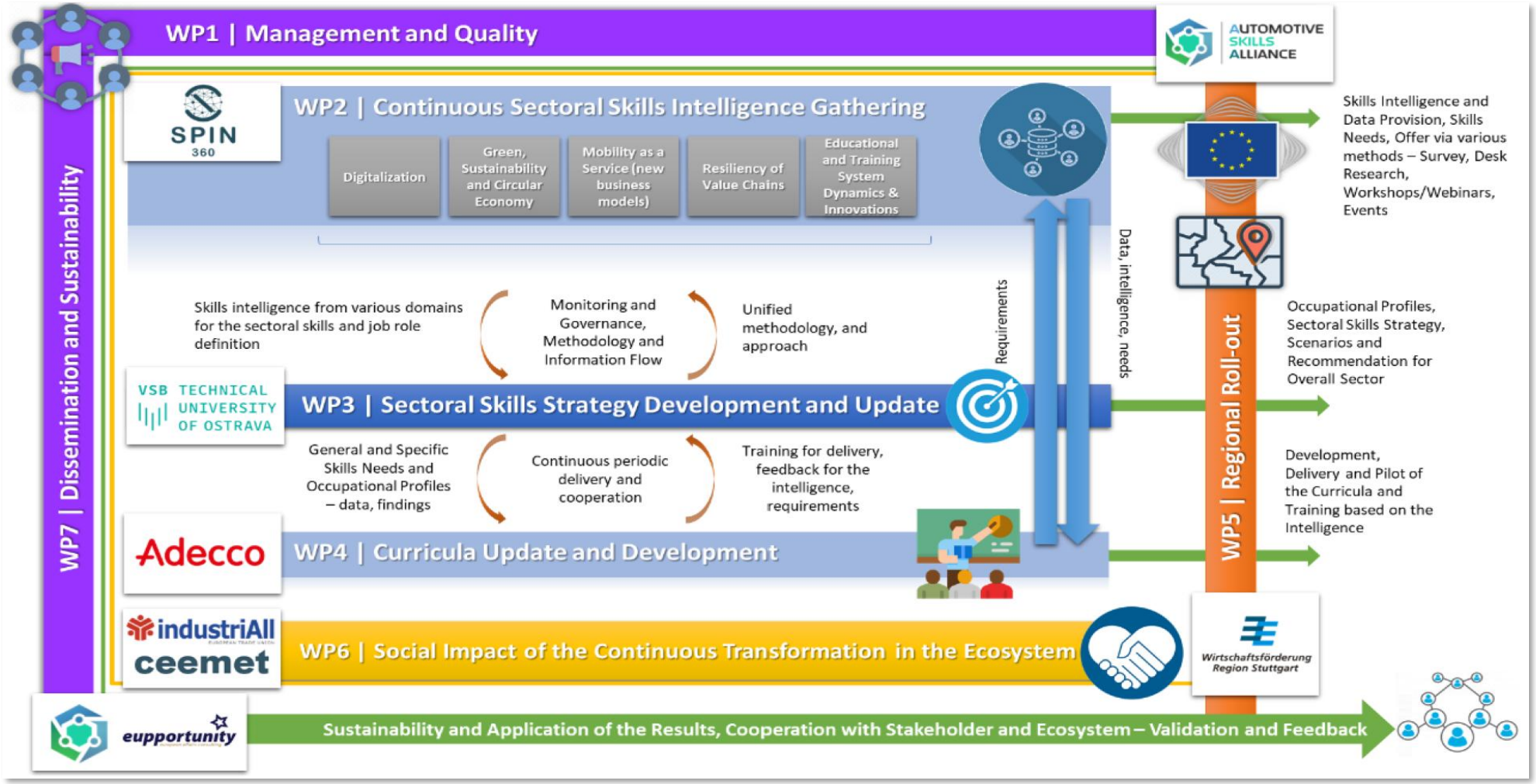
Structure of the Project – Work Packages



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TRIREME PROJECT PART OF THE OVERALL COLLABORATION

Automotive Skills Alliance

Co-funded by the European Union

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 by European Commission in November 2020**
- ASA became **legal entity** (non-profit organization) **in January 2022, established by ACEA, CECRA, CLEPA, ETRMA**
- More than **120 members** up to now

PACT FOR SKILLS Leader

An initiative of the European Commission

MAIN BENEFITS OF THE COLLABORATION

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
EURO CLUSTERS
RESIST
PASS
aLIFEca
Flamenco – Forward Looking Approaches for Green Mobility Ecosystem Network Collaboration
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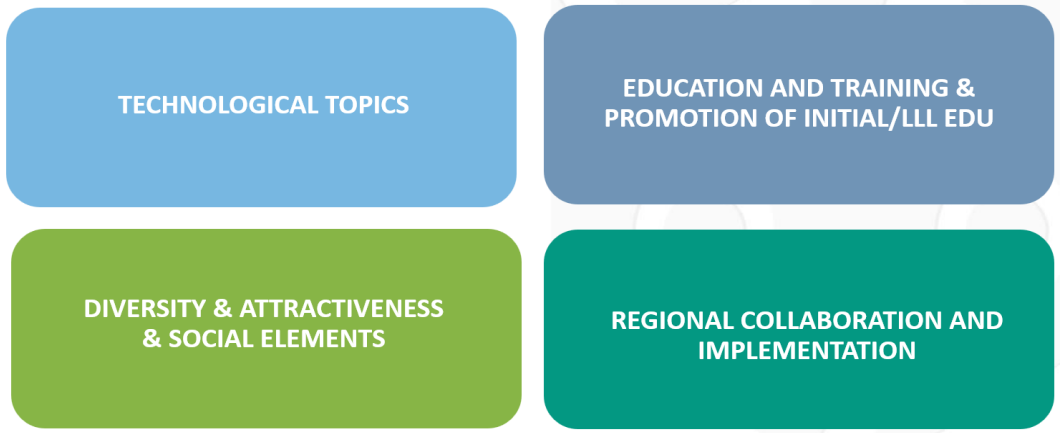
Voltage
AutoCredify

Topics Committees & Working Groups & Task Forces



- Completed initiatives, e.g.:
  - H2 VET Forum 2024 + 2025
  - Study Visits 2024 + 2025
  - Multi-stakeholder" training path model for future workers
  - Expert matching service

- Working Groups running
  - Key Competencies (soft skills) in the Automotive-Mobility Ecosystem
  - Regional Working Group (known as WG4)
  - Innovation Agent
  - Battery Working Group

ASA's Selected Collaboration

AUTOMOTIVE SKILLS ALLIANCE

ASA & Automotive Regions Alliance & CoRAI: Working Agreement on a Strategic Partnership for a Just and Sustainable Transition of European Automotive Regions

AUTOMOTIVE REGIONS ALLIANCE
European Committee of the Regions

CoR AI
COMMITTEE OF THE REGIONS
AUTOMOTIVE INTERGROUP

ASA Strategic Partnership with

eit InnoEnergy
Skills Institute

ASA member of

BEPA
Batteries European Partnership Association

Collaboration with conference series:

EURO SPI² 2025
European System, Software & Service Process Improvement & Innovation
In cooperation with initiatives in Asia, Africa and USA

SIITME 2025
IEEE 31st International Symposium for Design and Technology in Electronics Packaging
22nd - 25th October 2025, BRAȘOV, Romania
Conference & Exhibition

ASA's Selected Collaboration – EC Level

Representing automotive skills perspective - active contributions at EC Level to, e.g.:

- Route 35
- Transition Mobility Pathways
- Strategic Dialogue for Automotive
- Union of Skills
- Pact for Skills, ERASMUS+

PACT FOR SKILLS Leader

An initiative of the European Commission

AUTOMOTIVE SKILLS ALLIANCE

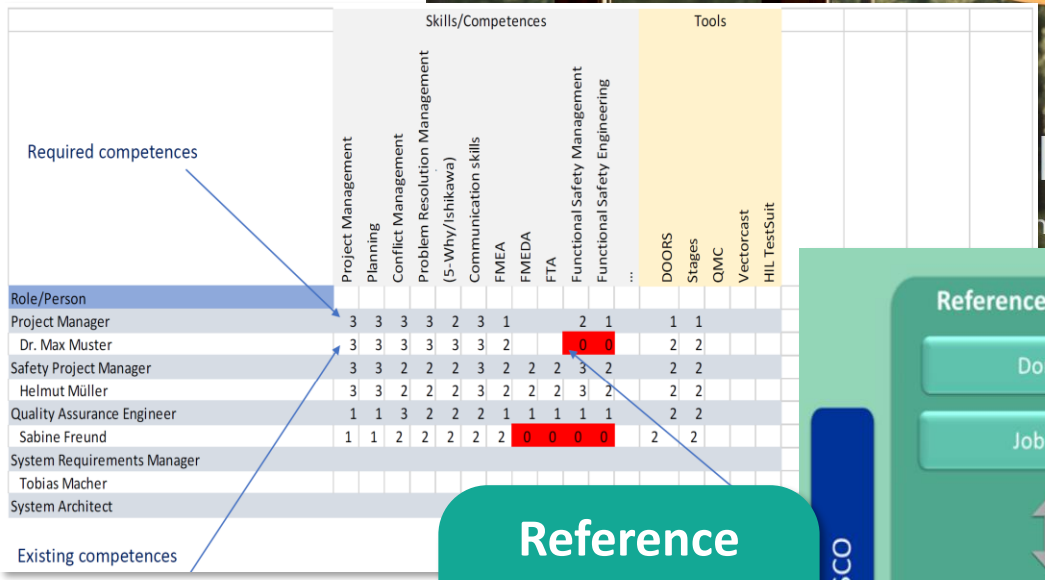
Access to training solutions

Access training courses materials up to date and relevant to be used

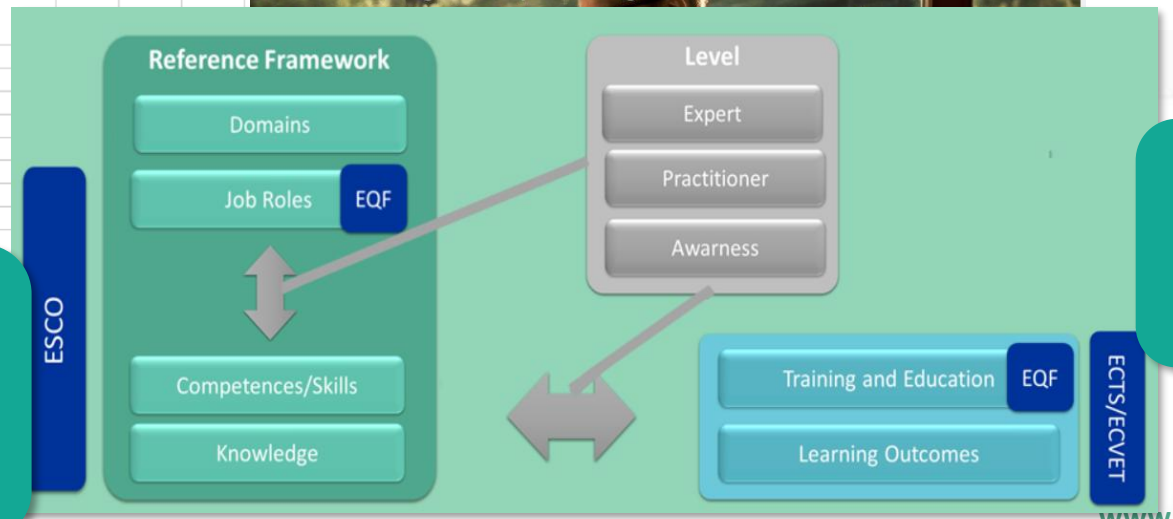
Skills Hub

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**.
- **Pioneering pilot software solution** for Automotive-Mobility Ecosystem Academy



Reference Competence Matrix for Automotive



https://skills-hub.eu

Courses catalogue

Skills Hub

Learning Platform

- Skills Hub's provider of more than 80 free of charge online courses in automotive sector and growing (automotive. mobility, chemical)
- Combining ERASMUS+ and other project results

Examples of training areas:

- Automotive engineering
- Quality
- Functional safety
- Cybersecurity
- Electric Powertrain
- Sustainability
- Innovation management
- Batteries for electromobility
- Electronics packaging
- Robotics for production

Use of Artificial Intelligence in Manufacturing

Innovation Agent - ISO 56006 Green Mobility

Environmental Competence for Managers

Sustainable design, manufacturing and development of e-transportation electronics

Introduction to Automotive SPICE® 4.0

Change Management for Automotive-Mobility Transition

https://skills-hub.eu/home?id=19301

THANK YOU!

Contact me using LinkedIn:

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