AUTO CREDIFY
FUTURE-READY SKILLS

FACT SHEET — FINLAND

Future Skills Needs in Automotive Maintenance & Repair (M&R)

Finland is building a flexible skills ecosystem for the green transition. Finland's automotive sector is rapidly adapting to electrification, software-enabled maintenance and digital mobility technologies. The country already benefits from a strong competence-based VET system and a long tradition of lifelong learning. As vehicles become more connected and technologically advanced, Finnish workshops increasingly require technicians who can combine traditional repair expertise with digital, electrical and software-related competencies. Micro-credentials are emerging as a promising solution for supporting rapid upskilling and continuous professional development.

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COUNTRY SNAPSHOT

- Advanced competence-based VET system
- Strong lifelong learning policies
- Growing EV and clean mobility market
- Active development of modular learning models

KEY TRANSFORMATION DRIVERS

EV adoption and battery technologies
The transition to electric mobility is generating new demand for battery diagnostics, charging systems and high-voltage maintenance

Software-driven maintenance systems
Vehicles increasingly rely on software updates, electronic diagnostics and digital interfaces

ADAS technologies
Advanced safety and driver assistance systems require specialised calibration and troubleshooting skills

Carbon neutrality goals
Finland's 2035 carbon neutrality target is accelerating green mobility and clean technology adoption

AI and automation
AI-assisted diagnostics and digital tools are beginning to influence workshop operations and maintenance practices

MOST IN-DEMAND EMERGING SKILLS

TECHNICAL SKILLS

- High-voltage safety (SFS 6002)
- Battery diagnostics
- EV powertrain maintenance
- ADAS calibration
- Digital diagnostics
- Software updates and system integration
- Data-enabled maintenance

Why these skills are becoming critical
Modern vehicle repair increasingly depends on understanding complex electronic systems rather than purely mechanical components. Technicians must work safely and efficiently with rapidly evolving technologiess.

TRANSVERSAL SKILLS

- Communication with customers
- Digital problem-solving
- Adaptability
- Continuous professional learning
- Safety culture awareness

Why transversal skills matter
The speed of technological change means that technicians must continuously update their competencies throughout their careers.

CURRENT TRAINING LANDSCAPE

Finland's VET system already supports:

- Modular qualification units
- Recognition of Prior Learning (RPL)
- Competence-based assessment
- Flexible adult learning pathways

Existing provision includes:

- OEM-specific training
- Safety certifications
- Modular VET learning units
- Pilot frameworks for small competence units

Current challenges

Despite strong foundations, several barriers remain:

- MCs are not yet fully embedded in the NQF
- Limited portability of industry-led training
- Slow curriculum renewal
- Fragmented quality assurance
- SME access barriers

WHY MICRO-CREDENTIALS MATTER

Finland's strong digital infrastructure and competence-based approach create favourable conditions for scaling high-quality micro-credentials. Micro-credentials could help Finland:

- Respond faster to technological change
- Support modular lifelong learning
- Improve digital verification of skills
- Strengthen labour market responsiveness
- Connect industry training with formal VET pathways

KEY RECOMMENDATIONS

1. Establish a national MC framework
2. Develop a national MC registry
3. Expand digital credentialing systems
4. Strengthen employer validation
5. Use AI-supported skills intelligence for rapid curriculum renewal

KEY MESSAGE

Finland already possesses many of the structural elements needed for successful micro-credentials.

The next step is creating stronger national coordination, recognition and interoperability mechanisms.

EMERGING OCCUPATIONAL PROFILES

- High-Voltage Safety Technician
- Battery Diagnostics Specialist
- ADAS Technician
- Automotive Software Service Technician
- EV Service Mechanic

These profiles reflect the growing convergence of mechanical, electrical and digital expertise.

Sources: AutoCredify Country Report for Finland and results from the Anticipation exercise to identify future skills needed in the M&R subsector.

Co-funded by the European Union

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FACT SHEET — PORTUGAL

Future Skills Needs in Automotive Maintenance & Repair (M&R)

Portugal's automotive sector is adapting to electrification and digitalisation. Portugal's maintenance and repair sector is undergoing rapid technological change driven by electric mobility, environmental regulation and increasing software integration in vehicles. The country already offers many forms of short, modular and practice-oriented training that function similarly to micro-credentials, even if they are not always formally labelled as such. The challenge now is to improve the visibility, recognition and coordination of these learning opportunities across the wider education and training system.

COUNTRY SNAPSHOT

- Strong adult learning and qualification frameworks
- Expanding EV and hybrid vehicle market
- Diverse mix of public and private training providers
- Growing need for specialised technical upskilling

KEY TRANSFORMATION DRIVERS

Electrification and high-voltage systems
Electric and hybrid vehicles are creating demand for new safety and maintenance competencies

Battery maintenance and diagnostics
Battery systems are becoming central to vehicle servicing activities

Environmental compliance
New environmental regulations are influencing workshop procedures and technician responsibilities

Digital diagnostics and connected systems
Repair work increasingly depends on software-enabled diagnostics and digital troubleshooting

Vehicle software integration
Vehicles are becoming more connected, intelligent and software-driven

MOST IN-DEMAND EMERGING SKILLS

TECHNICAL SKILLS

- EV/HV safety procedures
- Battery systems maintenance
- Hybrid vehicle diagnostics
- ADAS and electronic calibration
- Digital troubleshooting
- Vehicle software diagnostics
- Environmental compliance handling

Why these skills matter
The shift toward electrification and connected mobility means technicians need a broader mix of electrical, digital and software-related competencies.

TRANSVERSAL SKILLS

- Adaptability
- Communication
- Digital literacy
- Continuous learning
- Customer service skills

Why transversal skills matter
Employers increasingly value technicians who can adapt to evolving technologies and communicate effectively with customers about complex vehicle systems.

CURRENT TRAINING LANDSCAPE

Portugal already provides:

- Modular adult learning pathways
- National qualification structures (CNQ)
- Certified Modular Training
- Stackable short EV/HV courses
- Industry-aligned safety certifications

Provision is delivered through:

- Public VET providers
- Higher education institutions
- Private training providers
- Employer academies
- Sectoral organisations

Current challenges

- No unified national MC framework
- Fragmented recognition systems
- Uneven quality assurance
- Limited stackability across learning pathways
- SME participation barriers

WHY MICRO-CREDENTIALS MATTER

Portugal already has many of the institutional building blocks needed to support effective micro-credential ecosystems.
Micro-credentials could help Portugal:

- Respond faster to labour market change
- Support lifelong learning and reskilling
- Improve visibility of specialist training
- Increase flexibility for adult learners
- Strengthen links between employers and training providers

KEY RECOMMENDATIONS

1. Develop shared national standards for MCs
2. Improve digital credentialing systems
3. Create a national MC registry
4. Strengthen employer and sectoral involvement
5. Improve access for SMEs and adult learners

KEY MESSAGE

Portugal's main challenge is not the lack of short, modular learning offers, but improving coherence, portability and recognition across the system so that micro-credentials become more visible and trusted by learners and employers alike.

EMERGING OCCUPATIONAL PROFILES

- EV/HV Mechatronics Technician
- High-Voltage Safety Specialist
- Battery Service Technician
- Automotive Diagnostics Technician
- Connected Vehicle Service Specialist

These profiles reflect the growing specialisation of automotive repair work.

Sources: AutoCredify Country Report for Portugal and results from the Anticipation exercise to identify future skills needed in the M&R subsector

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FACT SHEET — SPAIN

Future Skills Needs in Automotive Maintenance & Repair (M&R)

Spain's automotive maintenance and repair sector is being reshaped by electrification, digitalisation and sustainability requirements. Traditional mechanical repair work is increasingly combined with software diagnostics, battery management, electronic systems maintenance and connected vehicle technologies. This transformation creates both opportunities and challenges. Workshops and technicians must continuously update their skills, while training systems need to become more flexible and responsive to rapidly changing technologies. Micro-credentials can play an important role by offering shorter, targeted learning opportunities that allow workers to upskill quickly without enrolling in long qualification programmes.

COUNTRY SNAPSHOT

- Strong automotive manufacturing and supplier ecosystem
- Rapid growth in electric and connected vehicles
- Increasing demand for flexible upskilling pathways
- Skills shortages particularly acute in independent workshops

KEY TRANSFORMATION DRIVERS

Electrification of vehicles

The increasing adoption of electric and hybrid vehicles requires new competencies in high-voltage systems, battery technologies and safety procedures

Digital diagnostics and software-enabled repair

Modern vehicles rely heavily on software systems, requiring technicians to interpret digital diagnostics and manage electronic components

Battery maintenance and high-voltage systems

Battery systems are becoming central components of vehicle maintenance, creating demand for specialised technical expertise

Connected vehicle technologies and ADAS

Advanced Driver Assistance Systems (ADAS) and connected mobility technologies require new calibration and troubleshooting skills

Green transition and sustainability requirements

Environmental regulations and decarbonisation strategies are changing repair processes and maintenance standards

MOST IN-DEMAND EMERGING SKILLS

TECHNICAL SKILLS

- High-voltage safety procedures
- EV battery diagnostics and repair
- ADAS calibration
- Software-based diagnostics
- Electronic systems troubleshooting
- Connected vehicle maintenance
- Cybersecurity awareness for vehicle systems

Why these skills matter

Repair work is shifting from primarily mechanical tasks to a combination of mechanical, electrical and digital competencies.
Technicians increasingly need to work safely with complex electronic systems while understanding software-driven vehicle functions.

TRANSVERSAL SKILLS

- Continuous learning mindset
- Customer communication
- Problem-solving
- Digital literacy
- Adaptability to technological change

Why transversal skills are increasingly important

Technological change in the automotive sector is happening rapidly. Employers are therefore placing growing importance on adaptability, communication and the ability to continuously update skills.

CURRENT TRAINING LANDSCAPE

Spain already offers a wide range of training initiatives related to electric and connected vehicles, including the ones below. However, provision remains fragmented and difficult to navigate for learners and employers:

- Modular VET programmes
- OEM-led upskilling programmes
- Short courses through the national Catalogue of Training Specialties
- Emerging university micro-credentials using Europass-compatible digital certification

Main limitations identified

- Limited stackability between courses
- Uneven quality assurance
- Weak interoperability between systems
- Limited employer understanding of micro-credentials
- Regional differences in implementation

WHY MICRO-CREDENTIALS MATTER

- Respond faster to emerging skills needs
- Support lifelong learning for technicians
- Improve access to short specialist training
- Enable modular upskilling pathways
- Strengthen links between industry and training providers

If properly coordinated and recognised, micro-credentials could become a flexible bridge between labour market demand and vocational education provision.

KEY RECOMMENDATIONS

1. Improve coordination across regions and training subsystems
2. Develop interoperable digital credentials
3. Strengthen employer recognition mechanisms
4. Expand modular EV and diagnostics training
5. Increase SME participation in skills initiatives

KEY MESSAGE

Spain has strong industrial and institutional foundations to support the green and digital transition in automotive maintenance and repair. The main challenge is not the absence of training provision, but improving coordination, recognition and quality assurance across the system.

Sources: AutoCredify Country Report for Spain and results from the Anticipation exercise to identify future skills needed in the M&R subsector.

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