

ENHANCING DIGITAL INNOVATION (WEB 4.0) AND ATTRACTIVENESS OF VET THROUGH EXTENDED REALITY (VR/AR) TRAINING FOR BETTER SKILLS-MATCH

A3.3 Creating the Job-Portrait For XR Simulations key jobs needs



AUTOMOTIVE VEHICLE TECHNICIAN /MAINTENANCE



Country: Spain



CORE SKILLS

- **Technical Expertise:** Comprehensive engine overhaul, advanced electronic diagnostics, electrical systems and brakes inspection.
- **Precision & Problem Solving:** Interpretation of complex technical schematics and strict adherence to EU safety protocols.
- **Customer & Workflow Skills:** Conflict resolution in service advisory and digital workshop management.

HOW XR ENHANCES TRAINING

Training Scenario

- **High-Voltage Safety:** Simulating the deactivation of EV batteries in a risk-free environment.
- **Digital Twin Diagnostics:** Troubleshooting a virtual replica of an engine block
- **Precision Assembly:** Step-by-step guided VR/AR overlays for complex gearbox reassembly.

XR Benefit

- **Hazard Mitigation:** Allows students to make "lethal" mistakes without real-world consequences.
- **Resource Efficiency:** Eliminates the need for multiple physical engines, reducing workshop clutter.
- **Muscle Memory:** Bridges the gap between theory and physical execution through visual guidance.



COUNTRY-SPECIFIC

- **Challenges:** High regional variability in VET quality; significant pressure to upskill the workforce as plants transition to 100% Electric Vehicle production.
- **Training Availability:** Strong Dual Vocational Training programs in industrial hubs, though digital integration in rural centers remains low.
- **Needs:** Standardization of XR curricula across autonomous communities and increased public-private partnerships for hardware funding.

CAREER PATHWAY

Progression: Apprentice Mechanic → Qualified/Junior Mechanic → Automotive Technician → Workshop Supervisor → Garage Owner / Specialist Engineer (with further study or certification)



TRAINING

- **Training Mode:** Dual-learning format (33% time in-company) enhanced by VR labs and collaborative remote assistance via VR/AR.
- **VET Providers:** Public Integrated VET Centers, Chamber of Commerce training centers, and specialized Corporate Academies.

