

Cloud and Edge Computing Expert

The Cloud and Edge Computing Expert plays a strategic role in designing, deploying, and maintaining digital infrastructures that combine the scalability of cloud platforms with the responsiveness of edge systems. Their main activities include developing cloud-native and edge-based architectures, managing virtualisation environments, integrating IoT devices, and ensuring that data is processed securely and efficiently across distributed networks.

Key responsibilities involve optimising IT resources, guaranteeing system availability, monitoring performance, and supporting innovation by enabling real-time data analytics for industrial and automotive applications. These professionals ensure compliance with data protection regulations and cybersecurity standards while promoting interoperability across platforms and providers.

Essential competences cover digital skills (cloud architecture, edge computing, virtualisation, cybersecurity), green skills (sustainable infrastructures, energy optimisation), sector-specific knowledge (automotive cloud platforms, edge integration in connected vehicles, automotive data governance), and transversal abilities (project management, regulatory compliance, problem-solving, adaptability).

Their work is essential to accelerate the transition towards smarter, greener, and more resilient mobility ecosystems.

ESCO Mapping

<https://esco.ec.europa.eu/select-language?destination=/node/1>

ID	NAME	Concept URI
2512.1	Cloud Engineer	http://data.europa.eu/esco/occupation/349ee6f6-c295-4c38-9b98-48765b55280e
2512.6	Cloud architect	http://data.europa.eu/esco/occupation/2fb96c6c-8d0b-4ef0-b1ee-3e493305e4eb

Context

EQF Level	5/6
Departments	IT & Digital

Green Competences

ID	Name	Type	Description	Level	ESCO
C018	Sustainable cloud infrastructures	Knowledge	Describe principles for designing energy-efficient and environmentally friendly cloud systems. ▪ Explain energy efficiency practices in data centres ▪ Analyse environmental impact of cloud providers ▪ Identify opportunities for carbon footprint reduction ▪ Support corporate sustainability strategies through cloud adoption ▪ Promote green IT policies	2	
C019	Optimise energy in edge systems	Skill	Configure edge computing infrastructures to minimise energy consumption. ▪ Monitor energy usage at edge devices ▪ Apply power-saving configurations ▪ Reduce data transmission overhead ▪ Implement lightweight virtualisation ▪ Support low-energy IoT solutions	2	

Digital Competences

ID	Name	Type	Description	Level	ESCO
C083	Cloud architecture	Knowledge	Describe the principles and frameworks for designing scalable and secure cloud systems. ▪ Explain cloud service models (IaaS, PaaS, SaaS) ▪ Analyse scalability and resilience in cloud architectures ▪ Evaluate cost–performance trade-offs in cloud adoption ▪ Apply cloud security and compliance standards	3	

ID	Name	Type	Description	Level	ESCO
			Recommend migration strategies for legacy systems		
C08 5	Edge computing	Knowledge	Explain methods and technologies for processing data at the network edge. - Describe the role of edge computing in Industry 4.0 - Differentiate edge from cloud computing - Analyse latency and bandwidth implications - Identify applications in autonomous vehicles and IoT - Explain challenges of scalability and security in edge systems	2	
C08 6	Manage virtualization environments	Skill	Configure and maintain virtualisation platforms for scalable and flexible IT infrastructures. - Install and configure hypervisors and virtual machines - Monitor resource allocation and usage - Optimise performance of virtualised environments - Apply backup and recovery policies - Ensure compliance with security and organisational standards	2	

Soft Skills

ID	Name	Type	Description	Level	ESCO
C12 9	Solve problems	Skill	Identify issues and design effective solutions in complex contexts. - Diagnose root causes of system or network failures - Develop alternative solutions and evaluate trade-offs - Implement corrective actions efficiently - Anticipate potential issues in deployments - Share lessons learned with teams	3	Link

ID	Name	Type	Description	Level	ESCO
C13 3	Adapt to change	Skill	Adjust strategies and behaviours in response to evolving technologies and requirements. ▪ Respond effectively to unexpected challenges in projects ▪ Learn and adopt new digital tools rapidly ▪ Support teams in managing transitions ▪ Embrace continuous improvement ▪ Maintain resilience in dynamic environments	2	Link

Transversal Competences

ID	Name	Type	Description	Level	ESCO
C17 7	Manage projects	Skill	Plan, execute and monitor IT projects to deliver cloud and edge solutions. ▪ Define project scope, timelines, and deliverables ▪ Coordinate cross-functional teams ▪ Apply Agile or DevOps practices ▪ Monitor risks and progress ▪ Report results to stakeholders	3	Link
C17 8	Ensure regulatory compliance	Skill	Apply data protection and cybersecurity regulations to cloud and edge projects. ▪ Ensure compliance with GDPR and related frameworks ▪ Integrate compliance into system design ▪ Support audits and certifications ▪ Monitor evolving legal requirements ▪ Train teams on compliance practices	3	

Sector Specific

ID	Name	Type	Description	Level	ESCO
C25 2	Automotive cloud platforms	Knowledge	Describe cloud solutions tailored to automotive applications and mobility services. ▪ Explain role of cloud in connected/autonomous vehicles	3	

ID	Name	Type	Description	Level	ESCO
			▪ Identify requirements of automotive data platforms ▪ Analyse scalability for fleet management ▪ Assess cybersecurity for automotive services ▪ Align with standards for automotive IT ecosystems		
C25 3	Integrate edge devices in automotive systems	Skill	Deploy and configure edge computing for real-time automotive applications. ▪ Integrate edge devices in vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communication ▪ Configure low-latency data processing at the edge ▪ Support predictive maintenance with edge analytics ▪ Ensure interoperability with automotive IoT standards ▪ Troubleshoot performance issues in edge-enabled automotive systems	3	
C25 4	Automotive data governance	Knowledge	Describe frameworks and standards for managing automotive data in cloud and edge systems. ▪ Define ownership and access rights for automotive data ▪ Ensure compliance with sectoral regulations (e.g. UNECE WP.29) ▪ Monitor data quality in automotive platforms ▪ Support ethical and secure use of mobility data ▪ Align with OEM and supplier requirements	3	