

SKILLS FRAMEWORK FOR INFOCOMM TECHNOLOGY SKILLS MAP – AUTOMATION AND ORCHESTRATION ENGINEER		
Sector	Infocomm Technology	
Track	Infrastructure	
Sub-track	Build and Maintain	
Occupation	Infrastructure Engineer	
Job Role	Automation and Orchestration Engineer	
Job Role Description	<p>The Automation and Orchestration Engineer is responsible for the design, development and deployment of end-to-end network operations. He/She formulates network requirements in partnership with customers, and creates the network blueprint and provisions network slices in alignment with defined service level agreements (SLAs). He monitors the deployment and operations of the network to manage network performance, and orchestrates resource sourcing, consumption allocation to ensure that service delivery meets defined standards. He also configures, scales and deploys infrastructure components and algorithms, and automates network operations to minimise human intervention.</p> <p>He is knowledgeable in networking and virtualisation technologies and is acquainted with infrastructure architecture and high-level design. He has experience in managing a multi-vendor system integration and is able to perform in a large enterprise network environment. He is able to work well with external stakeholders, such as service vendors and users of network slices.</p> <p>The Automation and Orchestration Engineer is a creative problem solver, who is driven and is able to work independently. He bears a strong mindset in quality and timeline adherence. He possesses excellent written and verbal communication skills, and is skilled in negotiation and persuasion. He is also a strong advocate of collaborating across teams and the organisation.</p>	
Critical Work Functions and Key Tasks	Critical Work Functions	Key Tasks
	Model services using a standardised data modelling language that can be manipulated programmatically	Derive data models to encapsulate the services that need to be orchestrated and the device that needs to be configured
		Create workflows to instantiate network slicing across network resources
		Create instances of the service model with customer-specific parameters
		Add new service models to the system ensuring no impact to the non-stop operations of the system
		Re-use service models against devices from different vendors
	Manage the service lifecycle to create a desired final state of service	Automate the launch, change or tear down of customer-facing services across networks
		Create and maintain the set of workflows and templates pertaining to deployment and/or modification and/or deletion
		Monitor responses to services and re-run service deployment workflows from virtual or physical networks
		Orchestrate the provisioning-related activities involved in the fulfilment of customer orders or service control requests
	Monitor service and manage service level agreements (SLAs)	Define service key performance indicators (KPIs) as part of the service models
		Model the SLA thresholds and configuration parameters for each service
		Measure KPIs at service end points and gather accurate, real-time data on the service
		Run activation tests to ensure a service instance delivers on its KPIs
		Ensure that the service is 'assurable' from the moment of instantiation
		Predict and trend service growth for the network based on service fulfilment, control and usage information
	Oversee the programmatic configuration of services across physical and virtual network domains	Manage the fulfilment of end-to-end services across physical and/or virtual networks
		Optimise the placement of virtual network functions whilst ensuring availability of resources and connectivity

		Manage the protection of management and control mechanisms and ensure controlled access to network and service-related traffic		
		Control the integration of new software with existing components and adjust the configuration parameters of existing elements		
Skills and Competencies	Technical Skills and Competencies		Generic Skills and Competencies	
	Budgeting	Level 3	Service Orientation	Intermediate
	Business Environment Analysis	Level 3	Resource Management	Intermediate
	Business Innovation	Level 4	Problem Solving	Advanced
	Business Needs Analysis	Level 3	Sense Making	Intermediate
	Business Requirements Mapping	Level 3	Teamwork	Basic
	Business Risk Management	Level 3		
	Change Management	Level 3		
	Contract Management	Level 3		
	Configuration Tracking	Level 3		
	Cyber and Data Breach Incident Management	Level 4		
	Emerging Technology Synthesis	Level 4		
	Network Administration and Maintenance	Level 3		
	Network Configuration	Level 3		
	Network Security	Level 4		
	Network Slicing	Level 4		
	Performance Management	Level 4		
	Problem Management	Level 3		
	Process Improvement and Optimisation	Level 3		
	Procurement	Level 3		
	Radio Frequency Engineering	Level 4		
	Security Administration	Level 3		
	Service Level Management	Level 3		
	Software Configuration	Level 3		
	Stakeholder Management	Level 3		
	System Integration	Level 3, Level 4		
	Test Planning	Level 3		
	Vendor Management	Level 4		
Programme Listing	For a list of Training Programmes available for the ICT sector, please visit: www.skillsfuture.sg/skills-framework/ict			

The information contained in this document serves as a guide.