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| **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** | 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.  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.  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. | | | | | |
| **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 | | | | | |
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| The information contained in this document serves as a guide. | | | | | | |