
MALAYSIA
5G
SKILLS FRAMEWORK REPORT

TABLE OF CONTENTS

PREFACE BY THE CHAIRMAN OF THE MALAYSIAN COMMUNICATIONS AND MULTIMEDIA COMMISSION (MCMC)

The digital frontier continues to expand, with technologies such as artificial intelligence, the Internet of Things, cloud computing, and advanced connectivity reshaping how we live, work and grow as a nation. 5G is enabling today's transformation, while future networks including 6G, will elevate it further, opening possibilities that extend beyond what we can currently imagine.

Infrastructure, however, is only part of the story. The true measure of progress lies in the people. The skills, creativity and resilience that transform networks into innovation, and innovation into shared prosperity.

The Malaysia 5G Skills Framework is about preparing for that future. It provides a shared direction for the government, industry, academia and training providers to work collectively in building the talent Malaysia requires. This initiative goes beyond being a framework; it is a foundation for creating opportunities. As Malaysia invests in next-generation connectivity, we remain committed to investing in our greatest asset which is our people.

This national effort also contributes to a wider journey. Malaysia is playing an active role in shaping the ASEAN 5G Skills Framework, which will be launched in early 2026. By advancing our own framework today, Malaysia is strengthening national readiness while also contributing to a regional vision for workforce development and digital leadership.

As regulator and steward of the Communications and Multimedia (C&M) sector, MCMC is committed to ensuring that next-generation connectivity is supported by next-generation talent. Through the MCMC Academy, and in collaboration with the government, industry and academia, this framework will be translated into training, reskilling, and capability-building — so that Malaysia's digital transformation is both inclusive and future-ready.

YBhg. Tan Sri Mohamad Salim Fateh Din
Chairman
Malaysian Communications and Multimedia
Commission (MCMC)

> Our ambition is not just strong connectivity, but inclusive digital infrastructure that supports Malaysia's transition to 5G and beyond. This must be matched by the skills and opportunities that empower our people to lead in the digital age.

YBhg. Tan Sri Mohamad Salim Fateh Din
Chairman
Malaysian Communications and Multimedia Commission (MCMC)


OVERVIEW

5th Generation (5G) represents more than just an upgrade in network speed, it marks a pivotal shift in how industries operate, systems interact and societies connect. Malaysia has made notable progress in accelerating 5G adoption, with adoption rates rising exponentially from 11% in 2023 to 53%, equivalent to over 18 million service subscriptions, by the end of 2024. This reflects the nation's commitment to digital advancement and the critical role of 5G in achieving this.

As the next generation of mobile connectivity, 5G enables high-speed, low-latency communication and supports dense device connections. These capabilities underpin technologies such as Artificial Intelligence (AI), Internet of Things (IoT) and automation, which are transforming enterprise operations and public services worldwide.

This technological shift also brings new demands on the workforce with 5G expected to generate approximately **750,000 high skilled jobs across Malaysia by 2030**

With its capacity for real-time data transmission and intelligent system integration, 5G is accelerating digital transformation across sectors, including manufacturing, oil and gas, power and utilities, logistics and transport, by streamlining operations, boosting efficiency and enabling better decision-making.

The ongoing progress presents a timely opportunity to strengthen Malaysia's digital economy by preparing the workforce to meet emerging demands. Beyond maximising the value of 5G, this will ensure that Malaysia and its workforce remain adaptive, competitive and resilient in an increasingly connected yet volatile world.

To support this, the Malaysia 5G Skills Framework has been developed as an input to the nation's 5G workforce strategy. The framework outlines critical roles across the 5G value chain — spanning infrastructure, services and devices — and identifies the skills required for each area. It also highlights the capabilities needed for 5G enterprise adoption, guided by sector-specific use cases. A structured approach was taken to ensure the framework's comprehensiveness and relevance to a wide range of stakeholder groups across Malaysia's 5G landscape, with a forward-looking focus for the next three years.


METHODOLOGY

OVERALL APPROACH TO DELIVER THE MALAYSIA 5G SKILLS FRAMEWORK:

INVESTIGATE

Develop **master list** of roles and enterprise use cases

Develop **selection criteria** for critical roles and use case identification

VALIDATE

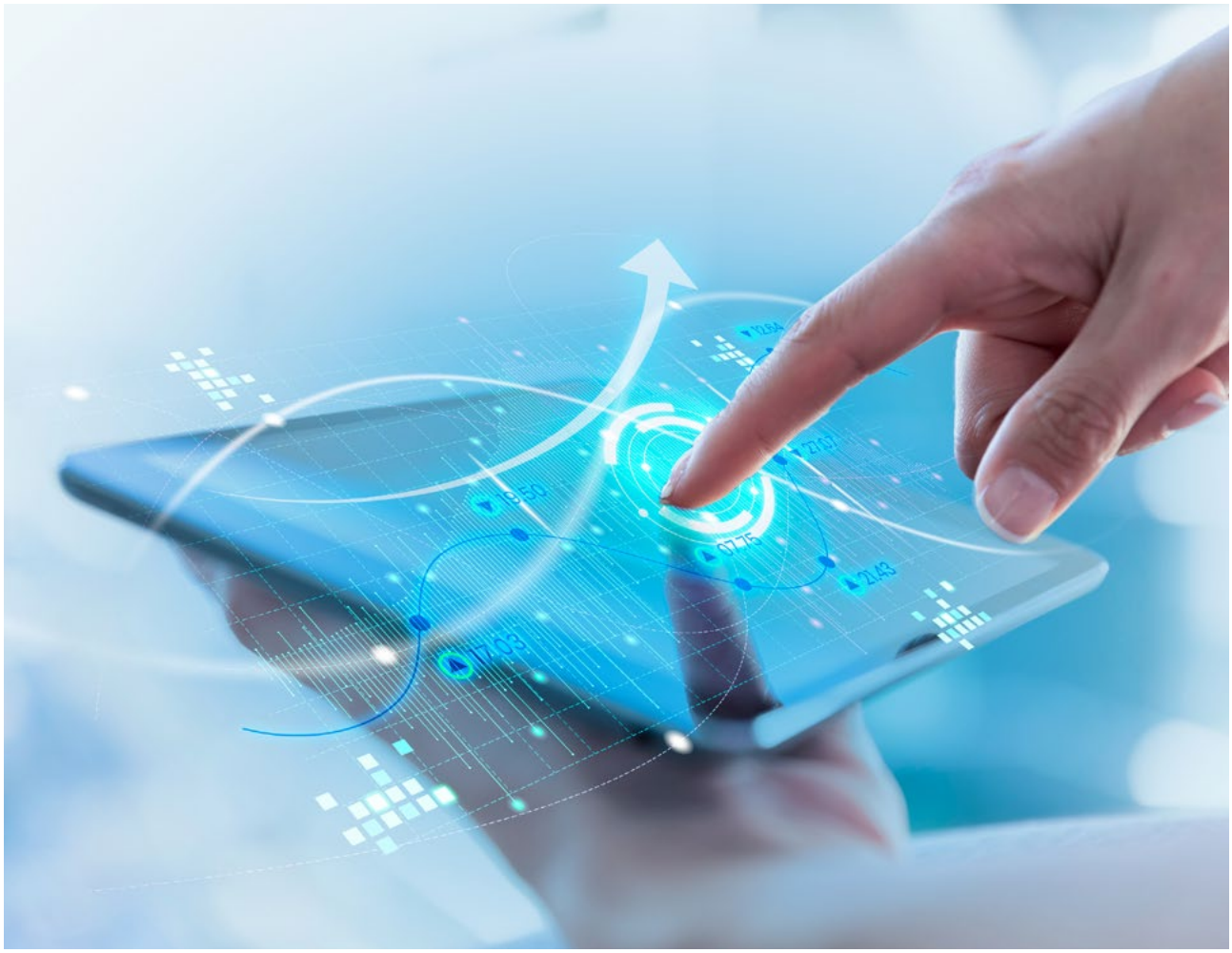
Conduct **1:1 engagement** sessions with identified industry players

Conduct **Validation Workshop** with Industry Players and Enterprises

CONSOLIDATE

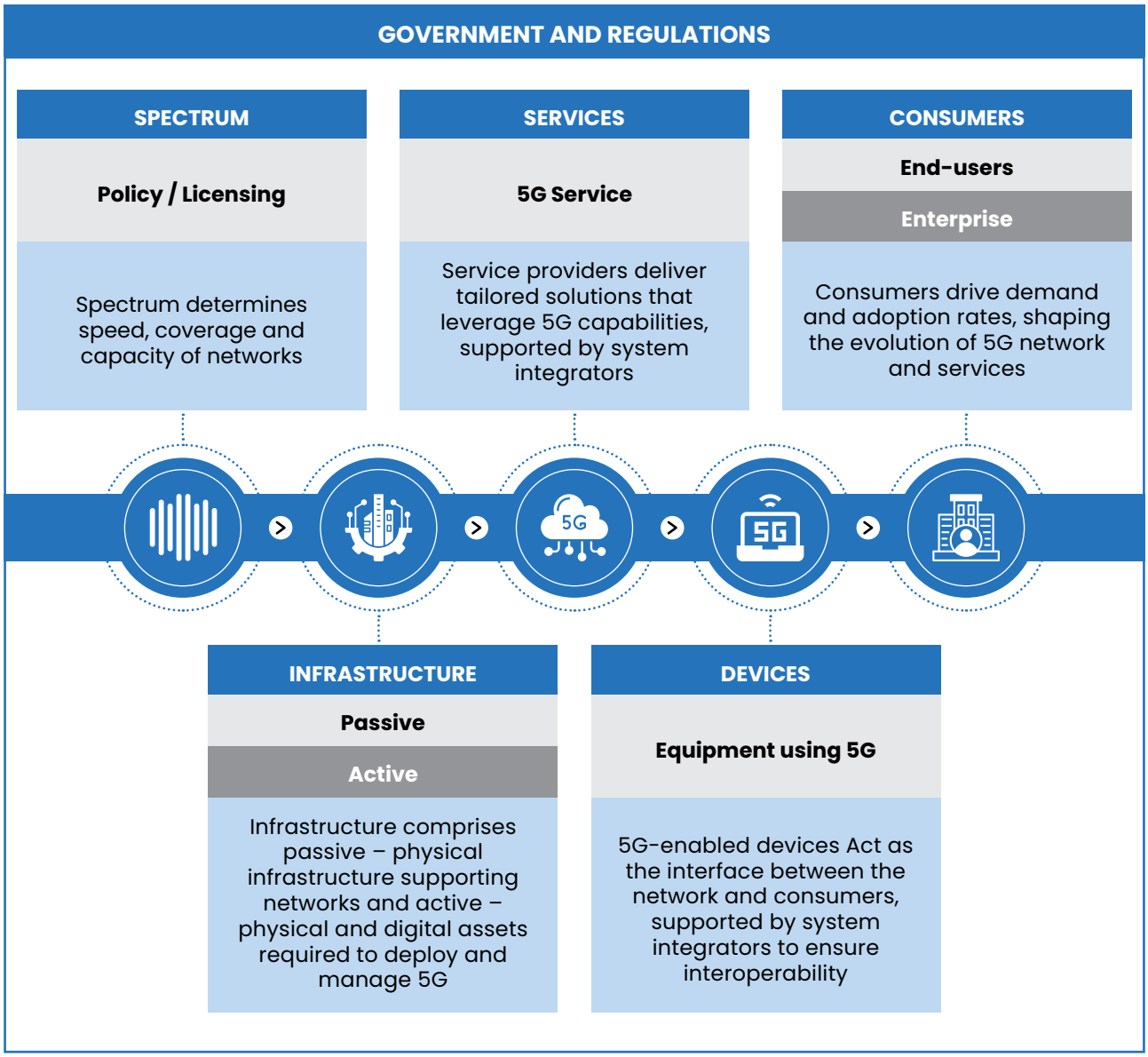
Consolidate findings and outputs into a **skills framework**

Launch the **Malaysia 5G skills framework**



THE 5G VALUE CHAIN

As part of the overall project approach, the 5G Value Chain provides a structured view of the sequential and interdependent components necessary for the successful deployment and utilisation of 5G technology. Each stage plays a pivotal role in enabling the next, ultimately driving value to consumers. The following provides an overview of the 5G ecosystem and lifecycle, structured around the key stages of the 5G Value Chain and its respective roles.



Building on this framework, a set of selection criteria was applied to the 5G Value Chain to identify critical roles and featured sectors essential to Malaysia's 5G rollout. This alignment enables focused talent development efforts that supports and contributes towards advancing Malaysia's 5G ambitions.

GOVERNMENT AND REGULATIONS

Spectrum roles have been excluded from the scope of Malaysia 5G skills framework, as it is primarily regulatory-based and thus, varies significantly by country

Passive

Active

Identify critical roles and related skills to support deployment of 5G

Selection Criteria for Critical Roles

Roles that directly influence the successful deployment, management and optimisation of 5G networks, services and devices

1	**5G Relevance**	Roles involved with 5G technologies, including deployment, management and related activities
2	**Talent Demand**	Roles that have high demand for talent due to the scale of operations, rapid industry growth, or task complexities

Enterprise

Identify skills to support enterprise adoption of 5G use cases

Selection Criteria for Featured Sectors

Enterprise use cases on 5G technology to solve operational challenges, improve productivity or create new revenue streams

1	**5G Adoption**	Strengthens the sector's growth by implementing 5G-related technological use cases
2	**Economic Impact**	Measures a sector's economic growth by its share of national output and the job roles it creates to spur development

To support the development of the Malaysia 5G skills framework, a comprehensive engagement process was carried out to gather insights from across the 5G Value Chain.

This included **18 pre-validation sessions** with key stakeholders, such as:

5 Internal Subject Matter Experts

5 Industry Players

6 Relevant Associations

A Malaysia Validation Workshop followed, involving 31 participants representing four components of the 5G Value Chain, including Infrastructure Passive and Active, Services, Devices and Enterprises (i.e., manufacturing, oil and gas, power and utilities, logistics and transport). These engagements provided valuable input for identifying critical roles and the key skills required for each. They also highlighted priority skills for capacity building to enable Malaysia's successful 5G transition.

THESE ENGAGEMENTS HAVE CONTRIBUTED TO THE MALAYSIA 5G SKILLS FRAMEWORK, COMPRISING OF THE OUTPUTS HIGHLIGHTED BELOW:

INFRASTRUCTURE

Passive | Active

SERVICES

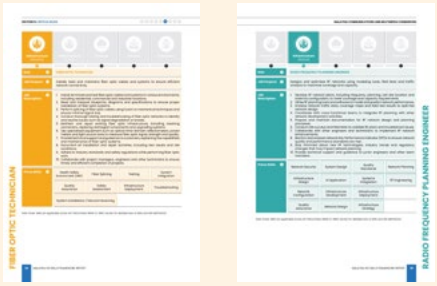
DEVICES

CONSUMERS

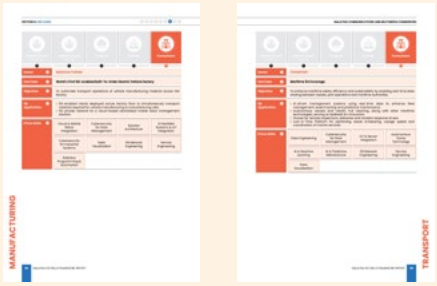
Enterprises

Featured Sectors
- Manufacturing
- Oil and gas
- Power and utilities
- Logistics
- Transport

50 critical roles and skills* identified



+



13 use cases and skills* identified

*Note: *Within the comprehensive list of skills, priority skills have been identified*

BY LEVERAGING THE MALAYSIA 5G SKILLS FRAMEWORK, VARIOUS STAKEHOLDERS ARE ABLE TO MAKE INFORMED DECISIONS TO STRENGTHEN 5G TALENT NEEDS:

Government and Regulators to obtain clear insights into workforce gaps, thus enabling development of targeted policies and upskilling and reskilling programs

Industry Players and Enterprises to obtain clarity on critical talent needs, align hiring and upskilling efforts and accelerate 5G deployment

Academia to obtain guidance in designing curricula that match real-world industry demand for 5G talent

Training Providers to obtain clarity on high-demand skills that should be prioritised in short-term courses, certifications and modular programs

Moreover, the framework serves a broader purpose of raising public awareness about 5G and the skills needed to advance its adoption in Malaysia. This awareness is also key to helping enterprises across sectors understand the practical applications and business value of 5G.

OVERALL FINDINGS AND KEY INSIGHTS

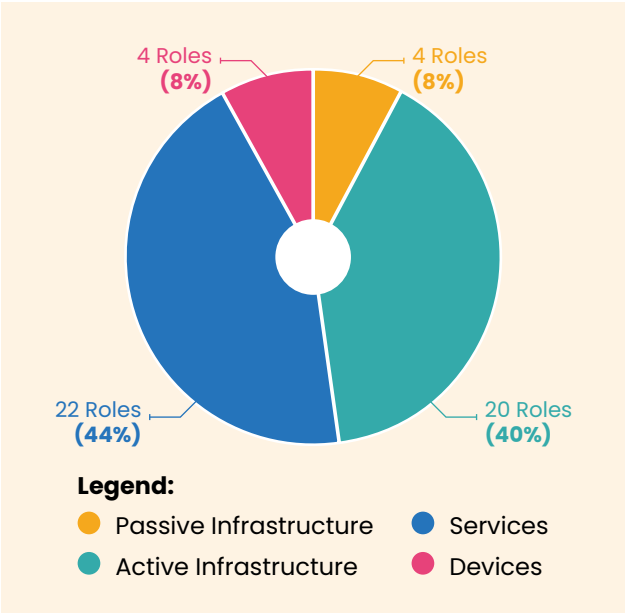
CRITICAL ROLES

The following table outlines 50 critical roles identified as high priorities for Malaysia's 5G adoption over the next three years. These roles have been selected based on their direct relevance to 5G technologies and their anticipated demand within the evolving 5G workforce landscape.

1.	Infrastructure Project Manager
2.	Site Acquisition Specialist
3.	Telecommunications Infrastructure Designer
4.	Fibre Optic Technician
5.	Radio Frequency Planning Engineer
6.	Network Architect
7.	Optimisation Engineer
8.	Systems Engineer
9.	5G Wireless Network Engineer
10.	Transmission Engineer
11.	NOC Engineer
12.	Cloud Core Network Engineer
13.	Cloud Security Architect
14.	Cloud Infrastructure Engineer
15.	Cloud Applications Engineer
16.	SOC VAPT Manager
17.	5G Cybersecurity Specialist
18.	4G/5G Core Network Engineer
19.	Inbuilding DAS Engineer
20.	Automation, AI and Orchestration Engineer
21.	Data Centre Architect
22.	Data Centre Network Engineer
23.	Data Centre Security Specialist
24.	Data Centre Critical Facilities Engineer
25.	Data Centre Operations Engineer
26.	DevSecOps Engineer
27.	Security Architect
28.	IoT Solutions Architect
29.	IoT Systems Engineer
30.	IoT Software Engineer
31.	Business Strategy and Modelling
32.	Customer and Market Insights Analyst
33.	Presales Solution Architect (Industry Vertical)
34.	5G Solutions Architect
35.	Enterprise Solution Sales
36.	Operations Centre Support Engineer
37.	NaaS Product Developer
38.	DevOps Engineer
39.	SysOps Engineer
40.	Software Engineer
41.	NaaS Product Manager
42.	Platform Category Manager
43.	Product Manager (Industry Vertical)
44.	Data Product Manager
45.	Security Product Manager
46.	Application Support Engineer
47.	Product Analyst
48.	Product Engineer
49.	Embedded Systems Engineer
50.	Equipment Engineer

Legend: Passive Infrastructure · Active Infrastructure · Services · Devices

Distribution of Roles Across the 5G Value Chain



The selection of 50 critical roles aligns closely with Malaysia's evolving 5G landscape. Notably, there is strong emphasis on two components of the 5G Value Chain – Active Infrastructure and Services, which together account for 42 identified critical roles. This distribution reflects stakeholder insights highlighting a national shift from expanding basic 5G coverage to optimising network performance and creating commercial value through service-based applications. While roles related to Passive Infrastructure and Devices are less prominent, they remain foundational. Malaysia's 5G rollout has already established much of the necessary physical infrastructure, reducing short-term demand for related roles. Similarly, with limited local manufacturing of 5G-enabled devices, only a small number of device-related roles were prioritised.

Beyond these 50 critical roles, the broader telecommunications sector includes additional roles that provide essential ecosystem support. Roles such as Policy and Regulatory Affairs Managers, Satellite Link Planners, and Site Reliability Engineers remain strategically important. While not specific to 5G deployment, these positions ensure the stable infrastructure upon which all telecommunications innovations, including 5G, depend.

Building on the focus of the identified 50 critical roles, further analysis was conducted to group them based on functional similarities and strategic relevance within the 5G ecosystem. This deeper analysis highlights Malaysia's workforce priorities in alignment with evolving national 5G objectives, offering a more targeted view of areas with potential for 5G-driven growth. These insights are summarised in the following five key findings:

1. INFRASTRUCTURE ROLES REMAINS CRITICAL AS 5G MATURES

1.	Infrastructure Project Manager
2.	Site Acquisition Specialist
3.	Telecommunications Infrastructure Designer
4.	Fibre Optic Technician
5.	Radio Frequency Planning Engineer
6.	Network Architect
7.	Optimisation Engineer
8.	Systems Engineer
9.	5G Wireless Network Engineer
10.	Transmission Engineer
11.	NOC Engineer

2. CLOUD AND DATA CENTRE ROLES ARE FOUNDATIONAL FOR 5G-ENABLED DIGITAL INFRASTRUCTURE

12.	Cloud Core Network Engineer
13.	Cloud Security Architect
14.	Cloud Infrastructure Engineer
15.	Cloud Applications Engineer
21.	Data Centre Architect
22.	Data Centre Network Engineer
23.	Data Centre Security Specialist
24.	Data Centre Critical Facilities Engineer
25.	Data Centre Operations Engineer

3. CYBERSECURITY IS ESSENTIAL TO SECURING 5G INFRASTRUCTURE AND SERVICES

16.	SOC VAPT Manager
17.	5G Cybersecurity Specialist
26.	DevSecOps Engineer
27.	Security Architect

4. EMERGENCE OF AI, IOT AND AUTOMATION ACROSS THE 5G VALUE CHAIN

18.	4G/5G Core Network Engineer
19.	Inbuilding DAS Engineer
20.	Automation, AI and Orchestration Engineer
28.	IoT Solutions Architect
29.	IoT Systems Engineer
30.	IoT Software Engineer
38.	DevOps Engineer
39.	SysOps Engineer
40.	Software Engineer
48.	Product Engineer
49.	Embedded Systems Engineer
50.	Equipment Engineer

5. ENTERPRISE-FACING ROLES ARE CRITICAL DRIVERS OF 5G ADOPTION AND INNOVATION

31.	Business Strategy and Modelling
32.	Customer and Market Insights Analyst
33.	Presales Solution Architect (Industry Vertical)
34.	5G Solutions Architect
35.	Enterprise Solution Sales
36.	Operations Centre Support Engineer
37.	NaaS Product Developer
41.	NaaS Product Manager
42.	Platform Category Manager
43.	Product Manager (Industry Vertical)
44.	Data Product Manager
45.	Security Product Manager
46.	Application Support Engineer
47.	Product Analyst

Legend:

- Passive Infrastructure
- Active Infrastructure
- Services
- Devices

1. INFRASTRUCTURE ROLES REMAINS CRITICAL AS 5G MATURES

With Malaysia's 5G rollout beginning in 2021, much of the necessary physical infrastructure has been established. However, this does not diminish the ongoing need for infrastructure-related capabilities. For example, Malaysia's shift to a dual-network model will create distinct skill requirements for the two 5G architectures: Non-Standalone (NSA), deployed by Digital Nasional Berhad (DNB) and Standalone (SA), adopted by U Mobile. Furthermore, while many of these roles predate 5G, the scale and complexity introduced by the technology have significantly elevated their importance.

Passive Infrastructure roles, such as Infrastructure Project Managers, Site Acquisition Specialists, Telecommunications Infrastructure Designers and Fibre Optic Technicians, are critical due to the densification demands of 5G networks. Unlike previous generations, 5G requires a higher number of small cells, often integrated into urban street furniture, lamp posts and other non-traditional sites. This shift introduces new challenges in site acquisition and urban planning, particularly within Malaysia's regulatory and land access environment. These roles are now essential for strategic planning and execution in complex deployment settings to ensure seamless network performance.

Active Infrastructure roles such as Radio Frequency (RF) Planning Engineers, Network Architects, 5G Wireless Network Engineers, Transmission Engineers and Network Operations Centre (NOC) Engineers operate at the core of network functionality. These professionals manage the increased technical complexity of 5G, including new frequency bands, network slicing and real-time optimisation. As 5G evolves, they play a key role in ensuring smooth integration, sustained performance and scalable growth to meet rising data demands.

Looking ahead, the evolution towards 5G-Advanced will further increase the need for continuous upskilling among infrastructure professionals. Collaboration across infrastructure, cloud and cybersecurity teams will become even more critical as networks become increasingly software-defined, virtualised and security centric.

CASE STUDY

mobile

Dual-Network Model in Malaysia

As of 2025, Malaysia's 5G landscape is entering a new phase with the introduction of a second network provider. U Mobile has been appointed to deploy its own 5G network, marking the shift to a dual network model. With government agencies continuing to oversee spectrum harmonisation, this transition is expected to spur greater competition, improve network flexibility, accelerate deployment, expand coverage and potentially lower costs.

This new phase of network buildout, will also intensify demand for infrastructure planning, deployment and optimisation. As foundational infrastructure is laid to support expanded 5G services, the need for skilled infrastructure talent will remain high—reinforcing its critical role in Malaysia's evolving 5G ecosystem.

2. CLOUD AND DATA CENTRE ROLES ARE FOUNDATIONAL FOR 5G-ENABLED DIGITAL INFRASTRUCTURE

While cloud and data centre roles have underpinned digital transformation, 5G intensified their strategic importance. Cloud roles are increasingly responsible for enabling orchestration and service agility, while data centre roles ensure high-availability, physical infrastructure that supports real-time processing.

DATA CENTRE ROLES

Though data centre infrastructure predates 5G, it is increasingly relevant and critical, evolving to meet the growing 5G performance demands. Roles within these areas play a significant role in supporting the physical infrastructure required for high-volume data transmission and edge computing. Thus, ensuring uptime, resilience and security across 5G infrastructure, especially as telecommunication companies expand their edge footprint to meet consumer demands. This raises demand for roles that focus on designing and maintaining infrastructure, while operational roles ensure availability, security and scalability, in a more fragmented and decentralised footprint.

Key Critical Roles

1. Data Centre Architect
2. Data Centre Critical Facilities Engineer
3. Data Centre Network Engineer
4. Data Centre Security Specialist
5. Data Centre Operations Engineer

CLOUD ROLES

Cloud capabilities are foundational in enabling network functions across dynamic and virtualised environments. As telecommunication companies transition from legacy systems to cloud-native architectures, roles involved in network, infrastructure and applications have more critical. Beyond maintaining infrastructure, these professionals design and deploy the digital platforms that allow for microservices-based architecture, automated scaling and orchestration of 5G services. With the increasing reliance on AI and automation, the importance of security also gains prominence, tasked with ensuring data integrity and compliance across the ecosystem.

Key Critical Roles

1. Cloud Core Network Engineer
2. Cloud Infrastructure Engineer
3. Cloud Applications Engineer
4. Cloud Security Architect

CASE STUDY

TM Data Centre Expansion across Malaysia

Telekom Malaysia (TM) is strategically shifting focus towards expanding its data centre capabilities, expanding their presence within the Klang Valley Data Centre (KVDC) in Cyberjaya and the Iskandar Puteri Data Centre (IPDC) in Johor. This expansion is scheduled for commercial operations in the third quarter of 2025, supporting Malaysia's digital transformation and positioning the nation as a leading digital hub in Southeast Asia.

As Malaysia strengthens its digital infrastructure, cloud and data centre roles will be pivotal in building robust, secure and scalable systems. Sustained demand in this area is expected to fuel long-term workforce development and enhance national standing within the global 5G landscape.

3. CYBERSECURITY IS ESSENTIAL TO SECURING 5G INFRASTRUCTURE AND SERVICES

Aligned with the national strategy to secure 5G networks, several of the 50 critical roles reflect a growing emphasis on cybersecurity specialisation within the 5G talent landscape. As 5G evolves, cybersecurity has shifted from a standalone function to a foundational component embedded across the digital ecosystem. The decentralised nature of 5G, driven by edge computing and virtualised network functions has expanded the attacks while the rapid proliferation of connected devices and IoT technologies introduces new layers of risk.

The increased reliance on software-defined networking and automated orchestration further reinforces the need to embed security at every layer of the architecture. Roles such as Security Operation Centre (SOC) Vulnerability Assessment Penetration Testing (VAPT) Manager, 5G Cybersecurity Specialist, DevOps Engineer and Security Architect demonstrate this shift, working to secure both infrastructure and services.

As 5G adoption grows, cybersecurity will remain essential to maintaining trust, reliability and resilience in Malaysia's digital economy.

CASE STUDY

Digital Nasional Berhad (DNB) and Cybersecurity Malaysia (CSM) collaborate to boost the nation's 5G network cybersecurity

In July 2024, DNB and CSM signed a Collaboration Agreement to strengthen the cybersecurity of Malaysia's 5G network. This partnership focused on developing 5G security guidelines to establish baseline requirements for the telecommunications sector. It also led to the creation of the National 5G Cybersecurity Testing Centre, which enables industry players to identify vulnerabilities, validate security measures and ensure compliance with national standards. Additionally, the initiative promotes the sharing of threat intelligence to enhance Malaysia's cyber threat response capabilities.

As Malaysia advances its digital infrastructure, this collaboration underscores the critical role of a resilient cybersecurity ecosystem.

4. EMERGENCE OF AI, IOT AND AUTOMATION ACROSS THE 5G VALUE CHAIN

As Malaysia continues to scale its 5G network, this technology is unlocking new possibilities for deploying AI, IoT and automation at scale. These capabilities are accelerating advanced enterprise use cases, such as smart manufacturing, robotics and digital twins, that depend on real-time, high-performance connectivity. This dynamic is driving demand for critical talent across the 5G Value Chain, spanning infrastructure, services and devices.

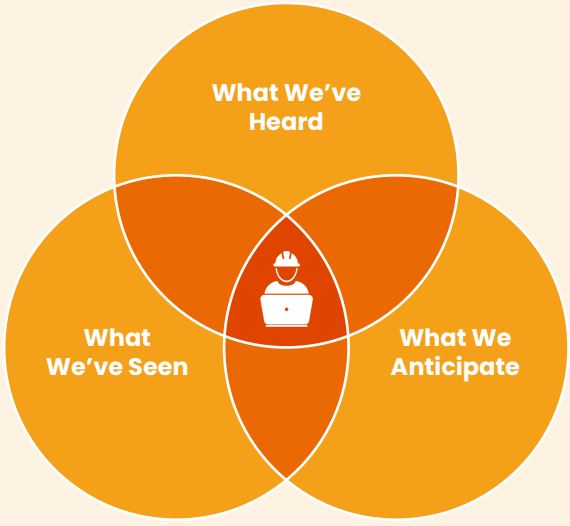
Active Infrastructure roles like 4th Generation (4G)/5G Core Network Engineer, Inbuilding Distributed Antenna System (DAS) Engineer and Automation, AI and Orchestration Engineer play a key role in building intelligent, low-latency networks that can handle the large volumes of data these applications generate. Service roles, including IoT Solutions Architect, IoT Systems Engineer and DevOps Engineer, focus on designing and integrating complex connected ecosystems that span multiple sectors. Meanwhile, device roles such as Embedded Systems Engineer and Equipment Engineer ensure seamless interaction between hardware and software platforms, which is an important factor as Malaysia's industries increasingly adopt IoT technologies.

This emergence of AI, IoT and automation within a 5G-enabled environment highlights the need for talent with both deep technical knowledge and cross-functional skills. In the Malaysian context, where digital transformation is progressing at different speeds across sectors, cultivating these hybrid capabilities will be vital for enabling scalable, localised solutions that drive sustainable economic growth and innovation.

ROLE SPOTLIGHT | Automation, AI and Orchestration Engineer

Industry representatives highlighted a significant challenge i.e., automation efforts are currently managed in silos across core network, Radio Access Network (RAN) and transmission domains

This fragmentation echoes global industry research, which finds that automation is often distributed across networking, DevOps and cloud teams—lacking unified orchestration



Such disjointed efforts complicate integration and limit the full potential of AI, leading to slower responses to network issues, higher operational overhead and missed opportunities for proactive issue resolution

To address this, the role of an Automation, AI and Orchestration Engineer is critical. This role is designed to bridge silos by coordinating cross-domain automation, translating AI insights into policy-based orchestration and enabling scalable, secure operations across hybrid and multi-cloud environments.

5. ENTERPRISE-FACING ROLES ARE CRITICAL DRIVERS OF 5G ADOPTION AND INNOVATION

With 5G infrastructure largely deployed in Malaysia, the focus is increasingly shifting toward enterprise adoption, through growing deployments and the emergence of additional use cases. This transition is driving demand for a range of enterprise-facing roles that are essential to shaping and delivering high-impact 5G use cases across sectors.

At the front end, roles in business strategy, customer and market insights and product analysis help identify where and how 5G can solve business and operation needs from enhancing logistics in manufacturing to transforming operations in power and utilities. These roles support the need for solution delivery to be informed by an understanding of business and commercial priorities as well as sector-specific needs.

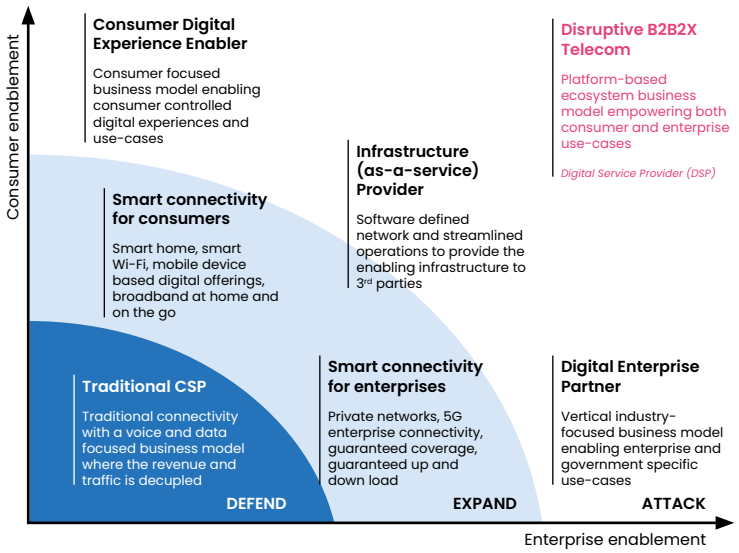
Presales and solutioning roles bridge technical capability with business value. Their understanding of industry verticals enables them to contextualise business requirements and develop relevant solutions that go beyond generic connectivity offerings.

As telecommunication companies and technology providers move toward service-led, Everything-as-a-Service (XaaS) models, product managers play a central role in packaging modular, scalable offerings that enable enterprises to adopt 5G on their own terms. Their effectiveness relies on blending market insight, business model innovation and deep tech fluency.

Supporting roles such as operations and application support engineers are crucial to ensuring ongoing service reliability and a seamless customer experience. As enterprise 5G deployments grow, post-sales support and operational excellence will be key to sustaining long-term value and trust.

Together, these roles reflect a growing demand for talent that can bridge commercial strategy and technical delivery. They signal a maturing 5G ecosystem in Malaysia — one focused not just on network deployment, but on enabling real enterprise transformation.

TREND



Source: EY Reimagining Industry Futures Study 2025

Shift to B2B2X Business Model to empower use cases

In Malaysia, the growing focus on enterprise 5G adoption is prompting telecommunication companies to shift from a traditional connectivity focused service model to a "B2B2X" approach.

This strategic move involves partnering with enterprises (B2B) to deliver integrated, end-to-end solutions to end customer (X).

This shift towards this model redefines the talent demands to support 5G integration across various enterprise sectors.

ENTERPRISE USE CASES

As Malaysia's 5G landscape evolves, enterprise adoption drives new revenue across multiple sectors. Industries including manufacturing, oil and gas, power and utilities, logistics, transport, healthcare, agriculture, financial services, construction, media and entertainment, education, mining, telecommunications and tourism can unlock productivity gains and innovative offerings through 5G implementation. Healthcare benefits from realtime telemedicine and remote diagnostics that improve care access while, agriculture leverages precision farming to enhance sustainability and reduce agrochemical costs.

Within this Malaysia 5G Skills Framework, manufacturing, oil and gas, power and utilities, logistics and transport have been featured. These sectors were selected due to their significant economic footprint, which creates substantial demand and opportunities for 5G deployment. This framework outlines the capabilities required to implement high-value use cases within these industries, many of which have been trialed or deployed locally.

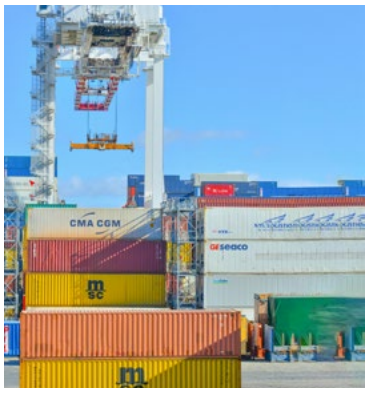
While job titles may vary across enterprises, the core skills needed to operationalise 5G use cases remain consistent across all sectors pursuing 5G adoption, extending well beyond those featured in this framework. By connecting these skills to practical applications, the framework provides enterprises with a reference for building the capabilities necessary to adopt 5G and realise its benefits.

Five Featured Sectors and their Relevant Enterprise Use Cases

Manufacturing	
5G-enabled Advanced Manufacturing	Trial / Proof of Concept
5G-enabled Built-To-Order Electric Vehicle Factory	Completed Deployment
First Overseas 5G Factory	Completed Deployment

Oil and Gas	
5G Private Network for Enterprise Use	Completed Deployment

Power and Utilities	
Smart Nation Sensor Platform	Trial / Proof of Concept
Punggol Northshore Smart Homes	Trial / Proof of Concept



Logistics	
5G-powered AI Autonomous Inventory Management System	Completed Deployment
5G Smart Warehouse Transformation in Indonesia	Completed Deployment
5G-enabled Shipment Tracking	Completed Deployment
5G Warehouse	Trial / Proof of Concept

Transport	
5G Inbuilding Airport Coverage	Completed Deployment
Autonomous Bus Demonstration	Trial / Proof of Concept
Maritime 5G Coverage	Trial / Proof of Concept

The Central Role of Telecommunications in 5G Enterprise Adoption

The telecommunications sector serves as the foundational enabler of all 5G enterprise use cases. Every organisation adopting 5G depends on telecommunications infrastructure for the essential connectivity and architecture required for deployment. 5G operates not as standalone technology, but as an advanced capability within the broader telecommunications ecosystem, delivering high-speed, low-latency communication across enterprise environments. Providers facilitate this through public networks, private networks, or hybrid models tailored to specific requirements. This creates a unique dynamic: while telecommunications enables other industries to transform through 5G, the sector simultaneously uses these capabilities to optimise its own networks and adapt to evolving market demands.

SKILL CLUSTERS

Based on the critical roles and use cases identified, a comprehensive list of skills was developed. To provide greater clarity and facilitate understanding, these skills have been organised into skill clusters.

A total of 211 skills were identified and grouped into 10 skill clusters:

<table>
<tr><th colspan="3">PRIME SKILLS CLUSTERS</th></tr>
<tr><td colspan="2">Strategy and Planning (9 skills)</td><td>Digital and Data (13 skills)</td></tr>
<tr><td colspan="2">Defining long-term roadmaps and frameworks for 5G passive and active infrastructure, service offerings and device ecosystems to align with market goals. Priority skills within this cluster include Infrastructure Strategy , Network Planning , Organisational Analysis and Strategy Implementation.</td><td>Leveraging digital automation tools and data analytics across the 5G value chain to drive insights and continuous optimisation. Priority skills within this cluster include Big Data Analytics, Process Automation, AI Management and Data Modelling and Design.</td></tr>
<tr><td colspan="2">Design and Architecture (11 skills)</td><td>Customer and Stakeholder Management (11 skills)</td></tr>
<tr><td colspan="2">Blueprinting end-to-end 5G infrastructure for solutions to meet performance, scalability and interoperability requirements. Priority skills within this cluster include Infrastructure Design, Network Design, Security Architecture and Solution Architecture.</td><td>Engaging relevant stakeholders to align infrastructure, service portfolios and device capabilities with consumer needs. Priority skills within this cluster include Contract Management and Customer Experience Design.</td></tr>
<tr><td colspan="2">Development and Implementation
(Critical Roles: 35 skills & Enterprise Use Cases: 35 skills)</td><td>Business and Commercial Management
(34 skills)</td></tr>
<tr><td>Critical Roles:
Building and deploying infrastructure and services for stable and secure connectivity. Priority skills within this cluster include Cloud Computing, Infrastructure Development, Infrastructure Deployment, Network Orchestration and Automation, System Integration, Applications Development and Applications Integration.</td><td>Enterprise Use Cases:
Integrating 5G solutions into business operations based on sector-specific needs. Priority skills within this cluster include Cybersecurity for Data Management, Data Analytics and Monitoring, Data Engineering, Digital Twin and Simulation Modelling, Network Security and Access Control, Product Knowledge, Service Engineering and Solution Architecture .</td><td>Overseeing financial planning, partnership development and go-to-market strategies for 5G infrastructure, value-added services and device ecosystems to drive revenue and adoption. Priority skills within this cluster include Project Management, Business Opportunities Development and Product Design and Development.</td></tr>
<tr><td colspan="2">Delivery, Operations and Quality (27 skills)</td><td>Risk and Governance (18 skills)</td></tr>
<tr><td colspan="2">Managing rollout, operations and quality assurance to ensure uptime, performance and user satisfaction Priority skills within this cluster include AI Applications and Infrastructure Support.</td><td>Identifying, assessing and governing technical, regulatory and security risks across the entire 5G value chain. Priority skills within this cluster include Information Security, Regulatory Compliance, Risk Management.</td></tr>
</table>

POWER SKILLS CLUSTERS	
Innovation and Delivery (10 skills)	**Social Intelligence** (8 skills)
Skills that enable individuals to be creative, adapt effectively to changing circumstances and elevate personal effectiveness to drive results.	Skills that enable individuals to effectively understand different perspectives, collaborate with one another to achieve common goals and develop others.

Note: Refer to 'Skills' section for detailed view of skills, definitions and priority skills identified

The skill clusters mapped across critical roles and use cases reflect a structured approach to 5G deployment, covering the full range of capabilities required in the form of prime skills. These span Strategy and Planning, Design and Architecture, Deployment and Implementation and Delivery, Operations and Quality. Complementing these, the Digital and Data, Customer and Stakeholder Management, Business and Commercial Management and Risk and Governance clusters, support the integration, adoption and long-term sustainability of implementation.

Meanwhile, power skill clusters, such as Innovation and Delivery and Social Intelligence, further enable effective collaboration, adaptability and problem-solving across the deployment lifecycle.

Skills drawn from enterprise use cases are primarily concentrated within the Deployment and Implementation cluster, reflecting the operational focus of these initiatives. However, effective enterprise adoption will also require capabilities from surrounding clusters to ensure alignment with broader strategic, stakeholder and governance needs.

Based on the skills identified from critical roles and use cases, there are several key findings that are essential to supporting the advancement of Malaysia's 5G ecosystem:

Skills related to Critical Roles	**1.** **Criticality of Complementing Technical Expertise with Business and Commercial Management Skills**
	2. **Power Skills as a Strategic Enabler for Technical Success**
	3. **Importance of Development and Implementation Skills** • Emergence of AI to Drive 5G Applications
Skills related to Enterprise Use Cases	• Enterprises Need to Leverage Data Skills to Capitalise on 5G's Value
	• Need for Automation to Enhance Enterprise Operations
	• Enhancing Tailored Solutioning through Sector-Specific Knowledge

SKILLS RELATED TO CRITICAL ROLES

1. CRITICALITY OF COMPLEMENTING TECHNICAL EXPERTISE WITH BUSINESS AND COMMERCIAL MANAGEMENT SKILLS

As the focus shifts towards driving successful adoption of 5G for enterprises, solution delivery should look beyond technical performance and demonstrate clear business value. This increases the need for technical professionals to understand commercial objectives and sector-specific landscapes. For instance, it is important for an engineer developing a 5G-enabled application to be familiar with operational realities, site safety requirements and cost sensitivities as much as latency thresholds and edge deployment models.

This shift highlights the growing need of technical professionals who can design solutions aligned with both performance goals and business outcomes. At the same time, business professionals are expected to develop foundational technical fluency to collaborate more effectively with solution teams, bridging innovation with enterprise value.

Among the 10 skill clusters identified, Business and Commercial Management stand out for their prevalence, indicating a growing recognition that 5G workforce readiness extends beyond technical skills alone. Skills from this cluster are reflected in 25 out of 50 critical roles, showing that 50% of roles demand some level of business acumen. This demonstrates that business-aligned capabilities are no longer limited to traditional business roles but are increasingly essential across technical positions. These skills enable 5G talent to navigate commercial realities and shape solutions that resonate with enterprise priorities.

ROLE SPOTLIGHT |
Presales Solutions Architect

Applicant Requirements:	Skill:
• Experience in big data, AI and cloud technologies, with hands-on experience in cloud platforms • Technical expertise in big data frameworks and data analytics	Technical-execution skills
• Experience in pre-sales and post-sales engagements, driving customer solutions • Ability to engage with key stakeholders	Business-execution skills
• Experience in delivering customised cloud solutions and managing solution implementation risks	Blend of both technical and business execution skills

This job posting exemplifies the cross-functional nature of a Presales Solutions Architect, demonstrating the need for both advanced technical expertise in 5G applications and strong business acumen to align solutions with client needs.

2. POWER SKILLS AS A STRATEGIC ENABLER FOR TECHNICAL SUCCESS

54% of employers in Malaysia consider soft skills (power skills) as important, higher than the regional average of 41.2%

In the current evolving digital landscape, technical expertise alone is no longer sufficient to ensure successful outcomes. Power skills have become equally critical in bridging the gap between innovation and effective implementation. Skills such as Adaptability, Communication, Critical Thinking and Collaboration enable individuals and teams to translate technical solutions into real world impact.

While technical skills drive innovation, these human-centric capabilities ensure that solutions are executed efficiently, teams work cohesively and organisations adapt resiliently to change. For example, during 5G network deployments, engineers must not only master complex technical systems but also communicate effectively with cross-functional teams and stakeholders to address challenges and align objectives.

Within this 5G skills framework, power skills are mapped across the 50 critical roles. This applicability underscores the universal importance of soft skills across technical specialisations, highlighting their role in enabling the 5G workforce in Malaysia. This view aligns with global data that recognises the role of soft skills in boosting employee success, especially when paired with technical capabilities.

Aligned to the power skills within this framework, **81.5%** of employers consider Interpersonal and Intercultural **Communication** to be the most sought-after skill in new hires

3. IMPORTANCE OF DEVELOPMENT AND IMPLEMENTATION SKILLS

The Development and Implementation skill cluster represents the largest share of skills identified from critical roles and use cases, accounting for 33% of the comprehensive skill set. This reflects the vital role of solution building, integration and deployment in accelerating 5G adoption and unlocking commercial value through enterprise applications. These skills are fundamental, as the technical execution of developing, configuring and operationalising 5G networks and solutions is both complex and essential. Thus, making it a top priority for workforce development.

Emergence of AI to Drive 5G Applications

Notably, AI Application in Product Development emerged as the most frequently mapped skill within this cluster, appearing in 76% of critical roles. This reflects AI's rising importance as both a core capability and enabler of intelligent, adaptive systems across 5G.

Stakeholder insights indicates two forms of AI use: AI embedded in solutions (e.g., self organising networks, predictive optimisation) and AI as a productivity tool for talent (e.g., planning, testing, documentation).

While AI embedded in solutions will take time to mature, AI-enabled workflows are already reshaping how teams operate, reinforcing the need for skills that blend technical proficiency with agile, intelligent work practices.

79% of Malaysian professionals anticipating role changes due to AI

84% of knowledge workers in Malaysia already using AI at work

SKILLS RELATED TO ENTERPRISE USE CASES

Enterprises Need to Leverage Data Skills to Capitalise on 5G's Value

Examination of the most frequently mapped skills across enterprise use cases indicates a demand for advanced data capabilities. Supporting this, engagement sessions with enterprise stakeholders across sectors consistently highlighted data-related capabilities as critical to 5G enterprise applications, specifically, transforming system connectivity into a foundation for intelligent adaptive operations. Skills such as Data Engineering, Data Analytics and Data Visualisation form the foundation for gathering, processing and interpreting large volumes of real-time data generated through 5G-connected systems.

In particular, the deployment of IoT sensors for system monitoring and predictive maintenance is emerging as a critical application. These sensors enable real-time oversight of operational assets, detect anomalies before failures occur and support timely interventions.

Building on this, capabilities such as Digital Twin and Simulation Modelling create data-rich models of physical systems, such as production lines or energy grids. These models simulate scenarios, test interventions and predict outcomes before changes are implemented, thus enabling businesses to make decisions faster and through a more informed approach. Combined with IoT-driven insights, these models strengthen enterprise resilience by enabling scenario testing, proactive optimisation and better risk management.

Meanwhile, Edge Computing and Real-time Data Processing serve as critical enablers for decentralised, time-sensitive environments. In settings like manufacturing floors, logistics hubs, or smart utilities, edge capabilities allow organisations to process data at or near the source, reducing latency and enabling real-time responses such as machine adjustments, autonomous dispatching, or fault detection.

These skills reveal that beyond improved connectivity, 5G enterprise adoption enables a data-driven loop. This 5G-enabled feature allows organisations to sense, process and act in near real time. This reinforces the need for a workforce that is not only technically proficient in these tools, but also capable of applying them to business-critical outcomes, such as operational resilience, cost optimisation and service innovation.

Need for Automation to Enhance Enterprise Operations

Automation is key to realising 5G's enterprise potential, enabling real-time decision-making, autonomous operations and intelligent process optimisation. With 5G's low-latency and high-bandwidth connectivity, intelligent systems can operate at scale to support automation use cases like predictive maintenance, quality assurance and remote process control. As enterprises face growing operational complexity and performance demands, automation becomes a critical enabler of efficiency, minimising human error and freeing up workforce capacity for higher-value work.

A comparison between the broader skills list and those linked specifically to enterprise use cases shows stronger emphasis on automation related skills within enterprises. In a Malaysian context, these skills are relevant to use cases across three of the five sectors featured in this skills framework, namely, manufacturing, logistics and transport, highlighting the cross-sectoral relevance of automation capabilities.

Stakeholder insights consistently highlighted the broader applicability of automation. Similar needs for operational efficiency, real-time responsiveness and data-driven optimisation are emerging across other sectors, underscoring automation as an enabler of enterprise transformation beyond manufacturing. The table below identifies and categorises the core automation functions observed across three enterprise use case sectors.

Automation Function	Description	Manufacturing	Logistics	Transport
Automated Material Handling	Use of autonomous machines (e.g., robots, Automated Guided Vehicles (AGV)s, Autonomous Mobile Robot (AMR)s) to transport, pick, or sort materials	✓	✓	✓
Computer Vision and AI Inspection	Systems using high resolution cameras with analytics and AI to automatically detect, classify, or evaluate visual information and trigger actions accordingly	✓	✓	✓
Predictive Maintenance and Asset Management	Use of real-time sensor data and AI to anticipate equipment failures, schedule maintenance automatically and optimise asset performance		✓	✓

The relevance of automation across manufacturing, logistics and transport signals a strategic opportunity for enterprises to harness 5G-enabled automation. This helps Malaysian businesses in these sectors to boost productivity, enhance operational agility and sharpen their competitive edge.

Enhancing Tailored Solutioning through Sector-Specific Knowledge

While many use case technical skills are applicable across sectors, the successful implementation of 5G relies on a deep understanding of the unique opportunities and challenges needed by each industry. Differences in operations, regulatory environments and business priorities mean that 5G applications vary across verticals. Hence, sector-specific knowledge is essential to ensure solutions are both technically robust and operationally relevant.

For instance, skills such as Solution Architecture and Product Knowledge must be applied with contextual insight to achieve high-impact outcomes. This highlights the need for cross disciplinary skill sets that combine technical expertise with industry-specific knowledge, which is crucial for Malaysia to fully realise the practical value of 5G across sectors.

CASE STUDY

Cross-Sector 5G Use Case Comparison

Based on the identified use cases, enterprises within manufacturing and oil and gas implemented private 5G networks within their sector operations. However, the applications of 5G technology were shaped by the distinct operational demands of the respective sectors.

	Manufacturing	Oil and Gas
Sector Needs	High precision manufacturing, automation and production efficiency	Operational safety, environmental monitoring and infrastructure reliability
Primary Application of 5G Private Network	✓ AI-enabled quality inspection ✓ Autonomous material handling systems ✓ Smart factory integration	✓ Real-time asset monitoring ✓ Environmental sensing ✓ IoT-enabled safety systems
Key Outcomes	Significant improvements in production speed, accuracy and process optimisation	Enhanced operational safety, reduced downtime and strengthened regulatory compliance

Manufacturing focuses on automation and precision, leveraging 5G for real-time data exchange and process optimisation, while oil & gas prioritises safety and remote operations, utilising 5G to monitor and control equipment in hazardous environment. This underscores the importance of sector-specific knowledge in designing and implementing 5G solutions that are tailored to the unique operational needs of each enterprise sector.


MOVING
FORWARD

MALAYSIA STANDS AT A CRITICAL JUNCTURE IN ITS DIGITAL TRANSFORMATION...

As this progresses, 5G adoption will accelerate, particularly in enterprise implementation across key sectors. This transition demands advanced competencies in connectivity, IoT, edge computing and cybersecurity, extending beyond traditional telecommunications expertise and requiring a structured, forward-looking approach with close collaboration among all stakeholders.

Through comprehensive analysis, the framework identifies **50 critical roles** and **211 prime and power skills** essential for Malaysia's development

The Malaysia 5G Skills Framework serves as a guide for the nation's digital talent ecosystem, identifying the capabilities needed to harness a new generation of connectivity, drive innovation and align workforce priorities. It delivers clear, data-driven insights into the expertise Malaysia must strengthen today to empower enterprises to raise productivity through 5G-driven innovation.

As 5G matures, infrastructure roles remain essential for managing network complexity and densification, while cloud and data centre expertise emerges as foundational for enabling resilient, AI-driven services and edge computing. Cybersecurity capabilities must also be embedded across all 5G infrastructure and services to safeguard trust and mitigate risks in decentralised networks. At the same time, integrated AI, IoT and automation skills are emerging across the value chain, enabling intelligent, real-time enterprise operations.

Enterprise-facing roles, those bridging technical delivery and business strategy, are critical drivers of adoption and innovation. These positions translate advanced connectivity into sector-specific solutions that generate tangible business value. The analysis reinforces this, showing that successful deployment requires technical professionals with business acumen and business leaders with technical fluency to align solutions with enterprise priorities.

The framework also underscores the importance of power skills such as adaptability, collaboration and critical thinking, which are as crucial as technical expertise for effective outcomes. Combined with strong technical, data, automation, and sector-specific capabilities, these human-centric skills transform expertise into practical solutions that deliver enterprise value and operational resilience.

This integrated approach strengthens Malaysia's readiness for technological evolution. The workforce capabilities developed for 5G deployment also lay the foundation for emerging technologies such as 6G networks and immersive platforms. By building adaptive skills alongside technical and commercial expertise, Malaysia establishes a talent base capable of leading next-generation technologies and sustaining competitiveness in the digital economy.

MOVING FORWARD

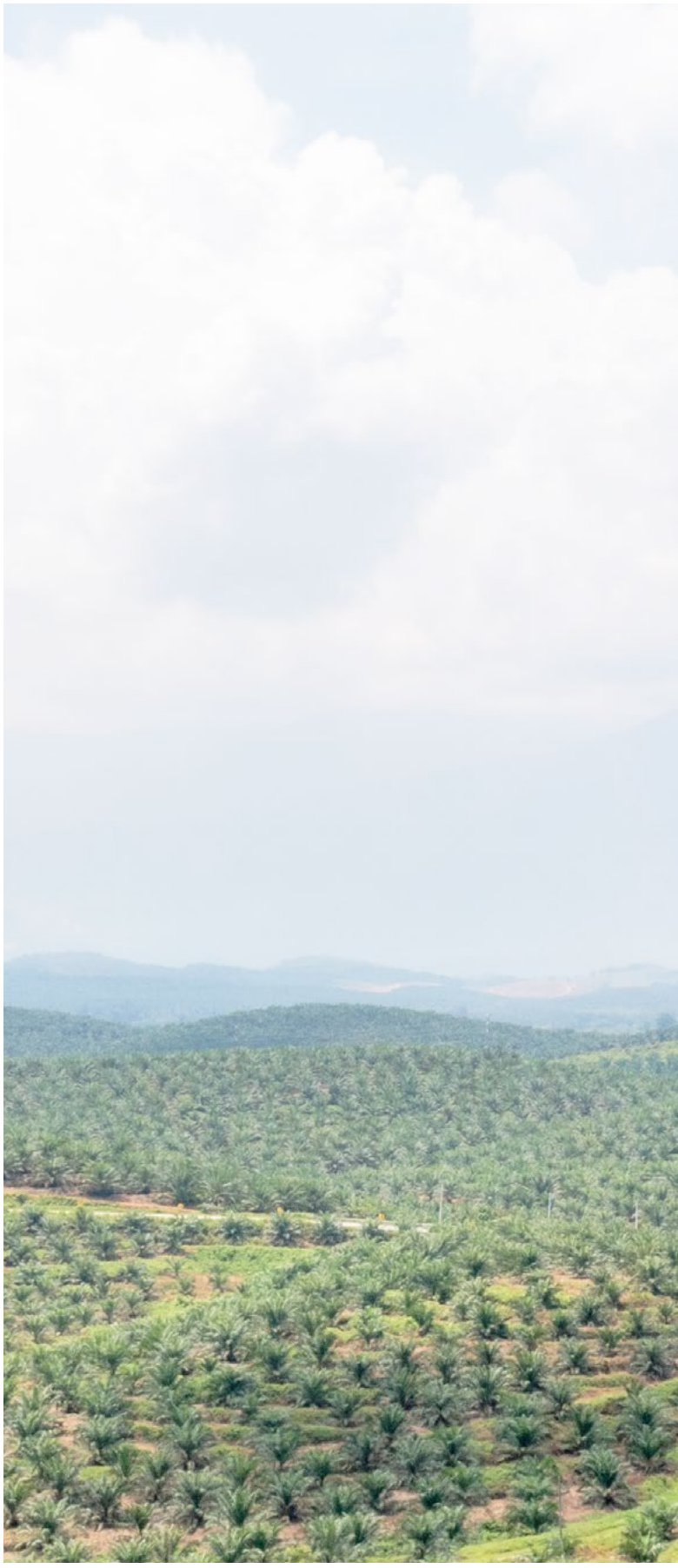
A coordinated national-level awareness campaign led by Malaysian Communications and Multimedia Commission (MCMC), supported by leading technology providers and telecommunications operators, will highlight the critical roles and skills needed to drive 5G adoption across industries. By demonstrating how 5G can enhance enterprise productivity, enable innovative solutions and accelerate digital transformation, the campaign aims to build excitement and engagement across enterprises and the workforce.

While awareness is the first step, MCMC will also embark on an active national program to communicate these findings more broadly. This initiative will showcase 5G's capabilities, the opportunities it creates for enterprises, and the skills required to use the technology effectively. By strengthening understanding of 5G's practical benefits, the program will support higher adoption rates, workforce readiness, and enterprise integration.

Technology providers and operators will play a central role in supporting MCMC through on-the-ground engagement with enterprises and stakeholders. Leveraging their technical expertise and infrastructure, they can provide live demonstrations, pilot projects and hands-on workshops that showcase 5G in real business contexts. These efforts allow enterprises to directly experience benefits such as enhanced connectivity, real-time analytics and improved operational efficiency, helping to build confidence and accelerate adoption.

Building on these national efforts, the next priority is to translate the identified 5G roles and skills into actionable workforce development initiatives at the ASEAN level. This will involve mapping competency frameworks, designing training programs, and establishing certification pathways to equip professionals with the technical and practical skills required for deployment and utilisation. A regional approach will help ASEAN countries collectively address talent gaps, share best practices, and develop a harmonised strategy for workforce readiness, ensuring enterprises can raise productivity, drive innovation and remain competitive in a digital economy.

In parallel, MCMC will continue assessing the broader digital landscape, including the impact of emerging trends such as artificial intelligence and the green economy across telecommunications. This assessment will also cover broadcast, postal and courier services, providing a holistic view of how these sectors are evolving. The ultimate goal is to strengthen all segments of the digital



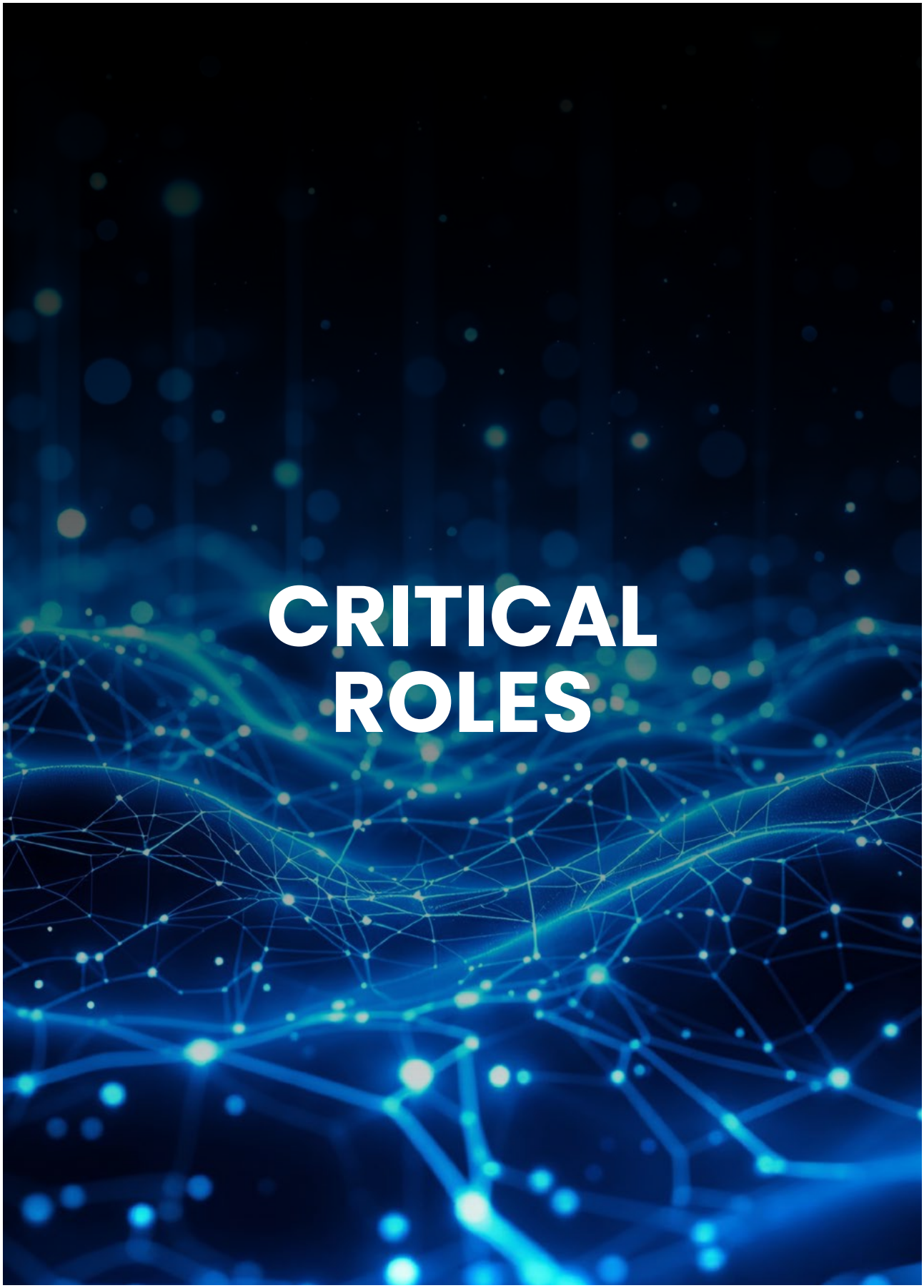
ecosystem through a cohesive strategy that equips the workforce with future-ready skills, enabling Malaysia and the wider region to fully capitalise on transformative trends.

Realising this vision calls for coordinated action across Malaysia's technology ecosystem. Strong collaboration between government, regulators, industry players, enterprises, academia and training providers will be essential to deliver comprehensive and sustainable outcomes.

The Malaysia 5G Skills Framework represents the cornerstone of MCMC's broader vision. Ongoing efforts will expand this approach across the full Communications and Multimedia sector, encompassing telecommunications, broadcasting, postal and courier services. The research will also adopt a regional ASEAN perspective, providing insights into workforce demands while identifying collaborative pathways for shared progress.

Malaysia's systematic approach to developing integrated talent ecosystems that bridge technical mastery with business application creates an advantage. Nations that successfully develop not just infrastructure, but the human capabilities to activate that infrastructure, will lead in the digital economy. Malaysia's comprehensive skills development positions it to be among those leaders.

> "Empowered by 5G, Malaysia's future will be defined not just by connectivity, but by the talent to transform it into innovation and opportunity for all."


CRITICAL
ROLES

Infrastructure (Passive)

Infrastructure (Active) | Services | Devices | Consumers

Role	**INFRASTRUCTURE PROJECT MANAGER**
Job Purpose	Manages the planning, execution and delivery of telecommunications infrastructure projects.
Job Description	1. Plan, coordinate and oversee the execution of telecommunications infrastructure projects, including network expansions, upgrades and new installations. 2. Develop detailed project plans, schedules and budgets, ensuring resources are allocated effectively and milestones are met. 3. Collaborate with engineers, contractors and vendors to ensure technical specifications and quality standards are adhered to throughout the project lifecycle. 4. Manage project risks and issues, implementing mitigation strategies and contingency plans as necessary. 5. Serve as the primary point of contact for project stakeholders, providing regular updates on progress, changes and outcomes. 6. Ensure compliance with industry regulations, safety standards and environmental guidelines for telecommunications projects. 7. Monitor and control project costs, scope and timelines to avoid overruns and ensure successful delivery. 8. Document project processes, decisions and lessons learned to inform future projects and best practices. 9. Lead the handover and transition of completed infrastructure to operational teams for ongoing management and maintenance.

Prime Skills			
Risk Management	Regulatory Compliance	Infrastructure Deployment	Contract Management
Budgeting	Vendor Management	Project Management	Infrastructure Support
Crisis Management	Stakeholder Management	Resourcing	Quality Assurance
Process Automation	Health Safety Environment (HSE)	Sustainability Management	Supplier Management

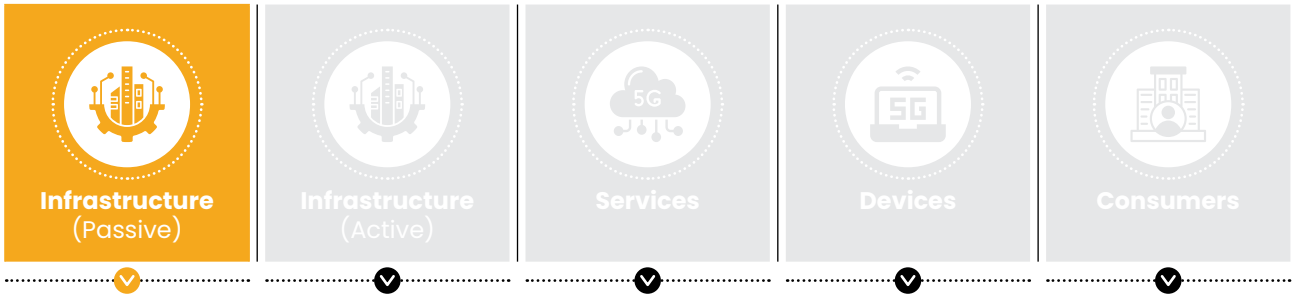
Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Infrastructure (Passive) | Infrastructure (Active) | Services | Devices | Consumers

SITE ACQUISITION SPECIALIST

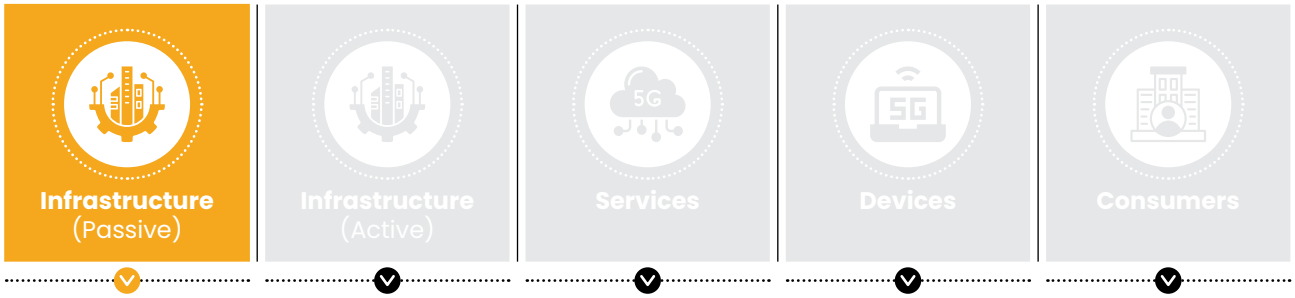
Role	**SITE ACQUISITION SPECIALIST**
Job Purpose	Secures and negotiates locations for telecommunications infrastructure deployment.
Job Description	1. Identify and evaluate potential sites for telecommunications infrastructure, such as cell towers, antennas and related equipment. 2. Negotiate lease agreements, easements and right-of-way permissions with property owners, landlords and government entities. 3. Coordinate with legal, engineering and construction teams to ensure site acquisition complies with zoning laws, regulatory requirements and technical specifications. 4. Manage the due diligence process, including site visits, environmental assessments and title searches. 5. Liaise with local authorities and community stakeholders to obtain necessary permits and approvals for site development. 6. Collaborate with project managers to integrate site acquisition timelines and milestones into overall project plans. 7. Maintain accurate records of site acquisition activities, including contracts, correspondence and documentation of negotiations. 8. Resolve site acquisition challenges, such as legal disputes, permitting delays, or community opposition. 9. Stay current with industry trends, property market conditions and changes in telecommunications regulations that may impact site acquisition. 10. Provide expertise and support to the organisation on matters related to real estate, land use and site development for telecommunications purposes with project managers, engineers and other technicians to ensure timely and efficient completion of projects.
Prime Skills	Stakeholder Management; Vendor Management; Regulatory Compliance; Safety Assessment; Infrastructure Development; Contract Management; Infrastructure Deployment

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)



Role	**TELECOMMUNICATIONS INFRASTRUCTURE DESIGNER**
Job Purpose	Plan, design and analyse telecom infrastructure to support fibre optic and wireless network deployments.
Job Description	1. Design pole-related infrastructure for fibre optic and wireless networks. 2. Use tools like Automated Computer-Aided Design, SPIDAcalc, Power Line Systems – Computer Aided Design and Drafting and Geographic Information System for telecom designs. 3. Create structural models for Gigabit Passive Optical Network/Fibre to the Premises, copper, coax and small cell networks. 4. Conduct site visits for data collection and field measurements. 5. Analyse material properties, dimensions and environmental factors. 6. Coordinate project activities from planning to completion. 7. Prepare clear documentation and design packages for clients and crews. 8. Collaborate with senior analysts and field teams for seamless delivery. 9. Communicate effectively with team members and stakeholders. 10. Continuously learn and contribute to Research and Development (R&D) and process improvements.
Prime Skills	Stakeholder Management; Prototyping; Product Management; Infrastructure Development Budgeting; Data Collection and Analytics; Structural Knowledge; Product Requirements Process Automation; Infrastructure Design; AI in Product Development

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)



Role	**FIBRE OPTIC TECHNICIAN**
Job Purpose	Installs, tests and maintains fibre optic cables and systems to ensure efficient network connectivity.
Job Description	1. Install, terminate and test fibre optic cables and systems in various environments, including residential, commercial and industrial locations. 2. Read and interpret blueprints, diagrams and specifications to ensure proper installation of fibre optic systems. 3. Perform splicing of fibre optic cables using fusion or mechanical techniques and ensure minimal signal loss. 4. Conduct thorough testing and troubleshooting of fibre optic networks to identify and resolve issues such as signal degradation or breaks. 5. Maintain and repair existing fibre optic infrastructure, including cleaning connectors, replacing damaged components and upgrading systems. 6. Use specialised equipment such as optical time-domain reflectometers, power meters and light source tools to measure fibre optic signal strength and quality. 7. Provide technical support and guidance to customers, explaining the capabilities and maintenance of fibre optic systems. 8. Document all installation and repair activities, including test results and site conditions. 9. Adhere to industry standards and safety regulations while performing fibre optic work. 10. Collaborate with project managers, engineers and other technicians to ensure timely and efficient completion of projects.
Prime Skills	Health Safety Environment (HSE) · Fibre Splicing · Testing · System Integration Quality Assurance · Safety Assessment · Infrastructure Deployment · Troubleshooting System Installation / Decommissioning

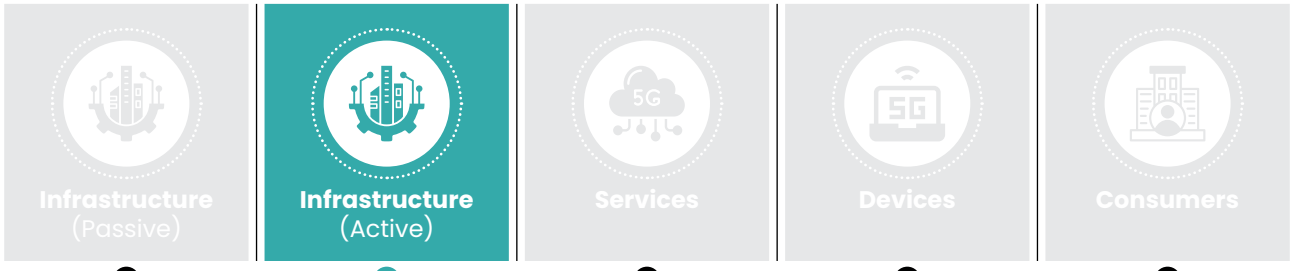
Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

FIBRE OPTIC TECHNICIAN

Role	**RADIO FREQUENCY PLANNING ENGINEER**
Job Purpose	Designs and optimises RF networks using modeling tools, field tests and traffic analysis to maximise coverage and capacity.
Job Description	1. Develop RF network plans, including frequency planning, cell site location and antenna configuration, to meet coverage and capacity requirements. 2. Utilise RF planning tools and software to model and predict network performance. 3. Analyse network traffic data, coverage maps and field test results to optimise network design. 4. Coordinate with cross-functional teams to integrate RF planning with other network development activities. 5. Prepare and maintain documentation for RF network design and planning processes. 6. Conduct site surveys and field tests to validate RF plans and troubleshoot issues. 7. Collaborate with other engineers and technicians to implement RF network enhancements. 8. Monitor and analyse network Key Performance Indicator (KPI)s to ensure network quality and performance standards are met. 9. Stay informed about new RF technologies, industry trends and regulatory changes that may impact network planning. 10. Provide technical support and guidance to junior engineers and other team members.

Prime Skills			
Network Security	System Design	Quality Standards	Network Planning
Infrastructure Design	AI Application	Systems Integration	RF Engineering
Network Configuration	Infrastructure Development	Infrastructure Deployment	
Quality Assurance	Network Design	Infrastructure Strategy	

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)



NETWORK ARCHITECT

Role	**NETWORK ARCHITECT**
Job Purpose	Design and optimise network infrastructure to align with business goals, enhance performance and ensure security.
Job Description	1. Design and develop a high-level network infrastructure blueprint that aligns with the organisation's business goals and technology strategy. 2. Evaluate current network systems and propose enhancements to improve performance, scalability and security. 3. Lead the planning and implementation of network solutions, including hardware selection, software configuration and integration with existing systems. 4. Collaborate with IT management and stakeholders to understand business requirements and translate them into technical network specifications. 5. Create detailed network documentation, including diagrams, standards and operational guidelines. 6. Oversee the testing and deployment of new network architectures, ensuring minimal disruption to business operations. 7. Stay abreast of emerging network technologies and industry trends to guide future network investments and innovations. 8. Provide technical leadership and mentorship to network engineers and support staff. 9. Manage relationships with vendors, service providers and external consultants to ensure high-quality products and services. 10. Lead network security initiatives, assessing risks and implementing measures to protect the organisation's data and systems.
Prime Skills	Network Security; System Design; Strategy Planning; Network Optimisation Infrastructure Deployment; AI Application; Threat Intelligence and Detection; Security Architecture Network Administration and Maintenance; Infrastructure Development; Emerging Technology Monitoring Quality Assurance; Network Configuration; Infrastructure Design

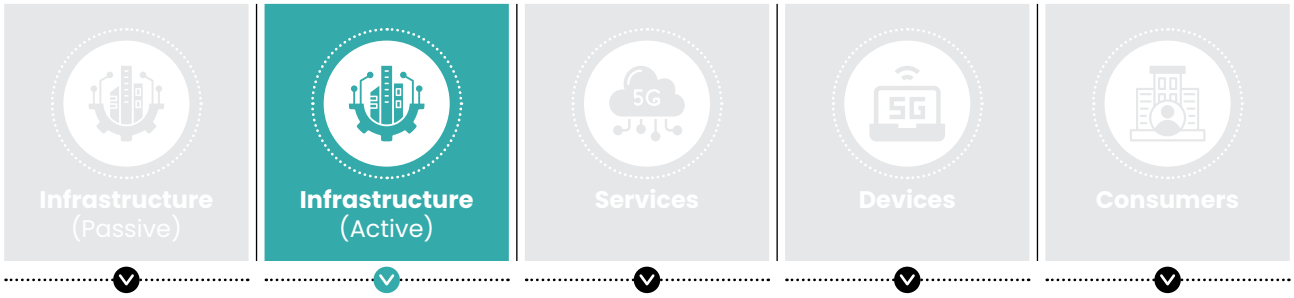
Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Infrastructure (Passive) | **Infrastructure (Active)** | Services | Devices | Consumers

Role	**OPTIMISATION ENGINEER**
Job Purpose	Designs, analyses and optimises RF systems for efficient communication and signal integrity.
Job Description	1. Design and develop RF systems and components such as antennas, transmitters, receivers and amplifiers. 2. Perform complex RF engineering tasks including simulation, modeling and analysis to optimise system performance. 3. Conduct field tests and measurements to evaluate signal strength, coverage and interference issues. 4. Collaborate with cross-functional teams to integrate RF systems into telecommunications and other electronic products. 5. Troubleshoot and resolve RF-related issues during product development and post-deployment. 6. Prepare technical documentation, including design specifications, test procedures and operational manuals. 7. Stay abreast of the latest RF technologies, industry trends and regulatory changes. 8. Provide technical guidance and support to junior engineers and technical staff. 9. Manage RF projects, ensuring they meet technical requirements, deadlines and budget constraints. 10. Participate in professional development opportunities to maintain expertise in RF engineering and related fields.

Prime Skills			
Failure Analysis	Testing	Regulatory Compliance	Quality Assurance
Edge Computing	Network Security	Troubleshooting	Test Planning
Infrastructure Deployment	Infrastructure Support	AI Application	
Network Optimisation	Network Administration and Maintenance	Infrastructure Development	
RF Engineering	Network Planning	Network Configuration	

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)



SYSTEMS ENGINEER

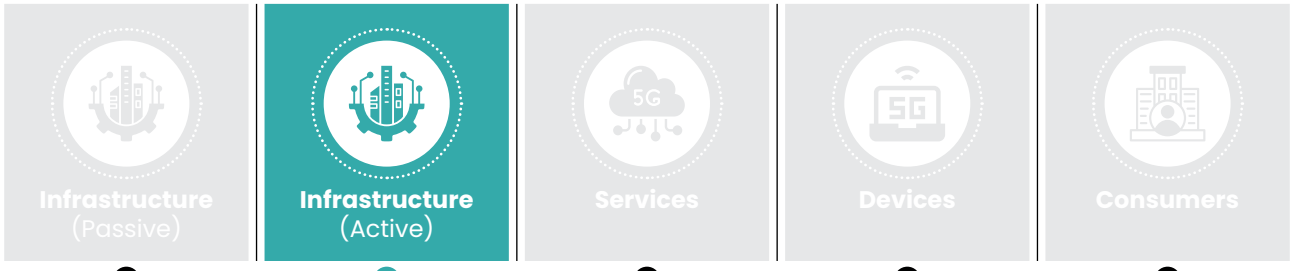
Role	**SYSTEMS ENGINEER**
Job Purpose	Define and develop product and feature requirements, conduct system and performance analyses and engage with customers on 4G/5G call processing and air interface technologies.
Job Description	1. Responsible for developing product requirements, feature requirements, systems and performance analysis and conducting deep-dive customer sessions on 5G Call processing-related features and air interface technologies. 2. Analysing the customer requirements, converting them into system requirements and capturing detailed design for the development team for product features. 3. Responsible for leading all technical discussions on products/scheduler-related features with several customer vertical organisations, including 5G RAN Development groups and RAN performance. 4. Author technical proposals, Technical research and white papers, design documents, Operator network design, Request for Information/Request for Proposal and Patent filings. 5. Aid in product and feature performance analysis, evaluation of new product and software releases and third-party product evaluation to build product synergies. 6. Accountable for leading field integration testing efforts of all 5G key features with customers, including test plan development, reviewing test plan with customers, driving cross-functional teams to execution, review of test results, issue identification, analysis and quality proofing until software acceptance is achieved. 7. Responsible for Tier3 support, analysing and troubleshooting scheduler related issues reported from customer labs, field sites and production network. 8. Review and provide recommendations to improve Long-term Evolution (LTE) RAN network performance by evaluating. and trending key KPIs, performing trials and providing optimisation guidelines.
Prime Skills	AI Application; Troubleshooting; Test Planning; Quality Assurance Infrastructure Development; Contract Management; Vendor Management; Testing Network Configuration; Infrastructure Support; Infrastructure Deployment System Integration; Network Optimisation; Network Administration and Maintenance

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**5G WIRELESS NETWORK ENGINEER**
Job Purpose	Researches and optimises the security and performance of 5G network implementations.
Job Description	1. Research and assess the security measures implemented in 5G networks. 2. Contribute to the development and optimisation of secure and efficient 5G solutions. 3. Collaborate with multidisciplinary teams to ensure the proper integration of security solutions into 5G networks. 4. Develop technical documentation and reports related to network and cybersecurity evaluations. 5. Participate in innovation initiatives and knowledge-sharing activities on 5G technology and security.

Prime Skills			
Security Monitoring	Security Education and Awareness	Security Architecture	Information Security
Infrastructure Deployment	Network Security	Security Programme Management	Security Administration
Security Assessment and Testing	Infrastructure Development	AI Application	

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)



TRANSMISSION ENGINEER

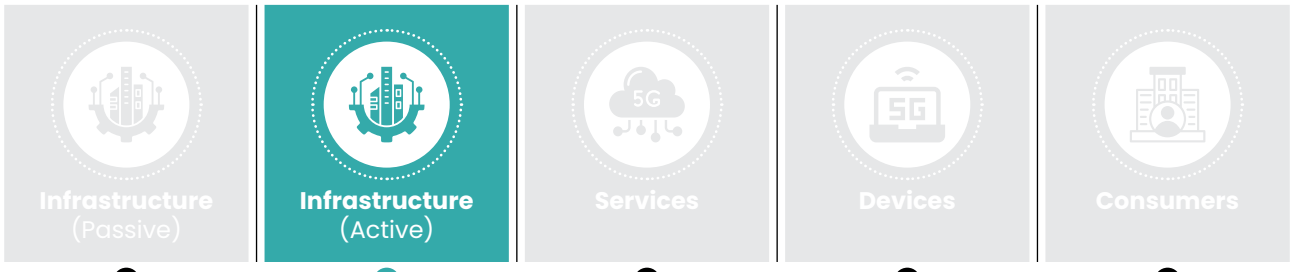
Role	**TRANSMISSION ENGINEER**
Job Purpose	Designs, plans and optimises networks for high-performance and cost-effective deployment.
Job Description	1. Design and develop fibre optic network architectures, including backbone, distribution and access networks. 2. Perform detailed calculations to determine the most efficient and cost-effective fibre routes. 3. Prepare technical drawings, schematics and documentation for fibre optic network installations. 4. Coordinate with cross-functional teams, including field technicians and project managers, to ensure successful deployment of fibre networks. 5. Conduct site surveys to assess the environment and plan fibre layout in accordance with physical and regulatory constraints. 6. Oversee the testing and commissioning of fibre optic systems, ensuring compliance with industry standards and performance criteria. 7. Troubleshoot complex network issues and provide technical support for resolution of fibre-related problems. 8. Manage fibre optic projects from conception through to completion, including budgeting, resource allocation and timeline management. 9. Stay abreast of emerging fibre optic technologies and industry developments to incorporate best practices into network design. 10. Liaise with vendors and suppliers to select appropriate fibre optic materials and equipment for projects.
Prime Skills	Network Security; Testing; Supplier Management; Resourcing Infrastructure Development; Budgeting; Troubleshooting; Test Planning Internet Protocol (IP); Infrastructure Design; Infrastructure Deployment; Vendor Management Strategy Planning; Network Configuration; Infrastructure Support

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**NOC ENGINEER**
Job Purpose	Manages network performance, troubleshooting and system improvements in the NOC.
Job Description	1. Monitor and maintain the NOC infrastructure to ensure optimal network performance and availability. 2. Troubleshoot and resolve complex network issues, escalating to higher-level support or engineering teams as necessary. 3. Implement and manage network monitoring tools and systems to proactively detect and address potential problems. 4. Coordinate with IT and network teams to execute network changes, updates and maintenance activities. 5. Analyse network data and generate reports on performance metrics, incident trends and capacity planning. 6. Develop and maintain NOC documentation, including network diagrams, procedures and incident logs. 7. Participate in the design and enhancement of NOC processes and workflows to improve efficiency and response times. 8. Provide technical support and guidance to NOC technicians and other staff members. 9. Stay current with emerging network technologies and industry best practices to recommend improvements to the NOC environment.
Prime Skills	Stakeholder Management; Quality Assurance; System Integration; Troubleshooting AI Application; Data Collection and Analytics; Network Security Network Configuration; Infrastructure Support; Network Administration and Maintenance

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

CLOUD CORE NETWORK ENGINEER



Role	**CLOUD CORE NETWORK ENGINEER**
Job Purpose	Design, implement and analyse Core Network areas.
Job Description	1. Responsible to plan, implement, integrate, migrate and perform acceptance test for Core network areas including Circuit-Switched, Packet-Switched/Evolved Packet Core, IP Multimedia Subsystem, Voice over LTE, Voice over WiFi, Voice over BB, Home Location Register, Signal Transfer Point, Policy and Charging Rules Function, Network Functions Virtualisation, IoT. 2. To analyse network performance, resolve complex network problem and optimise network architecture. 3. As technical point of contact for engineering team, customer and vendor. 4. To engage directly with marketing team, project team and customer for the purpose of promoting and delivering strategic services.

Prime Skills				
	AI Application	Testing	Network Optimisation	Network Design
	Infrastructure Development	Cloud Computing	Troubleshooting	Network Planning
	Network Configuration	Infrastructure Design	Infrastructure Deployment	Vendor Management

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**CLOUD SECURITY ARCHITECT**
Job Purpose	Design and implement secure cloud architectures for various cloud platforms.
Job Description	1. Develop and enforce security policies and procedures for cloud environments. 2. Conduct security assessments and audits of cloud infrastructure and applications. 3. Collaborate with IT and development teams to integrate security into cloud based projects and deployments. 4. Monitor and respond to security incidents and threats in the cloud environment. 5. Provide guidance and training on cloud security best practices to internal teams. 6. Conduct detailed risk assessments of cloud environments, including the evaluation of security controls for third-party services and implement risk mitigation strategies based on threat modeling and vulnerability analysis. 7. Stay updated with emerging security threats, technologies and trends to continuously improve cloud security strategies and architecture.

Prime Skills			
Risk Management	Threat Intelligence and Detection	Infrastructure Development	Infrastructure Deployment
Security Monitoring	Risk Modelling and Validation	Security Architecture	Security Administration
Cyber and Data Breach Incident Management	AI Application	Risk Governance	Security Assessment and Testing
Infrastructure Design	DevSecOps	Cloud Computing	

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

CLOUD INFRASTRUCTURE ENGINEER

Role	**CLOUD INFRASTRUCTURE ENGINEER**
Job Purpose	Design and implement secure cloud architectures for various cloud platforms.
Job Description	1. Determine user requirements and design specifications for cloud based (Amazon Web Services, Digital Ocean,) Infrastructure as a Service (IaaS) systems. 2. Design and maintain operating system backup solutions for system recovery and disaster recovery. 3. Develop business applications on cloud-based services, with a special emphasis on OpenStack utilising leading edge technologies and frameworks. 4. Develop and manage the Cloud core systems in IT Services. 5. Be involved in the build and extend of our cloud services that span IaaS across the global data centres public cloud providers. 6. Interface with business units, architects, project managers and subject matter experts to understand and evaluate/translate business requirements into technical solutions. 7. Be a technical expert to help internal customers & teams to consume standard cloud services. 8. Participate and assist in setting the long-term direction, roadmaps and standards for technical solutions, ensuring they align to the overall enterprise architecture. 9. Help to engineer solutions that provide infrastructure as code for re-use. 10. Provide systems and application administration for multiple cloud, hosted and Linux systems.
Prime Skills	Cloud Computing; Quality Standards; Information Security; Database Design Data Engineering; AI Management; Troubleshooting; Infrastructure Design Disaster Recovery Management; Data Modelling and Design; Cyber Risk Management

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**CLOUD APPLICATIONS ENGINEER**
Job Purpose	Design, deploy and configure solutions in the cloud.
Job Description	1. Working with customer to understand their current state from infra, applications, database, Application Programming Interface (API)s to allow you to come out with future state of cloud environment. 2. Hands on to delivery in implementation owning the architecture design and planning. 3. To craft cloud strategy, conduct cloud migration assessment, present the outcome. 4. Design and automate cloud operations, develop infrastructure automation scripts and participates in the continuous improvement of cloud solutions. 5. Participate in the specification, setup and run POCs and demonstrations of cloud solutions.

Prime Skills			
Risk Governance	Software Configuration	Infrastructure Strategy	AI Management
Security Monitoring	Test Planning	Security Administration	Infrastructure Deployment
Agile Software Development	Risk Management	Software Design	Process Automation
Cyber and Data Breach Incident Management	Software Testing	Testing	Security Assessment and Testing
Infrastructure Development	Cloud Computing	Risk Modelling and Validation	Threat Intelligence and Detection
Quality Assurance	DevSecOps	Solution Architecture	

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

SOC VAPT MANAGER

Role	**SOC VAPT MANAGER**
Job Purpose	Identify, assess and mitigate security vulnerabilities through penetration testing and risk analysis.
Job Description	1. Assist in the development of cyber security standards, policies and best practices. 2. Conduct reviews and assessment of existing security policies, procedures, standards and exceptions. 3. Assist in establishing certification-based policies for maintaining compliance to cyber security standards. 4. Provide inputs on security penetration testing in the development of software and applications. 5. Review software designs, source codes and deployment to address cyber security issues. 6. Perform on-site security assessments of infrastructure components and computer systems. 7. Carry out scoping activities to identify systems components which require testing. 8. Identify emerging security and risk management trends, issues and alerts in VAPT activities. 9. Define and translate requirements into test plans, scenarios, scripts or procedures. 10. Conduct VAPT, black box and code reviews and reverse engineering.

Prime Skills			
Security Monitoring	Security Assessment and Testing	Infrastructure Development	Cyber and Data Breach Incident Management
Network Security	Threat Intelligence and Detection	Security Programme Management	Infrastructure Support
DevSecOps	Risk Governance	Security Architecture	Security Administration
Penetration Testing	Threat Analysis and Defence	Risk Management	Security Governance

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**5G CYBERSECURITY SPECIALIST**
Job Purpose	Design, implement and manage robust cybersecurity measures across the 5G ecosystem.
Job Description	1. Design and implement cybersecurity measures for 5G networks. 2. Monitor and respond to emerging 5G threats and vulnerabilities. 3. Conduct risk assessments and threat modeling for RAN, Core and Transport. 4. Ensure compliance with national standards. 5. Perform penetration testing and vulnerability scans on 5G infrastructure. 6. Develop and lead incident response plans for 5G security events. 7. Collaborate with engineers to embed security in 5G architecture. 8. Evaluate and implement encryption and authentication protocols. 9. Create and enforce 5G security policies and best practices. 10. Deliver cybersecurity training and track evolving 5G threat trends.

Prime Skills				
	Network Security	Cyber Risk Management	Penetration Testing	Infrastructure Development
	Cyber and Data Breach Incident Management	Security Strategy	Security Architecture	Regulatory Compliance
	Infrastructure Design	Emerging Technology Monitoring	AI Application	Security Governance

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**4G/5G CORE NETWORK ENGINEER**
Job Purpose	Develops, integrates and troubleshoots core network functionalities for 4G and 5G.
Job Description	1. Develop, deploy and optimise 4G Voice over LTE, 5G Network Core & roaming functionality. 2. Integrate and configure network systems and simulation tools with back-end 4G, 5G network elements. 3. Provide technical systems engineering support to assist with Evolved NodeB, Next Generation NodeB 4G/5G network core deployments. 4. Analyse Evolved Packet Core network performance and investigate the root cause(s) of performance degradations. 5. Perform on demand analysis of specific core network issues (new performance degradation, customer complaints, etc.). 6. Develop and integrate health and signal spectrum analysis monitoring and automation. 7. Buildout lab for RAN and radio technologies, integration with evolved packet core to perform testing in different scenarios. 8. Carry out demonstration project design, setup and presentation. 9. Collect Wireshark traces identify/troubleshoot root cause(s) of core network issues.
Prime Skills	Network Virtualisation; System Design; Network Optimisation; Infrastructure Design Infrastructure Deployment; AI Application; System Integration; Process Automation Infrastructure Development; Network Design; Cloud Computing; Security Programme Management

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Infrastructure (Passive)	**Infrastructure (Active)**	Services	Devices	Consumers

Role	**INBUILDING DAS TECHNICIAN**
Job Purpose	Designs, plans and deploys DAS solutions.
Job Description	1. Design, implement and maintain DAS to enhance wireless communication coverage and capacity within various environments. 2. Interpret iBwave files. 3. Prepare detailed documentation, including system designs, installation plans, as built drawings and technical reports. 4. Stay updated with industry trends, standards and regulations related to DAS engineering and wireless communication. 5. Ensure compliance with local building codes, safety regulations and relevant wireless communication standards. 6. Collaborate with regulatory bodies or third-party organisations to obtain necessary permits or certifications for DAS installations.
Prime Skills	AI Application, Test Planning, System Integration, Infrastructure Development Infrastructure Design, Infrastructure Deployment, Testing, System Design

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

AUTOMATION, AI AND ORCHESTRATION ENGINEER

Infrastructure (Passive)	**Infrastructure (Active)**	Services	Devices	Consumers

Role

AUTOMATION, AI AND ORCHESTRATION ENGINEER

Job Purpose

Enhance the efficiency and reliability of network infrastructure through the development and deployment of software and automation and orchestration tools.

Job Description

1. Design, develop and implement automation workflows to streamline network operations and processes.
2. Collaborate with network engineering teams to identify opportunities for automation, ensuring alignment with business objectives and network architecture standards.
3. Perform rigorous testing of automation scripts and tools in a lab environment before deployment in production to ensure reliability and efficiency.
4. Manage and maintain the network automation infrastructure, including version control systems and automation servers, to ensure high availability and performance.
5. Develop custom scripts to automate data collection for network performance monitoring and generate reports for analysis by the network operations team.
6. Orchestrate the provisioning-related activities involved in the fulfilment of customer orders or service control requests.
7. Implement security practices within automation workflows to safeguard network data and infrastructure from unauthorised access or breaches.
8. Troubleshoot and resolve issues within automated processes, applying debugging tools and techniques to ensure minimal disruption to network services.
9. Document automation processes, including code comments, user manuals and operational procedures, to ensure knowledge transfer and adherence to best practices within the team.

Prime Skills

Network Slicing	Process Automation	Network Design	Infrastructure Support
Infrastructure Deployment	Troubleshooting	Network Planning	Network Optimisation
Network Analytics	Data Collection and Analytics	Quality Assurance	Network Support
Network Orchestration and Automation	Infrastructure Development	AI Application	System Design

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

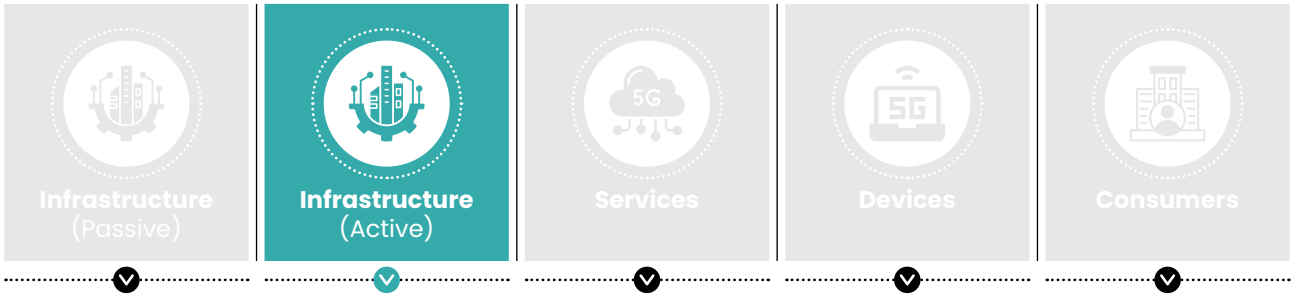
Role	**DATA CENTRE ARCHITECT**
Job Purpose	Design and develop advanced data centre infrastructures, integrating telecommunications systems and hyperscale architectures to deliver scalable, high-performance and resilient solutions.
Job Description	1. Lead the design and development of data centre infrastructures, including the integration of telecommunications systems and hyperscale architectures. 2. Collaborate with internal teams and external stakeholders to understand project requirements and objectives. 3. Conduct thorough analysis and evaluation of project specifications, site conditions and technical constraints to inform design decisions. 4. Develop comprehensive architectural plans, schematics and specifications for data centre projects, ensuring alignment with industry best practices and standards. 5. Utilise your expertise in telecommunications systems to design robust network connectivity solutions that meet the data transfer and communication needs of the data centre environment. 6. Incorporate hyperscale technologies and methodologies into the architectural design, optimising for scalability, efficiency and performance.
Prime Skills	Solution Architecture; Quality Assurance; IT Strategy; Data Engineering Big Data Analytics; Sustainability Management; Quality Standards; Prototyping Emerging Technology Monitoring; Budgeting; Data Collection and Analytics; System Design

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

DATA CENTRE NETWORK ENGINEER

Role	**DATA CENTRE NETWORK ENGINEER**
Job Purpose	Design, implement, secure and optimise complex network infrastructures that support data centre operations and enterprise connectivity.
Job Description	1. Establish networking environment by designing network configuration, directing, implementing network infrastructure, defining, documenting and enforcing standards. 2. Improve network performance by monitoring, troubleshooting and reviewing network problems and outages and collaborating with Network Service partners and Business Unit to recommend and inspire changes for network optimisation. 3. Secures network infrastructure by defining and establishing policies, in conjunction with the Security and other partner teams. 4. Plan and coordinate the implementation of network technologies, solutions and automations in support of defined requirements generated by internal customers, industry directions and growth demands. 5. Plan and facilitate highly complex network and automation upgrades and migration activities. 6. Perform analysis and diagnosis of highly complex network and automation problems. 7. Generates operational documentation including detailed test plan for highly complex networks. 8. Assist with deployment and strategy of tools and related Network Management Systems. Help with developing tools set to manage and maintain enterprise network. 9. Produce method of procedures that demonstrate understanding of changes proposed and how the change will be driven with minimal service impact.
Prime Skills	IT Governance, Testing, IT Standards, Capacity Management Cloud Computing, Network Slicing, Troubleshooting, Network Configuration Data Engineering, Big Data Analytics, Data Collection and Analytics

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)



Role	**DATA CENTRE SECURITY SPECIALIST**
Job Purpose	Coordinate and support day-to-day security operations within assigned data centres to ensure alignment with established security policies, standards and procedures.
Job Description	1. Coordinate the day-to-day security activities for your assigned data centre(s) under the guidance of an experienced manager. 2. Assess vendor compliance, based on the established work order, track service deliverables and escalate corrective actions to a senior team member as needed. 3. Provide support to all vendors within the data centre. 4. Conduct inspections, audits and reviews in your area of responsibility and ensure compliance with AWS security standards and policies. 5. Lead the media security requirements within the data centre. 6. Participate in regular meetings with vendors, data centre operations and other partner teams to accomplish operational consistency. 7. Effectively communicate with partner teams when providing awareness of security policies and procedures. 8. Troubleshooting Security Devices in conjunction with the local Security System Integrator.

Prime Skills			
IT Governance	Security Monitoring	Troubleshooting	Security Governance
Security Strategy	Threat Analysis and Defence	Network Security	Threat Intelligence and Detection
Cyber Risk Management	DevSecOps	Cyber and Data Breach Incident Management	
Security Administration	Security Architecture	Information Security	
Security Programme Management	Security Assessment and Testing	Penetration Testing	

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

DATA CENTRE CRITICAL FACILITIES ENGINEER

Role	**DATA CENTRE CRITICAL FACILITIES ENGINEER**
Job Purpose	Performs and oversees preventive and corrective maintenance, switching operations and emergency response in compliance with regulations and internal standards.
Job Description	1. Ensure the proper functioning, upkeep and preventive maintenance of electrical systems in compliance with Energy Commission Malaysia regulations. 2. Perform switching operations on high and low voltage electrical systems. 3. Handle preventive and corrective maintenance tasks on critical facility systems. 4. Resolve advanced incidents and develop new procedures to improve team operations and system support. 5. Manage complex Building Management System alarms requiring independent action and initiative. 6. Implement energy efficiency measures and identify opportunities for optimisation in facility operations. 7. Oversee and inspect the operation and maintenance of fire suppression and life-safety systems. 8. Assist in the development of project scopes for life-cycle maintenance, end-of-life infrastructure projects and critical replacements. 9. Support the approval and tracking of vendor maintenance work, ensuring compliance with standard operating procedures. 10. Manage site logs, respond to incidents, identify Single Points of Failure, collaborate to resolve issues and recommend infrastructure improvements.
Prime Skills	Failure Analysis; Safety Assessment; Crisis Management; Risk Modelling and Validation; Sustainability Management; Risk Management; Systems Installation / Decommissioning; Disaster Recovery Management

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**DATA CENTRE OPERATIONS ENGINEER**
Job Purpose	Oversees data centre reliability, disaster recovery and operational efficiency.
Job Description	1. Oversee the execution of disaster recovery drills and exercises and simulate incidents to diagnose and resolve escalated data centre-related incidents. 2. Develop disaster recovery plans for data centre operations. 3. Oversee resolution of data centre-related incidents involving vendors and analyse incidents to determine patterns and propose recommendations to prevent future occurrences. 4. Optimise the interfaces between the IT equipment and data centre. 5. Identify best practices in data centre operations and management for adoption and recommend enhancements to improve availability and performance. 6. Conduct short- and long-term planning to meet organisation's requirements and business needs. 7. Conduct technical feasibility studies to determine viability, cost, time required and compatibility with organisational needs and requirements. 8. Manage the development of service-level objectives and targets. 9. Monitor service level objectives to ensure that requirements are met or exceeded.
Prime Skills	Data Governance, Vendor Management, Incident Management, Testing AI Application, Data Security, Data Engineering Disaster Recovery Management, Data Modelling and Design, Data Protection

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**DEVSECOPS ENGINEER**
Job Purpose	Secures the software development lifecycle by integrating security into telecom applications.
Job Description	1. Implement and manage security measures across the software development lifecycle in telecommunications. 2. Analyse and respond to security threats and vulnerabilities in telecommunications systems. 3. Automate security processes and integrate security tools into the business pipeline. 4. Ensure secure and compliant deployment of telecommunications applications and infrastructure. 5. Incorporate security management and privacy requirements into telecommunications hardware, software and applications. 6. Collaborate with development, operations and security teams to enhance the security posture of telecommunications systems.

Prime Skills			
Data Security	Threat Intelligence and Detection	Security Strategy	Security Governance
DevSecOps	Cyber Risk Management	Regulatory Compliance	Threat Analysis and Defence
Security Administration	Penetration Testing	AI Application	
Security Programme Management	Security Architecture	Process Automation	

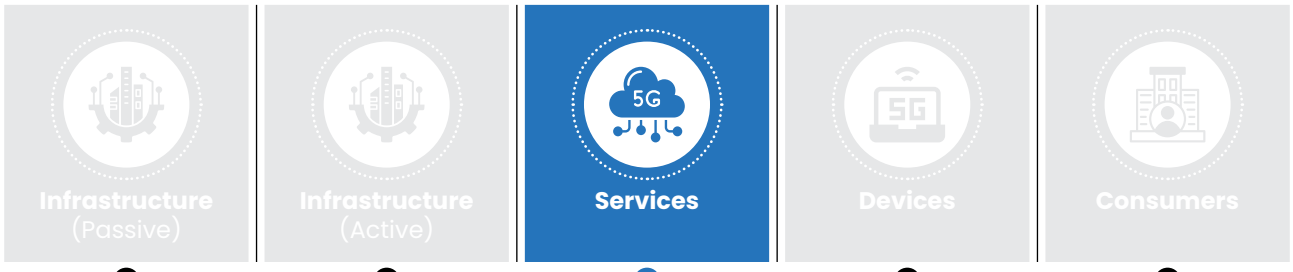
Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

DEVSECOPS ENGINEER

Role	**SECURITY ARCHITECT**
Job Purpose	Design and implement security frameworks to ensure compliance, resilience and protection of IT infrastructure.
Job Description	1. Define the alignment of security governance with enterprise architecture governance and oversee the translation of the security architecture to solutions. 2. Ensure compliance with enterprise and IT security policies and industry regulations. 3. Contribute to the alignment of security governance with enterprise architecture governance. 4. Analyse, evaluate and develop secure solutions based on approved security architectures. 5. Ensure adequate security solutions are in place throughout all IT systems and platforms. 6. Analyse cost versus benefits, risks, impact and technology priorities and identify and propose variances to the architecture to accommodate project needs. 7. Analyse the current architecture to identify weaknesses and develop opportunities for improvement. 8. Assist in post-implementation and continuous improvement efforts to enhance performance and provide increased functionality. 9. Ensure compatibility with existing solutions, infrastructure, services and strategic requirements. 10. Participate in ecosystem strategy development, environment analysis and opportunity identification.
Prime Skills	Data Security; Software Security; Security Monitoring; Security Architecture Cyber Risk Management; AI Application; Threat Analysis and Defence; Security Programme Management Network Security; Data Collection and Analytics; Continuous Integration and Continuous Deployment; Threat Intelligence and Detection Security Governance; Regulatory Compliance; Enterprise Architecture

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

IOT SOLUTIONS ARCHITECT



Role	**IOT SOLUTIONS ARCHITECT**
Job Purpose	Design and implement comprehensive, scalable and secure IoT (Internet of Things) solutions for business.
Job Description	1. Develop and implement end-to-end IoT solutions that are scalable, reliable and secure. 2. Collaborate with clients and stakeholders to understand business requirements and design IoT. 3. Architectures that leverage device, edge and cloud technologies. 4. Collaborate with project managers and software developers to ensure IoT solutions are delivered on time and within budget. 5. Work with technical teams to troubleshoot and resolve issues related to IoT solutions. 6. Stay up-to-date with emerging trends and technologies in IoT, device, edge and cloud. 7. Build IoT Practice Team, Frameworks, Standard Methodologies & Solutions that can be reused for multiple customer across industrial segments.

Prime Skills			
Embedded Systems Programming	Troubleshooting	Requirements Definition and Management	Solution Architecture
Emerging Technology Synthesis	Edge Computing	Embedded Systems Integration	
Embedded Systems Interface Design	AI Application	AI in Product Development	
Networking Protocols	Data Collection and Analytics	Emerging Technology Monitoring	

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**IOT SYSTEMS ENGINEER**
Job Purpose	Design, implement, maintain and optimise IoT (Internet of Things) systems and solutions.
Job Description	1. Develops, creates and modifies general computer applications software or specialised utility programs. 2. Analyses user needs and develops software solutions. Designs software or customises software for client use with the aim of optimising operational efficiency. 3. Modifies existing software to correct errors, allow it to adapt to new hardware, or to improve its performance. 4. Analyses user needs and software requirements to determine feasibility of design within time and cost constraints. 5. Experience in IoT product design and development with hands on experience for Multimedia and AI/ML software. 6. Familiarity with IoT reference platforms and customisation of platforms for end use case. 7. Familiarity with open-source architectures and software development. 8. Stores, retrieves and manipulates data for analysis of system capabilities and requirements. 9. Designs, develops and modifies software systems, using scientific analysis and mathematical models to predict and measure outcome and consequences of design.
Prime Skills	Computational Modelling; Software Design; Product Design and Development; Application Integration Agile Software Development; AI Application; Software Testing; Software Configuration Data Modelling and Design; AI Management; AI in Product Development; System Integration

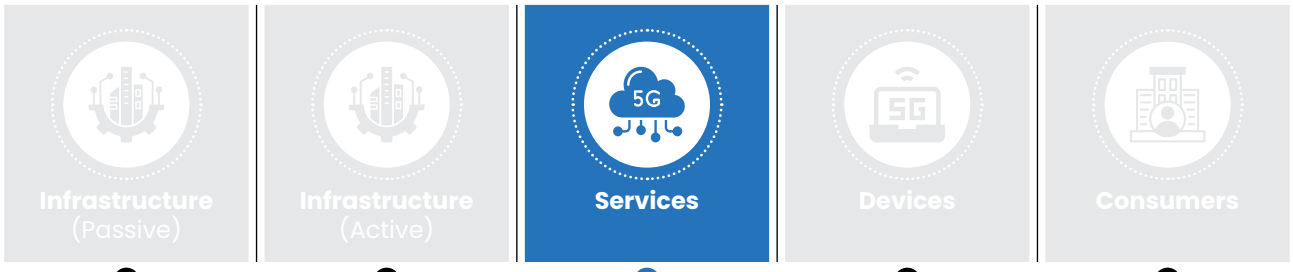
Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

IOT SOFTWARE ENGINEER

Role	**IOT SOFTWARE ENGINEER**
Job Purpose	Design, build and implement software solutions for Internet of Things (IoT) devices and systems.
Job Description	1. Developing software systems for collecting, storing and analysing data generated by IoT devices to extract meaningful insights. 2. Implementing secure and efficient communication protocols to enable IoT devices to interact with each other and with cloud services. 3. Ensuring the security and privacy of data transmitted and processed by IoT devices to protect against cyber threats. 4. Testing IoT software systems, identifying and resolving issues and optimising performance. 5. Integrating IoT solutions into existing infrastructure or other IoT ecosystems to create comprehensive, interconnected systems.

Prime Skills			
Data Security	Firmware Development	Embedded Systems Interface Design	AI Application
Database Design	Testing	Data Management	Data Collection and Analytics
AI in Product Development	Embedded Systems Programming	Networking Protocols	Device Integration
Data Modelling and Design	Embedded Systems Integration	Real-time/ Embedded Systems Development	System Integration

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)



Role	**BUSINESS STRATEGY AND MODELLING**
Job Purpose	Drive strategic growth beyond core business by providing robust modelling, analysis and strategic insights across high-priority initiatives.
Job Description	1. Responsible to drive priority strategic projects to generate new revenue sources (beyond core), including the management of the entire end-to-end process. 2. Evaluation of new business ideas / proposals. 3. Exploration with external parties – strategic external partnership opportunities. 4. Development of entire concept until early execution. 5. To lead key work streams under 5G projects, which includes 5G-related mergers and acquisition (e.g. Spectrum Sharing Agreements), 5G wholesale operations, 5G dual network transition and 5G use case development. This will include stakeholder engagement across all levels. 6. To support and drive performance management, this includes analysis of performance indicators of business lines and where necessary, identifying initiatives to improve topline performance and overall cost structure (Operational Efficiency, structural cost initiatives). 7. To develop long term (3-5year) strategic direction, which includes leading workshops and discussions across various strategic topics. Also responsible for further developing and executing key strategic projects / initiatives resulting from Board of Directors discussions.

Prime Skills			
Emerging Technology Synthesis	Market Trend Analysis	Data Storytelling and Visualisation	Business Process Testing
Business Innovation	Strategy Planning	IT Strategy	Change Implementation Planning and Management
Business Needs Analysis	Organisational Analysis	Stakeholder Management	Data Modelling and Design
Continuous Improvement and Process Re-engineering	Continuous Integration and Continuous Deployment	Revenue Analysis	Market Research
Demand and Supply Analysis	Business Process Improvement	AI Application	Strategy Implementation
Emerging Technology Monitoring	Continuity Management	Business Development	

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

CUSTOMER & MARKET INSIGHTS ANALYST

Role	**CUSTOMER & MARKET INSIGHTS ANALYST**
Job Purpose	Analyses B2B customer data and behaviors to drive strategic decisions in telecommunications.
Job Description	1. Analyse B2B customer data specific to the telecommunications industry, including usage patterns, service preferences and satisfaction levels. 2. Utilise advanced analytics and statistical methods to segment customers and predict behaviors such as churn, upsell opportunities and service adoption. 3. Collaborate with cross-functional teams, including marketing, sales and product development, to leverage customer insights for targeted campaigns and product enhancements. 4. Monitor and assess the impact of telecommunications market trends on customer behavior and expectations. 5. Develop and maintain dynamic reports and dashboards that provide actionable insights into customer demographics, behaviors and lifecycle stages. 6. Conduct customer journey mapping to identify key touchpoints and opportunities for improving the customer experience. 7. Design and implement customer surveys, focus groups and other research initiatives to gather qualitative insights. 8. Provide data-driven recommendations to inform customer retention strategies and loyalty programs. 9. Communicate complex analytical findings to non-technical stakeholders in a clear and compelling manner. 10. Support the creation of personalised customer communications and offers based on data-driven segmentation and profiling.
Prime Skills	AI Application; Product Management; Market Research; Emerging Technology Monitoring Customer Profiling; Customer Behaviour Analysis; Product Performance Management; Predictive Modelling Market Trend Analysis; Data Storytelling and Visualisation; Customer Experience Management; Requirements Definition and Management

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**PRESALES SOLUTION ARCHITECT (INDUSTRY VERTICAL)**
Job Purpose	Deliver tailored ICT solutions to customers across various industry verticals.
Job Description	1. Responsible in providing Information and Communication Technology (ICT) solutions for customers from various industry verticals. Have basic knowledge of the ICT fields, for example, products & solution such as Network (Router/Switch/ WIFI), IT (storage/server) etc. 2. Gain insights into the market and customers and formulate sales strategies. 3. Understand customer's need and providing solutions for projects. 4. Able to achieve sales target, sustain revenue growth and provide recommendations to enhance account growth and revenue potential. 5. Participate in planning and executing key industry marketing activities and communicate with high level customers about solution opportunities. 6. Develop and manage high-value relationships with key customer. 7. Engage the improvement of the competitiveness of the solutions, collect customer demand, work with partners to continuously optimise and promote.

Prime Skills			
AI Application	Stakeholder Management	Sales Strategy	Solution Architecture
Customer Relationship Management	AI in Product Development	Applications Development	
Market Research	Marketing Strategy	Market Trend Analysis	
Quality Assurance	Product Design and Development	Prototyping	

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**5G SOLUTIONS ARCHITECT**
Job Purpose	Design, implement and optimise end-to-end solutions that leverage 5G technology to meet the business needs of clients.
Job Description	1. Design end-to-end architectural roadmaps for enterprise architecture, in accordance with enterprise strategies and EA processes. 2. Analyse client requirements and collaborating with R&D divisions to provide ongoing support. 3. Apply advanced skills, extensive technical expertise and full industry knowledge. 4. Develop innovative solutions to complex problems 5. Knowledge of 5G core network specifications, solutions and operations, Multi-Access Edge Computing implementation and usage, Open RAN, network protocols, procedures, implementation and call flows.
Prime Skills	Edge Computing; AI Application; Solution Architecture; Network Design; AI Management; Enterprise Architecture; AI in Product Development; Requirements Definition and Management; Networking Protocols

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

5G SOLUTIONS ARCHITECT

Role	**ENTERPRISE SOLUTION SALES**
Job Purpose	Target sales of 5G system integration solutions in enterprise segments.
Job Description	1. Sell 5G solutions in enterprise segments and system integration services comprising network, compute, storage and security stack, Wi-Fi solutions and smart city solutions. 2. Identify and develop potential clients in enterprise segments. 3. Articulate appropriate solution offerings and provide effective value proposition to clients. 4. Understand unique business needs and challenges of each client and provide tailored solutions. 5. Develop and execute strategic sales plans.

Prime Skills				
	Business Opportunities Development	Sales Strategy	Market Profiling	Customer Profiling
	Customer Acquisition and Retention Management	AI Application	Sales Target Management	Product Advisory
	Customer Relationship Management	Customer Experience Management	Account Management	Selling

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

OPERATIONS CENTRE SUPPORT ENGINEER

Role	**OPERATIONS CENTRE SUPPORT ENGINEER**
Job Purpose	Ensure stable operations and performance monitoring of IT systems, providing support and resolutions for incidents and disruptions.
Job Description	1. Conduct scheduled tests on systems and monitor performance to ensure stable operations. 2. Oversee monitoring activities to maintain system stability and resolve downtime or malfunctions. 3. Develop and monitor service-level objectives to ensure they meet or exceed requirements. 4. Create client satisfaction metrics and service procedures, proposing recommendations for improvement. 5. Install software and hardware equipment for users, conducting user acceptance tests on new setups. 6. Carry out feasibility studies for implementing new solutions and ensuring integration compatibility. 7. Evaluate past incidents, prepare reports and document findings for senior stakeholders. 8. Classify incidents for escalation, provide support and recommendations to affected teams. 9. Analyse technical incidents and provide third-line support to resolve issues effectively. 10. Ensure seamless integration and continued operation of systems to minimise disruptions.
Prime Skills	Incident Management; System Integration; Service Level Management; Stakeholder Management

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**NETWORK-AS-A-SERVICE (NAAS) PRODUCT DEVELOPER**
Job Purpose	Develop and implement innovative Network-as-a-Solution (NaaS) products.
Job Description	1. Responsible for developing Network product portals and software solutions. 2. Partnering with stakeholder organisations to define and align on product roadmaps, priority and delivery dates. 3. Working with the product and delivery teams to collaboratively drive new solutions, proof of concepts and help drive the architectural direction of the solution. 4. Being a recognised technology leader in the network product portfolio and drive a technology lead path to grow revenue by implementing NaaS solutions. 5. Acting as a cross functional technology leader in driving build vs buy decision for product development and product launches. 6. Identifying new opportunities for integrating network services to enhance and differentiate product offerings. 7. Developing and owning Solution architecture, ensures user stories are written and acceptance criteria are met and demo the working features internally and externally. 8. Collaborating with stakeholders and development teams (internal and external) to ensure successful implementation of new or enhanced functionality for the product.

Prime Skills			
API Management	Regulatory Compliance	Network Integration	Product Branding
Market Profiling	AI Application	Solution Architecture	Software Design
Product Design and Development	Market Trend Analysis	Customer Profiling	Stakeholder Management

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**DEVOPS ENGINEER**
Job Purpose	Develop, automate and manage software deployment, integration and monitoring to improve system reliability and scalability.
Job Description	1. Build IT solutions to meet business requirements and develop reusable components for scalability. 2. Develop automation frameworks for deployment, management and monitoring of software applications. 3. Set up and maintain test environments for manual and automated testing while ensuring quality assurance. 4. Develop and maintain program codes, logic and integration with other applications and platforms. 5. Translate business and technical requirements into test cases, test scenarios and scripts. 6. Perform automated, load and security vulnerability testing to enhance system performance and security. 7. Evaluate and improve existing applications through gap analysis, troubleshooting and performance optimisation. 8. Deploy new modules, upgrades and fixes to production while ensuring smooth knowledge transfer. 9. Automate security and risk management processes, integrating security protocols into system infrastructure. 10. Develop requirements, methods and procedures for routine maintenance and continuous integration.

Prime Skills			
Cyber Risk Management	System Integration	Software Testing	Quality Assurance
AI Application	Test Planning	Troubleshooting	Solution Architecture
Applications Support and Enhancement	Applications Integration	Agile Software Development	
Security Monitoring	Process Automation	Applications Development	

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

DEVOPS ENGINEER

Role	**SYSOPS ENGINEER**
Job Purpose	Manages cloud infrastructure solutions, operations, automation and performance optimisation.
Job Description	1. Configure network infrastructure environment for software development and prototyping and conduct predeployment testing of systems to ensure reliability of solutions. 2. Identify and resolve deployment issues and address gaps in performance or availability based on identified metrics. 3. Perform regular tuning of network infrastructure services and resolve service operation issues and prevent recurrence using automation. 4. Conduct measurement and monitoring of overall performance, system health, system availability and latency. 5. Configure cloud platforms and applications in alignment with organisational cyber security policies. 6. Execute procedures to ensure data protection and encryption and monitor compliance of data management and retention processes. 7. Identify opportunities to enhance operational workflows, systems and processes through automated deployment. 8. Conduct capacity planning for cloud infrastructure and systems performance analysis and develop tools and scripts to automate deployments and optimise performance. 9. Design and write code for scalable, robust systems using cloud architecture. 10. Develop processes and standards for system or application reliability in areas of availability, performance, latency, capacity, emergency response, capacity planning, security and monitoring.
Prime Skills	Data Security, Software Security, Prototyping, Network Optimisation Configuration Management, Agile Software Development, Software Testing, Software Configuration Infrastructure Development, Data Management, AI Application Process Automation, Network Support, Data Protection

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

SOFTWARE ENGINEER

Role	**SOFTWARE ENGINEER**
Job Purpose	Develop and maintain high-quality software solutions by designing, testing and optimising code for performance and security.
Job Description	1. Recommend approaches that balance security, stability and performance needs while providing technical guidance on solutions. 2. Translate user requirements into technical specifications and formulate software requirement specifications. 3. Design test environments, specify test cases and identify stakeholders for testing activities. 4. Analyse defect arrival rate and failure intensity data to improve software reliability. 5. Develop and use simulations, prototypes and static analysis to evaluate software design quality. 6. Design software components, modules and high-level system architecture while performing trade-off analysis. 7. Establish project coding standards, review and approve coding practices and identify security risks. 8. Perform threat modeling, attack surface analysis and define security requirements for new and modified systems. 9. Lead code reviews, perform refactoring and oversee software release building, verification and implementation. 10. Maintain software configuration management processes, tools, audit reports and documentation of approved changes.

Prime Skills			
Test Planning	Software Configuration	Failure Analysis	Data Collection and Analytics
Agile Software Development	Threat Intelligence and Detection	Product Performance Management	Porting/Software Configuration
Data Management	AI Application	Software Design	Security Architecture
Product Management	Configuration Management	AI in Product Development	Software Testing

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**NAAS PRODUCT MANAGER**
Job Purpose	Manage API-driven network service products from concept to launch and continuous improvement.
Job Description	1. Own and manage network service API products from concept to launch to continuous improvement. 2. Define product vision, roadmap and KPIs, ensuring alignment with business strategy and market needs. 3. Drive end-to-end execution, including defining release scope, collaborating with engineering and managing the go-tomarket strategy. 4. Own and prioritise the product backlog, ensuring alignment with business and technology goals. 5. Partner with cross-functional teams (business development, marketing, sales, engineering) to define and execute launch plans. 6. Ensure compliance with security, data privacy and regulatory requirements in API and network services. 7. Establish a robust Voice of Customer feedback loop to inform product decisions. 8. Continuously track product performance using dashboards and analytics tools. 9. Develop and execute adoption strategies for API monetisation and customer growth.
Prime Skills	AI Application Regulatory Compliance Product Performance Management Product Management Customer Profiling API Management Customer Behaviour Analysis Product Branding Market Profiling Market Trend Analysis

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

PLATFORM CATEGORY MANAGER

Role	**PLATFORM CATEGORY MANAGER**
Job Purpose	Define and execute strategies for internal platform products, ensuring they align with long-term business and product goals.
Job Description	1. Define and maintain platform product strategy: Develop and communicate a clear vision for internal platforms that supports long-term product and business goals. 2. Own and prioritise the platform product roadmap: Manage a backlog of platform features, enhancements and infrastructure investments. 3. Partner with engineering leadership: Work closely with platform, infrastructure and DevOps teams to scope and deliver technical capabilities. 4. Understand internal team needs: Regularly gather feedback from product, design, engineering and data teams to identify pain points and opportunities for platform improvements. 5. Drive platform adoption: Develop and execute strategies to promote the use of platform tools and services across all product teams. 6. Track and report platform metrics: Establish objectives and key results to measure platform reliability, product adoption, developer productivity and the impact of platform investments. 7. Manage platform risks and technical debt: Proactively identify and address technical risks, infrastructure bottlenecks and scaling challenges. 8. Collaborate on product architecture decisions: Provide input on architectural decisions to ensure new product features align with platform capabilities.
Prime Skills	Organisational Analysis; User Research; Product Management; Technology Risk Management Configuration Tracking; AI Application; Change Implementation Planning and Management Product Design and Development; Market Profiling; Market Trend Analysis

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**PRODUCT MANAGER (INDUSTRY VERTICAL)**
Job Purpose	Lead the strategy, development and delivery of enterprise products tailored to key industry verticals.
Job Description	1. Define and execute the product strategy and roadmap for solutions tailored to key industry verticals. 2. Lead the end-to-end lifecycle of industry-specific enterprise products, from concept through development, launch and iteration. 3. Collaborate closely with cross-functional teams including go-to-market, user-interface/user-experience, engineering, research and operations to ensure successful product delivery. 4. Identify key customer challenges and business opportunities within each vertical to guide product features and priorities. 5. Drive the creation of scalable, impactful solutions that improve customer experience and deliver measurable business outcomes. 6. Ensure alignment between product vision and execution by coordinating across architecture, infrastructure and operational functions.

Prime Skills			
AI Application	Stakeholder Management	Service Level Management	Solution Architecture
Market Trend Analysis	Customer Experience Design	Customer Relationship Management	
Product Requirements	Product Management	Product Performance Management	

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

DATA PRODUCT MANAGER

Role	**DATA PRODUCT MANAGER**
Job Purpose	Drive the roadmap for data products, ensuring they meet the needs of both internal and external data users.
Job Description	1. Owning and driving the product roadmap for various data products supporting internal and external data users. 2. Managing and collaborating with various stakeholders to implement product enhancements that fulfill user and business requirements. 3. Prioritising users' requests and delivering high-quality Product Requirements Documents with clear goals, scopes, user scenarios, analytics frameworks and data logic to meet users' needs. 4. Collaborating with other product teams, engineering teams and project managers to drive feature releases while ensuring quality, speed and sustainability. 5. Promoting and driving usage and sales of data products across regional and local data users through initiatives such as conducting sharing and training sessions and creating and maintaining user guides. 6. Serving as the data domain expert for customer portfolio.

Prime Skills			
Data Governance	Sales Target Management	Product Management	Market Trend Analysis
AI Application	User Research	Sales Support	Product Requirements
Market Trend Analysis	Data Security	Stakeholder Management	Sales Strategy
Revenue Analysis	Data Modelling and Design	Data Engineering	Strategy Planning

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**SECURITY PRODUCT MANAGER**
Job Purpose	Drive strategy, development and lifecycle management of security products and solutions.
Job Description	1. Development of pre-sales & pre-implementation processes, training, technical discovery and other tools. 2. Communicate the value proposition of the products to the sales team and develop the sales tools. 3. Be the expert in the portfolio's current technical and operational approaches (systems, tools, processes) while navigating new development initiatives through the process to launch. 4. Evaluate and determine technologies/platforms and commercial models already in network to understand how they can be leveraged. 5. Execute the product life cycle from strategic planning (e.g. getting buy in from management), through customer/field requirements gathering. 6. Leads the on-going product development strategy, from initial business case and definition to final production, with products and services delivered on schedule, on-budget and with high quality. 7. Develop and implement a lifecycle service plan for each new product/solution offering that enables Customer Service Centres to cost effectively provide services to its clients throughout the product/solution's lifecycle with global effectiveness. 8. Design outbound marketing activities, identifying customers for case studies, creating marketing materials for use by the sales force, educating the sales force and working with the public relations team to handle press contacts.
Prime Skills	Data Security; Threat Analysis and Defence; Software Security; Strategy Planning Marketing; AI Application; Emerging Technology Monitoring Product Performance Management; Network Security; Product Management Sales Target Management; Sales Strategy; Sales Support

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

APPLICATIONS SUPPORT ENGINEER

Role	**APPLICATIONS SUPPORT ENGINEER**
Job Purpose	Ensures software reliability and user support through testing, maintenance and troubleshooting.
Job Description	1. Specify test cases for the selected testing technique and design the test environment and test case scenarios. 2. Design software test plan and criteria for regression testing. 3. Lead software operational training and software diagnostics and real-time debugging and/or troubleshooting. 4. Develop software transition plans and identify stakeholders for transition and operational requirements. 5. Develop software activation and check-out procedures and determine the impact of software changes on the operational environment. 6. Develop maintenance plans including timelines and resources needed and oversee the maintenance of technical documentation of technical architecture, code changes, issue resolutions, etc. 7. Provide high-level maintenance and update of an existing software and/or platform to improve functionality and process flow and monitoring of security measures, proper registration of passwords and other access procedures. 8. Conduct technical impact analysis and problem identification and implement software maintenance processes and plans. 9. Develop plans to make corrective, adaptive and perfective changes to software.
Prime Skills	Test Planning; System Software; Software Maintenance; Customer Experience Management Continuous Integration and Continuous Deployment; AI Application; Testing; Software Testing Process Improvement and Optimisation; Application Support; AI in Product Development; User Experience Evaluation

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**PRODUCT ANALYST**
Job Purpose	Analyse market trends and user needs to provide data-driven insights for product development and decision-making.
Job Description	1. Articulate stakeholder needs to guide product decision-making and identify requirements through customer journeys and user stories. 2. Analyse market data, surveys and interviews to gather insights on consumer needs and determine product-market fit. 3. Develop research roadmaps and strategies across product stages, from conceptualisation to post-launch review. 4. Design qualitative and quantitative research methods, including usability testing, A/B testing and heuristic evaluations. 5. Develop a User Research Practice Framework for data collection, benchmarking and evaluation of best practices. 6. Collaborate with designers, engineers and product managers to integrate research findings into product development. 7. Design and conduct User Acceptance Testing to validate product functionality and usability before launch. 8. Analyse test data, validate findings and document testing processes to ensure quality control and compliance. 9. Develop data tracking requirements and analyse large datasets to identify trends, correlations and actionable insights. 10. Create data reports, visualisation tools and dashboards to support decision-making through storytelling and analytics.
Prime Skills	AI Application; Customer Behaviour Analysis; Testing; Product Advisory Data Collection and Analytics; Market Research; Customer Experience Management; User Experience Evaluation Product Performance Management

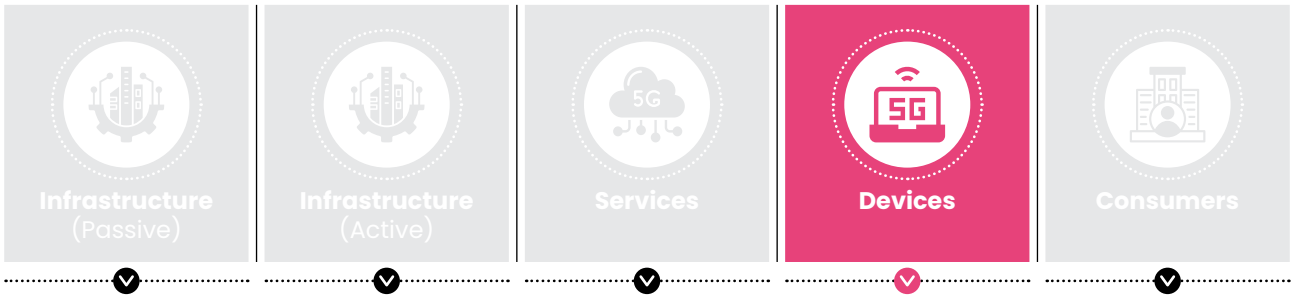
Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

Role	**PRODUCT ENGINEER**
Job Purpose	Designs products and coordinates the production process for those products.
Job Description	1. Execute New Product Introduction, customise customer technical documentation, ensure compliance with safety regulations and implement engineering changes. 2. Using industry knowledge to come up with unique product ideas. 3. Coordinating with the product development team to finalise product ideas. 4. Testing product prototypes to adjust design flaws. 5. Evaluating the product prototype to identify potential safety hazards. 6. Consulting with shipping managers and logisticians to determine cost-effective manufacturing procedures and materials. 7. Overseeing the start of the manufacturing process to ensure productivity and safety.

Prime Skills				
	AI Application	Troubleshooting	Stakeholder Management	Product Requirements
	Product Management	AI in Product Development	User Interface and User Experience Design	Testing
	Quality Assurance	Product Performance Management	Product Design and Development	User Testing and Usability Testing

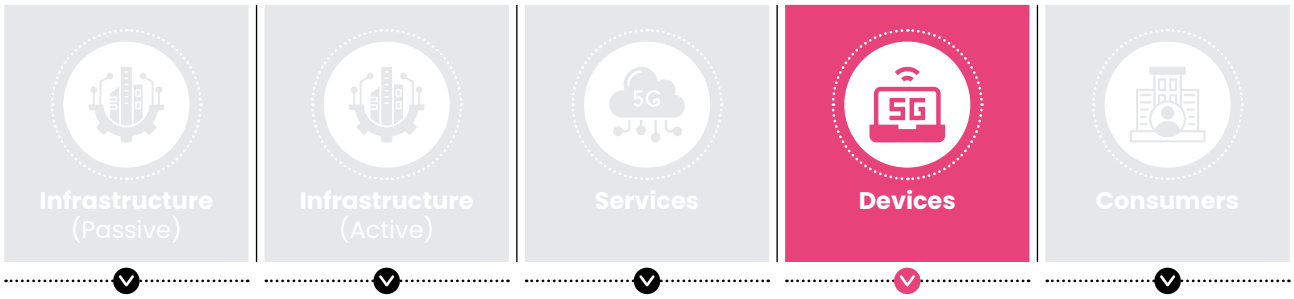
Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

PRODUCT ENGINEER



Role	**EMBEDDED SYSTEMS ENGINEER**
Job Purpose	Design, develop and optimise software-hardware integration for embedded systems to ensure performance, stability and security.
Job Description	1. Test and validate software and hardware interactions from prototype to manufacturing release. 2. Diagnose and rectify technical problems in embedded software and evaluate failed system scenarios. 3. Evaluate software resilience against reverse engineering. 4. Participate in hardware design and security architecture reviews. 5. Lead the design of specific modules for development of software for embedded systems and create software tools for tests and automation. 6. Formulate specifications on delivery platforms for embedded systems. 7. Identify system-level traceability requirements and tools. 8. Perform requirements analysis and determine user requirements based on business needs. 9. Support software quality assurance to optimise input/output performance. 10. Analyse and enhance efficiency, stability and scalability of system and resources. 11. Writing the software that runs on IoT devices, enabling them to gather data, communicate with other devices and perform actions based on collected information.
Prime Skills	Embedded Systems Programming Testing Hardware Design Data Collection and Analytics Embedded Systems Interface Design Embedded Systems Integration Software Design Process Automation Failure Analysis Real-time/ Embedded Systems Development AI Application System Integration Quality Assurance

Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)



Role	**EQUIPMENT ENGINEER**
Job Purpose	Design, enhance and maintain mechanical, computer, or electrical devices.
Job Description	1. Lead and manage the end-to-end process of transferring product lines, including planning, execution and validation. 2. Work closely with the overseas team to understand equipment specifications, process requirements and operational best practices. 3. Oversee the preventive and corrective maintenance of all the capacitor equipment and testing systems. 4. Ensure the proper functioning of machinery by performing regular maintenance, troubleshooting issues and identify opportunities for efficiency improvements in the machine process, in mechanisation, automation and machine calibration. 5. Analyse equipment performance data, track critical metrics (Root Cause Analysis, Overall Equipment Effectiveness, Mean Time to Repair, Mean Time Between Failures), to improve efficiency and reliability. 6. Ensure that all the equipment's meet the industry regulations, workplace safety standards and environmental guidelines, conducting inspections and audits. 7. Maintain accurate records of equipment performance, maintenance schedules and service reports. 8. Manage relationships with equipment manufacturers, spare part suppliers and service providers. 9. Work closely with cross-functional teams including production, quality and process to optimise equipment performance.
Prime Skills	AI Application; Troubleshooting; Quality Assurance; Supplier Management Equipment Performance Monitoring; AI in Product Development; Customer Relationship Management Process Automation; Equipment Maintenance and Repair; IT Standards

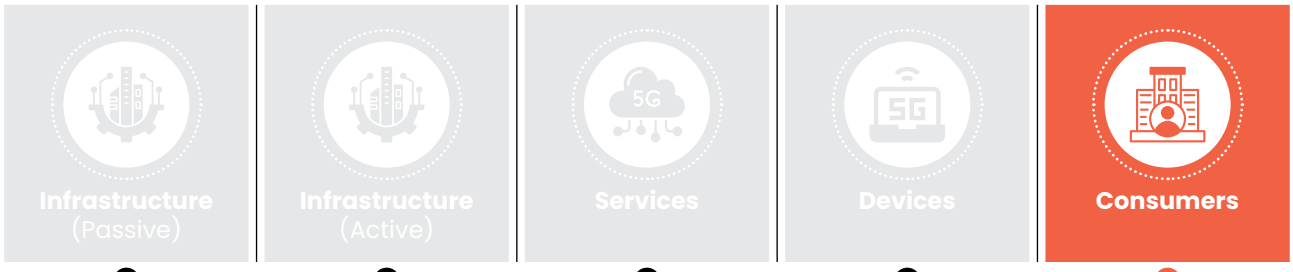
Note: Power Skills are applicable across all Critical Roles (Refer to 'Skills' section for detailed view of skills and skill definitions)

EQUIPMENT ENGINEER


SONG TITLE
SONG TITLE NAME


USE CASES

Sector	**MANUFACTURING**
Use Case	**First 5G-enabled Advanced Manufacturing**
Objective	To digitally enhance manufacturing approaches by improving efficiency, accuracy and operational agility.
5G Application	• 5G-enabled smart scanners capture material information upon scanning and automatically updates cloud-based Enterprise Resource Planning (ERP) system. • 5G-enabled smart racks automatically pick materials, ensuring accuracy while updating the ERP on a real-time basis. • 5G-enabled X-ray counter ensures accuracy and speed while updating the ERP on a real-time basis. • 5G-enabled automated mobile robots (AMR) automate movement throughout the factory. • 5G private network has seamless mobility, low latency, high-capacity Quality of Service (QoS) controlled bandwidth with a highly resilient design suitable for mission-critical deployments.
Prime Skills	Industrial Automation & Robotics Cloud & ERP Integration Solution Architecture Data Visualisation 5G Network Engineering Cybersecurity for Operational Technology Cybersecurity for Data Management Service Engineering Embedded Systems & IoT Device Engineering



Sector	**MANUFACTURING**
Use Case	**World's First 5G-enabled Built-To-Order Electric Vehicle Factory**
Objective	To automate transport operations of vehicle manufacturing material across the factory.
5G Application	• 5G-enabled robots deployed across factory floor to simultaneously transport material required for vehicle manufacturing to manufacturing cells. • 5G private network for a cloud-based centralised mobile robot management solution.
Prime Skills	Cloud & Mobile Robot Integration Cybersecurity for Data Management Solution Architecture Embedded Systems & IoT Integration Cybersecurity for Industrial Systems Data Visualisation 5G Network Engineering Service Engineering Robotics Programming & Automation

Infrastructure (Passive)	Infrastructure (Active)	Services	Devices	Consumers

Sector	**MANUFACTURING**
Use Case	**First Overseas 5G Factory**
Objective	To establish a smart factory fully connected by a 5G private network.
5G Application	• 5G private network allows for wide connectivity and low latency. • 5G AI inspection system to identify shapes of manufacturing parts and locate positions of manufacturing parts through laser sensors.

Prime Skills				
	Computer Vision	Service Engineering	Embedded Systems & IoT Integration	Solution Architecture
	5G Network Engineering	Data Engineering	Cybersecurity for Data Management	
	Edge Computing & Real-Time Data Processing	Cybersecurity for Industrial Systems	Data Visualisation	

Sector	**OIL AND GAS**
Use Case	**First in Malaysia to Adopt 5G Private Network for Enterprise Use**
Objective	To advance the reliability and sustainability of energy supplies amid energy transition.
5G Application	• 5G private network allows segregation from public networks, a 99.9% network availability, enhanced security features to limit access to network, greater control over network operations and maintenance, high upload throughput and a wider coverage for transmission.
Prime Skills	Data Engineering; Product Knowledge; Network Performance Optimisation; Solution Architecture; QoS Management; Network Security & Access Control; Network Segmentation; Data Visualisation; Cybersecurity for Data Management; 5G Network Engineering

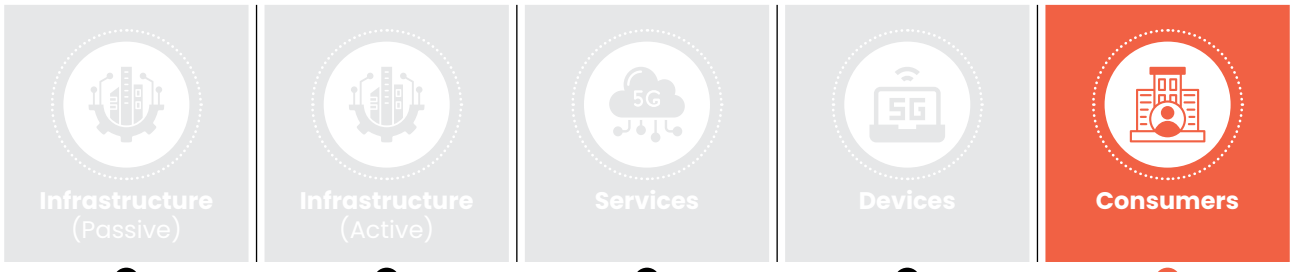
OIL AND GAS

Sector	**POWER AND UTILITIES**
Use Case	**Smart Nation Sensor Platform**
Objective	To gain situational awareness of what's happening in urban spaces in Singapore.
5G Application	• 5G-enabled smart sensors to collect real-time information from the physical world. • 5G-enabled technologies to translate the collected sensor data into intuitive insights. • Smart meters – Request for Information for 5G.
Prime Skills	Cloud Computing & Dashboard Development Edge Computing & Real-Time Data Processing AI and Data Analytics Cybersecurity for Data Management 5G Network Engineering Data Engineering IoT & Sensor Integration Data Visualisation

Sector	**POWER AND UTILITIES**
Use Case	**Punggol Northshore Smart Homes**
Objective	To enhance the planning, design and maintenance of HDB estates to bring about a more livable, efficient, sustainable and safe living environment.
5G Application	• Smart distribution boards and smart sockets to help residents monitor their energy consumption. • Smart lighting at common areas that adjust lighting levels based on human traffic patterns.
Prime Skills	Embedded Systems Engineering; IoT & Sensor Integration; Data Analytics & Monitoring; Data Visualisation; AI & Automation; Data Engineering; Cloud Computing & Dashboard Development

Sector	**LOGISTICS**
Use Case	**First 5G-powered AI Autonomous Inventory Management System**
Objective	To build an innovative digital ecosystem by co-creating new synergies between different industries, implementing more innovative solutions that will fuel their efficiency and growth.
5G Application	• 5G-enabled autonomous drones to carry out daily inventory management. • 5G-enabled autonomous stock-taking solutions to enable efficient stock counting operations. • Computer vision technologies to run processes independently and without human error.
Prime Skills	Computer Vision; Warehouse Automation & Robotics Systems; IoT & Sensor Integration; 5G Network Engineering; Autonomous Drone Technology

LOGISTICS



Sector	**LOGISTICS**
Use Case	**5G Smart Warehouse Transformation in Indonesia**
Objective	To enhance operational efficiency and accuracy through automation and advanced industrial solutions.
5G Application	• Hybrid 5G network to provide high-speed, low-latency connectivity. • Digital Twin Warehouse Simulation for real-time monitoring. • AGVs for intelligent material transfer. • AI-powered Closed-Circuit Television (CCTV) for enhanced security.
Prime Skills	Computer Vision; Digital Twin & Simulation Modelling; IoT & Sensor Integration; 5G Network Engineering; Autonomous Vehicle & Robotics Engineering

LOGISTICS

Sector	**LOGISTICS**
Use Case	**5G-enabled Shipment Tracking**
Objective	To enhance logistical processes by using near real-time data analytics to predict and track shipping goods.
5G Application	• Real-time data about shipments to enable predictive planning. • Environmental sensors to provide continuous monitoring and proactive interventions for shipments worldwide.
Prime Skills	AI & Predictive Maintenance Cybersecurity for Operational Technology IoT & Sensor Integration Data Analytics & Monitoring Edge Computing & Real-Time Data Processing

Sector	**LOGISTICS**
Use Case	**5G Warehouse**
Objective	To explore 5G's potential to unlock the power of the connected devices required for cutting-edge automation, inventory management and analytics.
5G Application	• Augmented Reality (AR) Vision Picking to test using custom augmented reality goggles to select items for shipping. • 5G-enabled drones to conduct inventory counts.
Prime Skills	AR Development; Computer Vision; IoT & Sensor Integration; 5G Network Engineering; Autonomous Drone Technology

LOGISTICS

Sector	**TRANSPORT**
Use Case	**5G Inbuilding Airport Coverage**
Objective	To improve the operational efficiency of KLIA and KLIA2 and deliver better value to customers.
5G Application	• Autonomous buggy for passenger transport. • 5G-AI driven delivery robot for delivery of goods and luggage. • IoT devices, smart sensors and advanced digital solutions to enhance operational efficiency and passenger convenience.
Prime Skills	5G Network Engineering AI & Machine Learning IoT & Sensor Integration Autonomous Vehicle & Robotics Engineering Embedded Systems & IoT Device Engineering

Sector	**TRANSPORT**
Use Case	**Autonomous Bus Demonstration**
Objective	To improve road safety by enabling real-time communication between vehicles and control centres, allowing better response times to potential hazards.
5G Application	• 5G-enabled sensors, cameras and Light Detection and Ranging to collect real-time information in the physical world. • AI algorithms to make decisions about navigation, obstacle avoidance and route planning. • Infotainment systems to enhance passenger experience. • 5G-enabled CCTVs to monitor on-board safety.
Prime Skills	Computer Vision Infotainment System Development IoT & Sensor Integration 5G Network Engineering AI & Machine Learning

Sector	**TRANSPORT**
Use Case	**Maritime 5G Coverage**
Objective	To enhance maritime safety, efficiency and sustainability by enabling real-time data sharing between vessels, port operations and maritime authorities.
5G Application	• AI-driven management systems using real-time data to enhance fleet management, asset tracking and predictive maintenance. • Autonomous vessels and robotic hull cleaning, along with other maritime technologies, serving as testbeds for innovation. • Drones for remote inspections, deliveries and incident response at sea. • Just-in-Time Platform for optimising vessel scheduling, voyage speed and coordination of marine services.
Prime Skills	Data Engineering; Cybersecurity for Data Management; IoT & Sensor Integration; Autonomous Drone Technology AI & Machine Learning; AI & Predictive Maintenance; 5G Network Engineering; Service Engineering Data Visualisation


SKILLS

PRIME SKILL CLUSTER: STRATEGY AND PLANNING

SKILL	SKILL DEFINITION
Emerging Technology Monitoring	Identify and assess emerging technologies to evaluate potential impact on business performance, costs and sustainability.
Infrastructure Strategy	Develop a forward-looking IT infrastructure strategy that optimises performance, aligns investments and supports long-term operational goals and transformation.
IT Strategy	Formulate and communicate IT strategies and action plans that respond to evolving business needs and drive long-term value through effective transformation and investment alignment.
Network Planning	Develop and maintain network strategies and infrastructure to support organisational communication needs and service level agreements.
Organisational Analysis	Assess internal capabilities and external factors to identify strategic improvements for enhanced organisational performance.
Requirements Definition and Management	Manage requirements throughout solution lifecycles, balancing stakeholder needs with technical and regulatory constraints.
Resourcing	Manage workforce resources, providing expert guidance on hiring and engaging employees, consultants and contractors.
Security Strategy	Define and implement the organisation's security strategy to ensure enterprise-wide protection of information and assets.
Strategy Implementation	Execute and implement operational and tactical-level action plans in alignment with the organisation's business strategies.

Legend: Identified Priority Skills

PRIME SKILL CLUSTER: DESIGN AND ARCHITECTURE

SKILL	SKILL DEFINITION
Embedded Systems Integration	Implement control systems to perform pre-defined tasks and also real-time monitoring for the real world.
Embedded Systems Interface Design	Design and set up networked sensor interfaces to enable real-time transmission of information to central locations.
Enterprise Architecture	Translate business strategy into structural and operational plans by reviewing market trends, prioritising initiatives and aligning enterprise capabilities to support strategic evolution.
Hardware Design	Design and specify computing and communication equipment for integration into IT infrastructure, ensuring compatibility and sustainability.
Infrastructure Design	Establish infrastructure design principles to address connectivity, capacity, access and security needs and translate these into technical specifications aligned to business requirements.
Network Design	Design comprehensive network architectures and policies to meet business needs across all communication channels.
Security Architecture	Design security architectures and controls to embed protection into technology and mitigate emerging technological and commercial risks.
Software Design	Design software architecture based on business needs, ensuring functional integration across components.
Solution Architecture	Design and refine a solution blueprint to guide development of IT solutions to meet business needs.
Structural Knowledge	Knowledge about the structure and materials needed to be used in the design of the products.
System Design	Design systems that align with user needs, existing architectures and performance standards.

Legend: Identified Priority Skills

PRIME SKILL CLUSTER: DEVELOPMENT AND IMPLEMENTATION (ROLES)

SKILL	SKILL DEFINITION
Agile Software Development	Plan and implement Agile methodologies to drive adaptive, iterative software development, ensuring continuous evolution and seamless application delivery to end users.
Applications Development	Develop and refine applications through coding, testing, debugging and documentation, ensuring compliance with development and security standards and integrating advanced technologies.
Applications Integration	Develop and implement integration plans to connect disparate applications, utilising middleware to optimise connectivity and performance across target environments.
Artificial Intelligence (AI) in Product Development	Apply AI and machine learning in product design, development and lifecycle management for improved functionality and decision-making.
Health Safety Environment (HSE)	Provides insights into safety requirements and behaviours to ensure workplace safety, minimising risks and complying with environmental and safety regulations.
Change Implementation Planning and Management	Deploy and integrate digital capabilities in line with operational needs and business processes.
Cloud Computing	Implement cloud solutions to enhance business performance and security of IT systems.
Computational Modelling	Develop and apply algorithms and computational methods to enable systems or software agents to learn, improve and achieve desired outcomes, while interpreting data and using data modelling techniques to address specific issues.
Configuration Tracking	Track and manage software project changes systematically to ensure all revisions are accounted for, safeguarding assets against unauthorised alterations or misuse.
Continuous Integration and Continuous Deployment	Manage the planning, building, testing and integration of code, ensuring the seamless deployment of software changes and updates into a live environment.

Legend: Identified Priority Skills

SKILL	SKILL DEFINITION
Data Engineering	Develop and implement efficient and stable data pipeline processes to collect, store, extract, transform, load and integrate data from diverse sources, preparing it in a structured manner for accessible analysis aligned with business requirements.
Device Integration	Coordination with device companies to make a service possible.
Edge Computing	Design and manage edge computing systems for processing data closer to source (e.g., IoT devices, local servers), leveraging Multi-Access Edge Computing (MEC).
Embedded Systems Programming	Programme embedded systems using authorised interfaces to support device functionality independent of traditional operating systems.
Failure Analysis	Examine physical and electrical defects to verify root causes of failure and identify failure modes.
Fibre Splicing	Ability to join optical Fibre cable using fusion or mechanical methods.
Firmware Development	Develop and maintain low-level software for embedded systems and hardware control, ensuring efficient and correct operation.
Infrastructure Deployment	Deploy, maintain and decommission infrastructure components according to defined plans and safety standards, including site preparation, system testing and issue resolution.
Infrastructure Development	Develop and implement strategies and design for IT infrastructure to support the business needs of an organisation in a way that is future ready, secure and cost-effective.
Internet protocol (IP)	Ability to work with the protocols and technologies that manage data transmission over networks.
Network Configuration	Configure network hardware and software to meet organisational and technical requirements, ensuring stable, secure and reliable network operations.
Network Orchestration and Automation	Automate network service delivery across traditional and virtualised environments to improve efficiency and minimise manual intervention.

Legend: Identified Priority Skills

SKILL	SKILL DEFINITION
Network Security	Design secure network systems incorporating protection, detection and response mechanisms to uphold infrastructure integrity.
Network Slicing	Implement logically partitioned networks to deliver tailored services aligned with service level agreements.
Networking Protocols	Apply and troubleshoot network protocols to optimise communications between devices and systems.
Prototyping	Oversee, design and build a preliminary model or version enabling the development of the complete system, process, product or service.
Radio Frequency (RF) Engineering	Design, deploy and maintain radio frequency infrastructure to support wireless communication and IT systems.
Real-time/Embedded Systems Development	Develop embedded and real-time software systems for integration into devices with safety, security and reliability constraints.
Software Configuration	Configure and deploy software using automation tools, adjusting based on system testing outcomes.
Software Security	Safeguard software applications and networks by identifying vulnerabilities and defending against cyber threats.
Software Testing	Plan and execute application testing to validate performance against technical criteria.
System Integration	Implement integration solutions to facilitate integration and optimise inter-operability of ICT systems and their interfaces.
Test Planning	Define test strategies to verify compliance with design and performance specifications throughout product lifecycles.
User Testing and Usability Testing	Conduct and manage user tests to evaluate design feasibility and user-friendliness.

Legend: Identified Priority Skills

PRIME SKILL CLUSTER: DEVELOPMENT AND IMPLEMENTATION (USE CASES)

SKILL	SKILL DEFINITION
5G Network Engineering	Design, implement, optimise and manage 5G wireless networks to deliver high-speed, low-latency and highly reliable connectivity.
AI and Automation	Integrate AI technologies with building management systems (BMS) to enhance energy efficiency, security and comfort.
AI and Data Analytics	Apply machine learning, data science and AI techniques to analyse large datasets generated by sensors, drones and other monitoring devices used in farming.
AI and Machine Learning	Apply AI to design and implement intelligent systems capable of performing tasks independently, without human intervention.
AI and Predictive Maintenance	Apply machine learning, data analysis and AI models to predict equipment failures before they happen, reducing downtime and optimising maintenance schedules.
Augmented Reality (AR) Development	Create interactive experiences that combine real-world environments with computer-generated content, enabling users to interact with both simultaneously.
Autonomous Drone Technology	Use unmanned aerial vehicles (UAVs) equipped with advanced sensors and cameras to collect data from remote locations.
Autonomous Vehicle and Robotics Engineering	Develop and deploy self-driving vehicles and robotic systems that can navigate and operate independently.
Cloud and Enterprise Resource Planning (ERP) Integration	Integrate cloud computing technologies with ERP systems to enable seamless real-time data exchange and management.
Cloud and Mobile Robot Integration	Leverage cloud computing to manage fleets of mobile robots in a centralised environment.
Cloud Computing and Dashboard Development	Use cloud technologies to provide a centralised platform for monitoring and visualising key metrics and analytics through dashboards.
Computer Vision	Apply algorithms and neural networks to enable machines to recognise objects, analyse scenes and perform tasks such as image classification, face recognition and motion detection.

SKILL	SKILL DEFINITION
Cybersecurity and Industrial Systems	Protect the hardware and software that support industrial operations, including manufacturing plants.
Cybersecurity for Data Management	Manage and protect data systems to ensure security, privacy and compliance with cybersecurity requirements.
Cybersecurity for Operational Technology	Protect critical systems and infrastructure that manage physical processes, such as industrial control systems (ICS), SCADA systems and networked devices.
Data Analytics and Monitoring	Use data to track and optimise energy consumption, efficiency and sustainability efforts.
Data Engineering	Design, construct and maintain data pipelines and infrastructure to support data collection and analysis at scale.
Data Visualisation	Analysing collected data and demonstrated effectively to provide intended outcome, clear insights and support informed decision-making.
Digital Twin and Simulation Modelling	Build sophisticated digital models that can be used to simulate scenarios, monitor systems and make data-driven decisions.
Edge Computing and Real-Time Data Processing	Process and analyse data at or near the source of data generation (the "edge") rather than relying on centralised cloud infrastructure.
Embedded Systems and IoT Device Engineering	Design, develop and implement embedded systems that integrate with IoT (Internet of Things) devices to collect, process and communicate data.
Embedded Systems and IoT Integration	Connect and integrate embedded systems with IoT networks to facilitate communication, data exchange and control between devices (e.g. sensors).
Embedded Systems Engineering	Design and develop physical components that make up embedded systems, such as microcontrollers, processors, sensors and actuators.
Industrial Automation and Robotics	Integrate automated systems and robotic technologies into industrial operations to optimise manufacturing processes, improve efficiency and enhance precision.
Infotainment System Development	Design and build embedded systems that provide entertainment, information and connectivity to users in vehicles or other devices.

Legend: Identified Priority Skills

SKILL	SKILL DEFINITION
IoT and Sensor Integration	Design, implement and manage interconnected systems that gather and transmit data from various types of sensors to an IoT network for analysis and action.
Network Performance Optimisation	Use various tools and techniques, such as network analysis, bandwidth management and congestion control, to ensure optimal performance for all network devices and users.
Network Security and Access Control	Manage and enforce security protocols and policies to safeguard network infrastructure and ensure that only authorised users and devices can access network resources.
Network Segmentation	Divide a large network into smaller, isolated sub-networks (segments) to improve security, performance and management.
Product Knowledge	Provide Level 1 support by applying knowledge of the product to troubleshoot issues and assist end users effectively (specifically 5G native infrastructure).
QoS Management	Configure and optimise network resources to ensure efficient and prioritised traffic flow, particularly for time-sensitive applications like VoIP, video streaming and real-time communications.
Robotics Programming and Automation	Develop and program of robots to perform specific tasks within automated systems.
Service Engineering	Develop and manage technical services and support processes to ensure the reliable delivery and performance of systems, often involving design, testing and maintenance.
Solution Architecture	Oversee end-to-end implementation and integration of complex systems and solutions, ensuring alignment with business requirements and technical feasibility.
Warehouse Automation and Robotic Systems	Implement robotic systems and automation technologies within warehouses to streamline material handling, storage and distribution processes.

Legend: Identified Priority Skills

PRIME SKILL CLUSTER: DELIVERY, OPERATIONS AND QUALITY

SKILL	SKILL DEFINITION
Application Support	Provide application support and maintenance, resolving user issues, monitoring performance and delivering enhancements.
Applications Support and Enhancement	Provide continuous technical support and improvements, offering guidance on installation, resolving application issues and implementing changes to enhance functionality and user experience.
Artificial Intelligence (AI) Applications	Integrate AI into engineering processes using algorithmic and statistical approaches to enhance maintenance operations.
Capacity Management	Plan, design and manage IT service capacity to meet current and future needs, using cost-efficient methods and demand modelling techniques.
Configuration Management	Control and maintain configuration items and documentation to ensure traceability and compliance throughout the system lifecycle.
Cyber and Data Breach Incident Management	Detect and report cyber and data-related incidents, identify affected systems and trigger alerts for prompt resolution.
Equipment Maintenance and Repair	Troubleshoot, repair and maintain mechanical machinery to ensure operational efficiency.
Equipment Performance Monitoring	Analyse, benchmark and optimise equipment performance using data-driven techniques.
Incident Management	Coordinate and process incident responses, manage help requests, track resolution progress and ensure timely service restoration.
Infrastructure Support	Deliver end-user support by diagnosing and resolving technical issues, advising on upgrades and producing user documentation and training to minimise disruptions.
Network Administration and Maintenance	Monitor and maintain network performance, identify and resolve issues and support users through proactive communication and training.
Network Analytics	Ability to analyse and interpret network data to uncover patterns, optimise performance and support decision-making across digital, social, or physical networks.

Legend: Identified Priority Skills

SKILL	SKILL DEFINITION
Network Optimisation	Continuously improve network reliability and performance through iterative enhancements and monitoring.
Network Support	Provide network maintenance and user support, including performance monitoring, issue resolution, user guidance and system modifications.
Porting/Software Configuration	Configure software products to operate within specific platforms or IT environments.
Quality Assurance	Conduct quality assurance audits, analyse results and initiate improvements to maintain high standards across products, services and processes.
Security Administration	Administer and update security mechanisms to safeguard enterprise assets, including patch management and access control.
Security Education and Awareness	Promote organisational security awareness through training, guidance and communication strategies.
Software Maintenance	Maintain and enhance legacy software systems for performance, security and compatibility improvements.
System Software	Install and support system software, ensuring smooth operation of core platforms and utilities.
Systems Installation/ Decommissioning	Install and test IT hardware, software and cabling, resolving issues and maintaining accurate configuration records.
Testing	Plan and execute software testing to validate functionality, security and performance, while managing risk and compliance.
Threat Analysis and Defence	Enable and conduct analysis of malicious threats to understand behaviour and develop mitigation strategies.
Threat Intelligence and Detection	Monitor cyber intelligence to anticipate threats through proactive behavioural analysis.
Troubleshooting	Identify, analyse and resolve technical problems and issues in systems, software and devices to minimise disruption to operations and prevent recurrences.
User Experience Evaluation	Validate systems and services through iterative testing to ensure usability, satisfaction and compliance with user needs.

SKILL	SKILL DEFINITION
User Research	Conduct user research to uncover behaviours and needs, informing inclusive and accessible design for systems, products and services.

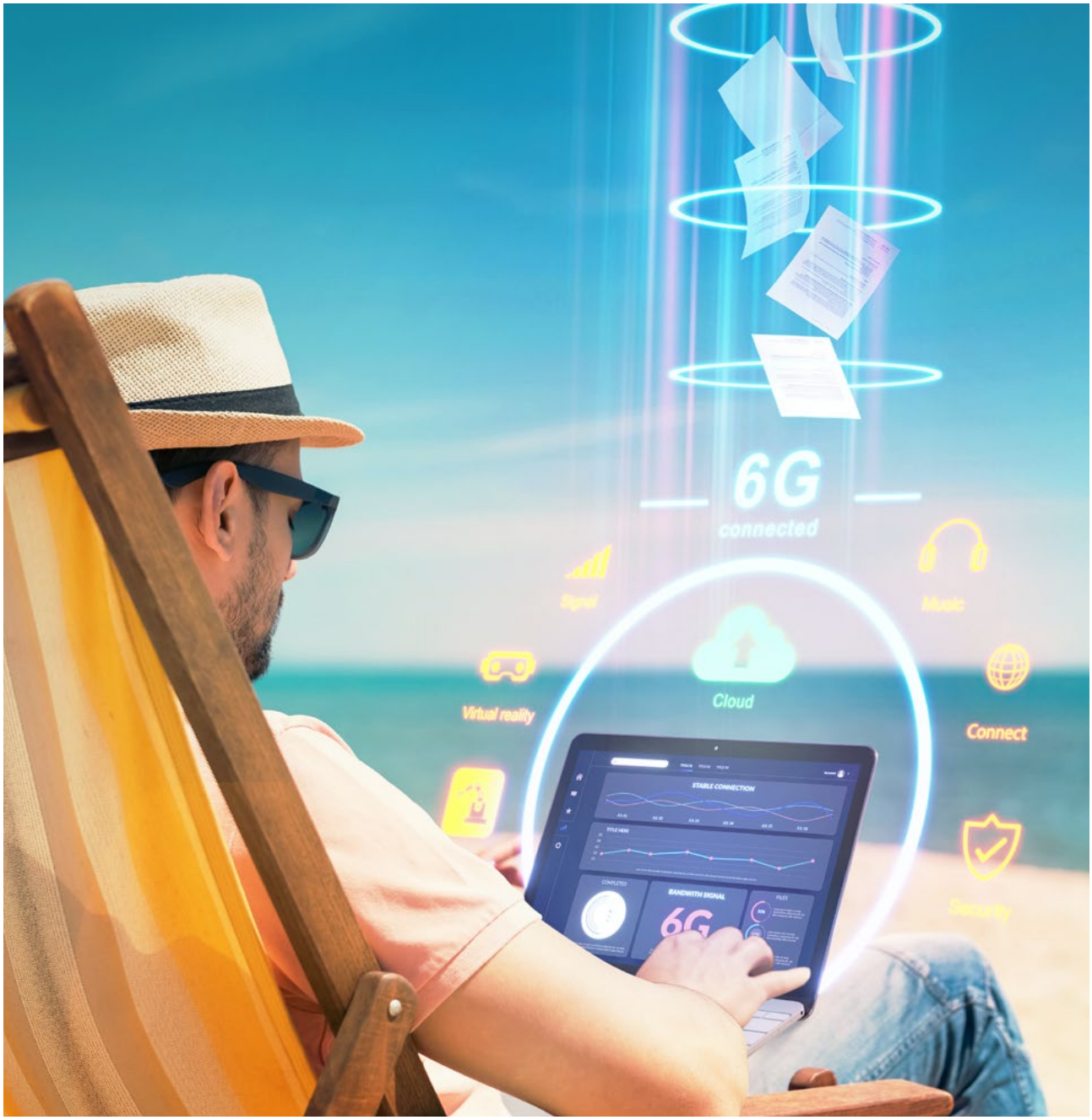
PRIME SKILL CLUSTER: DIGITAL AND DATA

SKILL	SKILL DEFINITION
Application Programming Interface (API)Management	Design, deploy, monitor and maintain different software applications or systems by leveraging Application Programming Interfaces (APIs).
Artificial Intelligence (AI) Management	Leverage AI to analyse data, enhance customer experience, automate tasks and improve decision-making, while upholding ethical standards aligned with industry best practices.
Big Data Analytics	Utilise advanced techniques to process, analyse and interpret extensive and complex datasets to produce actionable insights and recommendations to support decision-making.
Data Collection and Analytics	Gather, extract and analyse data to identify trends and patterns, produce statistical information and derive meaningful insights to support decision-making.
Data Management	Ensure data quality, integrity, security and accessibility through effective data governance and management practices.
Data Modelling and Design	Model data relationships and requirements to support system development, integration and retrieval processes.
Data Protection	Develop, implement and monitor measures and controls to safeguard the confidentiality, integrity and availability of data against unauthorised access, corruption, loss and misuse.
Data Security	Protect digital data throughout its lifecycle by enforcing cybersecurity practices to maintain confidentiality, integrity and availability.
Data Storytelling and Visualisation	Utilise narrative techniques and data visualisation tools to effectively communicate the insights derived from data analysis in a thoughtful and engaging manner.
Database Design	Design and manage data storage structures to support enterprise information and analytics needs.
DevSecOps	Integrate security measures into software development and IT operations throughout the system development lifecycle to ensure secure and reliable deployment.

Legend: Identified Priority Skills

SKILL	SKILL DEFINITION
Predictive Modelling	Utilise statistical algorithms and machine learning techniques to develop forecasts and predict future outcomes based on historical and current data to support decision-making.
Process Automation	Streamline and automate business processes to improve efficiency, reduce costs, conserve resources, optimise investments and increase productivity.

Legend: Identified Priority Skills



PRIME SKILL CLUSTER: CUSTOMER AND STAKEHOLDER MANAGEMENT

SKILL	SKILL DEFINITION
Account Management	Manage and maintain relationships with specific customers or set of accounts, including in-depth customer engagement as well as provision of quality solutions and services to address customers' needs efficiently.
Contract Management	Formalise contracts and service level agreements with providers, managing supplier performance and resolving contractual issues to maintain vendor relationships.
Customer Acquisition and Retention Management	Develop customer acquisition and retention strategies and execute targeted initiatives and campaigns to drive sales conversion and maximise customer satisfaction.
Customer Experience Design	Understand, design and consistently deliver satisfying customer experience that meets or exceeds expectations at every touchpoint throughout the customer journey.
Customer Profiling	Utilise data to segment customer base to create a targeted and personalised marketing strategy and portfolio, based on the understanding of customer's needs, behaviour and preferences.
Customer Relationship Management	Manage customer interactions and relationships throughout customer lifecycle with the goal of improving business relationships with customers, assisting in customer retention and driving sales growth.
Service Level Management	Plan, monitor and manage service provisions for the achievement of agreed service level targets.
Stakeholder Management	Manage stakeholder expectations and needs by aligning those with requirements and objectives of the organisation.
Supplier Management	Manage supplier relationships and performance across multiple vendors, ensuring alignment with sourcing strategies, risk mitigation and service quality.
User Interface and User Experience Design	Design and develop visually compelling, user-friendly, intuitive and interactive digital experiences to elevate user usability, accessibility and satisfaction.
Vendor Management	Manage vendor relationships to ensure compliance with contracts and organisational standards.

Legend: Identified Priority Skills

PRIME SKILL CLUSTER: BUSINESS AND COMMERCIAL MANAGEMENT

SKILL	SKILL DEFINITION
Budgeting	Prepare organisational budgets by forecasting, allocating resources and setting financial policies to support both short- and long-term business plans.
Business Development	Identify and establish strategic business opportunities, leveraging market research to generate leads, engage with industries and promote IT products and services.
Business Innovation	Identify and evaluate digitisation opportunities and innovations in ICT to establish new services or businesses bridging the physical and digital worlds.
Business Needs Analysis	Scope and gather business requirements through analysis, clarifying solutions and programs and building a compelling business case to demonstrate the potential impact on the business.
Business Opportunities Development	Identify and evaluate potential business opportunities and formulate strategies to capitalise on the identified prospects to support growth and ensure the sustainability of the business
Business Process Improvement	Drive business transformation through innovative process design, technology adoption and evaluation of new models and benefits.
Business Process Testing	Design and conduct usability testing to evaluate and improve business processes and system interfaces.
Continuous Improvement and Process Re-engineering	Analyse existing processes, identify inefficiencies and implement strategic enhancements to optimise workflows and achieve higher efficiency, productivity and quality outcomes.
Crisis Management	Develop and implement crisis management plans within the broader context of business continuity management to prepare for disruptive events.
Customer Behaviour Analysis	Devise tools and approaches for customer behaviour analysis, performing detailed analysis on customer data to derive actionable insights.
Customer Experience Management	Develop and implement a cohesive end-to-end customer journey strategy to engage a diverse population of customers with evolving demands and buying patterns.

Legend: Identified Priority Skills

SKILL	SKILL DEFINITION
Demand and Supply Analysis	Segment the markets, select the targeting strategies and tactics, profile the target segments and develop the positioning strategies and implementation activities.
Disaster Recovery Management	Develop and implement internal IT disaster recovery policies and processes to enable prompt restoration of critical systems and evaluate the effectiveness of incident responses.
Emerging Technology Synthesis	Monitor and assess emerging technology trends by gathering structured data, conducting cost-benefit analyses and evaluating relevance and value to the business.
Market Profiling	Segment the markets, select the targeting strategies and tactics, profile the target segments and develop the positioning strategies and implementation activities.
Market Research	Conduct marketing and digital research to uncover customer and competitor trends, evaluate campaign effectiveness and derive insights to optimise marketing efforts.
Market Trend Analysis	Design and oversee situational analyses to identify market trends, industry developments and emerging opportunities.
Marketing	Conduct market research and analysis to support business development, drive marketing campaigns and generate customer enquiries.
Marketing Strategy	Define and communicate an organisational marketing strategy, incorporating critical industry trends, customer segmentation and market dynamics.
Process Improvement and Optimisation	Establish critical processes to achieve operational efficiency in line with organisational procedures.
Product Advisory	Convey detailed and specialised product knowledge, while keeping abreast of emerging product knowledge to advise customers on making informed decisions.
Product Branding	Create a distinctive and compelling brand identity, including its visual elements, messaging and positioning, to establish a strong and memorable presence in the market.
Product Design and Development	Ideate, create and launch new products or enhance existing ones, ensuring alignment with customer needs and organisational objectives.

Legend: Identified Priority Skills

SKILL	SKILL DEFINITION
Product Management	Develop and manage a product roadmap from ideation to market exit, evaluating performance against strategic goals.
Product Performance Management	Assess, monitor and improve the performance of products or services to ensure they meet the intended goals.
Product Requirements	Gather and manage user and stakeholder requirements to align product/service design with business goals.
Project Management	Plan, manage and control IT programmes, aligning resources and timelines to meet performance expectations and business objectives.
Revenue Analysis	Systematic examination of an organisation's income streams by dissecting revenue sources, patterns and trends to provide a comprehensive understanding of financial health.
Sales Strategy	Formulate a comprehensive sales strategy and targets, incorporating market potential, trends and internal capabilities, with regular reviews to enhance outcomes.
Sales Support	Deliver technical advice and support to sales teams, partners and customers, aiding sales efforts and fulfilling post-sales obligations.
Sales Target Management	Evaluate and monitor sales target and performance to plan and initiate actions to achieve excellence in sales delivery.
Selling	Identify and qualify sales opportunities, manage bids and oversee the execution and monitoring of product and service sales.
Strategy Planning	Develop strategies and policies informed by analysis of internal and external influence.
Sustainability Management	Develop, implement and monitor sustainability strategies by assessing resource use and identifying efficiency improvements.

Legend: Identified Priority Skills

PRIME SKILL CLUSTER: RISK AND GOVERNANCE

SKILL	SKILL DEFINITION
Continuity Management	Plan and coordinate IT service continuity to safeguard critical systems and ensure availability, integrity and confidentiality.
Cyber Risk Management	Develop cyber risk assessment techniques to identify security weaknesses, demonstrate associated business risks and implement treatment strategies to ensure appropriate protection and alignment with security frameworks.
Data Governance	Develop and implement organisational guidelines, laws and regulations for data handling across its lifecycle, including advising on proper data practices and resolving breaches in complex or ambiguous contexts.
Information Security	Implements controls and strategies to ensure information systems are secure, compliant and resilient.
IT Governance	Establish and oversee IT infrastructure, systems and services, including policies to ensure regulatory compliance, accountability and alignment with business strategies.
IT Standards	Develop and review standard operating procedures and service expectations to ensure consistency, efficiency and adherence to IT quality standards.
Penetration Testing	Conduct penetration testing to expose vulnerabilities and assess the effectiveness of security controls.
Quality Standards	Establish and communicate clear quality standards aligned with business goals for internal and client-facing IT services.
Regulatory Compliance	Develop, enforce and implement regulatory compliance activities to ensure compliance with legislative and regulatory requirements.
Risk Governance	Establish, implement and oversee structured processes, policies and strategies within an organisation to identify, assess and manage risks effectively, ensuring compliance, transparency, oversight and sustainable decision-making.
Risk Management	Identify, evaluate and manage risks by developing and implementing risk management strategies, frameworks, policies, procedures and practices.

Legend: Identified Priority Skills

SKILL	SKILL DEFINITION
Risk Modelling and Validation	Quantify and value risks to assess the organisation's exposure to risk and make better decisions about how to manage risks.
Safety Assessment	Assess software systems for compliance with safety standards, evaluating risks and ensuring appropriate engineering methods.
Security Assessment and Testing	Conduct threat modelling and penetration testing to identify system vulnerabilities and assess data protection capabilities.
Security Governance	Develop and publish corporate security policies and frameworks to protect against operational risks and threats.
Security Monitoring	Design, develop and utilise security monitoring tools and platforms to detect security threats and vulnerabilities, conduct real-time analysis of security alerts and determine prompt remedial actions.
Security Programme Management	Plan and manage innovative security solutions, products and services to address evolving cyber challenges.
Technology Risk Management	Identify, assess and mitigate potential technology risks associated with the various uses and integration of technology by the organisation to uphold security, integrity and continuity of operations.

POWER SKILL CLUSTER: INNOVATION AND DELIVERY

SKILL	SKILL DEFINITION
Adaptability and Resiliency	Navigate through the unexpected, respond positively to evolving challenges and recover from setbacks with flexibility and resilience.
Business Acumen	Handle various business situations and make decisions by applying both general and organisation-specific knowledge.
Change Management	Support business and people impacted by change to ensure the change is seamlessly and successfully adopted.
Critical Thinking	Analyse, interpret and draw conclusions from information to solve problems and make decisions.
Digital Fluency	Understand and effectively utilise various digital platforms and tools, such as online collaboration tools and application of AI capabilities, to solve problems and drive efficiency.
Innovative Thinking	Generate and be receptive to new and unconventional ideas or concepts to resolve challenges.
Learning Agility	Learn new concepts and apply the acquired knowledge to execute various tasks quickly and effectively.
Problem-Solving	Recognise, analyse and define problems to evaluate options for solutions and decide on the most appropriate course of action.
Strategic Thinking	Assess current initiatives with broader organisational objectives to make decisions toward long-term success.
Sustainability Awareness	Understand principles of sustainable development and the implications of Environmental, Social and Governance (ESG) on the organisation.

POWER SKILL CLUSTER: SOCIAL INTELLIGENCE

SKILL	SKILL DEFINITION
Coaching and Mentoring	Guide and support others to elevate their performance and foster their development and growth.
Collaboration	Engage and rally others to contribute towards a common purpose and work effectively with them.
Communication	Interact effectively with others and engage in meaningful conversations to foster positive relationships and build mutual understanding, rapport and trust.
Conflict Management	Address and resolve disagreements in a way that promotes understanding and achieves mutually beneficial solutions.
Empathy	Understand the emotions, feelings and perspectives of others to establish an impactful connection and meaningful engagement.
Influencing and Negotiating	Persuade and convince others of ideas, proposals and solutions that work best mutually.
Leadership	Inspire, motivate and guide teams, helping to implement initiatives successfully while fostering a positive work culture.
Positive Mindset	Maintaining a positive attitude to succeed and drive innovation through continuous change and technological disruption.

APPENDICES

ABBREVIATIONS

GENERATION	
4G	4th Generation
5G	5th Generation
A	
AGV	Automated Guided Vehicles
AI	Artificial Intelligence
AMR	Autonomous Mobile Robot
API	Application Programming Interface
AR	Augmented Reality
B	
B2B	Business-to-Business
C	
CCTV	Closed-Circuit Television
CSM	Cybersecurity Malaysia
D	
DAS	Distributed Antenna System
DNB	Digital Nasional Berhad
E	
ERP	Enterprise Resource Planning
H	
HSE	Health Safety Environment

I	
IaaS	Infrastructure-as-a-Service
ICT	Information and Communication Technology
IoT	Internet of Things
IP	Internet Protocol
IPDC	Iskandar Puteri Data Centre
IT	Information Technology
K	
KVDC	Klang Valley Data Centre
KPI	Key Performance Indicator
L	
LTE	Long-Term Evolution
M	
MCMC	Malaysian Communications and Multimedia Commission
N	
NaaS	Network-as-a-Service
NOC	Network Operations Centre
NSA	Non-Standalone
P	
POC	Proof of Concept
Q	
QoS	Quality of Service

R	
R&D	Research and Development
RAN	Radio Access Network
RF	Radio Frequency
S	
SA	Standalone
SOC	Security Operations Centre
T	
TM	Telekom Malaysia
V	
VAPT	Vulnerability Assessment Penetration Testing
X	
XaaS	Everything-as-a-Service

REFERENCES

Accenture (n.d) Singtel: Embracing the future of communications. Available at: https://www.accenture.com/us-en/case-studies/communications-media/singtel

Bhandari, R. (2023) Bridging the skills gap: Fuelling careers and the economy in Malaysia. Available at: https://impact.economist.com/perspectives/talent-education/bridging-skills-gap-fuelling-careers-and-economy-malaysia

Business Today (2024) Malaysia Achieves Significant Progress In 5G Adoption And JENDELA Initiatives. Available at: https://www.businesstoday.com.my/2024/12/17/malaysia-achieves-significant-progress-in-5g-adoption-and-jendela-initiatives/?utm_source=chatgpt.com

Digital Malaysia (2024) 5G Use Case Demonstration on Autonomous Bus. Available at: https://www.digital.gov.my/en-GB/siaran/5G-USE-CASE-DEMONSTRATION-ON-AUTONOMOUS-BUS

Digital Nasional Berhad (2024) DNB Partners CSM to Boost Malaysia's 5G Network Cybersecurity. Available at: https://www.malaysiakini.com/announcement/713492

Edotco Group (2024) DNB & edotco Enhance Passenger Experience with Indoor 5G Coverage at KLIA and KLIA2. Available at: https://edotcogroup.com/media/news/dnb-edotco-enhance-passenger-experience-with-indoor-5g-coverage-klia-and-klia2

Ericsson (2025) DNB and Ericsson supercharge Malaysia's 5G Network with 5G Advanced Capability. Available at: https://www.ericsson.com/en/press-releases/2/2025/2/dnb-and-ericsson-supercharge-malaysias-5g-network-with-5g-advanced-capability

EY (2025) 'Reimagining Industry Futures Study: How can emerging technologies shape industries for sustainable growth and future impact?'. EY.

FedEx (n.d) FedEx Surround® monitoring and intervention suite. Available at: https://www.fedex.com/en-sg/surround.html

Government Technology Agency of Singapore (2021) Annex A: Factsheet on 5G@Sentosa and Smart Nation Sensor Platform. Available at: https://www.tech.gov.sg/files/media/media-releases/Annex%20A%20-%20Factsheet%20on%205G@Sentosa%20and%20Smart%20Nation%20Sensor%20Platform.pdf

GSMA (2024) APAC 5G ICT Summit Case Study Booklet. Available at: https://www.gsma.com/about-us/regions/asia-pacific/wp-content/uploads/2024/08/APAC-5G-ICT-Summit-case-study-booklet.pdf

GSMA (2024) APAC 5G Industry Case Studies 2024. Available at: https://www.gsma.com/about-us/regions/asia-pacific/wp-content/uploads/2024/09/APAC-5G-Industry-Case-Studies-2024-FINAL.pdf

Housing & Development Board (2020) Completion of First Smart-Enabled HDB Homes in Punggol Northshore. Available at: https://www.hdb.gov.sg/about-us/news-and-publications/press-releases/30122020-Completion-of-First-Smart-Enabled-HDB-Homes-in-Punggol-Northshore

Infocomm Media Development Authority (2023) Building the Foundations for Our Digital Future: Next-Generation Digital Infrastructure and Research & Innovation. Available at: https://www.imda.gov.sg/-/media/imda/images/content/news-and-events/media-release/2023/cos-2023/2-building-the-foundations-for-our-digital-future.pdf

Intel Network Builders (2024) Yes Private 5G Helps Clarion Malaysia Digitize Production Line. Available at: https://builders.intel.com/docs/networkbuilders/yes-private-5g-helps-clarion-malaysia-digitize-production-line-1734424876.pdf

Malaysian Investment Development Authority (2025) Preparing Malaysia workforce for an AI-driven 2025. Available at: https://www.mida.gov.my/mida-news/preparing-malaysia-workforce-for-an-ai-driven-2025/

Michael Page (2024) Presales Solutions Architect (Big Data and AI) - JN-112024-6600026. Available at: https://www.michaelpage.com.sg/job-detail/presales-solutions-architect-big-data-and-ai/ref/jn-112024-6600026

Microsoft Malaysia (2024) Microsoft and LinkedIn release the 2024 Work Trend Index on the state of AI at work in Malaysia. Available at: https://news.microsoft.com/en-my/2024/06/06/microsoft-and-linkedin-release-the-2024-work-trend-index-on-the-state-of-ai-at-work-in-malaysia/

Raynovich, R.S. (2025) The Futuriom 50 2025 Is Here!. Available at: https://www.futuriom.com/articles/news/the-futuriom-50-2025-is-here/2025/02

Seatrade Maritime (2024) Singapore targets full maritime 5G coverage by mid-2025. Available at: https://www.seatrade-maritime.com/maritime-technology/singapore-targets-full-maritime-5g-coverage-by-mid-2025

Tech Wire Asia (2023) How is 5G enhancing AI autonomous warehouses?. Available at: https://techwireasia.com/2023/10/how-is-5g-enhancing-ai-autonomous-warehouses/

Telekom Malaysia (2024) TM GLOBAL Expands data centres in cyberjaya and johor to strengthen nation's digital transformation. Available at: https://www.tm.com.my/news/tm_global_expands_data_centres_cyberjaya_johor

The Edge Malaysia (2025) Communications minister formally ends 5G single wholesale network, to focus on dual network, The Edge Malaysia. Available at: https://theedgemalaysia.com/node/739621

Xinhua (2024) Feature: Jointly built 5G factory by China, Thailand to help Thailand's digital transformation. Available at: https://english.news.cn/asiapacific/20240519/7fa4492d45ae4eda8bc4bc85df43cf20/c.html

ACKNOWLEDGEMENTS

This publication is a product of the Malaysian Communications and Multimedia Commission (MCMC). We extend our sincere appreciation to the diverse community of contributors across Malaysia which includes telecommunications companies, sector enterprises, academic institutions, industry associations and subject matter experts. The valuable insights and perspectives obtained have shaped the development of this report through their participation in our research, validation workshops and engagement sessions.

Capgemini Services Malaysia Sdn. Bhd.	Mavenir Systems, Inc.
CelcomDigi Berhad	Northport (Malaysia) Bhd
Digital Nasional Berhad (DNB)	Ookla, LLC
Digital Society Research Grant Programme	Petroliam Nasional Berhad (PETRONAS)
Edotco Group Sdn. Bhd.	PIKOM – The National Tech Association of Malaysia
Ericsson Malaysia Sdn. Bhd.	PROTON Holdings Berhad
Federation of Malaysian Manufacturers	Telekom Malaysia Berhad
FELDA (Federal Land Development Authority)	Tenaga Nasional Berhad (TNB)
Global System for Mobile Communications Association (GSMA)	U Mobile Sdn. Bhd.
Huawei Technologies (Malaysia) Sdn. Bhd.	Westports Malaysia Sdn. Bhd.
International Telecommunication Union (ITU)	YTL Communications Sdn. Bhd.
IoT Association Malaysia	ZTE (Malaysia) Sdn. Bhd.
Maxis Berhad	

MALAYSIAN COMMUNICATIONS AND MULTIMEDIA COMMISSION

MCMC HQ Tower 1
Jalan Impact, Cyber 6
63000 Cyberjaya
Selangor Darul Ehsan
Malaysia

Tel: +60 3 8688 8000
Fax: +60 3 8688 1000
www.mcmc.gov.my