



Frequently Asked Questions

National 5G Task Force

January 2020

National 5G Task Force

Objectives of the Task Force

1. *What are the objectives of the National 5G Task Force (Task Force)?*

The Task Force was formed to study and recommend a holistic strategy for 5G implementation in Malaysia.

2. *What are the desired outcomes of the Task Force?*

The Task Force is expected to produce a comprehensive report of its findings and recommendations for Malaysia’s adoption of 5G technology for the benefit of the nation. The proposals are also expected to consider and support targets in the National Fiberisation and Connectivity Plan (NFCP).

3. *When will the Task Force be expected to provide the report to the Government?*

The Task Force handed over its report titled “5G Key Challenges and 5G Nationwide Implementation Plan” to MCMC on 18th December 2019. It will be formally handed over to the Minister of Communications and Multimedia Malaysia YB Gobind Singh Deo at the 5G Malaysia International Conference 2020 in Langkawi on 20th January 2020.

Structure

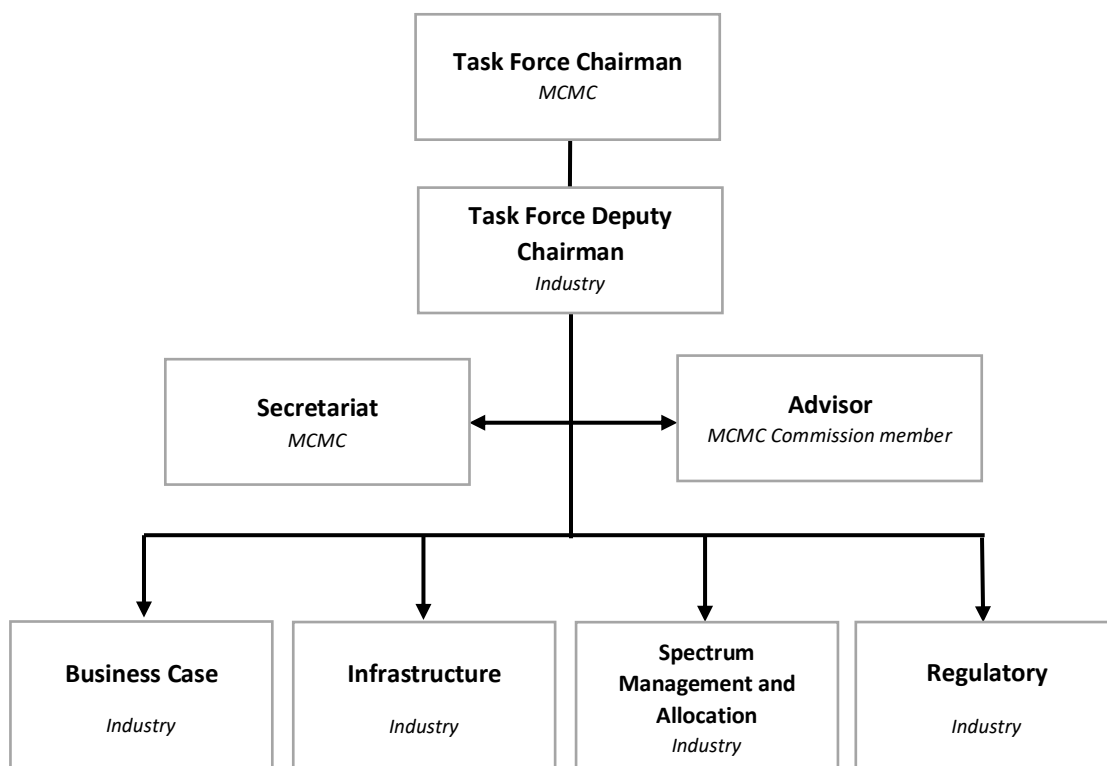
4. *How is the Task Force organised and how does it work?*

To ensure that all aspects of 5G technology and service delivery are considered, the Task Force has 4 main working groups to look into the following areas: -

WORKING GROUP	FOCUS AREAS
Business Case	<ul style="list-style-type: none">• Economic areas/verticals and benefit to the nation i.e. GDP growth, creation of new jobs, etc.;• User trends, requirements and demand study - industry and general public; and• Proposals to encourage 5G adoption.
Spectrum Management & Allocation	<ul style="list-style-type: none">• Current progress for spectrum allocation at ITU, APT and Malaysia;• Required bandwidth to support national targets;• Identified spectrum bands for Malaysia; and

	<ul style="list-style-type: none"> • Timeline for spectrum allocation.
Infrastructure	<ul style="list-style-type: none"> • Infrastructure requirements and coverage for optimum 5G deployment for different services – eg. retail, wholesale, consumer, industry, etc.; • Gap analysis on current networks to deliver 5G nationwide, including expected cost, challenges; • Infrastructure planning, approval and addressing right-of-way issues; and • Strategy to deliver 5G coverage to rural areas.
Regulatory	<ul style="list-style-type: none"> • Accommodating future business models for network providers and relevant stakeholders; • Technical standards to be adopted; • Optimum number of mobile operators; • Identify constraints in current regulatory frameworks related to communications; and • Proposed improvements to the regulatory frameworks.

Task Force Structure



5. *Who are the Task Force members and how many of them are there?*

This is a multi-stakeholder Task Force. Its members are from the public and private sectors including telecommunications service providers, businesses, communications equipment vendors, associations, academia, ministries, agencies and MCMC.

The Deputy Chairman and the four Working Group Leaders were elected and appointed by the Task Force members. By the end of its tenure in December 2019, there were 114 member organisations in the Task Force.

5G Task Force Report

6. *What are some of the findings of the Task Force and its recommendations?*

The Report contains recommendations for 5G deployment in Malaysia and is divided into several sections as follows:

- i. Overview and executive summary;
- ii. Business case;
- iii. Spectrum;
- iv. Infrastructure;
- v. Regulatory; and
- vi. Conclusion.

Key recommendations of the report are:

Business case

Duration	Proposed State	Proposed Focus area	Rationale
Phase 1: 2020-2021	Johor	Smart City	• To leverage on existing state's Iskandar Malaysia Smart City
	Johor	Retail & services	• To leverage on Johor's Visit Johor Year 2020 as well as host for the Malaysia Games
	Sabah	Agriculture	• The Sabah Agricultural Development Action Plan has launched in July 2019 with focus on boosting the income of

Duration	Proposed State	Proposed Focus area	Rationale
			farmers and landowners through the planting of strategic crops ¹
Phase 2: 2022-2024	Kulim High Tech Park, Kedah	Manufacturing for E&E sector	<ul style="list-style-type: none"> • Presence of MNCs & LCD with export orientation
	Pahang	Transportation	<ul style="list-style-type: none"> • To support the last mile for ECRL and connect the supply chain between east and west coast regions
	Sarawak	Healthcare	<ul style="list-style-type: none"> • To increase the healthcare service delivery to rural areas of Sarawak & narrow the healthcare gap within and between states • Additionally, to serve local market, the initiative can scale up to medical tourism in later stage. Sarawak recorded 48,900 healthcare visitors who came to Sarawak for health screening and medical treatment with total receipts of RM67.10 million in 2018².

Spectrum

Global Update:

- C-band and mmWave identified as strongest candidates for 5G:
1. Globally, C-band has been licensed to 64 Telecommunications Operators
 2. Existing bands in Malaysia does not have large contiguous bandwidth needed and also heavily utilised
 3. Strong device ecosystem—56 devices supporting C-band N77 and N78

¹ [The Star](#), 26 July 2019.

² [The Star](#), 7 May 2019.

Identified bands:	<ol style="list-style-type: none"> 1. Priority 1: <ul style="list-style-type: none"> • C-band: 3.3GHz to 3.4GHz (5G limited use)/3.4GHz – 3.8GHz (normal 5G use) to coexist with FSS (3.8GHz - 4.2GHz) • mmWave 26GHz and 28GHz (27.1GHz – 29.5GHz) <ul style="list-style-type: none"> - Depends on resolution coexistence with EESS in WRC-19 2. Priority 2: <ul style="list-style-type: none"> • Other bands including existing bands such as 700MHz (~11 bands) 3. 700MHz band has been identified as the future 5G band to support mMTC
Bandwidth: (Block size)	<ol style="list-style-type: none"> 1. Bandwidth block size for Priority 1 bands: <ul style="list-style-type: none"> • C-band: 3.3 to 3.4GHz (limited use) — 50MHz/3.4GHz — 3.8GHz (5G normal use)—100MHz • mmWave 26GHz and 28GHz – 400MHz 2. Bandwidth for Priority 2 bands: same principle as Priority 1 3. Private network: 5G Task Force fully supports the availability of Private 5G networks in Malaysia and believes that it should be provided in the most efficient way: through Telecommunications Operators (Telcos) and Network Slicing
Timeline:	<ol style="list-style-type: none"> 1. Priority 1: <ul style="list-style-type: none"> • C-band: assignment in Q3 2020 and will go live by Q1 2021 • mmWave: assignment in Q1 2021 and will go live by Q3 2021 2. Priority 2: Completed within 5 years depending on utilisation and ecosystem
Challenge:	<ol style="list-style-type: none"> 1. 5G to coexist with FSS especially in C-band using mitigation techniques such as Guard Bands (FSS), band pass filter (FSS), Cage (FSS), RF optimisation (5G) and Distance (5G). 2. Theoretical study suggests that the band pass filter will resolve blocking interference and distance separation between 70m & 270m for both LOS and NLOS scenarios, and will overcome spurries interferences. 3. Test plan on C-band coexistence provided as a guide for future testing.

Infrastructure planning

The Task Force is of the view that operators are most likely to launch non-standalone (NSA) networks for lowest cost coverage and best customer experience of enhanced mobile broadband (eMBB); however, this will depend on the operator’s strategy.

Expected need for very high speeds, data volumes and very low latencies suggests a design which pushes network and computing resources close to the end customer, rather than bringing all traffic to a centralised location (higher delays and congestion). The Task Force is of the opinion that Mobile Edge Computing will be the architecture that meets this purpose.

Based on a scenario modelled by the Task Force, it is estimated that the total number of 5G sites required to achieve 90% population coverage is approximately ($\pm 10\%$) 10,000 sites on 3.5GHz 100MHz C-band.

The Task Force's high-level estimate assumes that a 5G radio can cost about RM510,000 per site including software. Hence, a total of RM5.1 billion is required for 10,000 sites.

Taking into account all other costs such as upgrading of the core network, radio and transport networks, IT systems, etc., the overall cost for a network upgrade to 5G would be about RM7.5 billion.

Government policies

5G is expected to require additional infrastructure in new forms, including smaller cells and more densely located sites particularly in the use of high-band spectrum. The Task Force foresees that site acquisition will present new challenges for timely deployment of 5G, hence, it is important to make it easier to build mobile networks and ensure that planning and approval requirements will not be a barrier to deploy 5G sites and infrastructure.

Amendment to relevant legislation to treat telecommunications services as public utilities, with simplified approval process, will facilitate more efficient roll-out including more access to government land, building or assets and further land reforms. There should also be open access policy to prevent anti-competitive conduct by licensees.

To reduce regulatory friction in building mobile networks to ensure that planning and approval requirements will not be a barrier to 5G deployment, the Task Force recommends the following actions:

1	<p>Facilitating timely infrastructure deployment by:</p> <p>Amending relevant legislations and guidelines:</p> <ul style="list-style-type: none"> ○ Town and Country Planning Act 1976 ○ Uniform Building By-Laws 1984 ○ Street Drainage and Building Act 1974 <p>Streamlining policies concerning infrastructure planning and approval mechanisms with coherent adoption by all government agencies:</p> <ul style="list-style-type: none"> ○ Ministry of Housing and Local Government (KPKT)'s Smart Cities guideline to facilitate 5G and infrastructure rollout <p>Embed new infrastructure standards required for 5G in the relevant guidelines for infrastructure planning and implementation</p> <p>Review KPKT's Garis Panduan (Pindaan) Pembinaan Menara dan Struktur Sistem Pemancar Komunikasi Dalam Kawasan Pihak Berkuasa Tempatan, 2002</p> <p>Operationalise Section 215 (1)(b) of CMA98 on Low Impact Network Facilities</p>
2	<p>Coordination Body at Federal Government and Local Government</p>
3	<p>Ensuring Open Access Policy to Promote Healthy Infrastructure</p> <p>Strengthen current legislations to prevent anti-competitive conduct</p> <p>Establish a discussion platform at state level co-chaired by MCMC/KKMM and State Authorities</p>
4	<p>More Access to Government Land, Building or Assets and Further Land Reforms</p>

Advocacy & Security

Improvement to the public's understanding on 5G and the effects of electromagnetic field (EMF) radiation matters should be undertaken jointly by MCMC, Ministry of Health, Malaysian Technical Standards Forum Bhd (MTSFB), Consumer Forum of Malaysia (CFM) and the mobile operators.

The relevant government agencies should collaborate on:

- a. A Standard Operating Procedure (SOP) for consumer issues or complaints on EMF at the local councils and local authority (*Pihak Berkuasa Tempatan*) levels; and
- b. The local councils and local authorities should consider evidence-based requirements for complaints prior to consideration to dismantle sites (e.g. EMF compliance supported by report from Agensi Nuklear Malaysia).

On the security of 5G networks, MTSFB should ensure up-to-date technical standards. The expertise of National Cyber Security Agency (“NACSA”) should be leveraged to collaborate with MCMC and the private sector to develop a standardized minimum security assessment checklist whereby it will clearly define responsibilities and standards towards ensuring secured 5G networks.

MIER study on 5G

7. What kind of study did MIER conduct on 5G?

MCMC engaged the Malaysian Institute of Economic Research (MIER) to assess the kind of impact that 5G technology and services will have on the country’s productivity and economic growth.

8. What are some of the findings of the study?

MIER was of the view that further investment into telecommunications infrastructure should be considered as it is theorized that the improvement of Malaysia’s economy will depend upon the development of the communications and multimedia sector.

The economic effects of digital communications could manifest in several ways:

- a. like any infrastructural investment, the effects of the physical construction projects have both forward and backward linkages to the economy, including new jobs creation;
- b. there will be rise in productivity for both businesses and users, particularly in terms of time-saving and efficiency; leading to improvements in multifactor productivity (MFP); and

- c. the augmented use of the technology by consumers increases real household income.

Thus, a clear policy framework for 5G deployment will be critical because the required capex to roll out 5G infrastructure could be significant.

The following are key findings of the study:

- a. New Technologies Transform the Economy

One of the characteristics of high-income economies is the high rate at which they assimilate new technologies. Investment in communications technology and infrastructure promotes economic growth and national competitiveness. Malaysia must invest significantly in the latest generation telecommunications and other technologies in order to achieve high income status.

- b. Contribution to the Economy (2021-2025)

Malaysia is estimated to have 2.1 million 5G subscriptions by 2025 with an estimated penetration of 6.6 subscriptions per 100 people.

The economic contribution of the 5G rollout to GDP is estimated to total RM12.7 billion during 2021-2025.

- c. New Jobs Creation

Between 2021 and 2025, almost 39,000 new jobs will be created in the economy, with almost 40% of the jobs being available in 2025. New jobs will more likely reduce the dependence on low-skilled foreign labour; any job losses to Malaysians should be frictional.

- d. Socioeconomic benefits of 5G

5G deployment can bring some positive impact to quality of life. For example, improved quality of life can be provided by better healthcare, education, transportation, consumer

experience, environment and smarter cities, all of which will enable Malaysians to be more productive for a longer period of time as life expectancy increases.

As connectivity improves, rural areas will begin to enjoy the benefits of 5G, such as better education, improved healthcare and greater employment opportunities. The yield from livestock and farming will also increase as the IOT devices will provide useful data for precision farming.

9. Are there any potential problems or challenges we should expect from implementing 5G?

The advent of new technologies provides opportunity for economic growth; more so with technologies like 5G which is expected to disrupt businesses and work culture. Many of the jobs we have today can be replaced by technology, and 5G will be a key enabler for this transformation. Workers may need to switch occupations and learn new skills, resulting in a major shift in the labour market.

10. What will the Government do with these two reports? What are the future plans?

The Ministry and MCMC will study these two reports to find the best way forward for the nation. We also have the NFCP targets and the 12th Malaysia Plan so all our plans from this point forward will be closely aligned so that both the private sector and the Government are moving in the same direction.

The Minister has also announced that an Implementation Task Force will be set up to monitor the deployment of 5G networks and services. This new Task Force will be responsible to also promote deployment of 5G technology and services amongst the public sector, particularly in Government for delivery of services using the latest 5G technology.