

Global trends in 5G and beyond: snapshots from recent Cullen International research

30th OSIPTEL anniversary

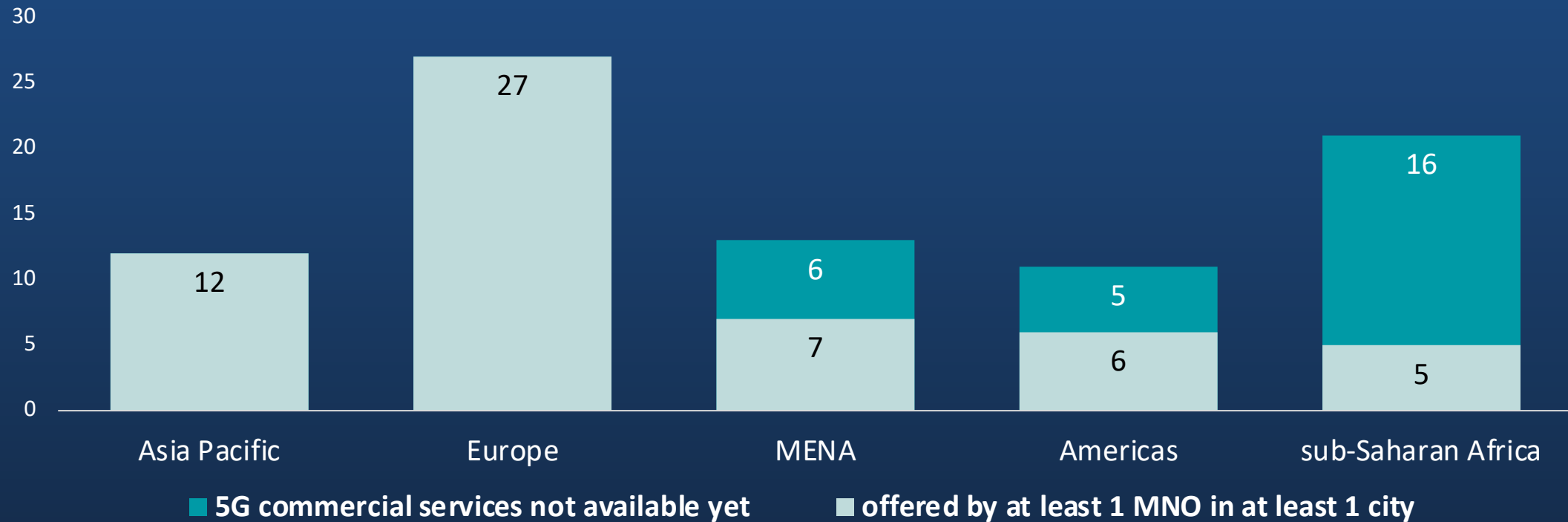
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Global Trends research on “5G and beyond”

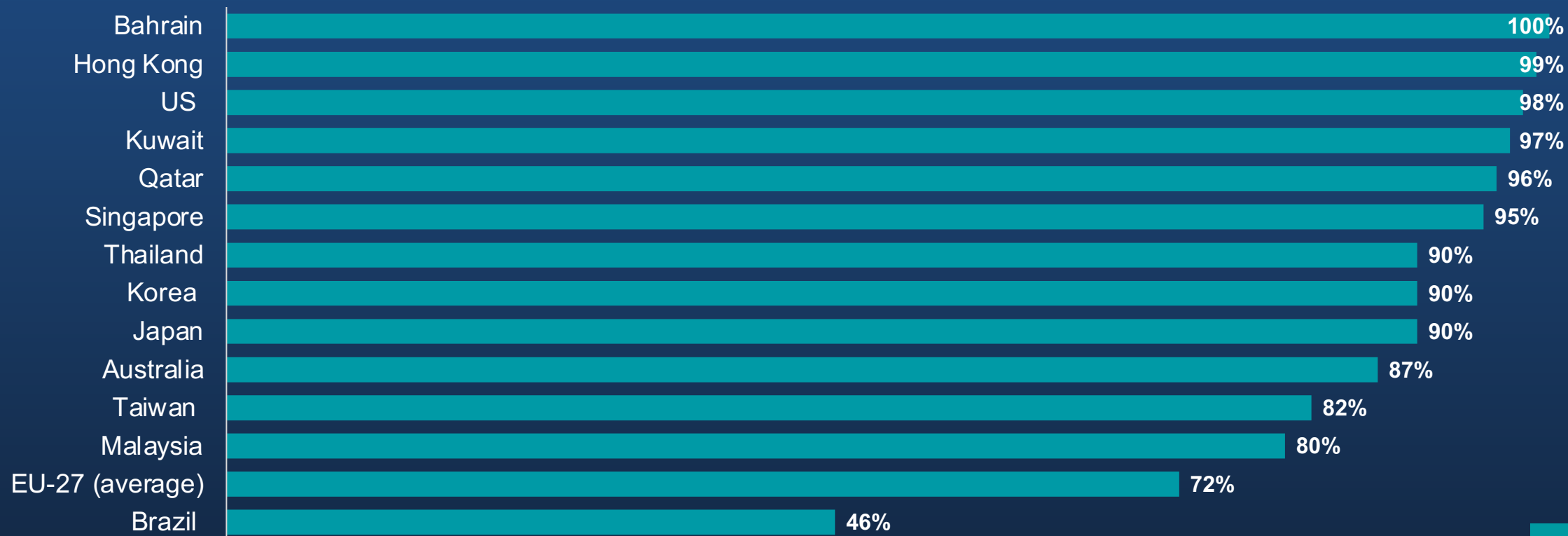
1. Global trends on supply and demand for 5G. Status of deployments and plans on 5G. What type of deployments? What services are offered in the market? What is the 5G uptake among mobile service users?
2. Policies put in place by governments capable of generating concrete impacts on 5G availability and affordability. Facilitation of deployments, government incentives on supply and demand, restrictions on technology vendors or to network slicing.
3. Spectrum assignments, by type and including terms and conditions on the use of radio spectrum (fees, coverage & quality obligations, flexibility in the use of radio spectrum).
4. Towards 6G: first debates in some jurisdictions

Commercial availability of 5G services in selected jurisdictions around the world



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5G population coverage is growing

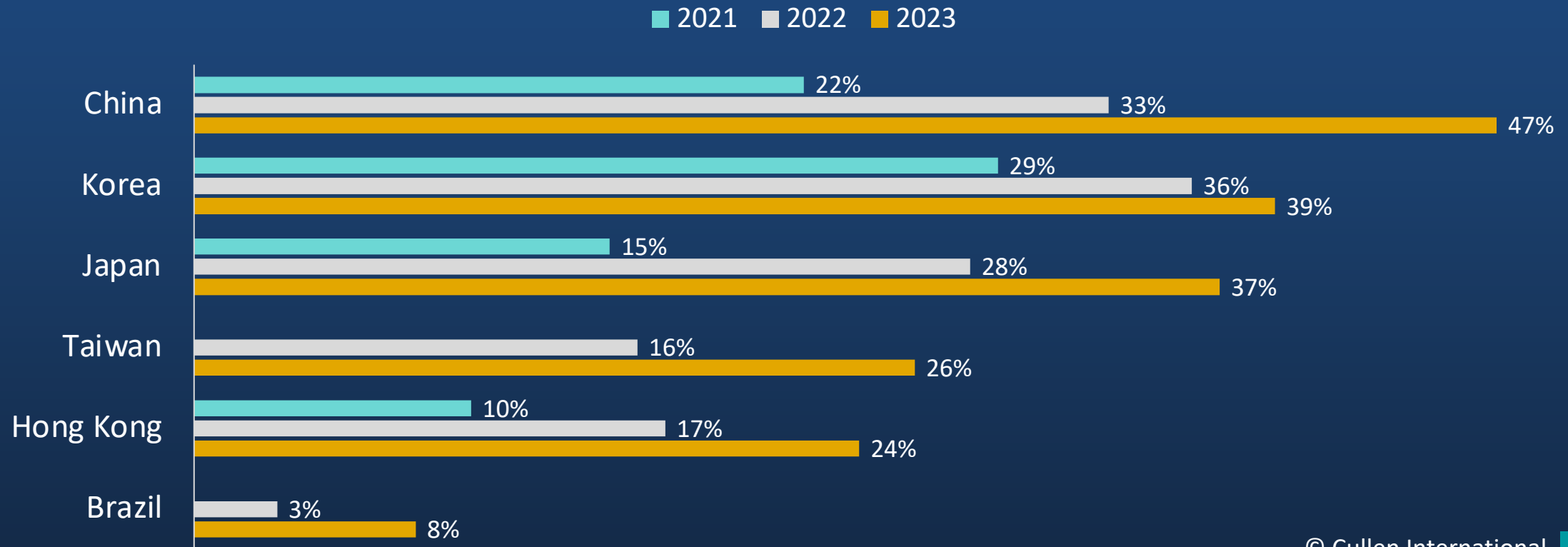


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Sources: operators' websites. Country data refer to highest coverage reported by at least one MNO

EU Source: European 5G Observatory. Malaysia: DNB coverage

Where official statistics on 5G uptake are available, they show increasing adoption of 5G technology among mobile service users















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Note: this chart shows selected indications of 5G take-up in jurisdictions where official statistics on 5G connections are published. Reference date 4Q23

Sources: China: MIIT; Korea: MSIT; Japan: MIC; Taiwan: NCC; Hong Kong: OFCA; Brazil: Anatel

Deployment-friendly policies for 5G: selected examples













												
OPERATIONAL	AU	BR	CN	EU	HK	IN	JP	KR	NZ	SG	TW	US
Planning of sites, small antennas	✓	✓	✓	✓				✓				✓
Facilitating rural deployments					✓		✓		✓			✓
RoW access to public and private infra			✓	✓	✓	✓		✓		✓	✓	✓
Sharing and co-deployments			✓				✓				✓	
FINANCIAL												
5G use cases, innovation, R&D	✓	✓		✓	✓	✓	✓	✓		✓		
Tax exemptions infra stimulus		✓	✓		✓		✓	✓				
Capacity upgrades			✓				✓		✓		✓	✓

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Note:

EU: new facilitation measures on 5G deployments are proposed under the draft Gigabit Infrastructure Act (GIA)

Spectrum for 5G

												
ASSIGNMENT METHODS	AU	BR	CN	HK	IN	JP	KR	NZ	SG	ZA	TW	US
Auction	✓	✓		✓	✓		✓			✓	✓	✓
Beauty contest						✓			✓			
Direct assignment			✓					✓				
USE CONDITIONS												
Coverage obligations		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Access/sharing obligations			✓			✓	✓					
Use or lose provisions				✓	✓		✓	✓				✓
Specific quality requirements for 5G		✓							✓			

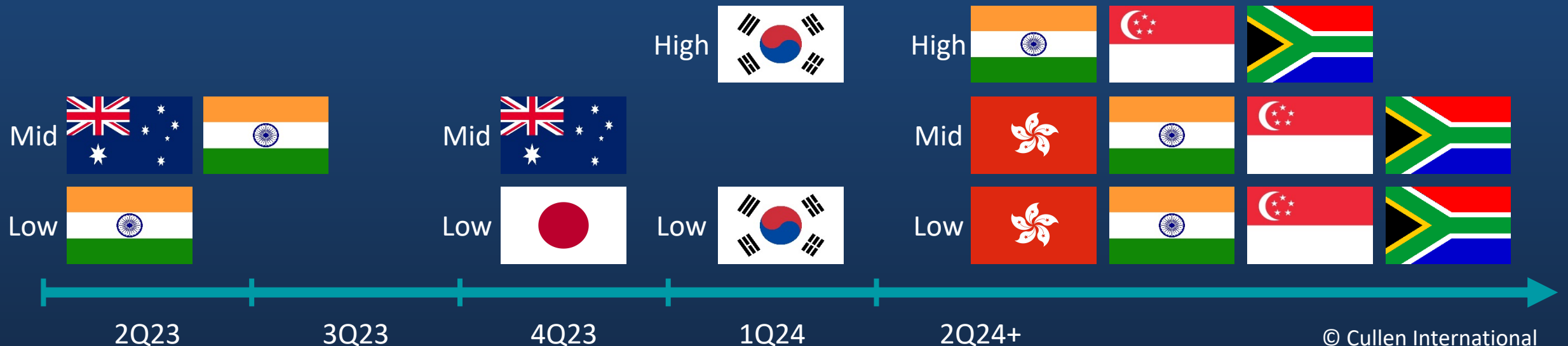
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Notes:

New Zealand: 3.5 GHz band. Assignment against coverage commitments

EU: spectrum assignments were carried out at national level by authorities in member states, therefore not shown in this slide

Examples of recent and upcoming 5G spectrum awards in selected countries around the world



Note: Examples. Many more awards are scheduled in other countries across all world regions

Towards 6G

New debates	Jurisdictions							
Government strategy								
Radio spectrum (6-7 GHz band for IMT)								
Support to R&D								

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Notes: depending on jurisdictions R&D activities are carried out by industry, academia, as well as private and public research centres

Conclusion

- High diversity across regions (and countries within the same region) on 5G availability
- Industrial policies on 5G infrastructure also vary. Different models and approaches. Importance of government - industry collaboration to accelerate 5G deployments.
- A look at the future:
 - How to fully leverage the technology, especially in its industrial uses?
 - Addressing regional, sub-regional and national infrastructure gaps. What else can be done to support infrastructure upgrades?
 - Technology evolution continues and some jurisdictions are starting preparing for 6G

Thank you!

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