Update 5G Development in Thailand

Telecommunications Policy and Resources Management Bureau

Office of The National Broadcasting and Telecommunications Commission

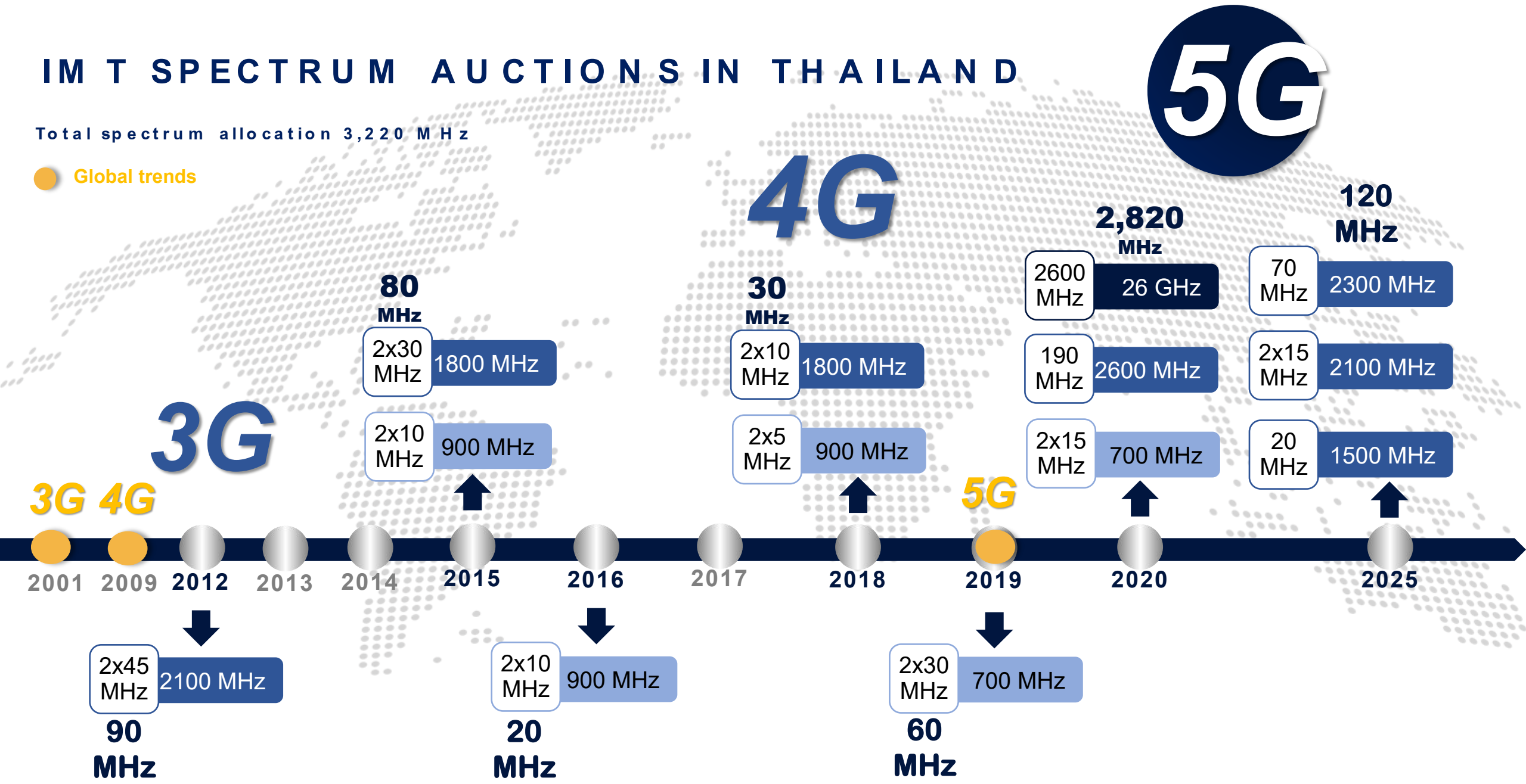
September 2025

5G Development

IMT SPECTRUM AUCTIONS IN THAILAND

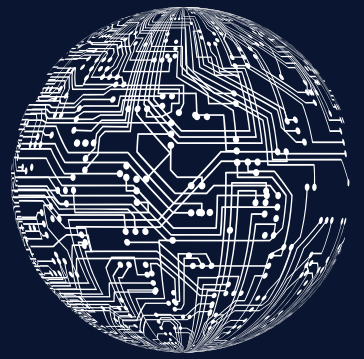
Total spectrum allocation 3,220 MHz

Global trends



NBTC

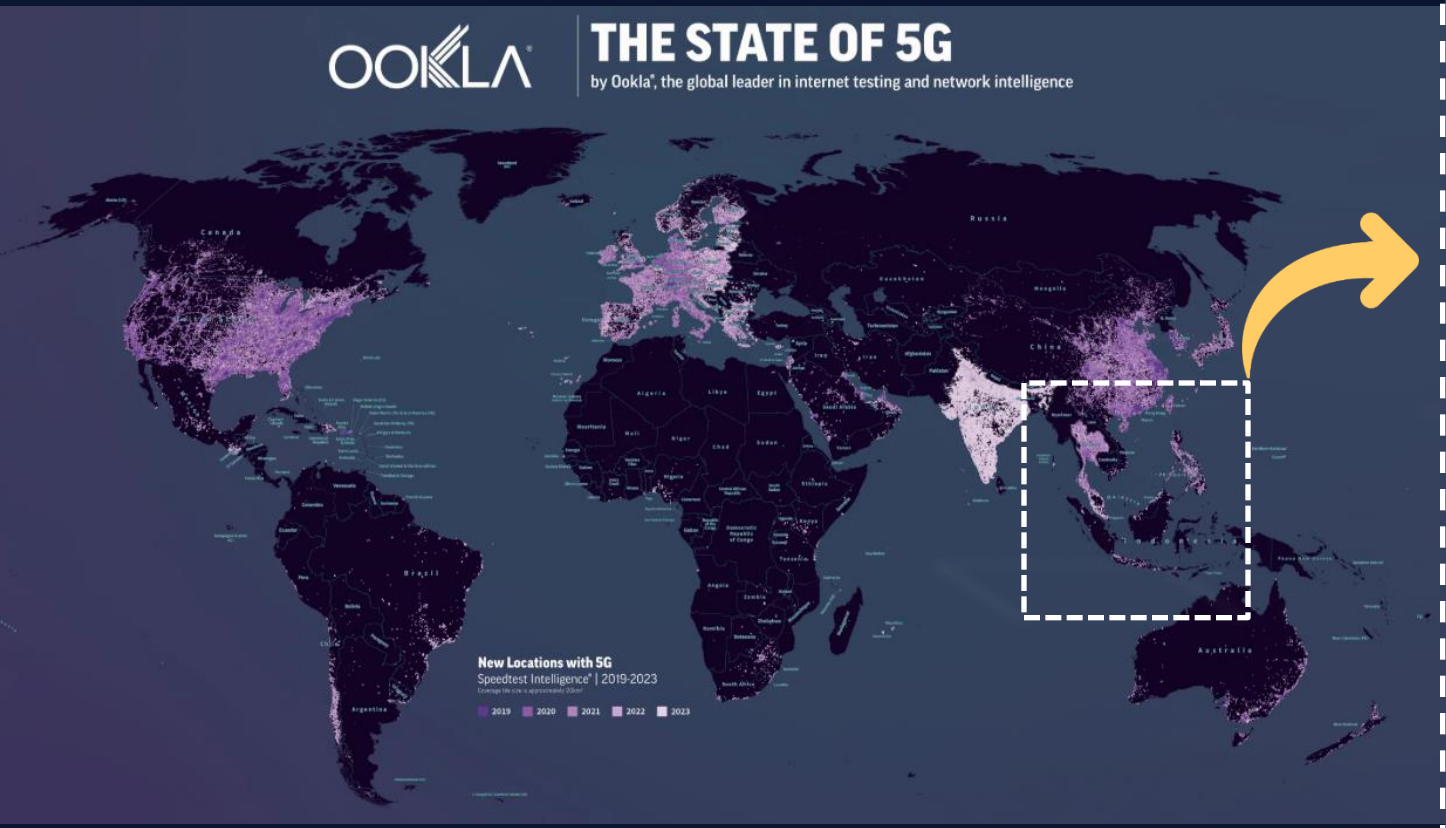
Coverage by Technology

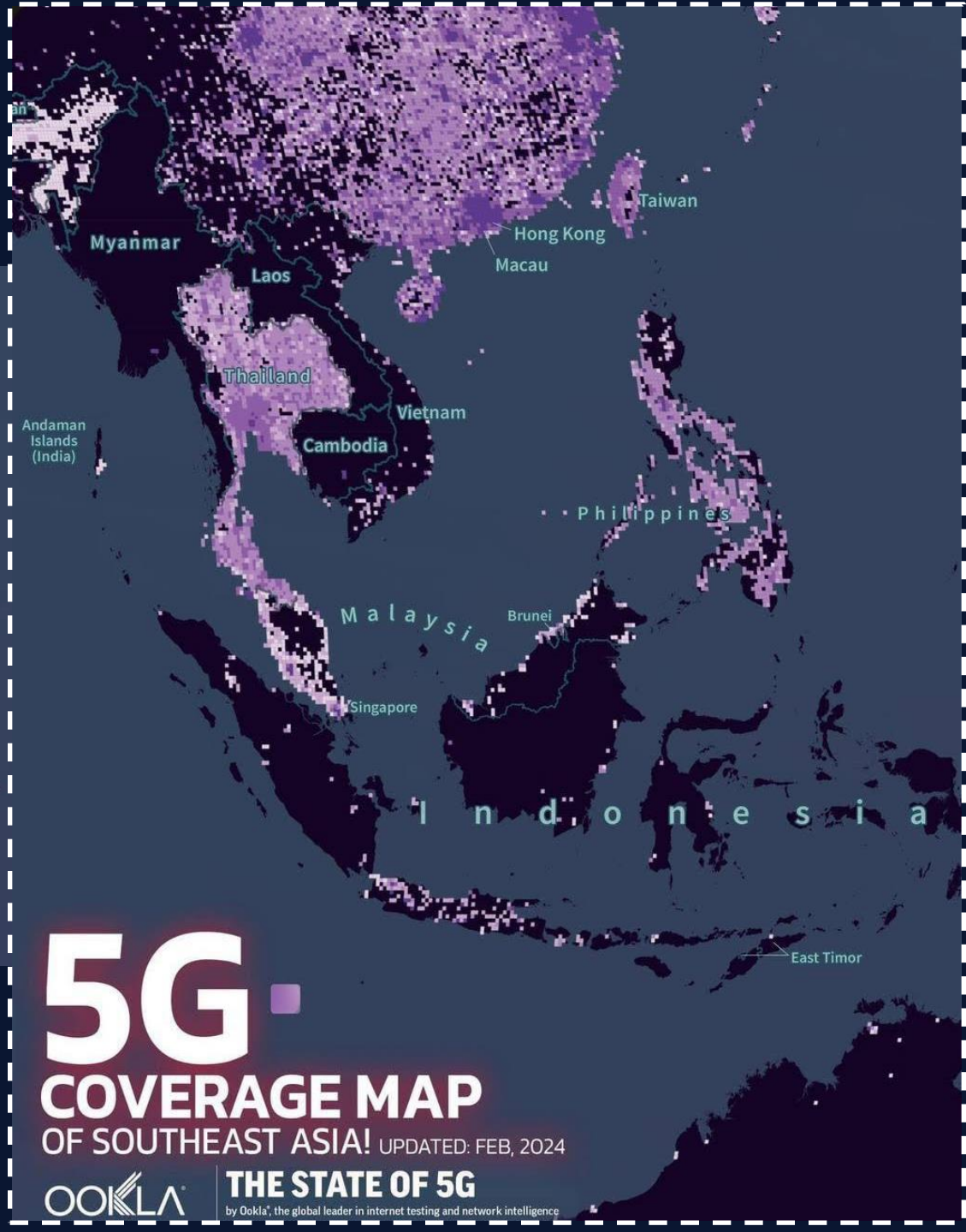


		3G	4G	5G
		850 M Hz 900 M Hz 2100 M Hz	700 M Hz 900 M Hz 1800 M Hz 2100 M Hz 2300 M Hz 2600 M Hz	700 M Hz 2600 M Hz 26 GHz
EEC Chachoengsao, Chonburi and Rayong	AWN true 2600 M Hz Coverage by Area 95.70%			
 Bangkok Metropolitan Region	Coverage by Area	100 %	99.99 %	99.99 %
	Coverage by Population	100 %	99.99 %	99.99 %
 Nationwide	Coverage by Area	96.12 %	98.01 %	83.03 %
	Coverage by Population	98.77 %	99.15 %	91.00 %

Source : data from 2 telecom operators at Feb. 2024

Global 5G Coverage Map



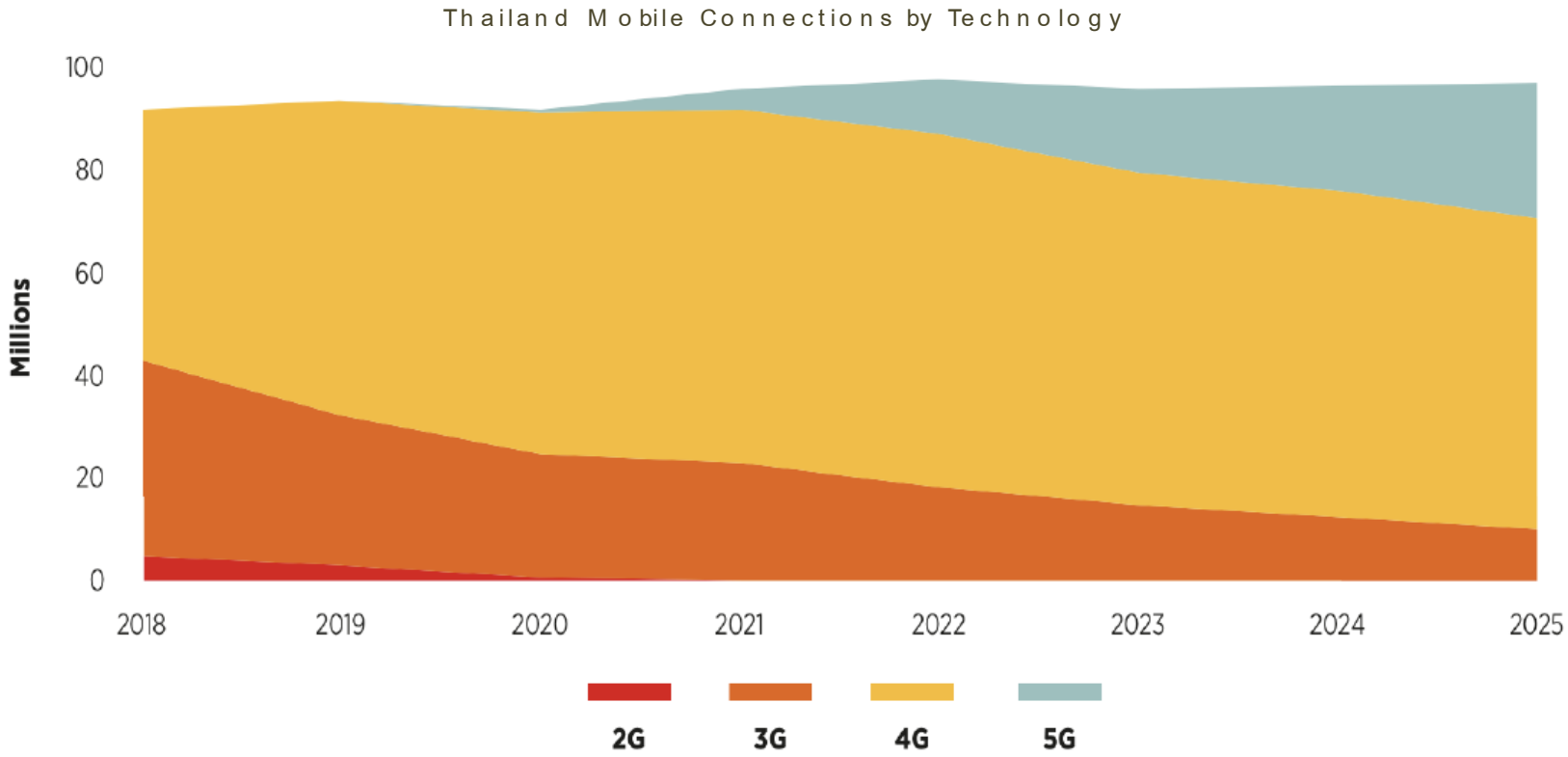


Source : Ookla, Feb. 2024

5G ADOPTION RATE

5G Service

- launched in 2020
- 5G networks covered 91% of population as of 2024
- 5G adoption is forecast to reach 26.7 million (40.4% of population) by 2025



Source: GSMA

Regulatory Sandbox

And 5G use cases in Thailand

REGULATORY SANDBOX

- Area based regulatory sandbox
- **Light touch regulation** during the phase of R&D and pre-commercial stage to allow some unexpected outcomes in confined and observed areas
- Manageable interference cases
- Maximum **2 years** of license
- With privacy and security compliance

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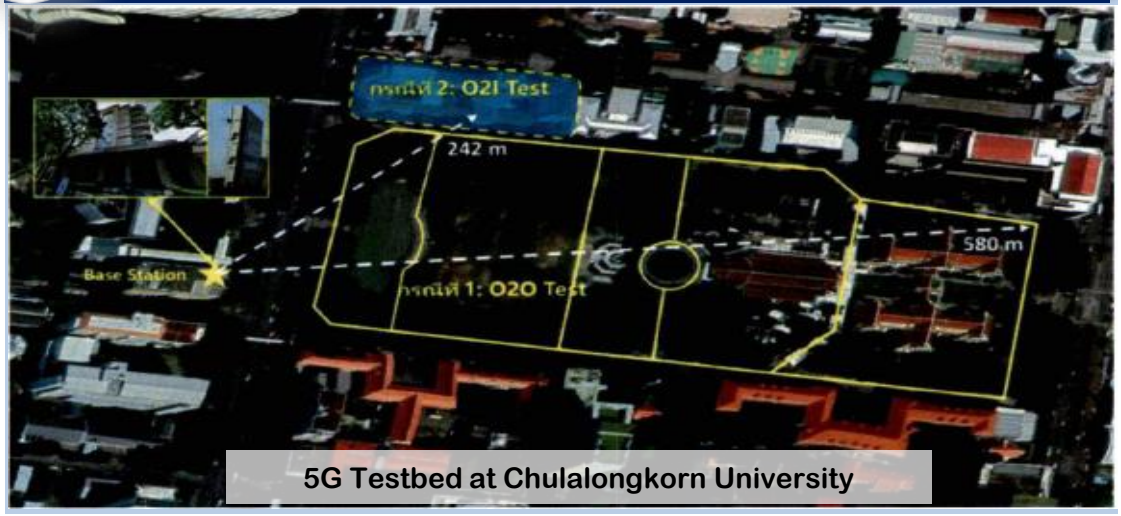
SANDBOX

1 Experimental Study and Implementation of 5G Technology on 6 GHz Band



5G Testbed at Chulalongkorn University

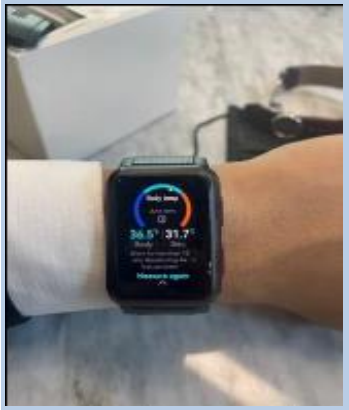
Project Details

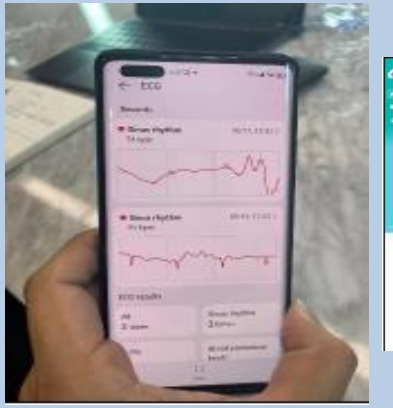
- To research and study the 6GHz frequency band (6425 – 7125 MHz) for IMT (5G and Beyond).
- Trial 2 cases: Outdoor-to-Outdoor (O2O) and Outdoor-to-Indoor (O2I)

Project Result

- Testing results for O2O and O2I have shown that the 6GHz band provides excellent coverage performance in both cases.
- Communication performance can also be improved by increasing the transmission power and bandwidth.

2 Wearable devices for health record and diagnosis


Device


Input-output data


Monitoring dashboard

Project Details

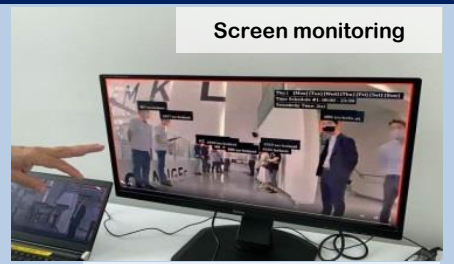
- Testing the wearable devices on 5G network and AI technology.
- To collect personal health information such as pulse values, heart rate. blood oxygen etc. and storage on Cloud.

Project Result

- The data from devices can be sent in a real time tracking platform that connects and transmits data efficiently on 5G, which has been found to be fast and accurate.
- Accurate and timely processing and high efficiency.

SANDBOX

3 5G Private Network for Smart Factory



Project Details

- Robot detection on 5G private network for safety place and worker protection. Ex. Detect the workers who don't wear protective helmets while working, real time monitoring sensor for machine.
- Autonomous robot moving between manufacturing lines and inventory areas with private 5G.

Project Result

- Real time detection and display on the parameter dashboard in real time with accurate data.

4 Logistics Drone

Project Details

- Frequency band 900 MHz. (915 – 920 MHz, 925- 928 MHz)
- To test air transportation and feasibility study for delivery items such as medicines, food and packages to drilling rig instead of transporting by helicopter which has very high costs or by cargo ship that takes a long time.

Project Result

- Satisfied on various criteria as follows:
  - Signal quality and interference in the 5G band
  - Flight controls in various phases of fight.
  - Emergency landing controls

5G CASE STUDY: SIRIRAJ 5G SMART HOSPITAL PROJECT

Late 2020	Jan. – Dec. 2021	16 Dec. 2021	Jun. 2022
5G committee approved the project	Project implementation and trial (with 8 subprojects)	Opening ceremony	Performance report submitted to NBTC

- Siriraj Hospital is the largest public hospital in Thailand and one of the largest hospitals in Southeast Asia.
- Siriraj Hospital uses the 5G Technology, Cloud, AI, and Digital Disruption to bring more efficient and convenient experience to patients and be a role model for other hospitals in Thailand to develop and transform into smart hospitals.

1st release of 5G Self-Driving vehicle

In Dec. 2021, the Prime Minister attended the opening ceremony and gave opening speech project “Siriraj World Class 5G Smart Hospital”

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5G CASE STUDY: RAMATHIBODI HOSPITAL PROJECT

8 May 2023	May 2023 – April 2024	90 days after project completed
NBTC granted fund to Rama Foundation	Project implementation and trial (with 6 sub-projects)	Submit performance report to NBTC

1. Block Chain on 5G Cloud network

To record health/medical history on cloud network and real-time sharing patients' health record with their own health history on mobile application and doctor with a high level of privacy and security.

2. Tele Medicine Consultation

Telemedicine consultation project on mobile devices by using IoMT such as ECG measurement checking vital signs blood and urine results information.

3. Robot Assistant / Delivery

The 5G Robot Concierge serves to welcome patients as well as help walk them to their appointments and to facilitate medical equipment transportation.

4. Hololens Glasses on 5G network

AR/VR on 5G technology with AI to help surgeons in using glasses to prepare for complicated surgeries and the emergency medical team can provide first aid advice while waiting for doctor..

5. Cloud & AI Diagnosis (Screening)

5G technology together with AI technology to analyze the physical characteristics by image or x-ray film of various diseases to assist doctors in preliminary screening of patients.

6. 5G Multi-Access Edge Computing Connectivity

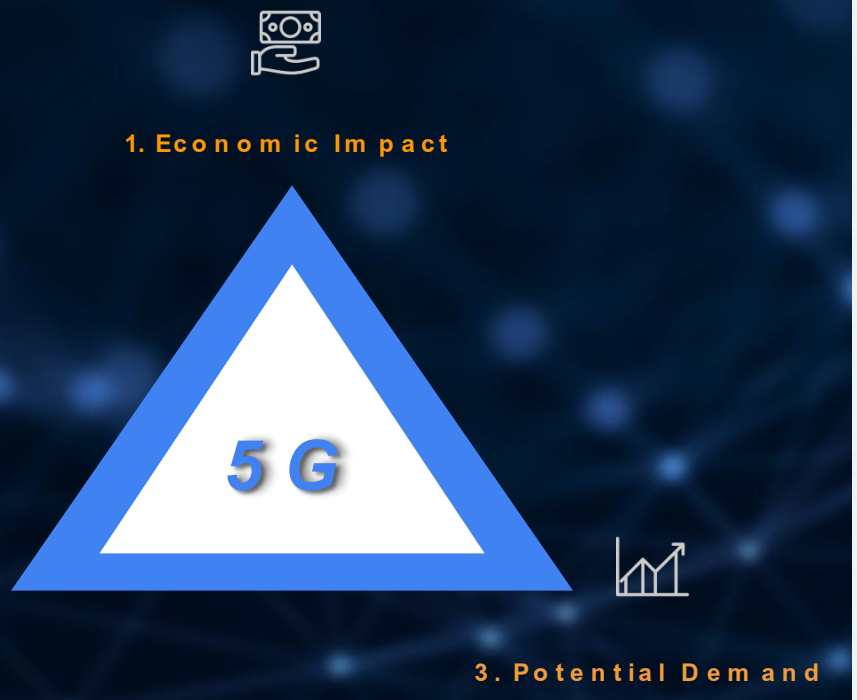
To enhance 5G network coverage in the 5G Next-Gen Health Care project by supporting the smart devices such as Robot Assistant robots, HoloLens glasses, ECG measuring devices etc.

Collaboration with the Bank of Thailand

A study on the economic impact of 5G adoption and 5G readiness

Concept of 5G utilization in the potential sectors

Dimensions of 5G Adoption Index

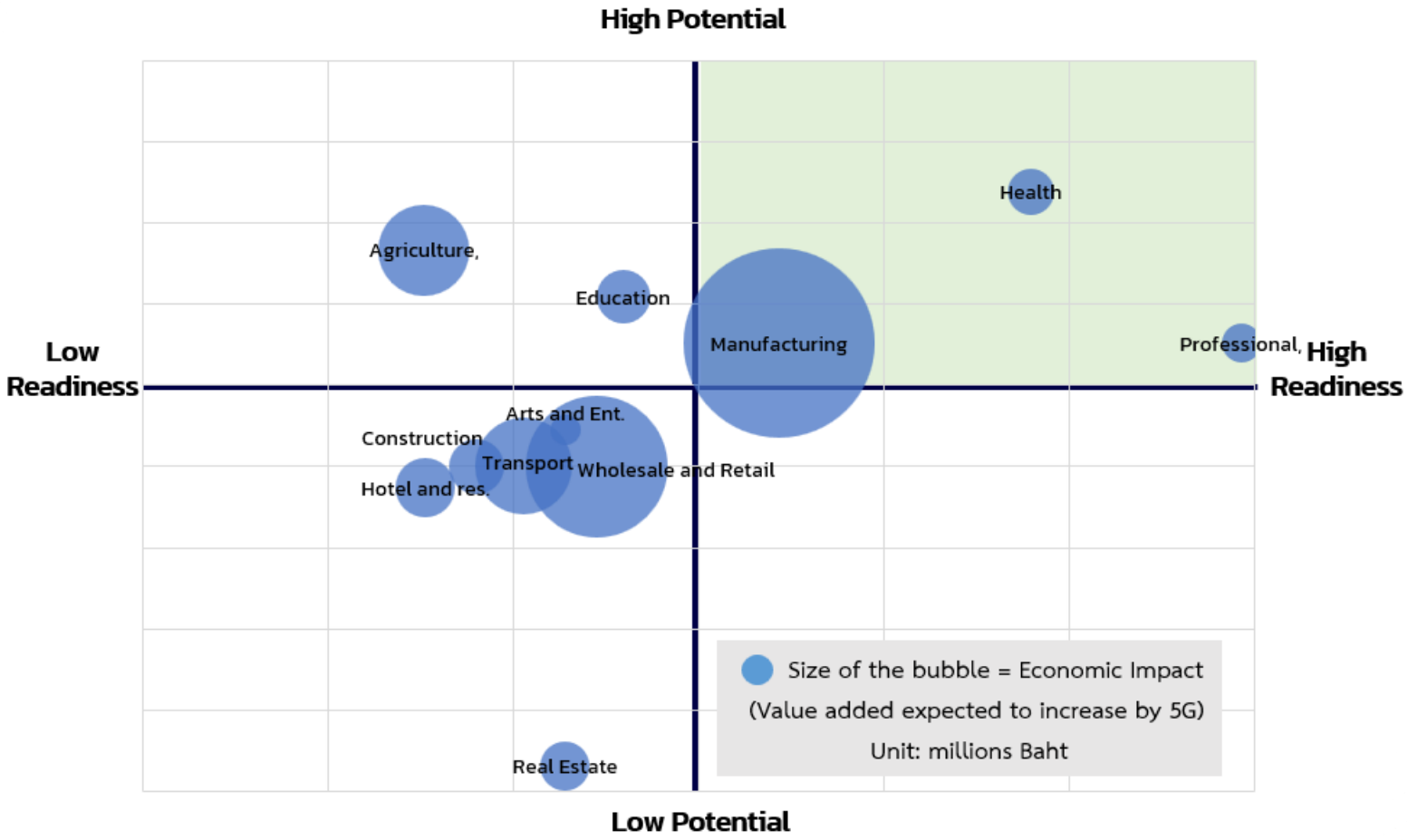


Scope: 11 sectors

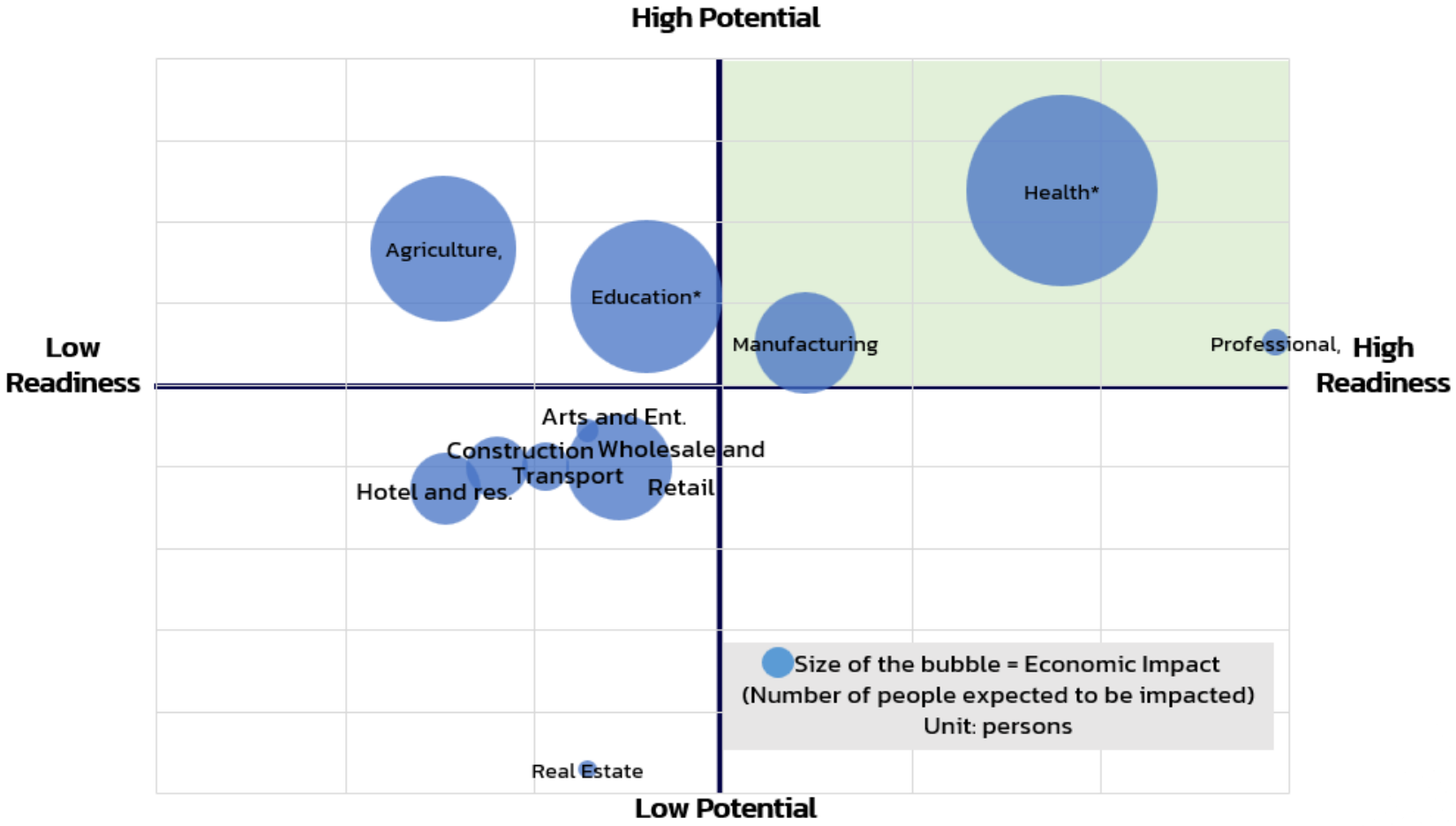
- Agriculture
- Hotel & restaurant
- Arts & Entertainment
- Manufacturing
- Construction
- Professional
- Education
- Real estate
- Health
- Transportation
- Wholesale and Retail

Source: NBTC-BOT Co research (2563)

“Value added” expected to increase by 5G



“Number of people” expected to increase by 5G



“What are the key success factors driving the adoption of digital innovation?”

Infrastructure Deployment

rapidly deployed 5G infrastructure

Government Support

proactive in promoting 5G technology through supportive policies and funding for digital initiatives.

Focus on use cases

emphasized the use of 5G in various industrial applications that will drives demand and adoption of 5G technology

Friendly Pricing

friendly pricing encourages widespread adoption.

Public-Private Partnerships

PPP will enhance the capabilities and resources available for 5G adoption and will drive innovation and shared best practices


Thank you
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