TO MANAGE, OR TO ENABLE?

Joe Guan, Spectrum Policy Manager, Asia Pacific

jguan@gsma.com

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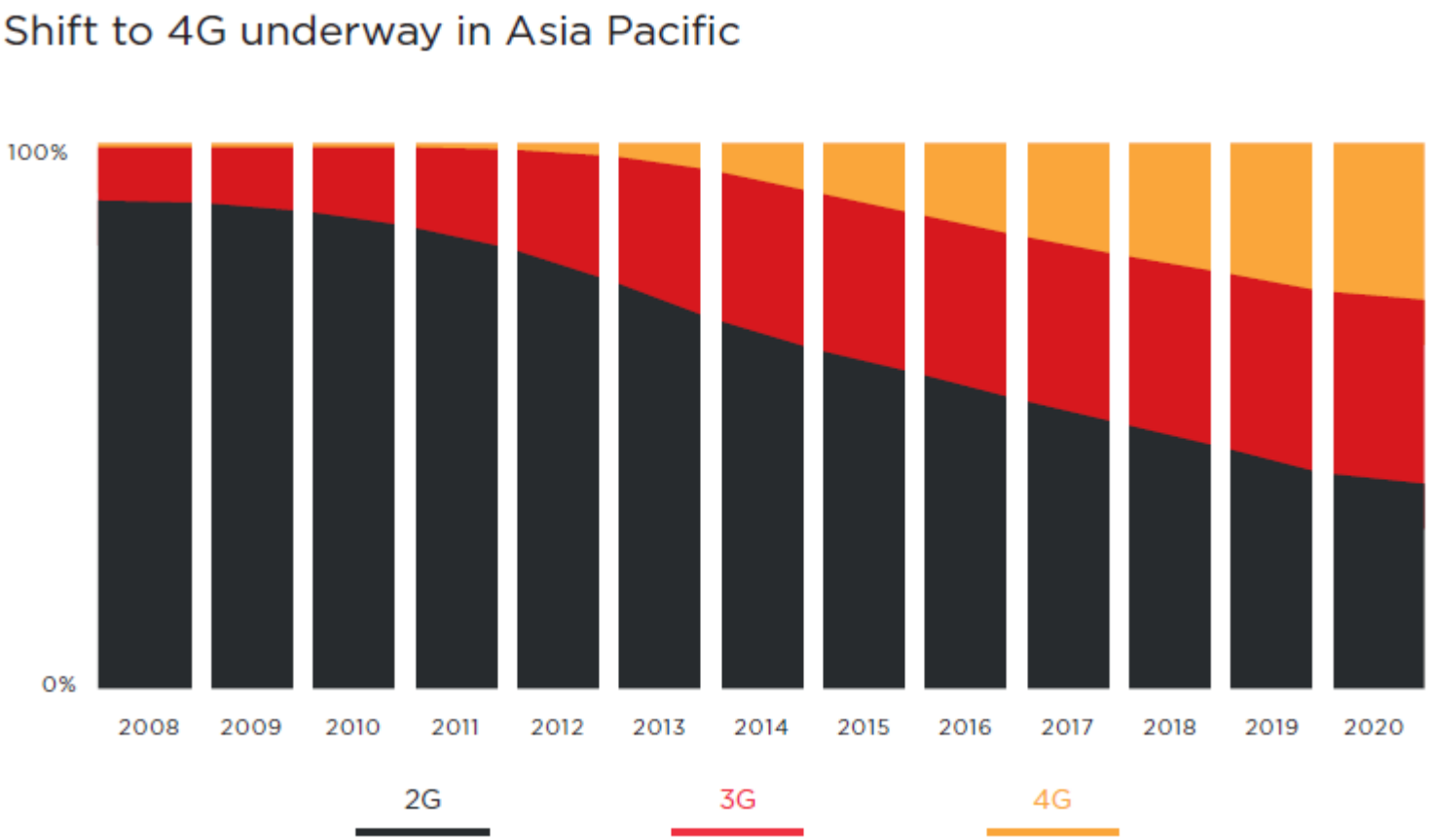
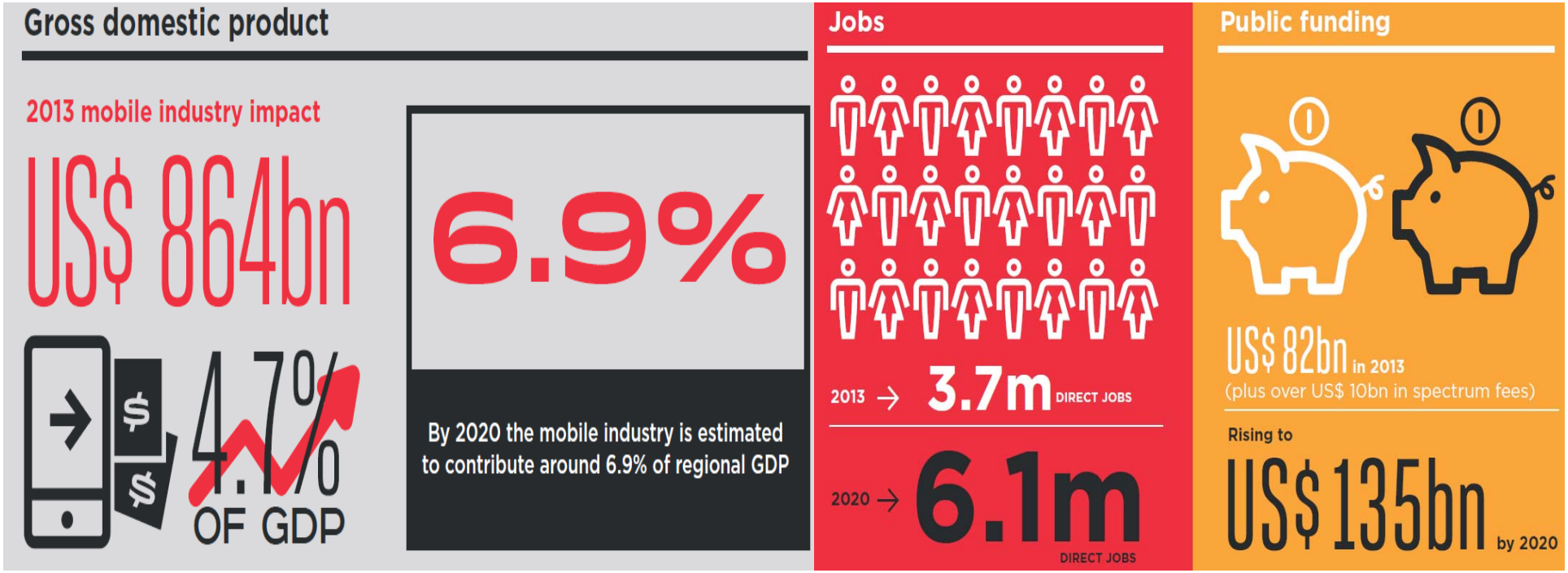
THE WORLD IS GOING 4G



Source: GSMA Intelligence

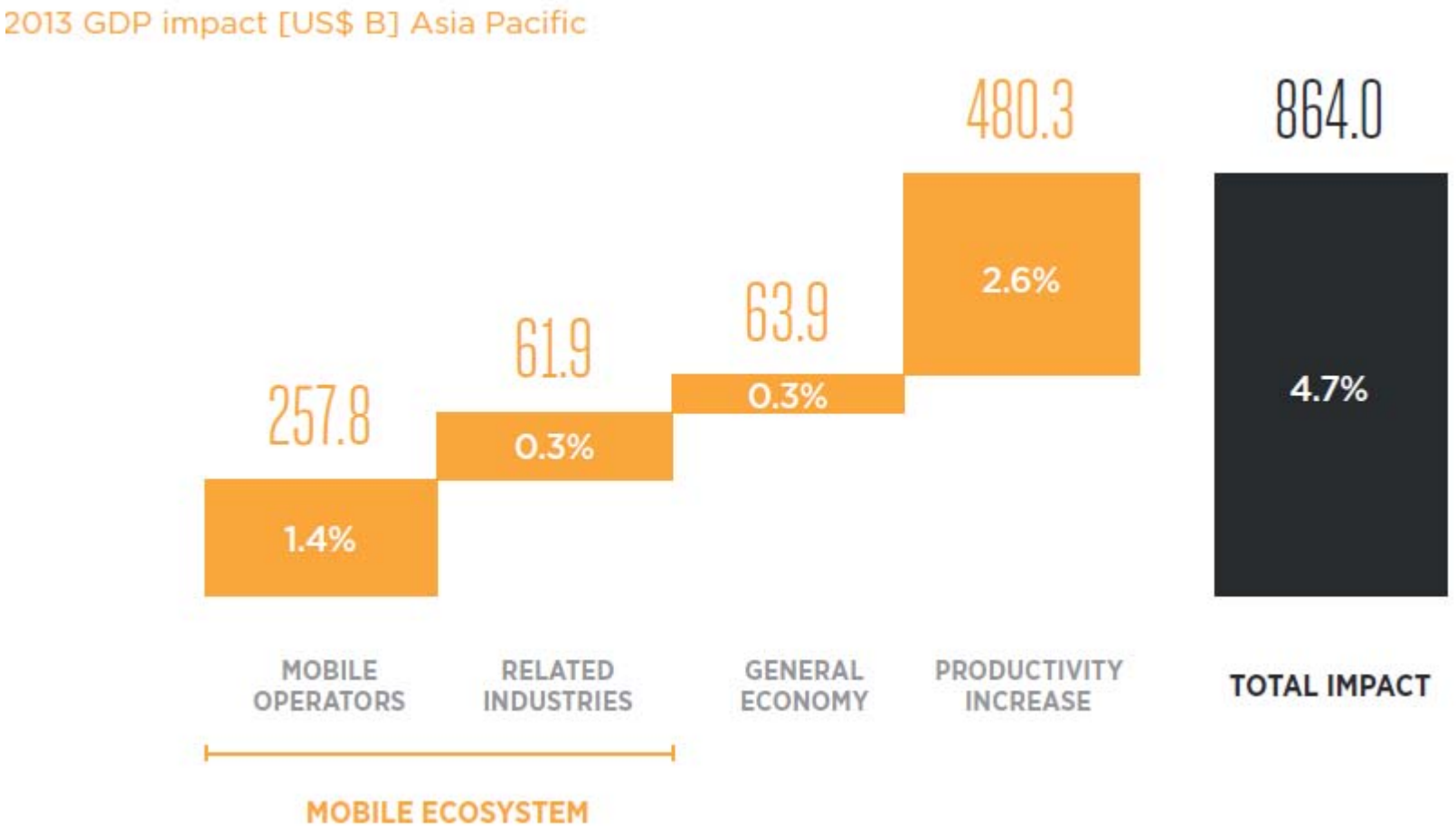
SOCIO-ECONOMIC IMPACT

REGIONAL IMPACT



Source: GSMA Mobile Economy Asia Pacific 2014

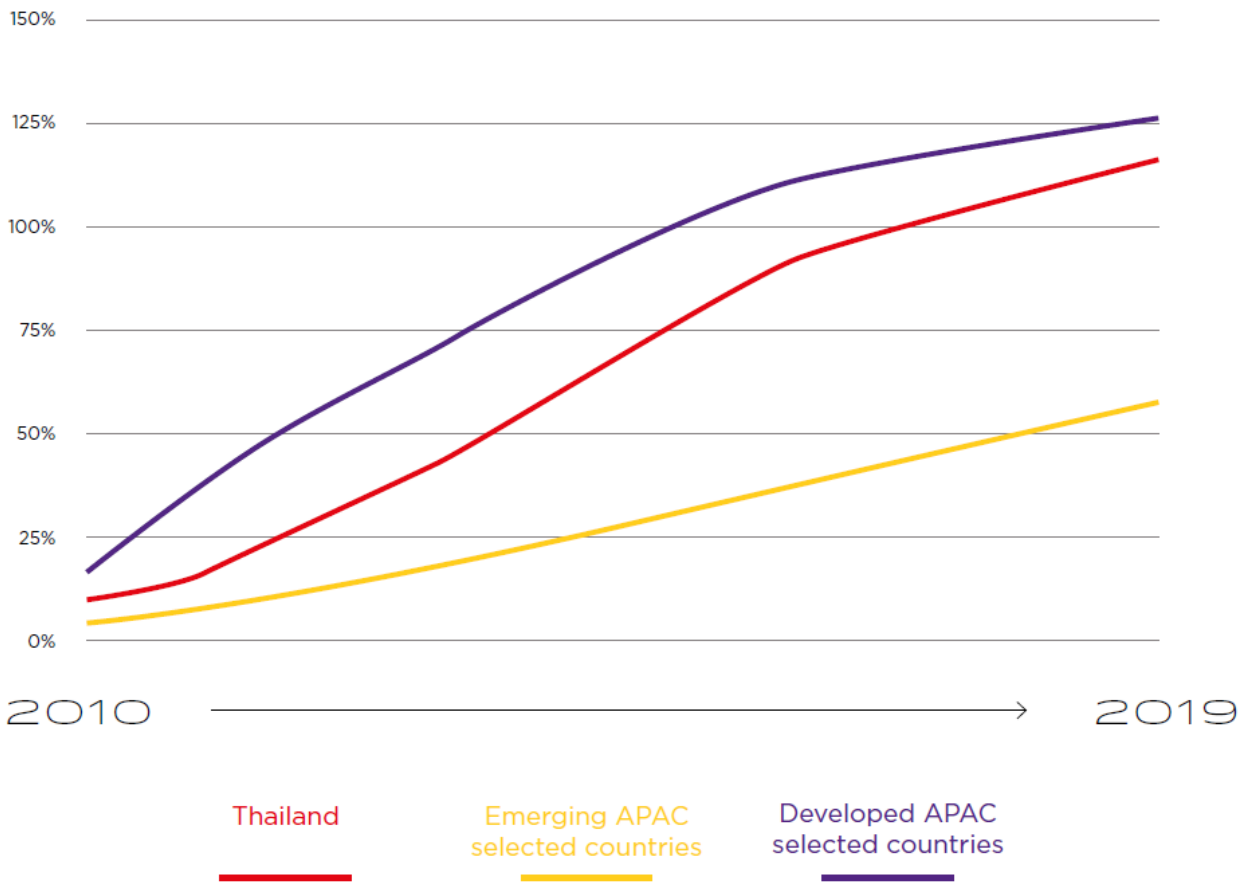
IMPACT OF MOBILE BROADBAND



Source: GSMA Mobile Economy Asia Pacific 2014

THAILAND'S BROADBAND PENETRATION IS RISING

Mobile broadband penetration in Thailand vs. average from selected emerging and developed Asia-Pacific countries[11]



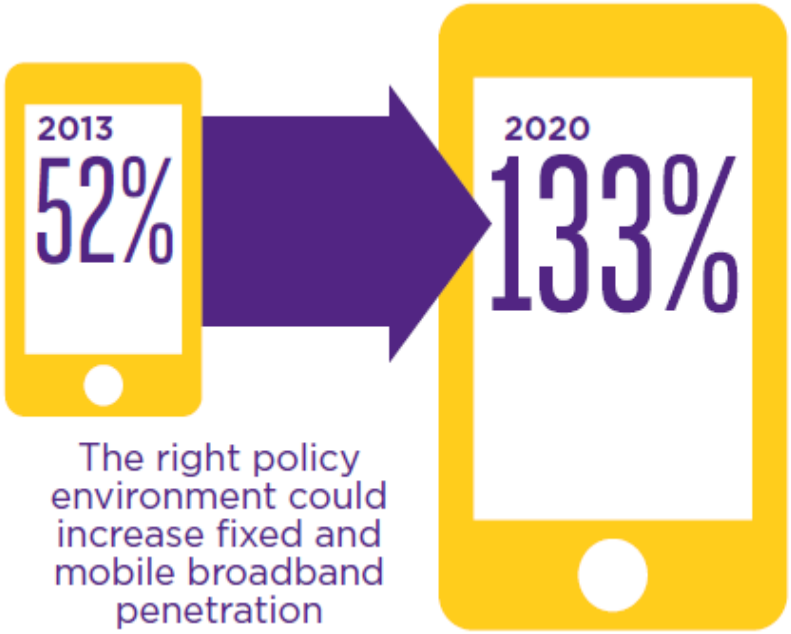
11. Emerging APAC includes: Bangladesh, India, Indonesia, Malaysia, Pakistan and Vietnam; developed APAC includes: Australia, Hong Kong, Japan, Singapore, South Korea and Taiwan.

Source: Analysys Mason Building Thailand's Digital Economy and Society Report

THAILAND'S MBB PENETRATION IS RISING

Increased mobile broadband penetration in Thailand will enable the Government to achieve its digital economy goals and reinforce digital inclusion. The right policy environment could increase fixed and mobile broadband penetration from 52% in 2013 to 133% in 2020, leading to a cumulative GDP increase of USD23 billion (THB730 billion).

The socioeconomic impact of wider mobile broadband access is profound. From improving productivity, driving the creation of new businesses and skilled jobs, to providing access to mobile healthcare and money services and enabling smart cities.



The right policy environment could increase fixed and mobile broadband penetration

Source: Analysys Mason Building Thailand's Digital Economy and Society Report

SPECTRUM MANAGEMENT FOR EFFICIENCY

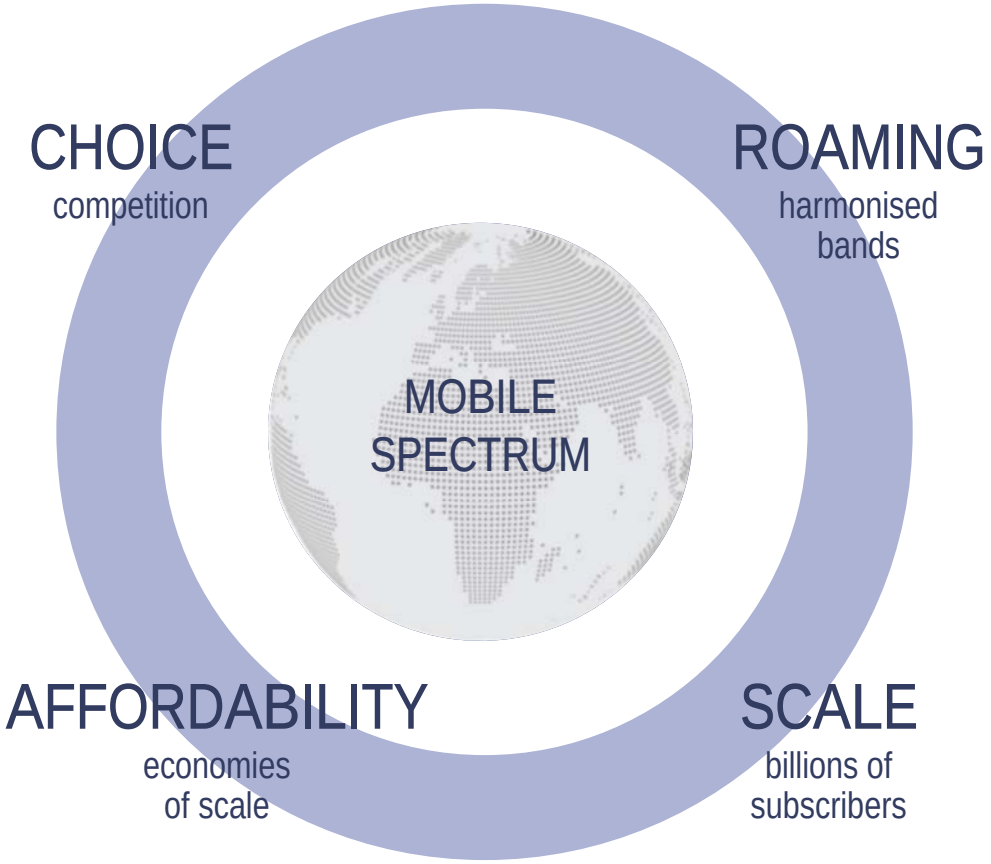
SPECTRUM LICENSING

A STABLE LICENSING FRAMEWORK FACILITATES INVESTMENT

- Remove service and technology restrictions
- Facilitate spectrum harmonisation
- Conduct public consultations before key decisions
- Ensure rights to use spectrum are clearly specified
- Develop a roadmap for spectrum release

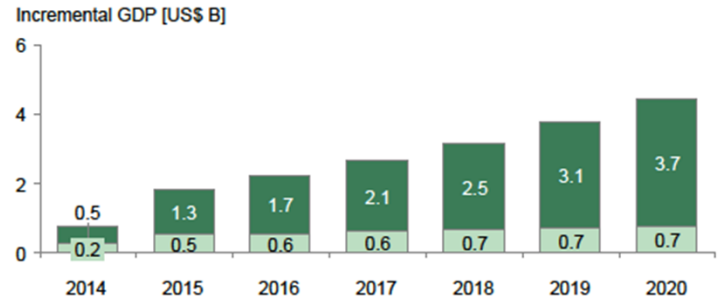
SPECTRUM HARMONISATION MATTERS

- Brings down the cost of mobile devices
- Enables people to roam
- Reduces interference issues along borders

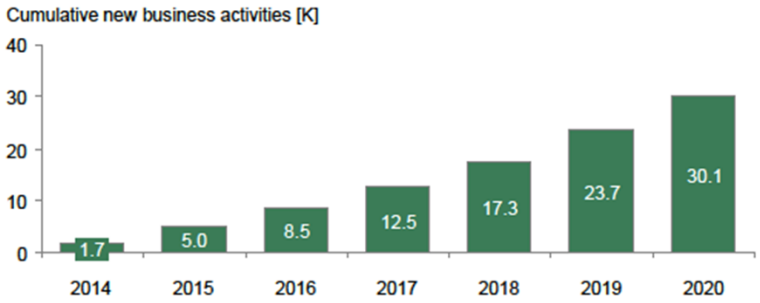


THE 700MHz DIGITAL DIVIDEND FOR THAILAND

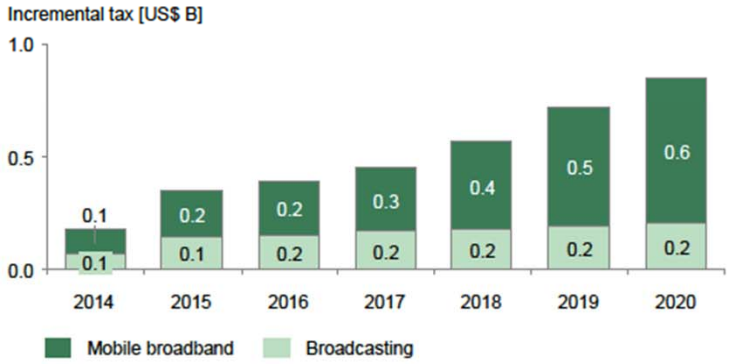
GDP increased US$ 14.8B 2014-2020 (NPV US$ 11.9B)



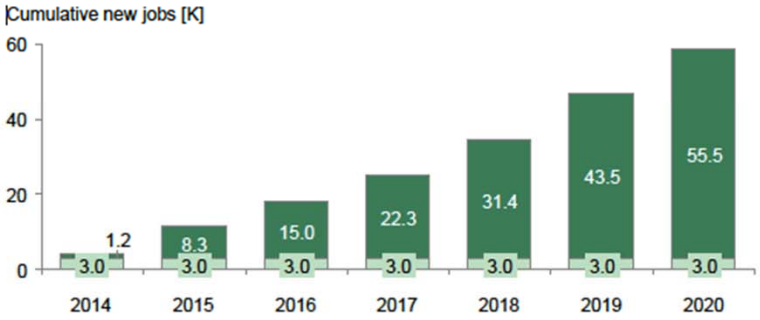
30K new business activities by 2020[1]



Government revenues up US$ 2.4B (NPV US$ 1.9B)



55K additional jobs created by 2020



1. Incl. new independent businesses as well as new departments/units/business areas within existing firms
Note: Amounts may not add up to numbers shown due to rounding; NPV discounted by 3.8% for Thailand
Source: Datamonitor; EIU; OECD; World Bank; National statistics units; BCG analysis

TECHNOLOGY NEUTRALITY

- We support a licensing approach that allows any compatible, noninterfering technology to be used in mobile frequency bands

- Technology neutral licences encourage innovation and promote competition, allowing markets to determine which technologies succeed, to the benefit of consumers

- Spectrum identifications for IMT are technology-neutral. IMT technologies including GPRS, EDGE, UMTS, HSPA, and LTE are standardised for technical coexistence

SPECTRUM ROADMAP: WHY IT MATTERS

- A spectrum roadmap is essential to ensure there is enough spectrum to meet surging demand for mobile services
  - Pace of mobile technology change is increasing, with decreasing cycle time for new technology and a corresponding need for increased agility. This increases the requirement for good planning and sound allocation frameworks;
  - Balance the time to relocate by the incumbents against the costs of delaying the introduction of new technologies – trade-offs;
  - Allocate spectrum for new uses in advance of the technology becoming available so that companies have plenty of time for planning, capital expenditure and implementation;
- A spectrum roadmap helps
  - Government forecasts future trends and manage its work and risks;
  - Industry with increased certainty about the government's future allocation plans and management of radio spectrum.

FUTURE SPECTRUM

THE FUTURE OF MOBILE BROADBAND IS AT RISK WITHOUT MORE SPECTRUM

- Mobile traffic is growing faster than anyone's expectations
  - 2015-2020: 10x traffic growth currently expected
- Networks could slow, consumer prices may rise, socio economic benefits lost
- Asia Pacific has more to lose than other regions
  - Fast growing economy, raising purchase power and rapid mobile adoption
  - Has very high mobile spectrum requirements due to large, densely populated cities
  - Most telecom equipment and devices are made in Asia Pacific - so worst affected by slowdown
- Flexibility is essential to allow countries to react to their evolving situations
  - New bands do not need be licensed to operators until governments see clear demand
  - Advanced markets who use the bands first drive lower-cost devices for those using later

TARGET BANDS – 1 SLIDE SUMMARY

Target Band	Benefit for mobile	Existing Usage	How to accommodate mobile
Sub-700 MHz (470-694/8MHz)	- Extremely important for bringing high speed mobile broadband everywhere	- Mostly broadcast	- Broadcasters can use more spectrum-efficient tech - IPTV, satellite, cable & LTE broadcast will complement
L-band (1350-1400 & 1427-1518MHz)	- Good general purpose band for coverage and capacity	- Comms for aircraft control systems (ie. telemetry) - Military and civilian radar - Fixed links (e.g. for business) - Satellite phones - Earth observation satellites	- 1452-1492MHz portion largely unused globally - Radar & aeronautical mobile telemetry services could potentially use spectrum more efficiently
2.7-2.9GHz	- Excellent capacity band - Could use existing 2.6GHz base stations	- Air traffic control - Military radar	- Band is mostly under-used so could support mobile in a portion. Big exclusion zones not needed
C-band (3.4-4.2GHz)	- Excellent capacity band - Supports fastest services - Only suitable for urban areas or small cells	- Fixed Satellite Services (e.g. satellite TV and broadband)	- Satellite providers can use smaller portion –they use other bands in tropics w/ new tech Big exclusion zones not needed

For more info on those bands, please see our Public position paper

IN SUMMARY

- Light-touch regulation
  - Establish a light-touch regulatory framework to allow healthy market competition and innovation, which only intervenes when market failure or anomaly occurs
- Certainty over long-term policy directions
  - Certainty promotes sound business planning and sustainable investment
- Evolving spectrum roadmap
  - Certainty and transparence over the most strategic asset of the industry
- Harmonise regional and international spectrum bands
  - Help create economy of scale and mitigate cross-border interference
  - Future IMT spectrum bands (e.g. 2.7-2.9GHz) at WRC-15

THANK YOU

jguan@gsma.com