

Establishing the Innovative Spectrum Policies to Support the 5G, IOT, and AI Ecosystem: Case of Taiwan

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Background: 5G, IOT, and AI

- Non-telcos (enterprise) expressed interest in 5G spectrum
- Innovative spectrum policy
- Vertical application model (Dedicated spectrum for the private network)

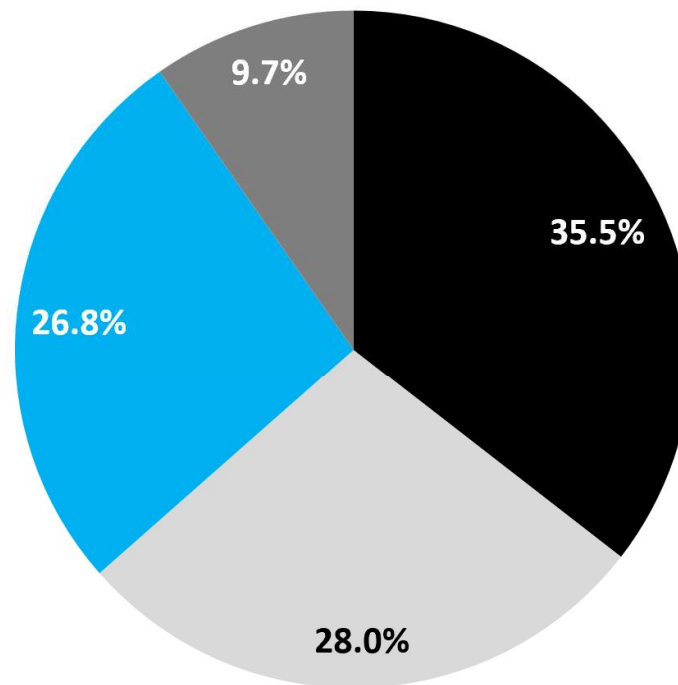
Outline

- Development of mobile communication
- Taiwan Mobile Market & Ecology
- 5G Policy and Strategy
- Debates about the Dedicated Spectrum for the Enterprises (Vertical Application Model)
- 5G Auction
- Conclusion

Taiwan Telecom Market Shares

Taiwan Telecom Market Shares (2018)

Zero One Partners

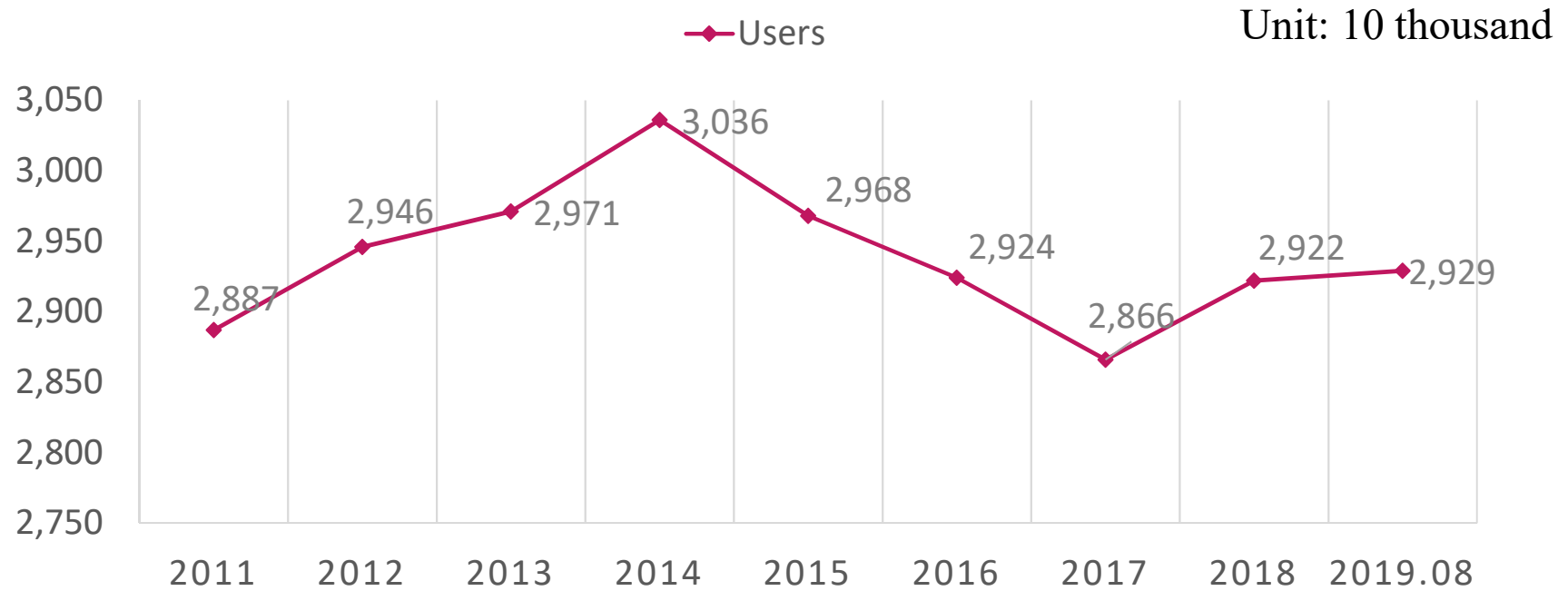


■ Chunghwa Telecom ■ Taiwan Mobile ■ Far EasTone ■ Asia Pacific Telecom & Taiwan Star

Source: Far EasTone 2018 Annual Report



Taiwan mobile phone users 2011-2019



Source: NCC (2019).



5G Action Plan (Executive Yuan, May 10, '19)

(2019-2022, invest US\$657.9 million)

Strategies:

- Deregulation
- Innovation
- Proofs of concepts (Lab)
- Forging connections
- Vertical applications

Goals:

- Innovative uses of 5G
- Increase the nation's digital competitiveness
- Entrench industrial innovation
- Realize a way of life enmeshed with smart technology.

5G Spectrum Policy

- Introduce **vertical application model (dedicated spectrum for enterprise)**
- Develop the 5G enterprise network (private network)
- Accelerate the digital transformation
- Drive the development of 5G related industries and innovative services
- Share spectrum, networks, construction with enterprise

Auction Spectrum & Schedule

- Accept the application: September, 2019, deadline for submission: Oct. 3.
- 5G auction starts on December 10, 2019
- 5G license will be issued in January 2020.

5G Auction Spectrum

Frequency	Bandwidth	Bidding unit	Limit (cap) for Auction	Floor price
3.5 GHz	270 MHz	10MHz/ 27 units	100 MHz	NT\$24.3 billion (US\$784 million)
28 GHz	2500 MHz	100MHz/ 25 units	800 MHz	NT\$2.5 billion
1800 MHz	2x10 MHz	2x10 MHz		NT\$3.2 billion

Dedicated Spectrum Policy

4 (con)+1 (pro)



1. Fairness of the spectrum cost
2. Obligation as telcos
3. No need to allocate frequency to enterprise
4. Scattered use will cause interference
5. Efficiency of network construction and maintenance
6. Should create win-win situation

Asia Pacific Telecom



1. Support private network's demand
2. Fairness
3. Should allow telcos to bid

Has a subsidiary (Fuhong.com), a system integration company, involved in 5G private network.

UN Sustainable Development Goal (SDG)

- Goal 9: Build resilient infrastructure, promote sustainable industrialization and foster innovation
- Without technology and innovation, industrialization will not happen, and without industrialization, development will not happen.

Conclusion

- “5G will catalyze, inspire and generate a huge range of new business cases for the IoT...”
- “5G represents massive opportunities for new sources of revenue streams and will be the foundation of economic growth on a scale yet to be completely discovered for businesses in nearly all industries.”
- Fairness (cost, obligation)
- Co-opetition (Telcos, enterprise)

Source: Yosi Fait (2018, Sept. 7), Forbes



Thank you for your attention

