

July 2013

INTERNET FOR ALL

Circulation Version

Our vision is to



YouTube

Simplicity

Financial Service

Devices

Low Cost

make Internet **Relevant** and **Accessible** to 50 million more Thais

Applications

Coverage 2G, 3G, 4G

Quality Access

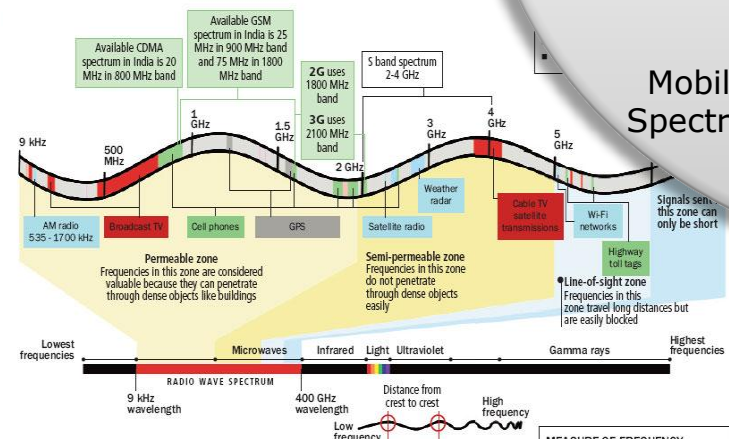
Mobile Spectrum

Infrastructure Sharing

Wholesale Markets (OFC, IIG)



RADIO SPECTRUM

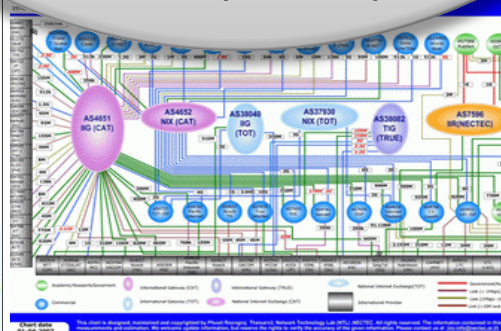


BANDS AVAILABLE FOR MOBILE PHONE SERVICES

800 band	= 824-844/869-889 MHz
900 band	= 890-915 MHz/935-960 MHz
1800 band	= 1710-1785/1805-1880 MHz
2100 band (2.1 GHz)	= 1920-1980 MHz/2110-2170 MHz

EVOLVING MOBILE TECHNOLOGY

- 1G: Short for first generation wireless telephone technology. Mobile phone was first launched in the 1980s in this technology. Radio signals on 1G networks were analog, where information is transmitted by modulating a continuous signal, like sound waves. Used frequency band 824-894 MHz
- 2G: Short for second generation wireless telephone technology. Mobile phone in India was launched based on this technology. Radio signals on 2G networks are digital. It allows data services for mobile phones, including text messages and downloading of ringtones. Uses 1800 MHz band
- 3G: Short for third generation wireless telephone technology. It supports services like mobile TV and high-resolution video. Uses 2.1 GHz band



กสทช.



1.82 Billion
smartphones expected
worldwide in 2013.

Every day, more Android phones are activated than babies are born.



1.3 Million
Android Activations



300,000
Births

Time Spent Per Day



70 Minutes
Web Browsing



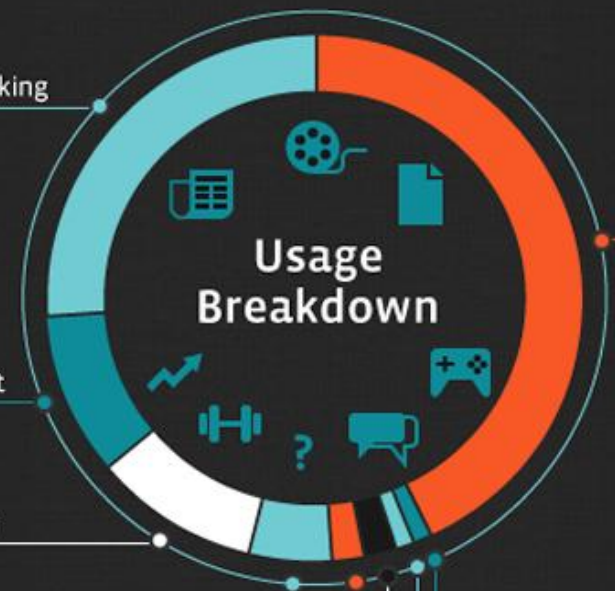
127 Minutes
Mobile Applications



168 Minutes
Television

On Average,
PEOPLE CHECK THEIR PHONES
150 TIMES A DAY.

That's Every
6.5 MINUTES.



Social Networking
26%

Games
43%

Entertainment
10%

Utilities
10%

Other
5%

News
2%

Productivity
2%

Lifestyle
1%

Health & Fitness
1%

Believe It or Not!

Source: Infographic

Smartphone Age Distribution



18%
13-17

21%
18-24

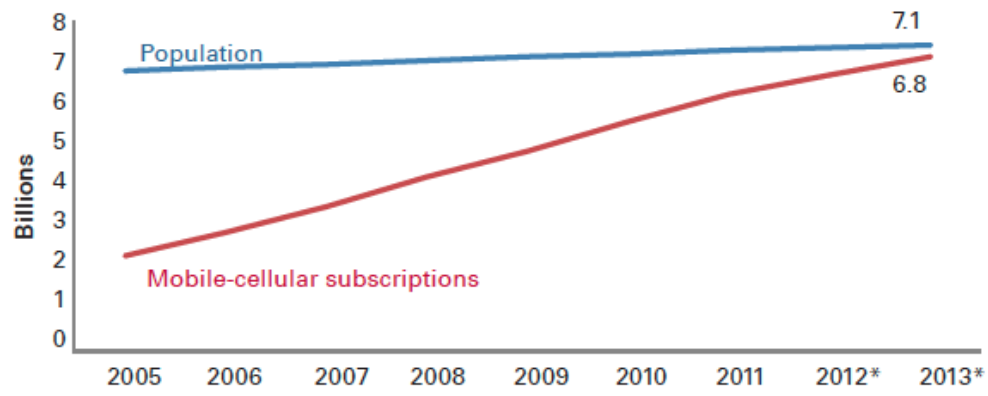
33%
25-34

21%
35-54

7%
55+

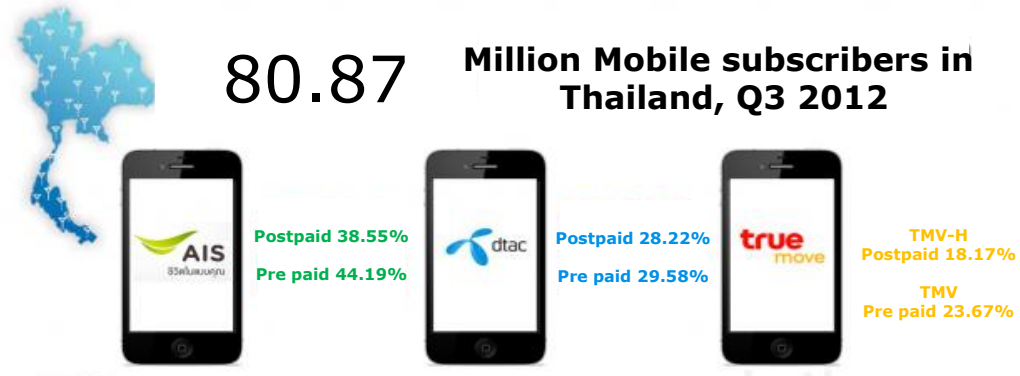
Statistical Data

Sept 2012



Source: ITU World Telecommunication /ICT Indicators database
Note: * Estimate

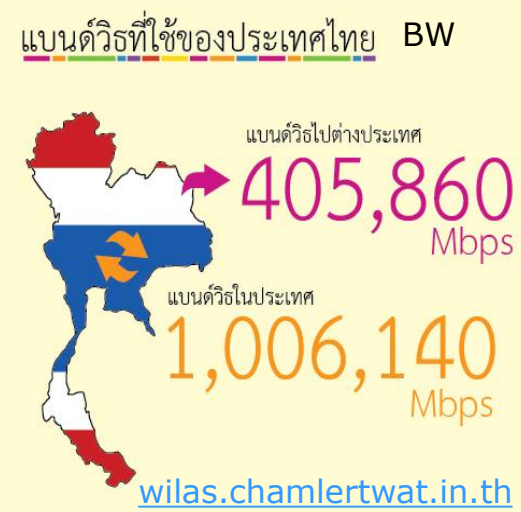
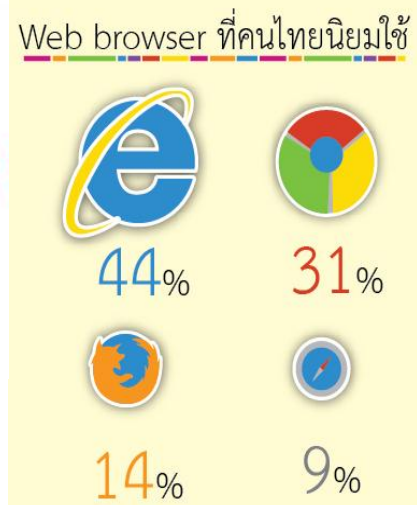
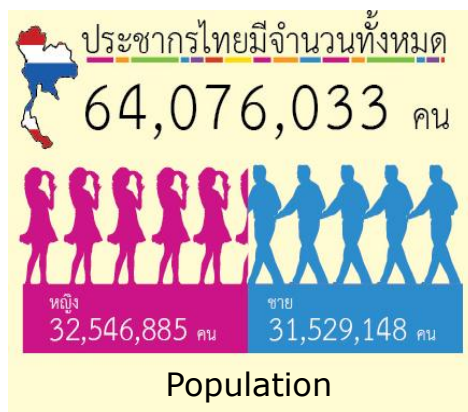
Mobile user is 96% of the world population
More than half live in Asia Pacific Region (3.5 Billion)



NBTC 2012

Market Share (%) Q2 2012

Operator	Market Share (%)
AIS	44.37
DTAC	30.04
TMV/TMV-H	22.35/3.21



Applications

Location-based services,
location-aware mobile computing,
Mobile messaging,
Mobile multimedia,
Mobile commerce,
Telematics,
Mobile video message and video call,
Mobile video IM and conferencing,
Mobile news, sports, and music video clips,
Mobile television broadcasting,
Mobile online music,
Mobile live broadcasting of events,
Mobile video monitoring in surveillance,
Mobile remote control,
Mobile payment and ticketing
 -digital wallet or digital ID
Mobile auction
Mobile online banking
Mobile online investment and brokerage
Mobile gaming
Mobile e-learning
Supply chain and inventory management
Mobile enterprise applications



comoYo™

Over-the-top (OTT)

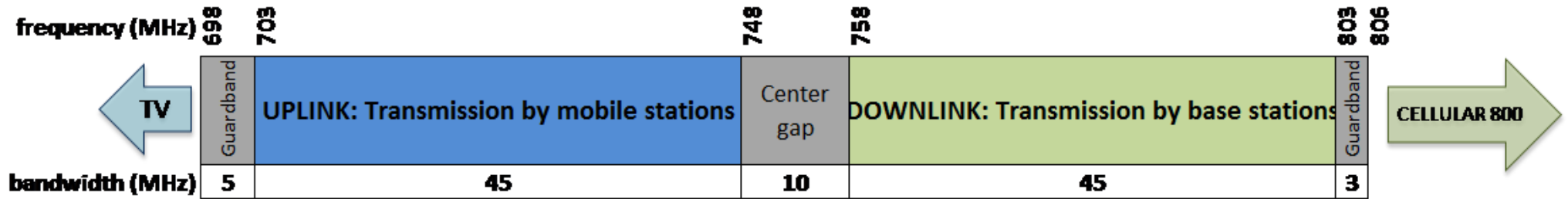


Financial Services

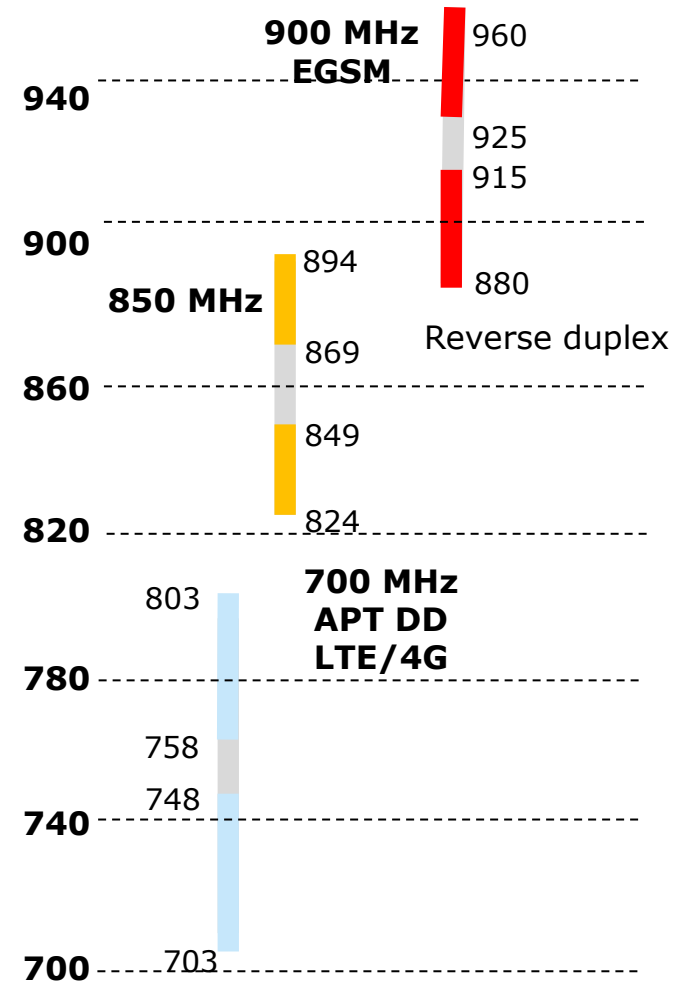


Spectrum

700 MHz Digital Dividend APT band plan



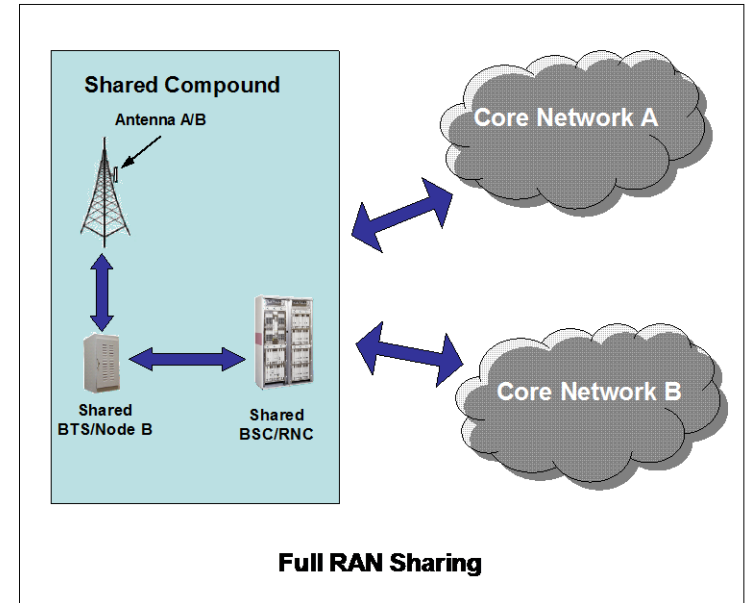
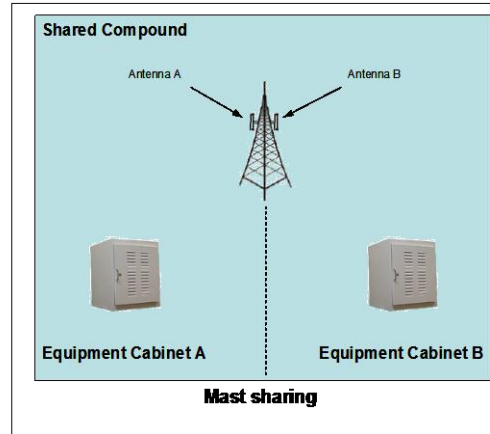
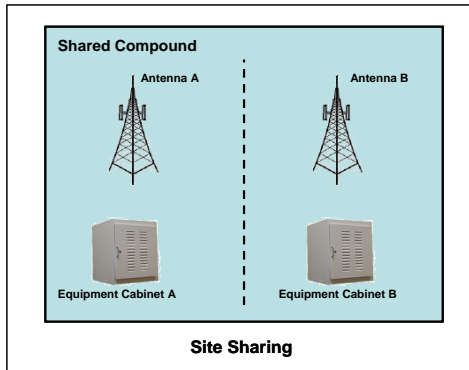
- Harmonization
 - Interference avoidance
 - End user device and network equipment ecosystems
- Spectrum outlook
 - Predictability
 - 1800MHz (DPC:12.5+TMV:12.5+DTAC:25)
 - 900MHz (PGSM/EGSM) + reframing
- Mobile spectrum
 - Make large available spectrum for mobile communication
 - Market based spectrum valuation
- Coverage
 - At least dual band operation
 - Population/Geographic/in building –low band
 - Capacity – high band



Networks



- Infrastructure sharing
 - Network Interconnection and Access notification, 2006
 - Network Infrastructure sharing notification, 2013
 - Domestic roaming notification, 2013



Low High
Complexity

- Site sharing
- Mast Sharing
- Full RAN sharing
- Core network sharing
- Transmission Sharing
- Roaming

2.1 GHz license obligation
-50% pop. Coverage within 2 Years
-80% pop. Coverage within 4 Years

Networks

- AIS plans to have 80% pop. coverage by end of 2013 (2.1GHz)
- DTAC plans to have 50% pop. coverage by end of 2013 (2.1GHz)
- TMV-H claims to have 90% pop. coverage now (850MHz)

Critical Success Factors

- Regulator
 - Infrastructure sharing
 - National roaming
 - MNP
 - Spectrum availability
 - Level playing field
 - Regulatory predictability
- Market driven
 - Low cost operation
 - Ecosystems
 - Wholesale markets
 - OFC
 - International GWs

Devices

Hardware

Processor



ARM,
MIPS,
x86,
Motorola-
Dragon Ball,...

Storage and Memory



RAM,
ROM,
Flash Memory,
CF,...

Display & Input



A cell phone keypad,
The QWERTY keyboard,
Alphabetic keyboard,
Stylus-based virtual keyboard
and handwriting recognition,
Touch screen
Size,
Resolution,
Color depth,
Flexible display,...

Battery



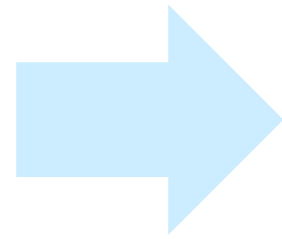
Size,
Duration,
Technology Li-ion,...

Extension interface



MMCs,
SDIO,
PCMCIA,...

OS



iOS 6



VS



Local Brands

Trinet phone "Cheetah"



THB 4,590
(VAT included)

Spec.

- Smart Phone
- Android
- Dual core
- RAM 512 MB
- ROM 4GB
- 2xcameras 0.3 and 5MP

- GSM 900/1800/1900
- UMTS 850/2100

- GPRS/EDGE/UMTS/HSDPA/HSUPA

- MicroSD 32GB max

- GPS/AGPS

- 802.11 b/g/n

i-mobile "i-Note"



THB 5,990
(VAT included)

Driving Smart phone conversion

All in all

Disconnect to connect

<http://www.youtube.com/watch?v=17ZrK2NryuQ>