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IS THE INTERNET MOBILE? MEASUREMENTS FROM ASIA-PACIFIC

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*Opinions expressed may not reflect the views of the
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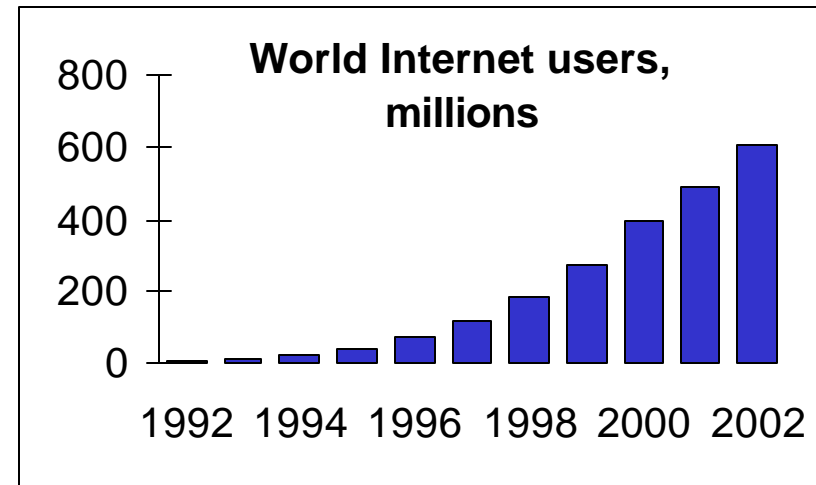
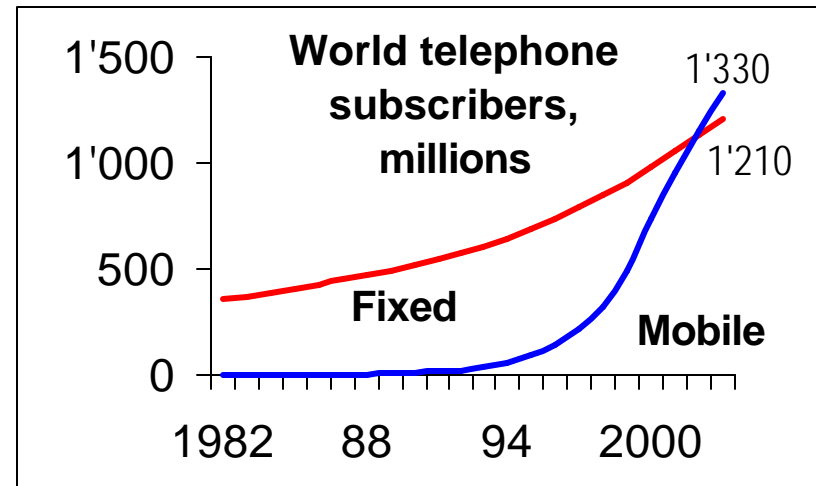
Some of the data is estimated or from 3rd parties.
When data only available for one operator, it is used as a proxy for entire economy.





Why measure?

- Mobile has passed fixed & Internet use growing
 - A logical marriage?
- Non-voice mobile use growing
- Commercial / regulatory / social / analytical implications



Source: ITU.



What is Mobile Internet?



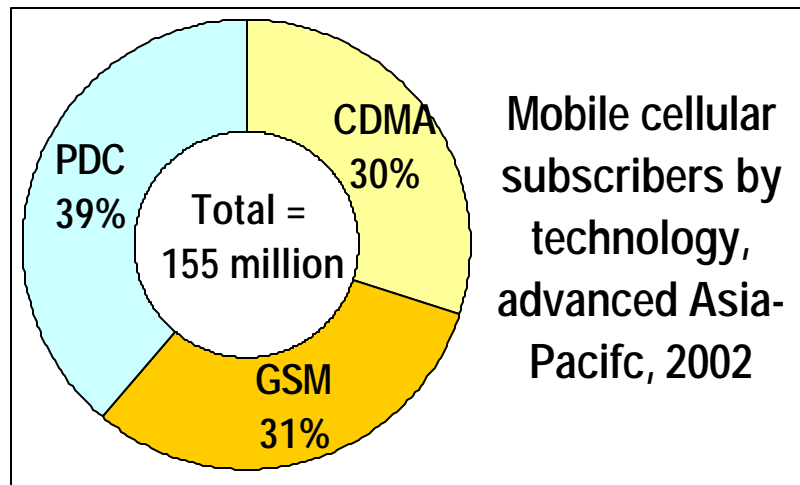
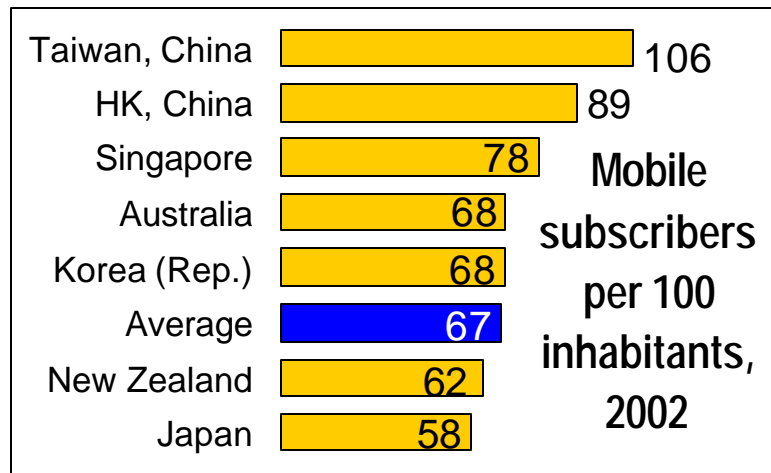
**...or accessing Internet
from a mobile network?**

Browsing Internet from a mobile...



Overview of advanced Asia-Pacific mobile markets

- Mature
 - Taiwan, China first economy in world to have more mobiles than people!
- Mixture of technologies
- Trendsetters in mobile data:
 - Korea (Rep.) launched world's first CDMA2000 1x 3G network in October 2000
 - Japan launched world's first W-CDMA 3G network in October 2001

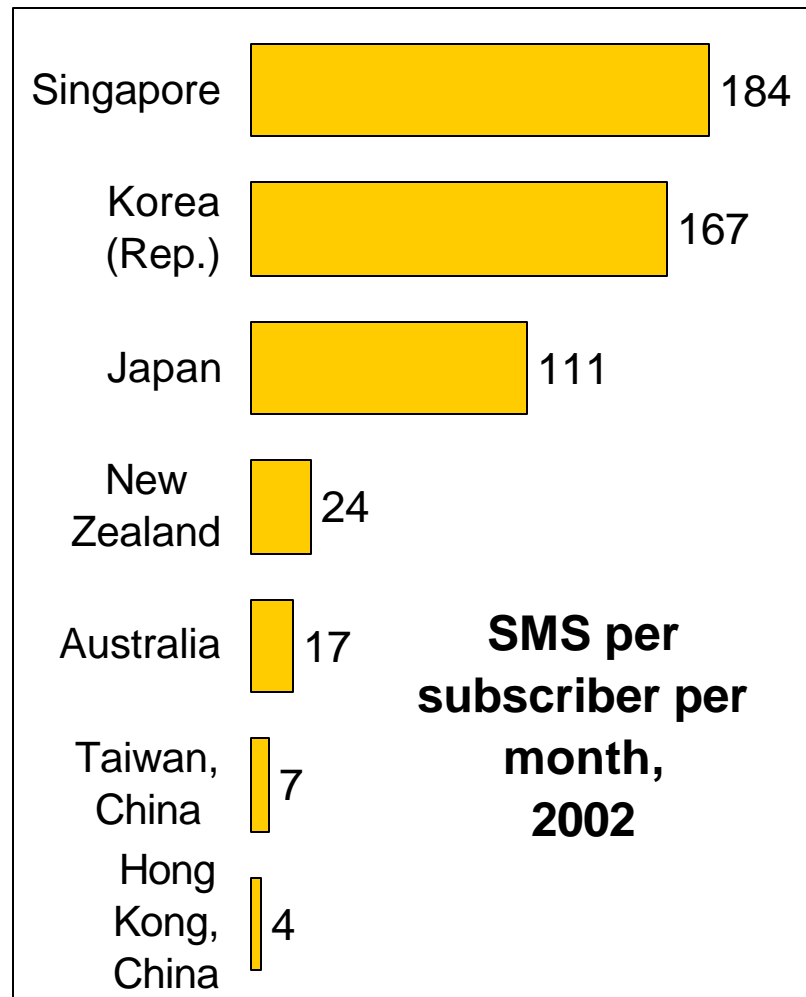


Source: ITU.



Text messaging

- Not mobile Internet
- Most intensely used non-voice mobile application
- Possible indicator of potential mobile Internet use
 - Number of messages
 - Penetration (i.e., % of subscribers that use it)
- Wide variation in region
 - Definitions? (e.g., sent & received, 'junk' SMS, etc.)



Note: SMS = Short Message Service

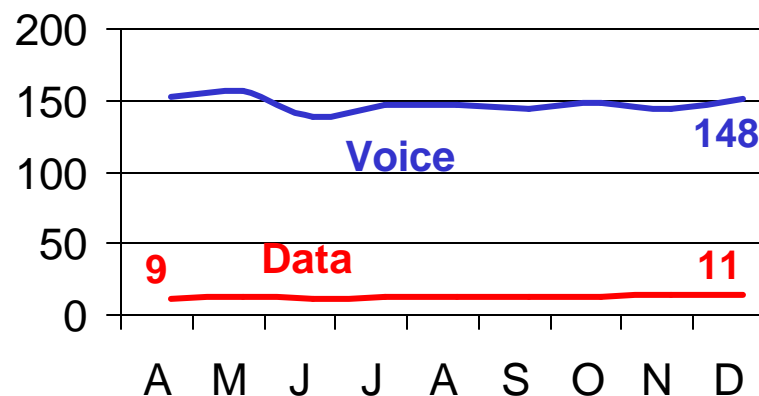
Source: ITU adapted from various reports.



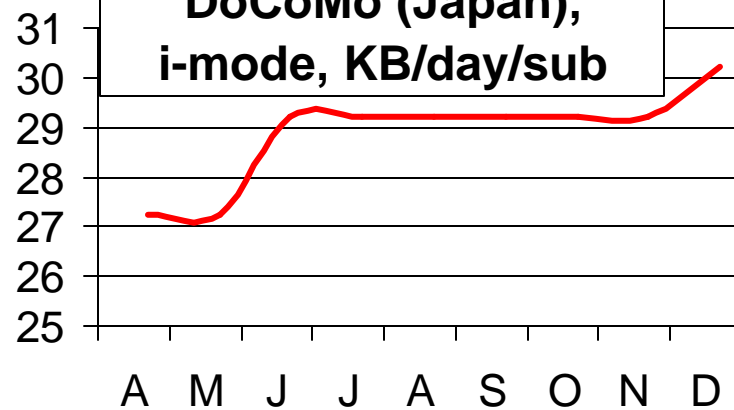
Traffic: Minutes or Packets?

- Measure in two ways:
 - Time (minutes of use)
 - Volume (kilobytes)
- Few operators publish this data

KTF (Korea, Rep.), Avg. monthly minutes of use (MOU), 2002



DoCoMo (Japan), i-mode, KB/day/sub

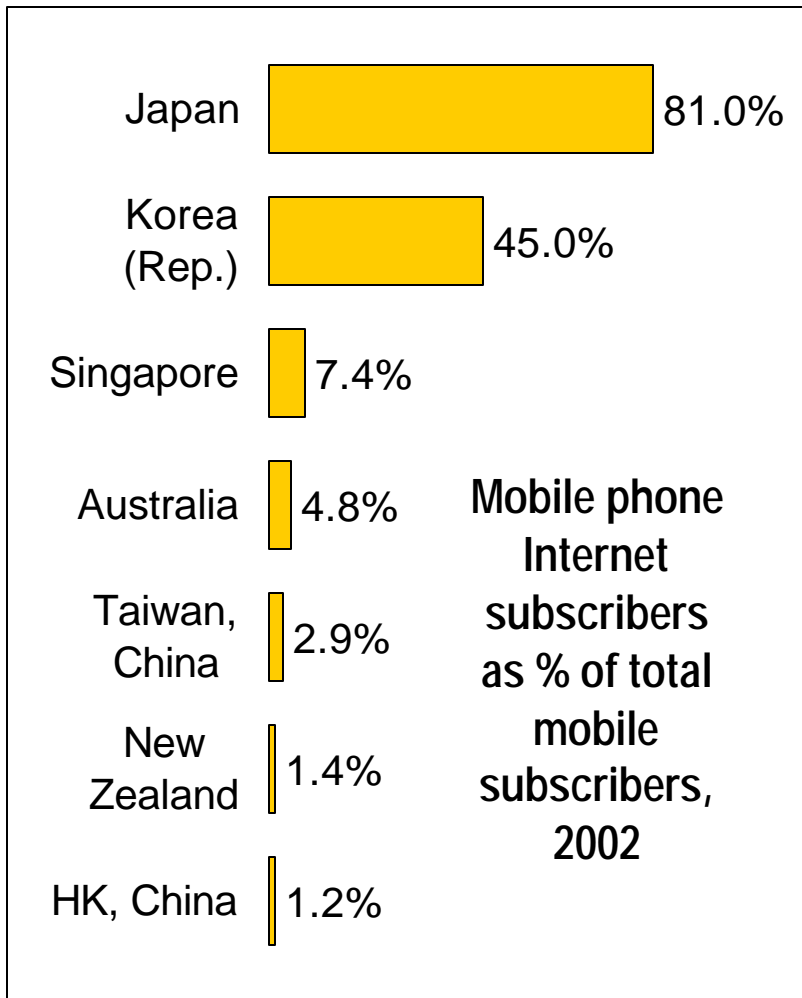


Note: 2002. Data MOU is average connection to wireless data network regardless of charging system, time-based or packet-based. Source: KTF, DoCoMo.

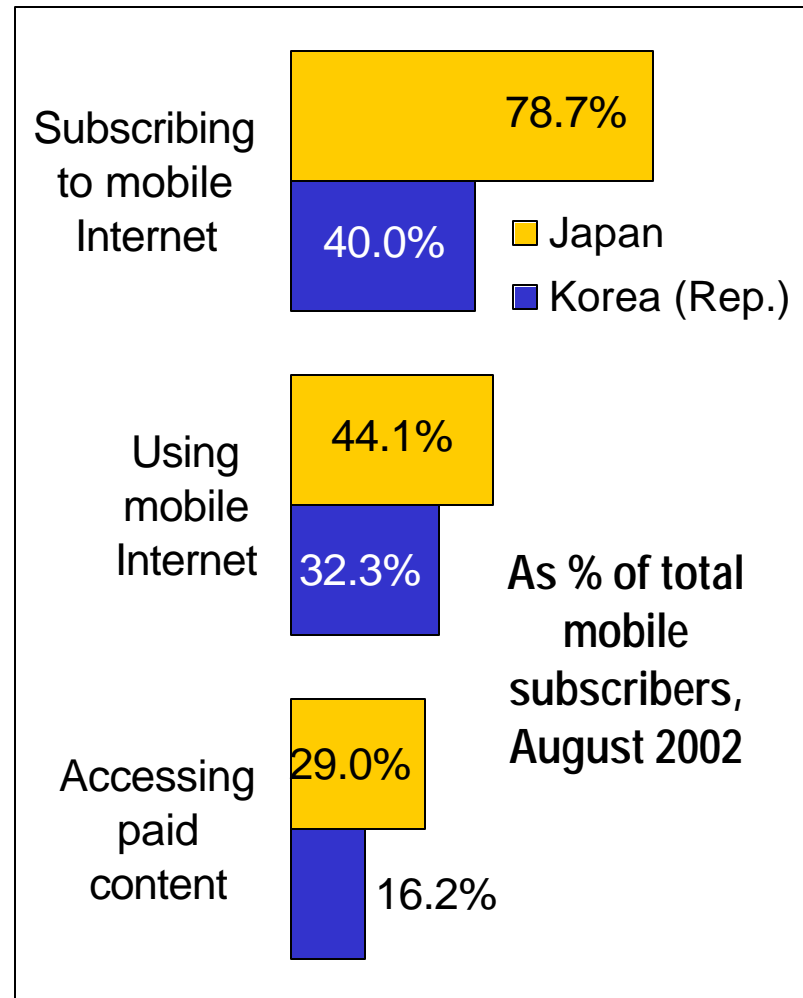


Mobile phone Internet subscribers

Subscribers browsing the Internet from their mobile phone (e.g., Wireless Access Protocol (WAP), i-mode)



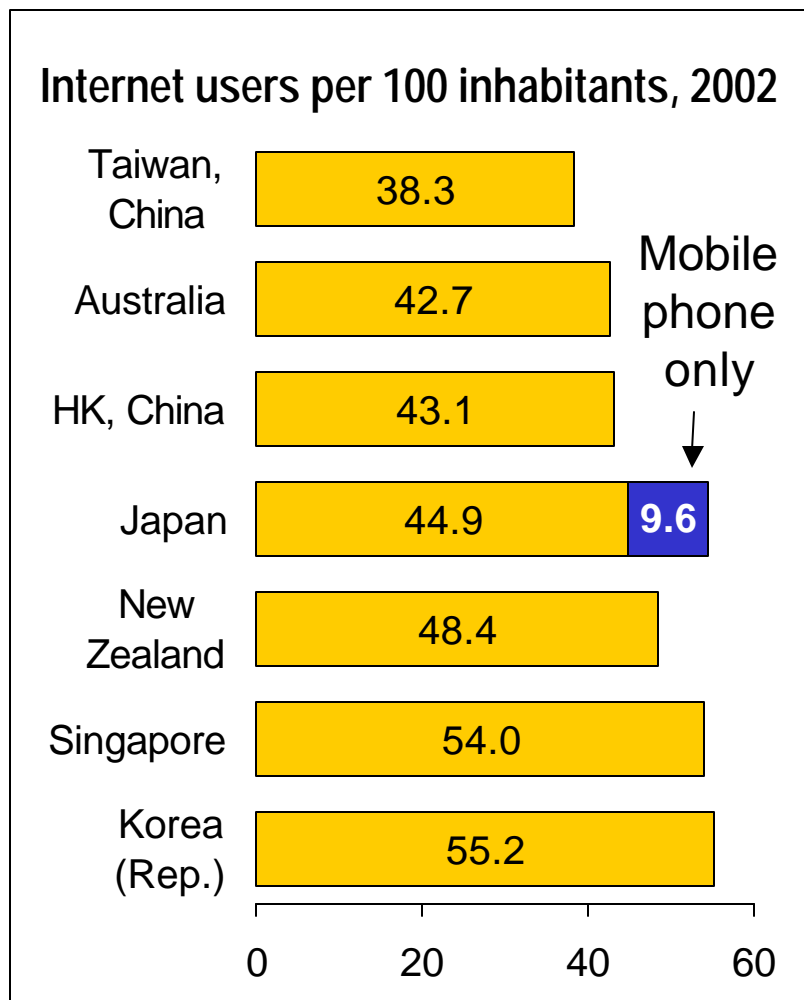
Source: ITU adapted from various sources



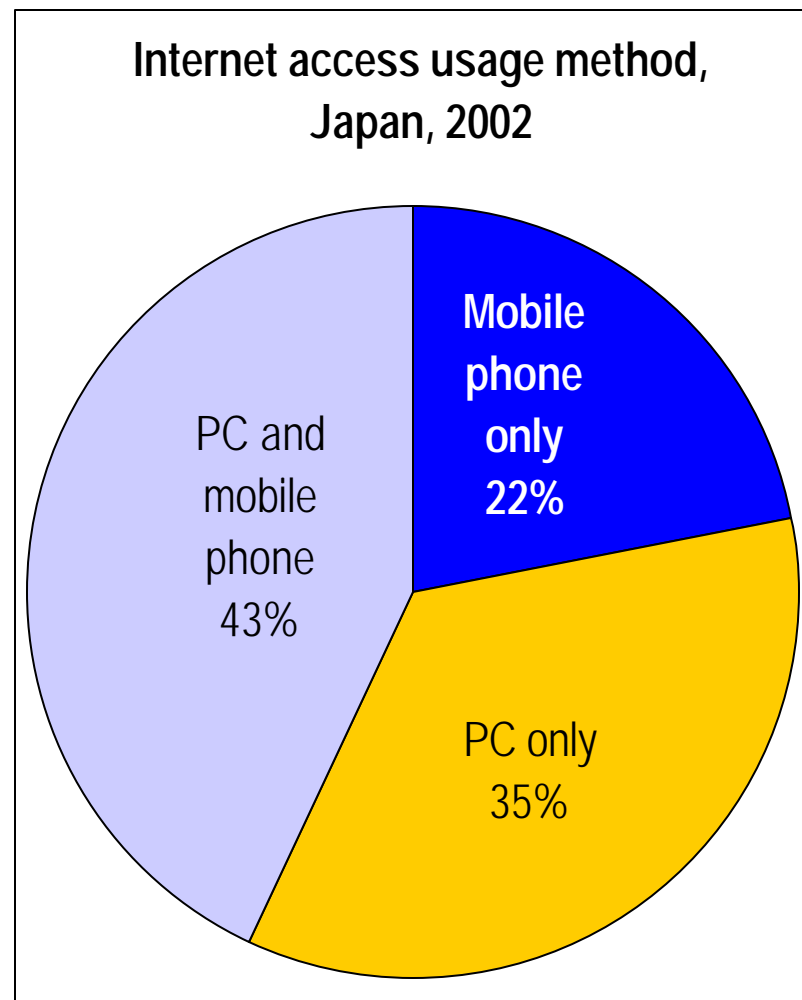
Source: ITU adapted from Nomura Research Institute & Korea Network Information Center



What is an Internet user?



Source: ITU.

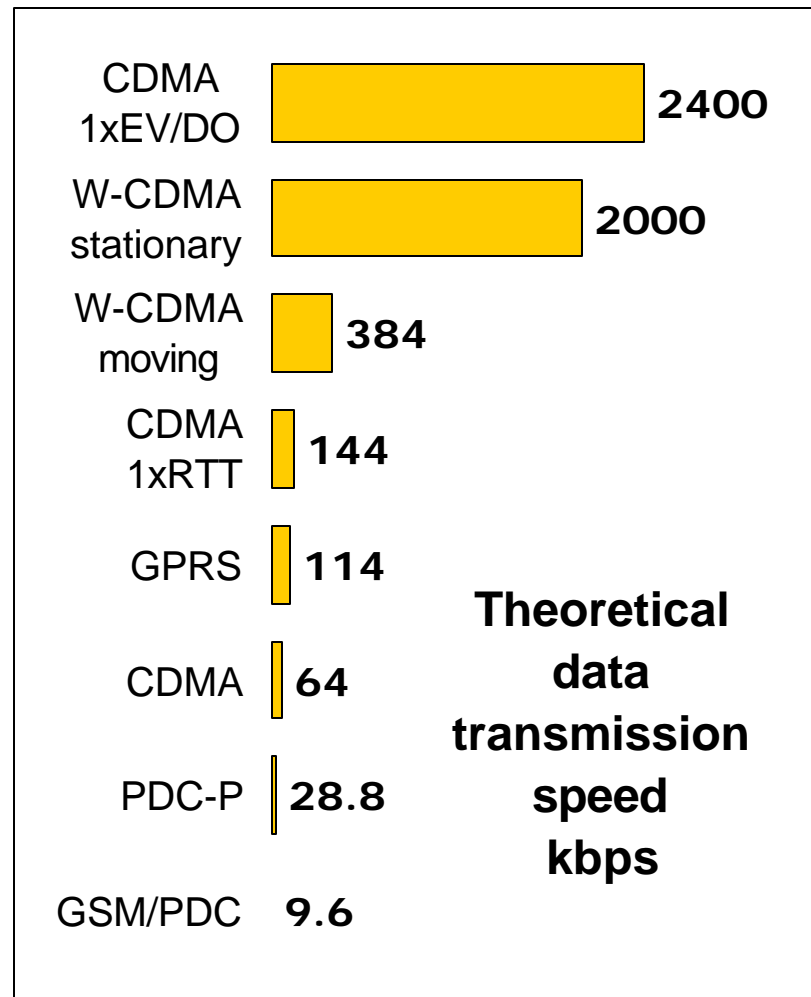


Source: ITU adapted from Nomura Research Institute.



High-speed mobile (e.g., GPRS, CDMA2000 1x, W-CDMA)

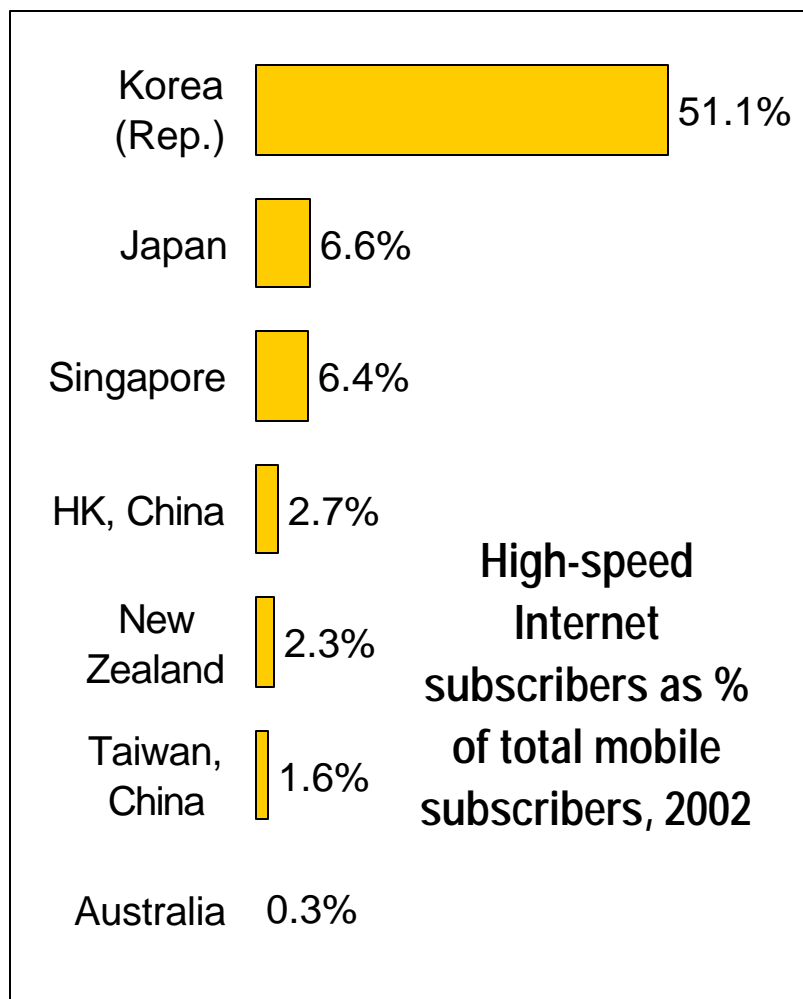
- Infrastructure indicator
 - Subscribers to high-speed mobile data services
 - Coverage of high-speed mobile Internet network
- Comparability issues
 - Not all high-speed networks same (GPRS, CDMA2000 1x, CDMA2000 1x EV/DO, W-CDMA)
 - Some operators count handsets rather than subscribers
 - A subscriber may not be using high-speed features
 - Subscribers may be pay as you go



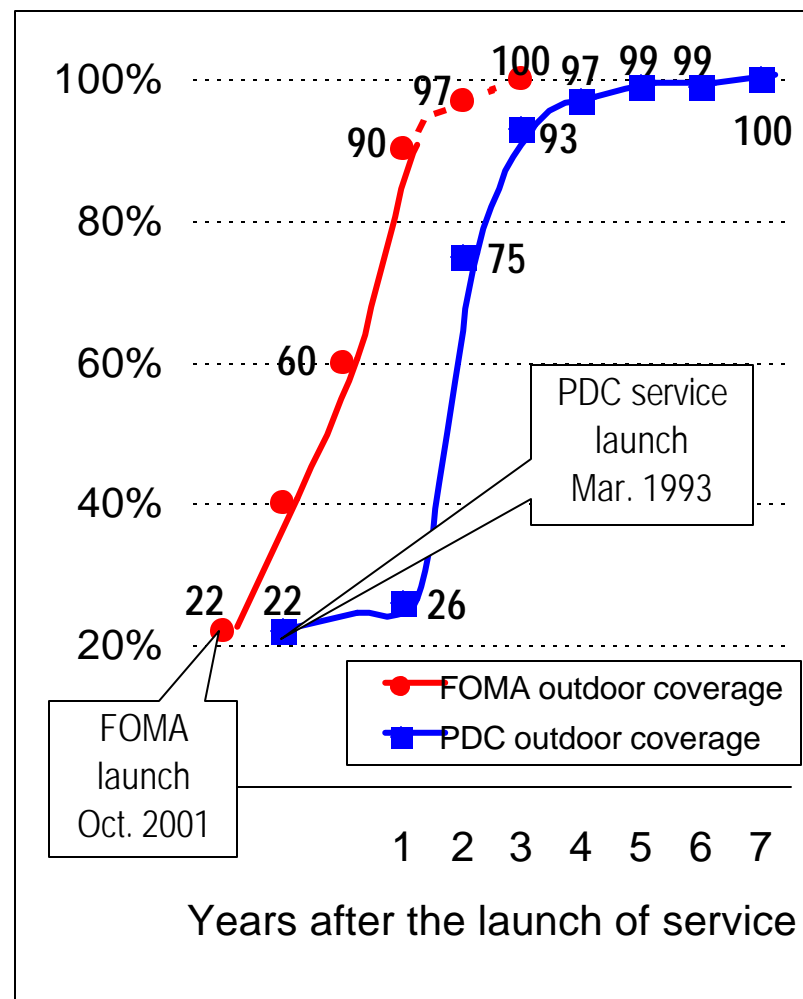
Source: ITU.



High-speed mobile Subscribers & Coverage



Source: ITU adapted from various sources.

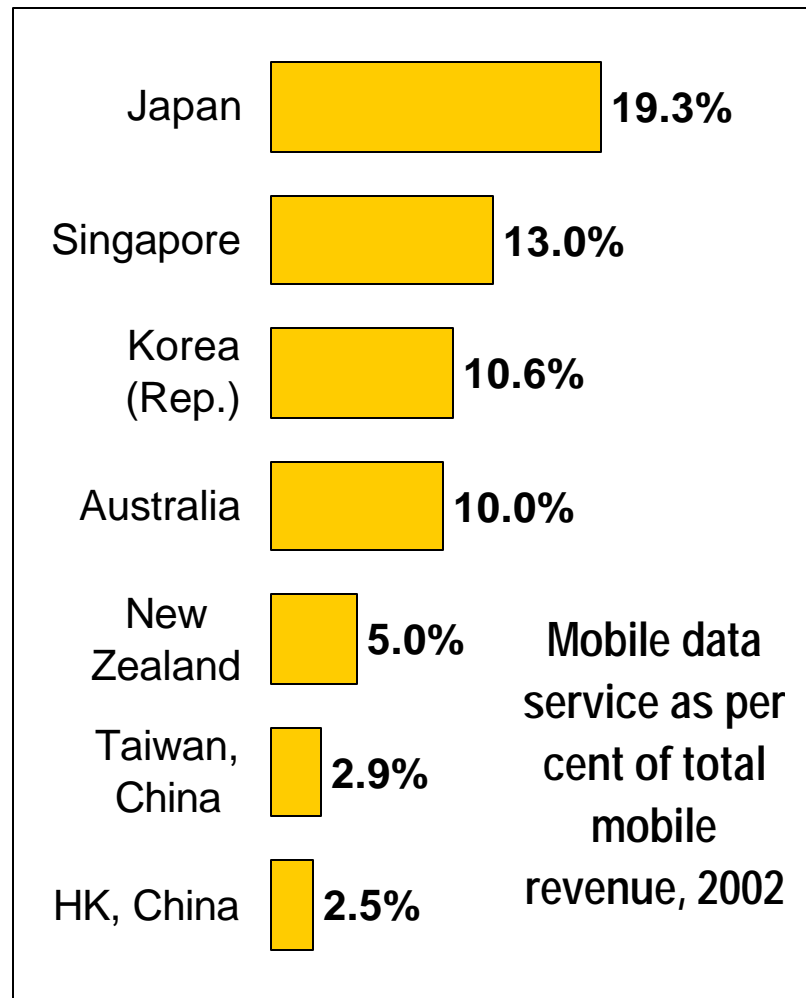


Source: ITU adapted from DoCoMo.



Mobile data revenue

- Most popular metric among operators with almost all publishing
- True mobile Internet use is often not separated from message revenues
- May reflect high prices rather than intensity of use
- Two basic indicators:
 - Mobile data revenue as % of total mobile revenue
 - Average *Mobile Data Revenue Per User* (ARPU)

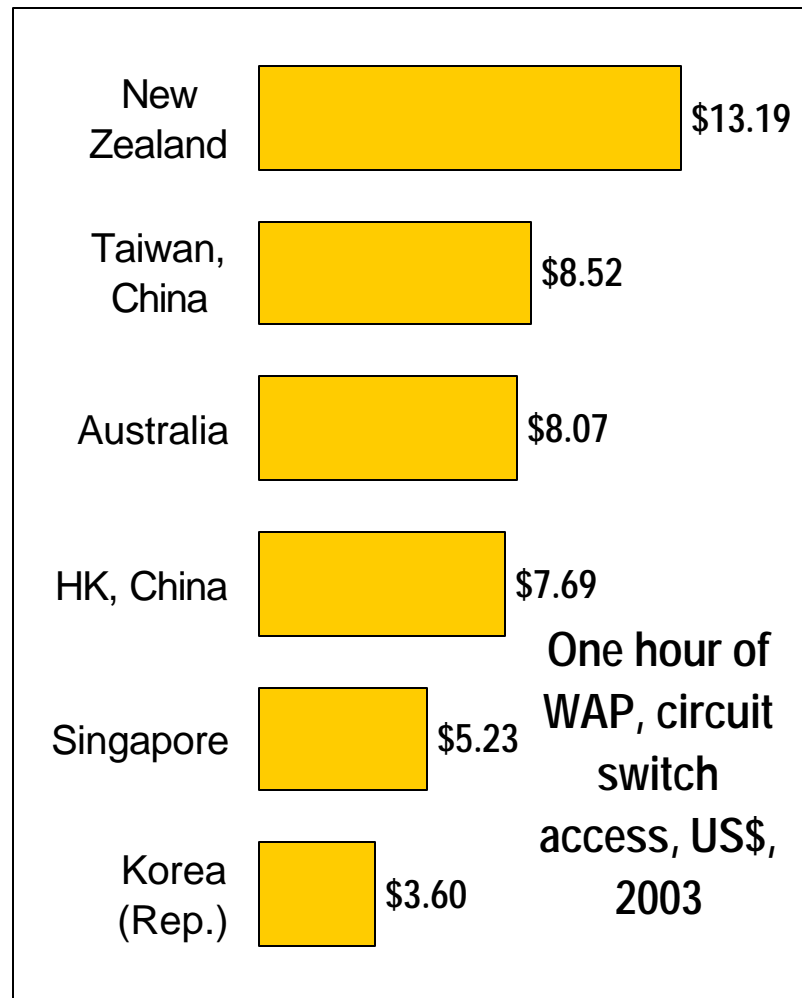


Source: ITU adapted from various sources.



Mobile pricing

- Two ways of pricing:
 - Time (length of period logged on). Generally used for low-speed access.
 - Volume (amount of data transferred). Generally used for high-speed access.
- Can also have a subscription plan or “pay as you go”.



Source: ITU adapted from various sources.

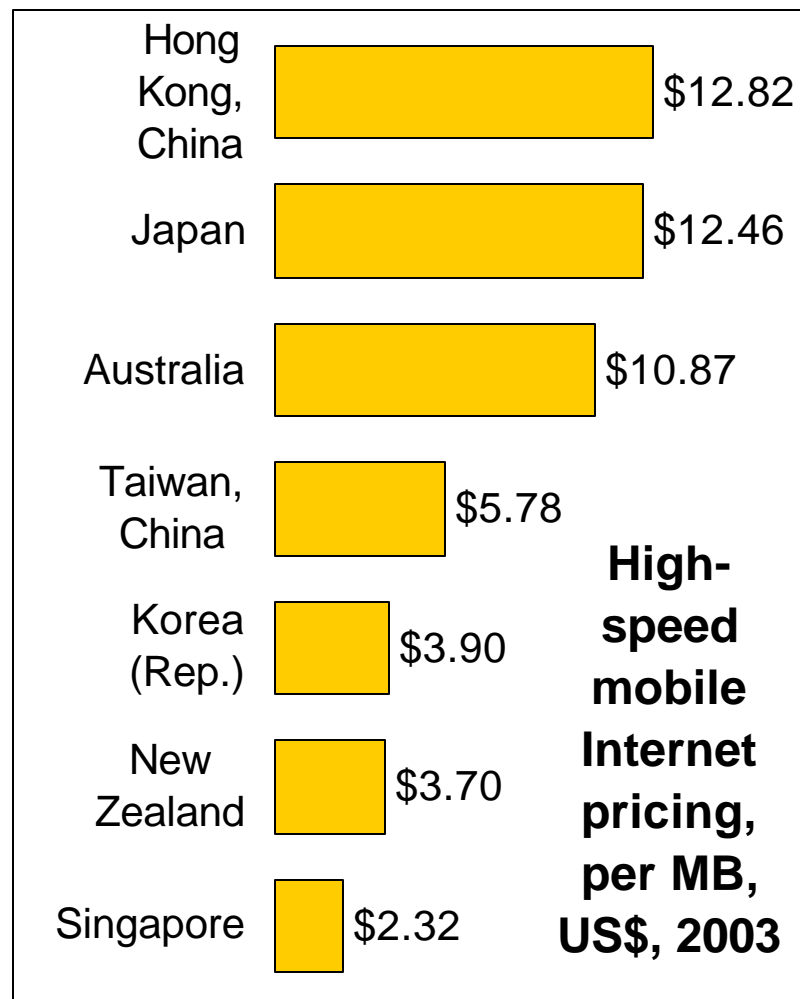


High-speed mobile pricing

1 Megabyte (MB) is approximately equivalent to:

- 250 emails (of 200 words)
- 20 emails with attachments
- 20 pages of spreadsheets
- 10 web pages

Source: Telstra

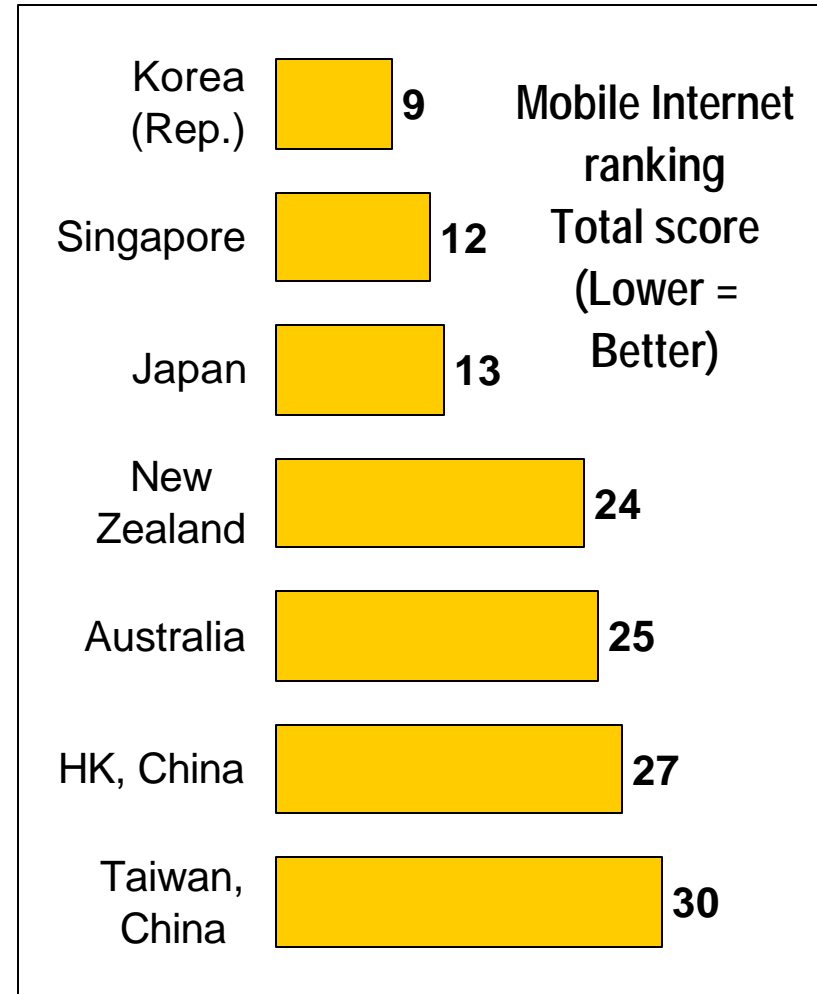


Source: ITU adapted from various sources.



Mobile Internet Index

- Which economy is doing best overall in mobile Internet?
- Helps to overcome limitations of different data by using a number of variables
- Indicators:
 - Mobile to Internet Ratio
 - SMS/sub/month
 - Mobile telephone Internet users ratio
 - High-speed mobile subscriber ratio
 - Mobile data revenue ratio
- Mobile Internet Divide

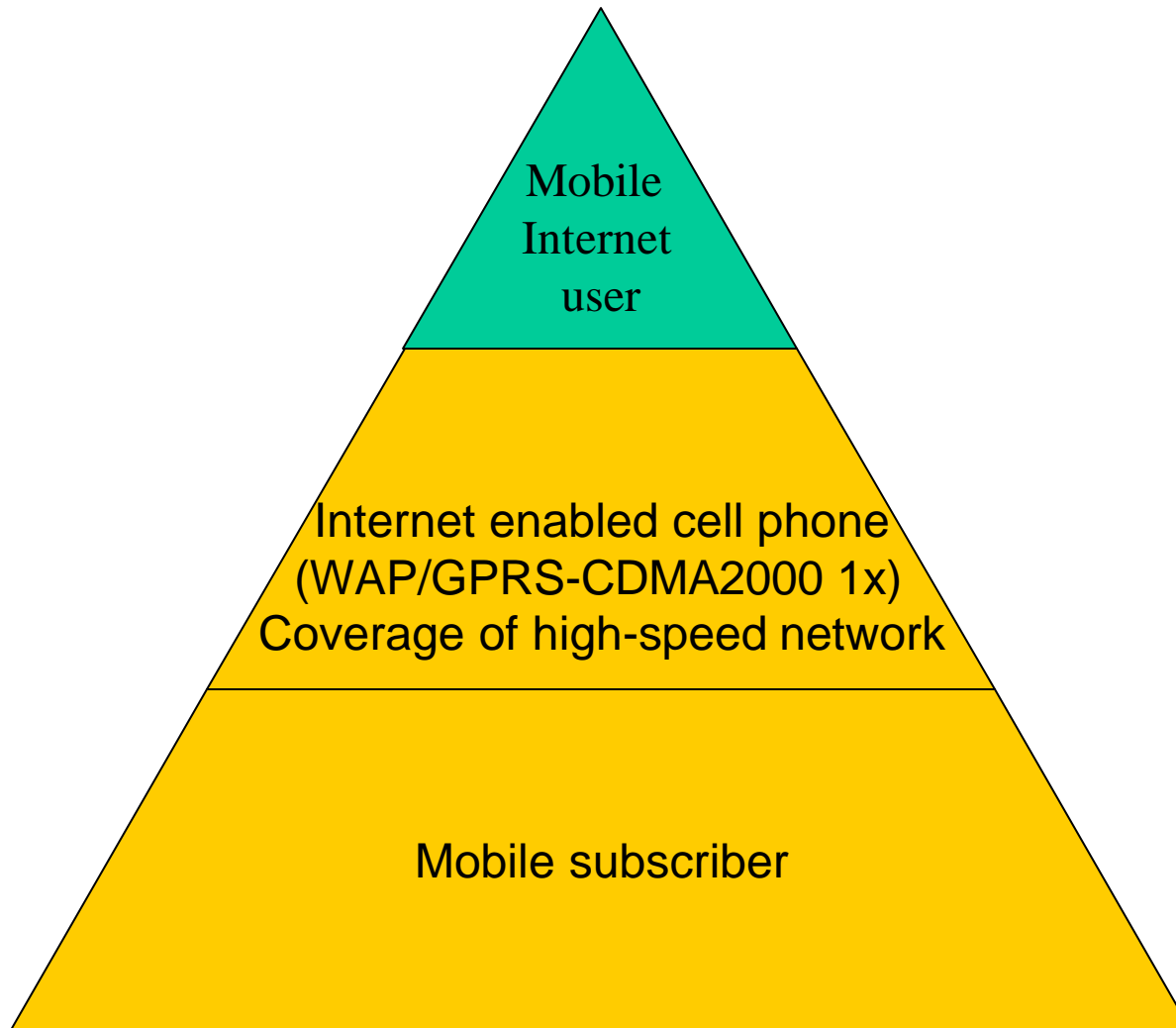


Source: ITU.



Recommendations

- Agreement on standard list of mobile Internet indicators and definitions
- Government ICT agencies need to collect and disseminate the data (only Hong Kong, China and Taiwan, China publish limited mobile Internet statistics)
- National statistical offices should incorporate mobile Internet questions into ICT surveys
- If mobile is important, then why not PDAs and notebooks? If wireless important, then why not 802.11? So should WiFi also be included as a mobile Internet indicator (e.g., number of users, number of hotspots)?





HH Surveys

- % HH that use wireless to access Inet (mode of connection)
 - HKG, 2'200 (via PC), 0.2%
 - Taiwan, 1%
- % HH using mobile phones to access Inet
 - Taiwan: mobile phones, 9%
- % individuals that use cellular phone to access Internet (both PC and cellphone; only cellphone)
 - HKG: 72'200 WAP phone, 2.5%
 - Japan: 14.8% via mobile phone only
- % of subscribers that use wireless to access Internet
 - Taiwan: 747'000 WAP and GPRS, 10%

Mobile Internet Data availability

	SMS	Traffic	Subscribers	Infra-structure	Revenue	Pricing	Surveys
AUS	☹️	☹️	☹️	☹️	☹️	☹️	☹️
HKG	😊	☹️	😊	😊	☹️	☹️	☹️
JPN	☹️	☹️	😊	😊	☹️	☹️	😊
KOR	☹️	☹️	☹️	☹️	☹️	☹️	😊
NZL	☹️	☹️	☹️	☹️	☹️	☹️	☹️
SGP	☹️	☹️ ☹️	☹️	☹️	☹️	☹️	☹️
TWN	😊	☹️	😊	😊	☹️	☹️	☹️

😊 Generally available at economy level (from telecom regulator)

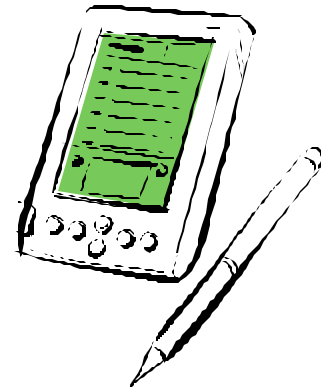
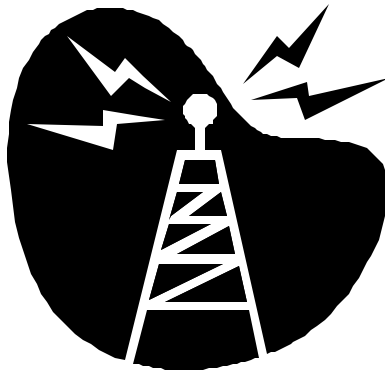
☹️ Available from at least one operator

☹️ No primary data available. Estimated or secondary source.





What is Mobile Internet?





3G licenses

Country	Licenses	Method	Date awarded	Amount (US\$ m) ~
Australia	6	Auction (regional)	Mar-01	579
Hong Kong, China	4	Auction (pre-qualify)	Sep-01	128*
Japan	3	Beauty contest	Jun-00	Free
Korea (Rep.)	3	Beauty contest	Aug-01	2'886
New Zealand	4	Auction (regional)	Jan-01	60
Singapore	3	Auction (Cancelled)#	Apr-01	165
Taiwan, China	5	Auction	Feb-02	1'399

Note: ~ Total amount received for all licenses. Local currency converted at rate at date of license award. * Amount bid was HK\$ 4.1 (US\$ 0.5) million. In addition, licensees must pay minimum of HK\$ 50 million per year or 5% of turnover. Amount shown reflects first five years. # Only one offer was made for each 3G spectrum right so licenses awarded to three bidders.