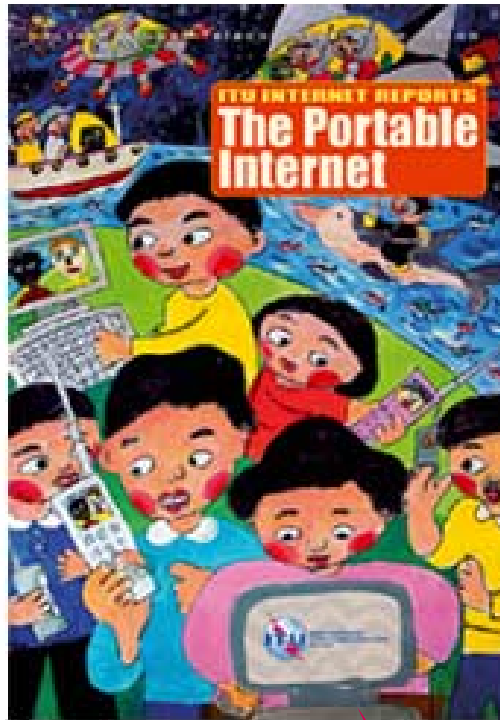


ITU Internet Reports 2004: The Portable Internet

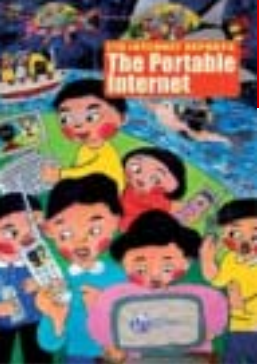
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Helping the world communicate



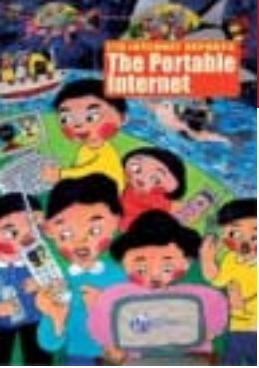
International
Telecommunication
Union



New ITU report (6th edition in series) Table of Contents

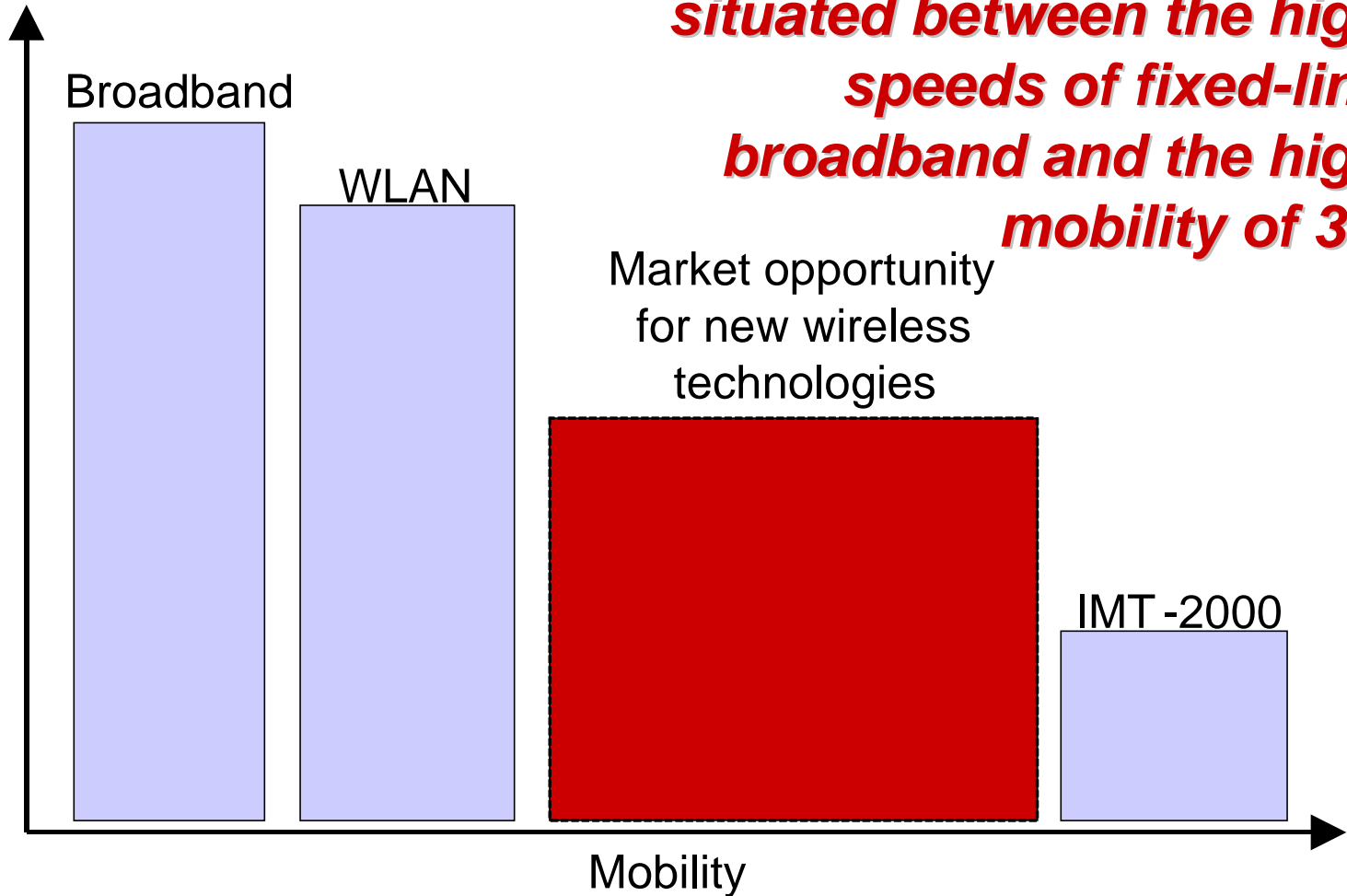
- 1. Introduction**
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- Statistical tables**
220 pages

RELEASE DATE: 6 September 2004



The Portable Internet

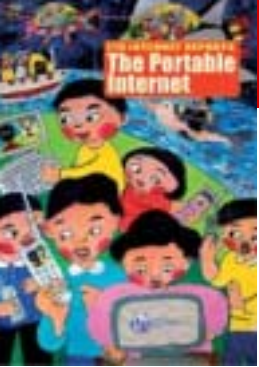
Speed



A new market opportunity, situated between the high speeds of fixed-line broadband and the high mobility of 3G

Market opportunity for new wireless technologies

Source:
ITU Internet Reports 2004:
The Portable Internet.



Advanced wireless technologies

Long Range

- IMT -2000 (3G)
- WiMax -
IEEE 802.16
- IEEE 802.20
- HiperMAN
- Satellite
- HAPS/LAPS
- LMDS
- MMDS

Medium Range

- WLAN
 - Wi-Fi -
IEEE 802.11b
 - IEEE 802.11a
 - IEEE 802.11g
 - IEEE 802.11i
- Free space optics
- HiperLAN2
- Ultra wideband

Short Range

- Bluetooth
- RFID
- ZigBee

Portable Internet characteristics

● Portable

- Based on advanced wireless technologies, including 3G mobile and Wireless LAN

● High-Speed

- Providing speeds of at least 256 kbit/s up to >50 Mbit/s

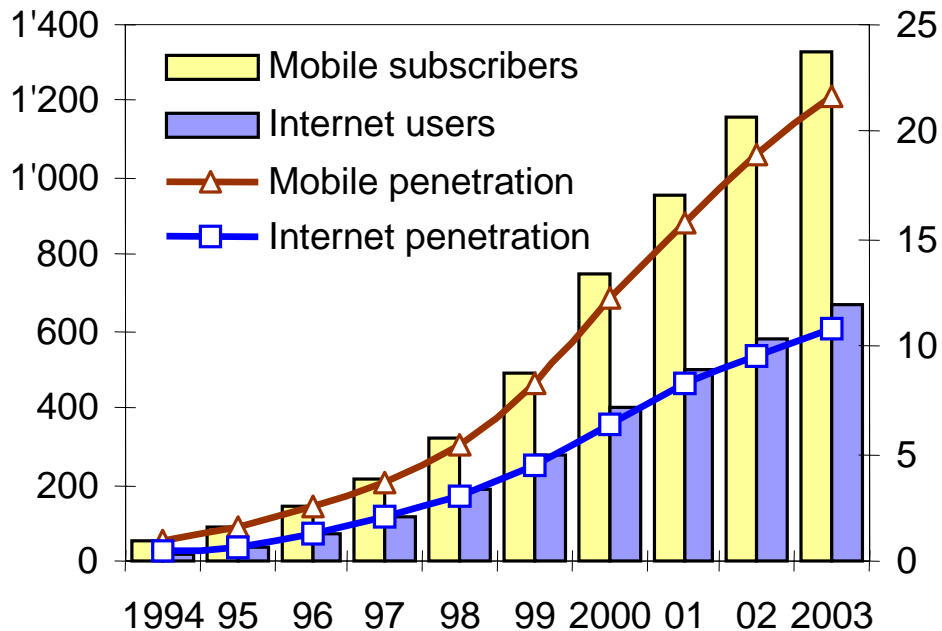
● Large Storage

- Multi-gigabyte storage capacity allowing storage of movies, music, files etc

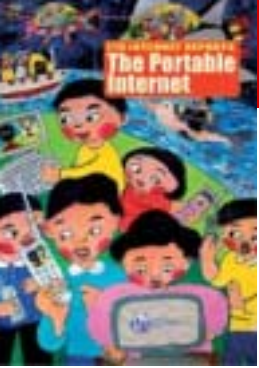
● Everything over IP

- Allowing digital data exchange between services and apps

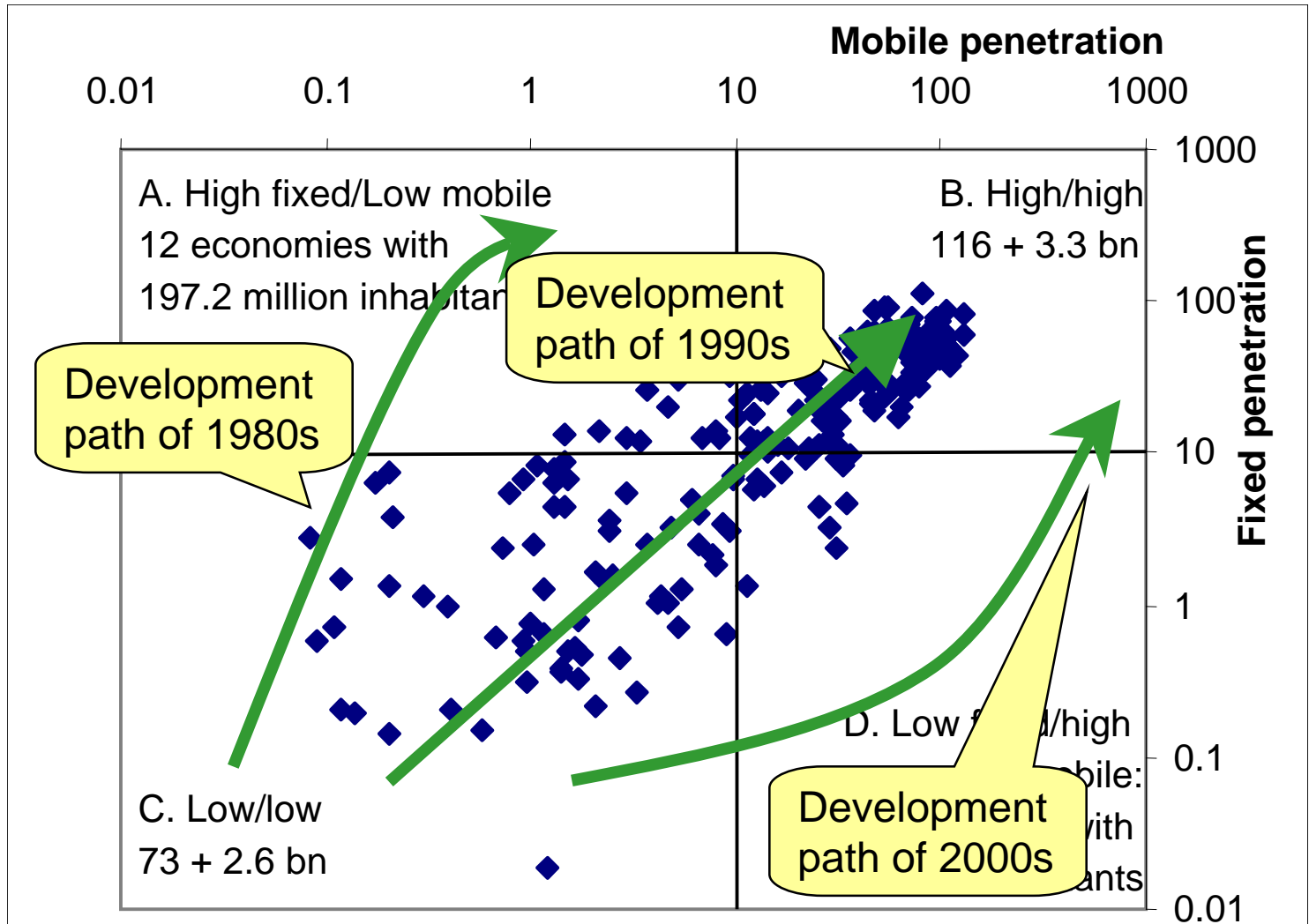
Users (millions) and penetration per 100 pop.



“Virtually all of the growth in the global telecoms sector over the past decade has come from mobile communications and the Internet”

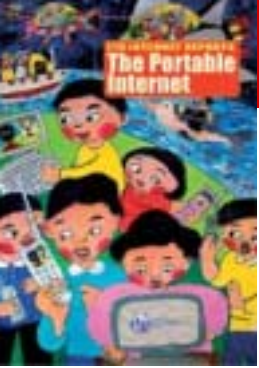


The Market Opportunity

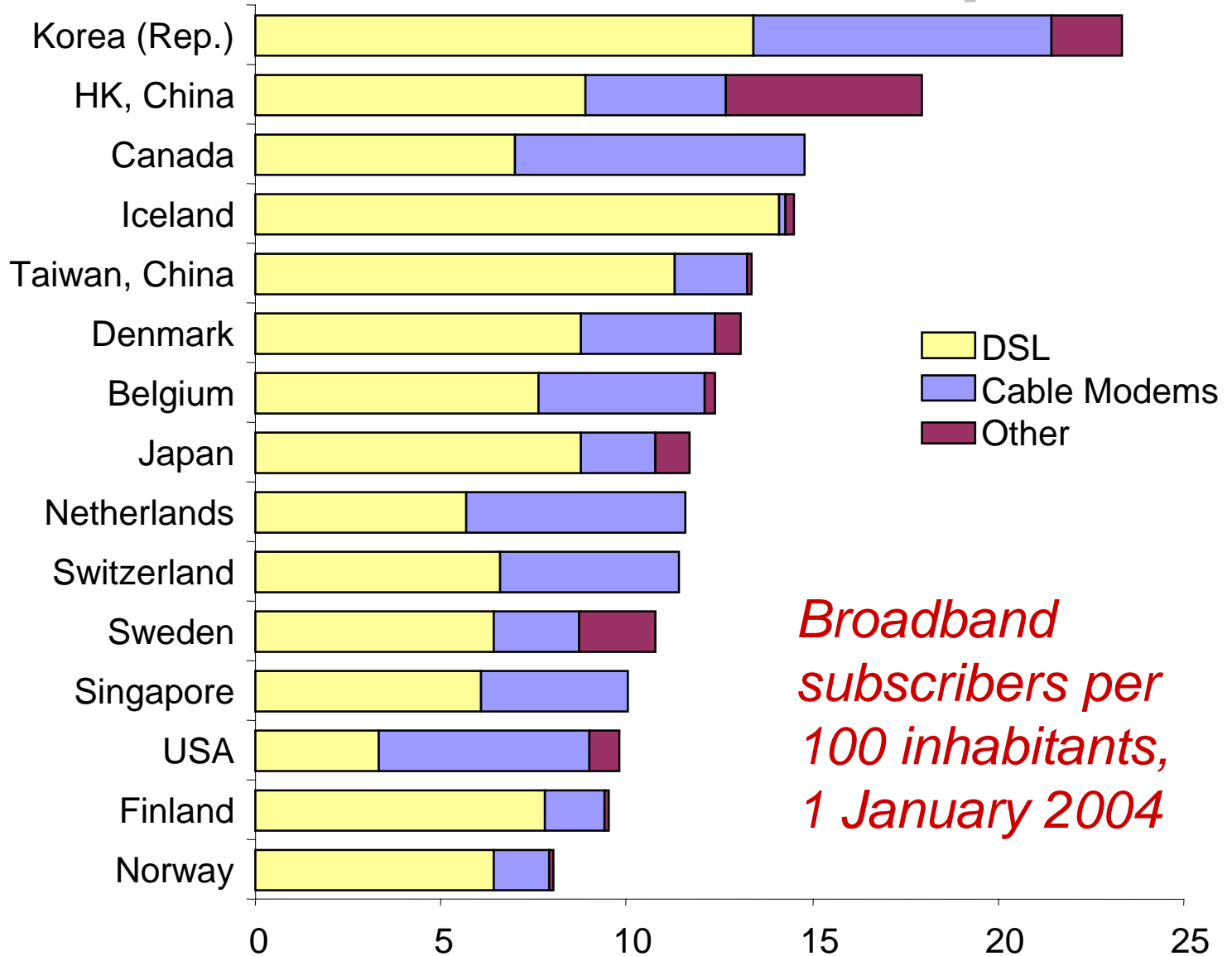


Note: Each dot represents one economy. A log scale is used.

Source: ITU Internet Reports 2004: The Portable Internet.

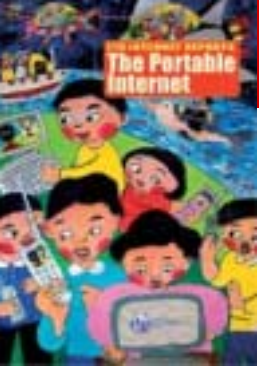


Fixed-line broadband: Top 15



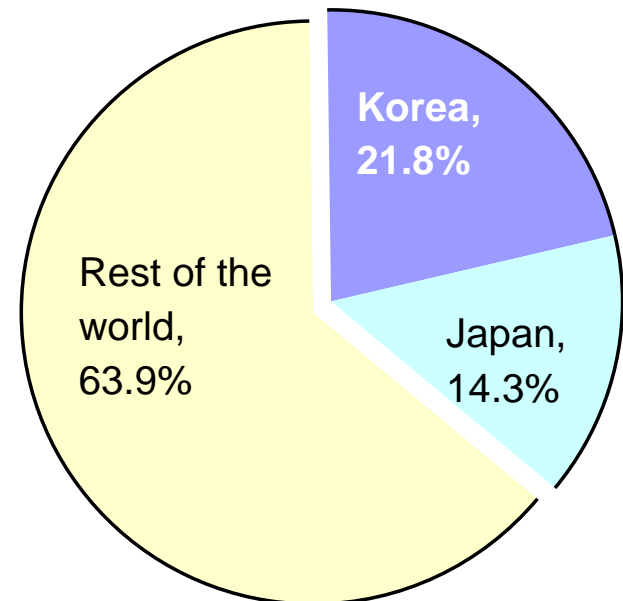
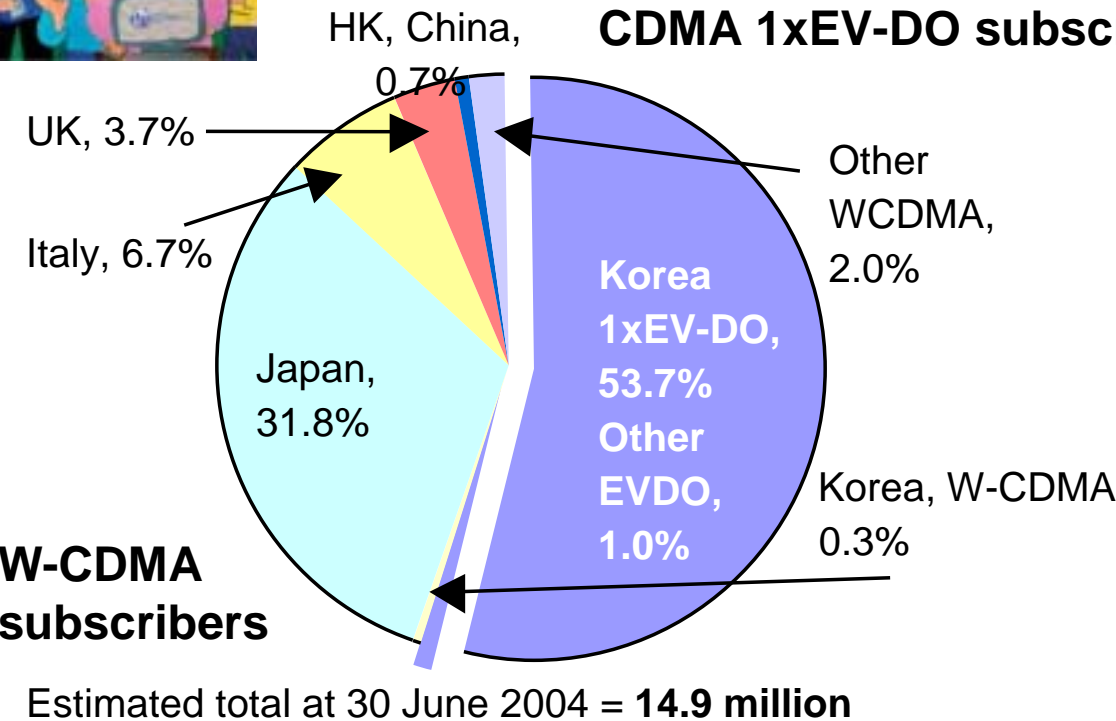
Broadband subscribers per 100 inhabitants, 1 January 2004

Source: ITU Internet Reports 2004: The Portable Internet.



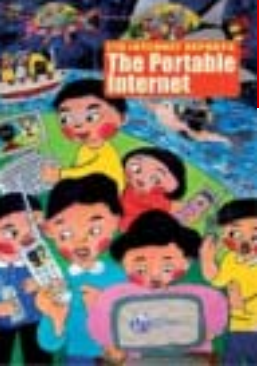
3G mobile (IMT-2000)

By the middle of 2004, there were 118 million 3G subscribers worldwide



Source: ITU Internet Reports 2004: The Portable Internet.

Estimated total at 30 June 2004 = **103 million**



WiMAX Development

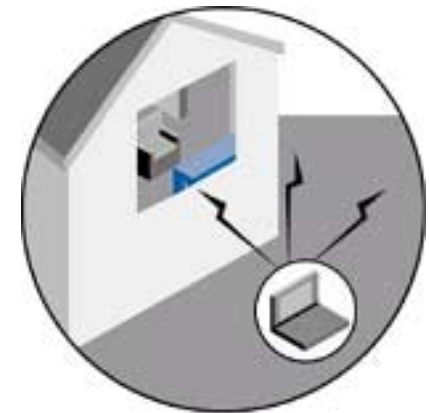
- **WiMAX equipment should appear in three stages:**



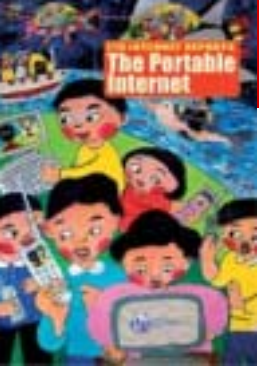
**Outdoor mounted
Early 2005**



**Indoor installed
Late 2005**



**Built into devices
2006**



The long and short of WiMAX and Wi-Fi

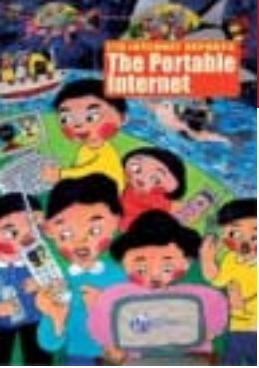
“One wireless technology to reach remote areas, another to share the connection once it’s there”

● Long range

- Technologies such as WiMax (IEEE 802.16a) can transport large amounts of data over long distances. WiMax should be able to carry a 70 Mbit/s connection over 50 km.

● Short range

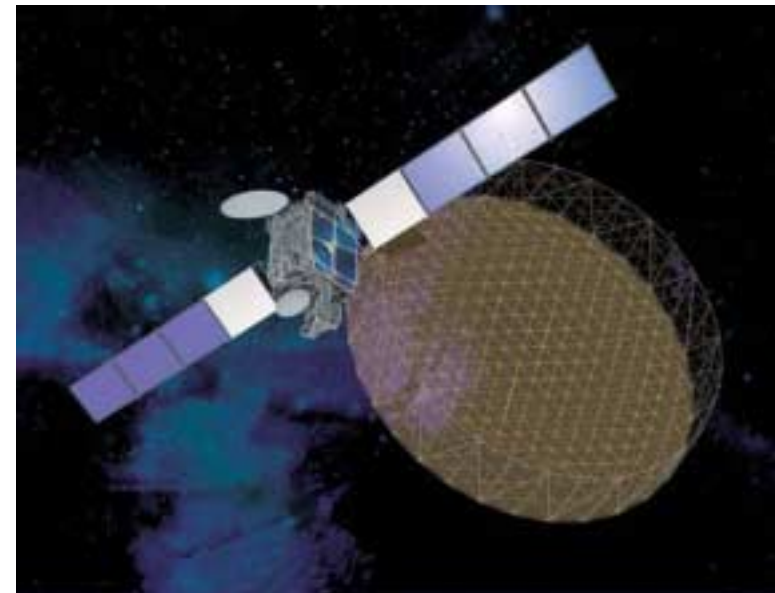
- WLAN technologies such as Wi-Fi (IEEE 802.11b) can spread the connection over a short distance from the “landing spot” of a long-range connection.

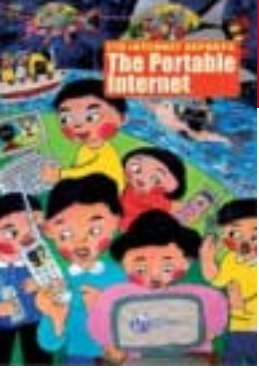


The portable Internet and multimedia

- **Change in the way we think about streaming content**
 - **Less emphasis on video-on-demand**
 - **More emphasis on one-to-many broadcasting via satellite to portable devices**

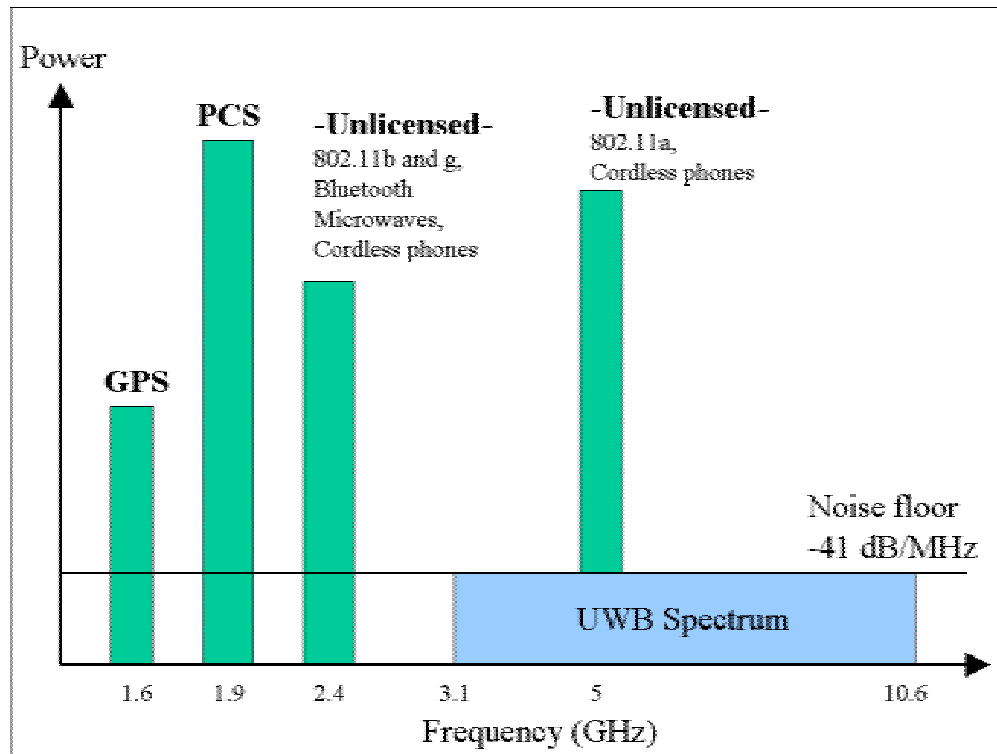
Japan and Korea's new digital media band satellite will beam 40 Korean and 70 Japanese TV channels to mobile phones and PDAs

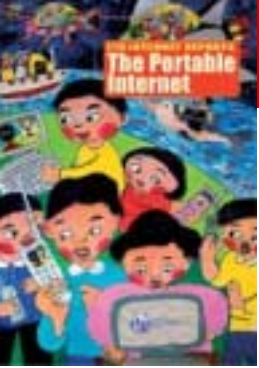




Ultra-wide band

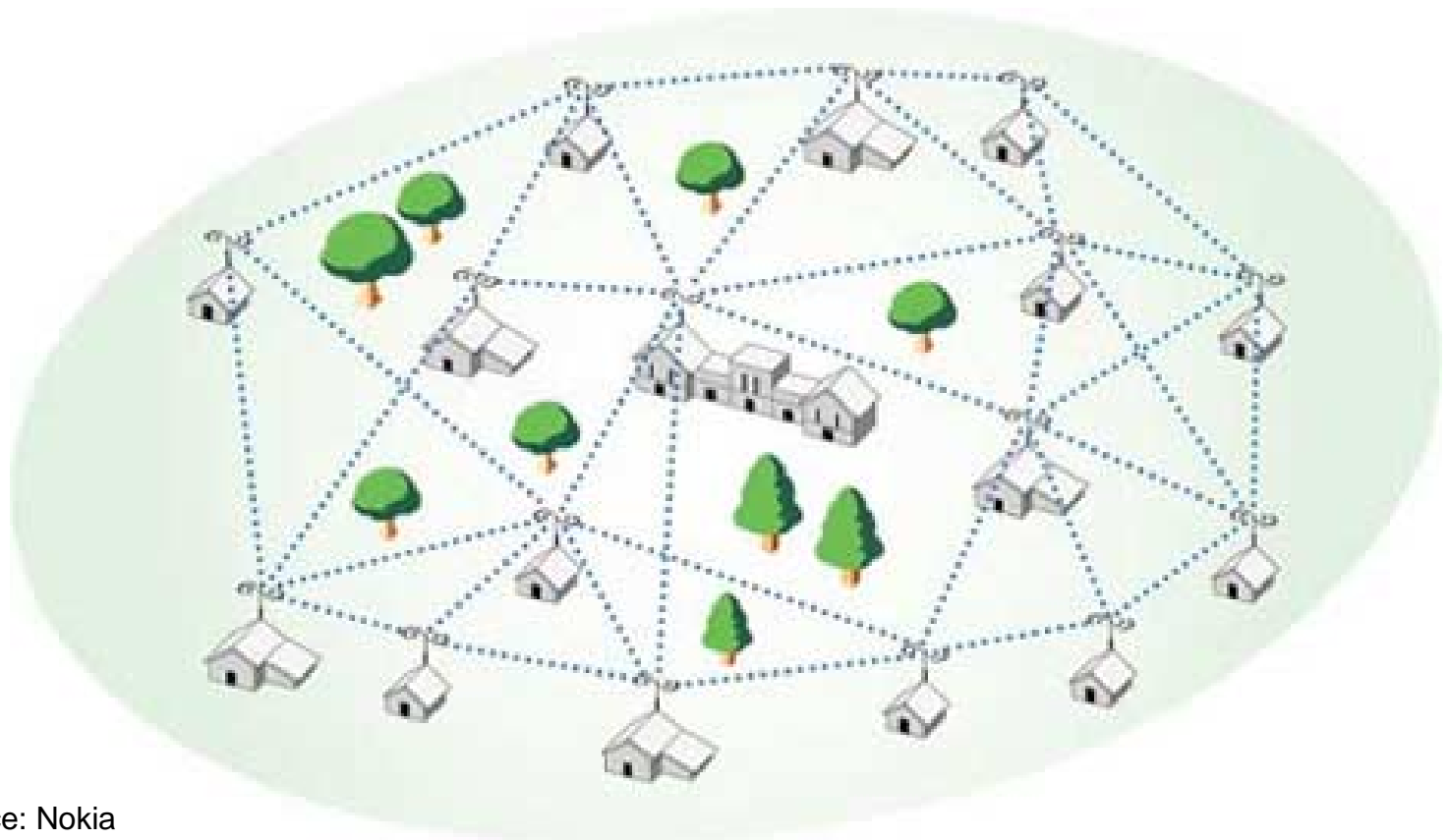
New technology to allow devices to communicate at high speeds, across large frequency swaths, but at very low power.

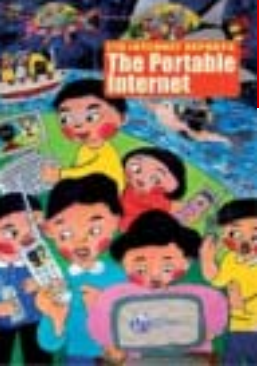




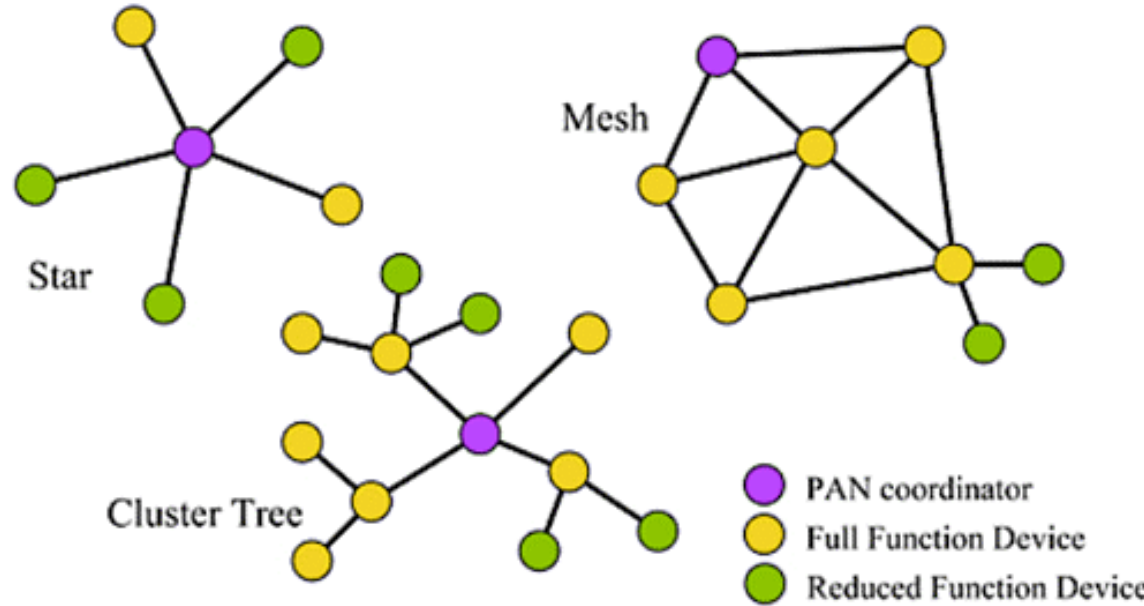
Mesh networks

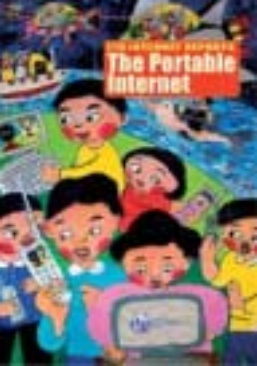
Mesh networks could drastically improve the reach and bandwidth of wireless networks by employing all users as nodes to pass traffic.





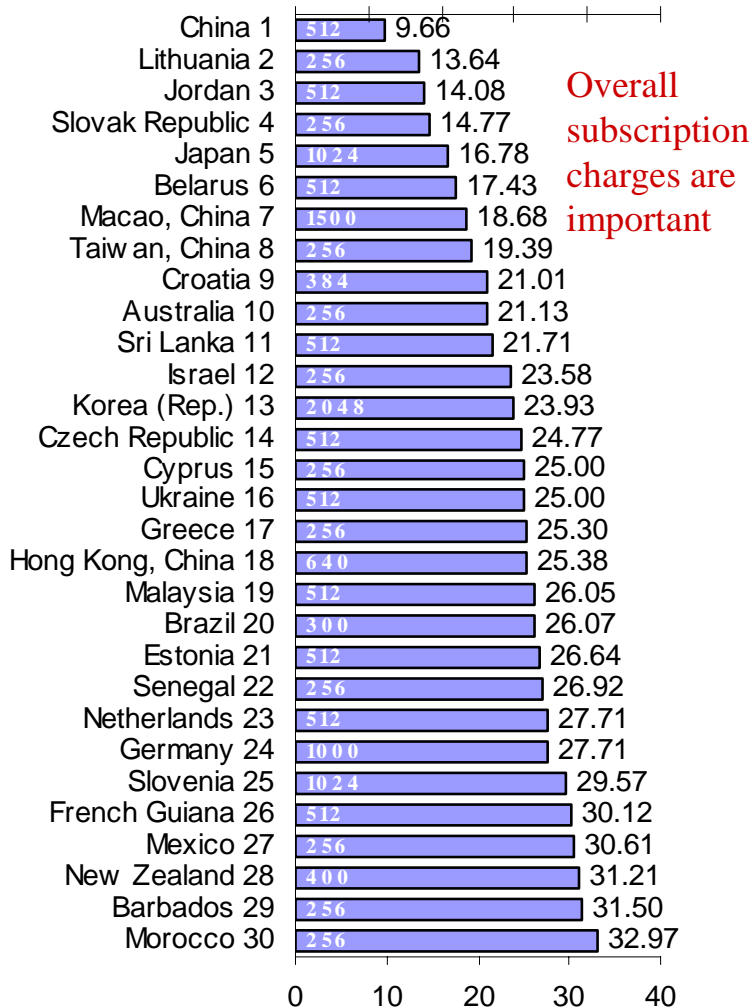
ZigBee – micro networks





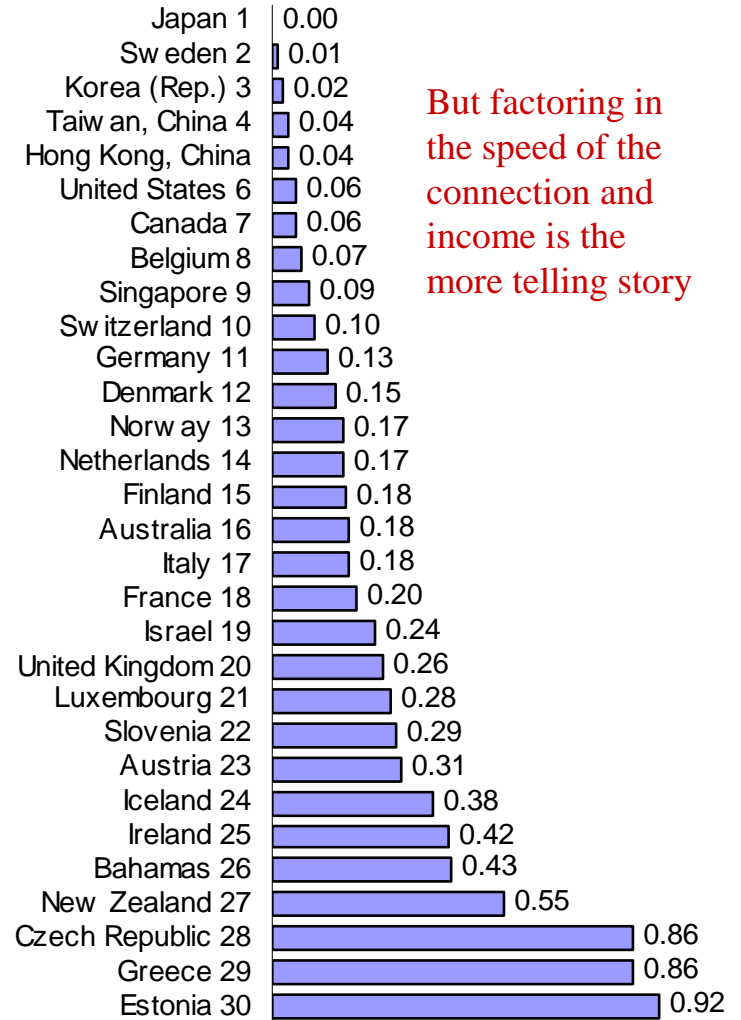
Broadband prices

Broadband monthly sub. prices, US\$, July 2004

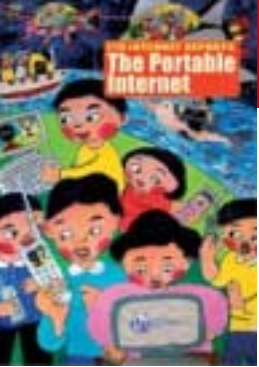


Overall subscription charges are important

Cost 100 kbit/s as % of monthly income

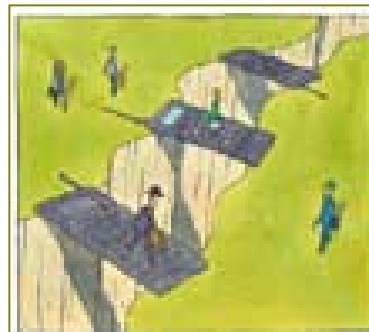


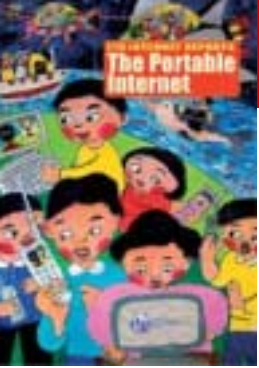
But factoring in the speed of the connection and income is the more telling story



The digital divide – not the only divide

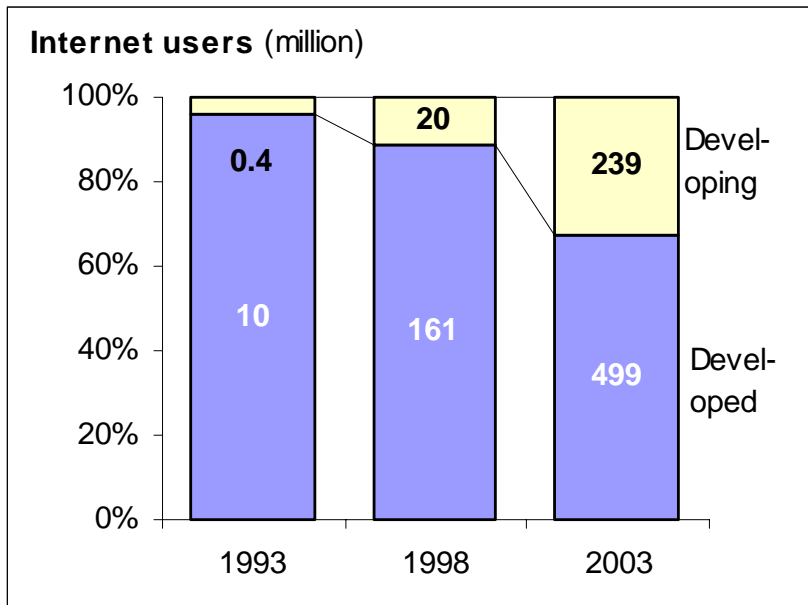
For individuals	For countries
Socio-economic status	Development stage
Gender	Infrastructure
Age, life stage	Public policy
Language/ethnic status	Skills mix
Rural/urban location	Size of domestic market
Skills balance	Location relative to trading partners



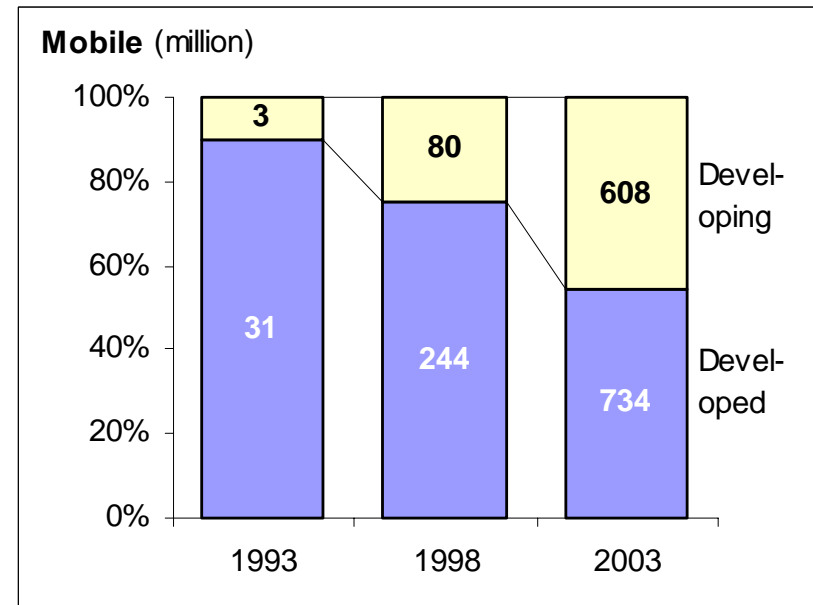


Digital divide: some progress

Internet

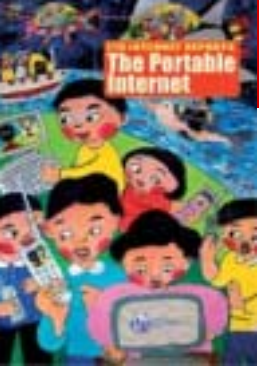


Mobile



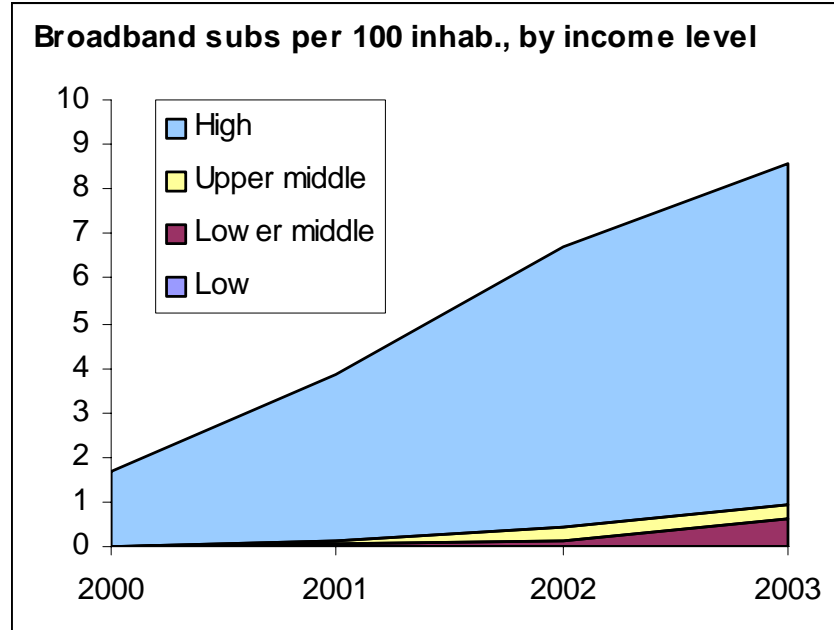
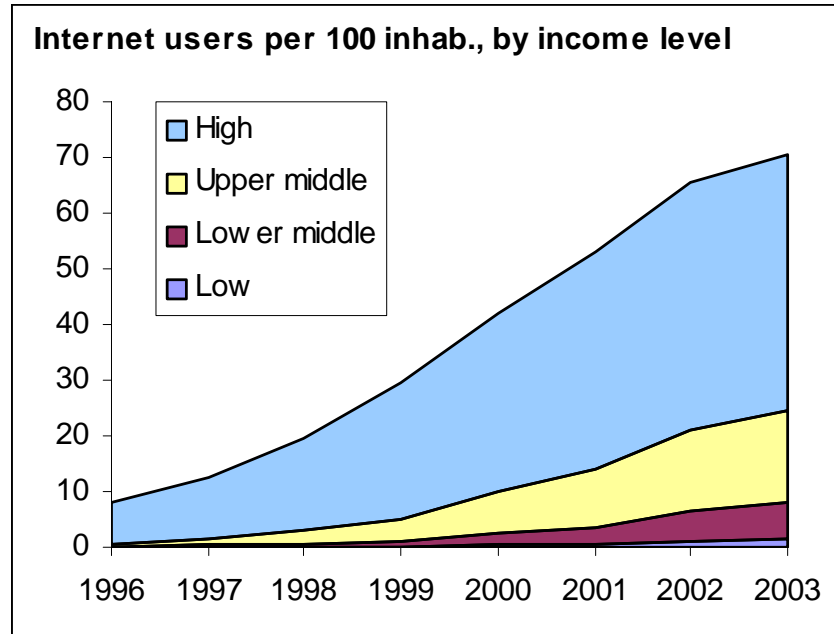
Note: Developed economies account for roughly 14% of the world's population but 75% of world income.

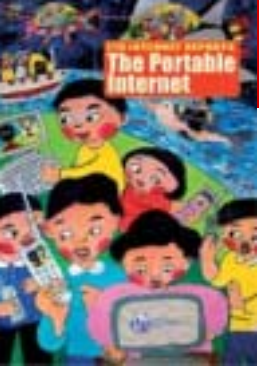
Source: ITU World Telecommunication Indicators Database



Endless catch-up

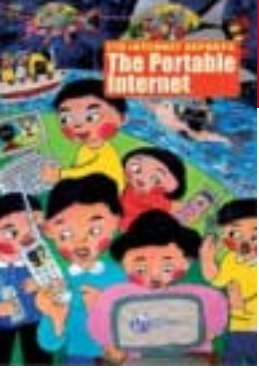
Just as developing economies start making progress in rolling out a particular technology, another appears in richer economies and the cycle repeats.





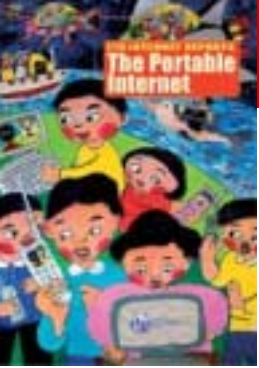
Beyond infrastructure deployment

- **Education and awareness**
 - **Fostering entrepreneurship**
- **Affordability**
 - **Encourage pre-paid services also for mobile data**
- **Local and community-based initiatives**
- **Content development**
 - **Keeping it locally relevant**



The portable Internet and the human factor

- Health concerns and opportunities
- Blurring boundaries between the public and private sphere
- The new “digital persona”
- Protecting the consumer
- Taking care of a tech-savvy youth culture
- A peek at the future today, e.g.
 - A high-tech identity (e.g. injectable RFID)
 - Enhancing the five human senses



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