Asia-Pacific Trends and the development of Wireless Broadband

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International Telecommunication Union (ITU)

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The views expressed in this presentation are those of the authors and do not necessarily reflect the opinions of ITU or its Membership. The author can contacted by e-mail at tim.kelly@itu.int.

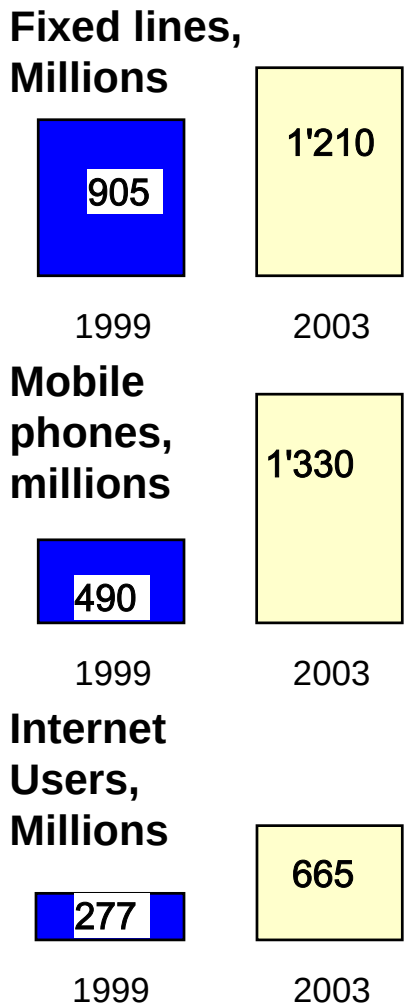
Agenda

- Global Trends
  - Recovery in ICT sector
  - Shift in growth from developed to developing world
- Asia-Pacific trends
  - Fixed lines
  - Mobile
  - Internet and broadband
  - 3G mobile
- Wireless broadband
  - Characteristics and market potential
  - Advanced wireless technologies
- New ITU report
  - ITU Internet Reports 2004: The Portable Internet

Renewed growth in global ICTs

Change from 1999-2003

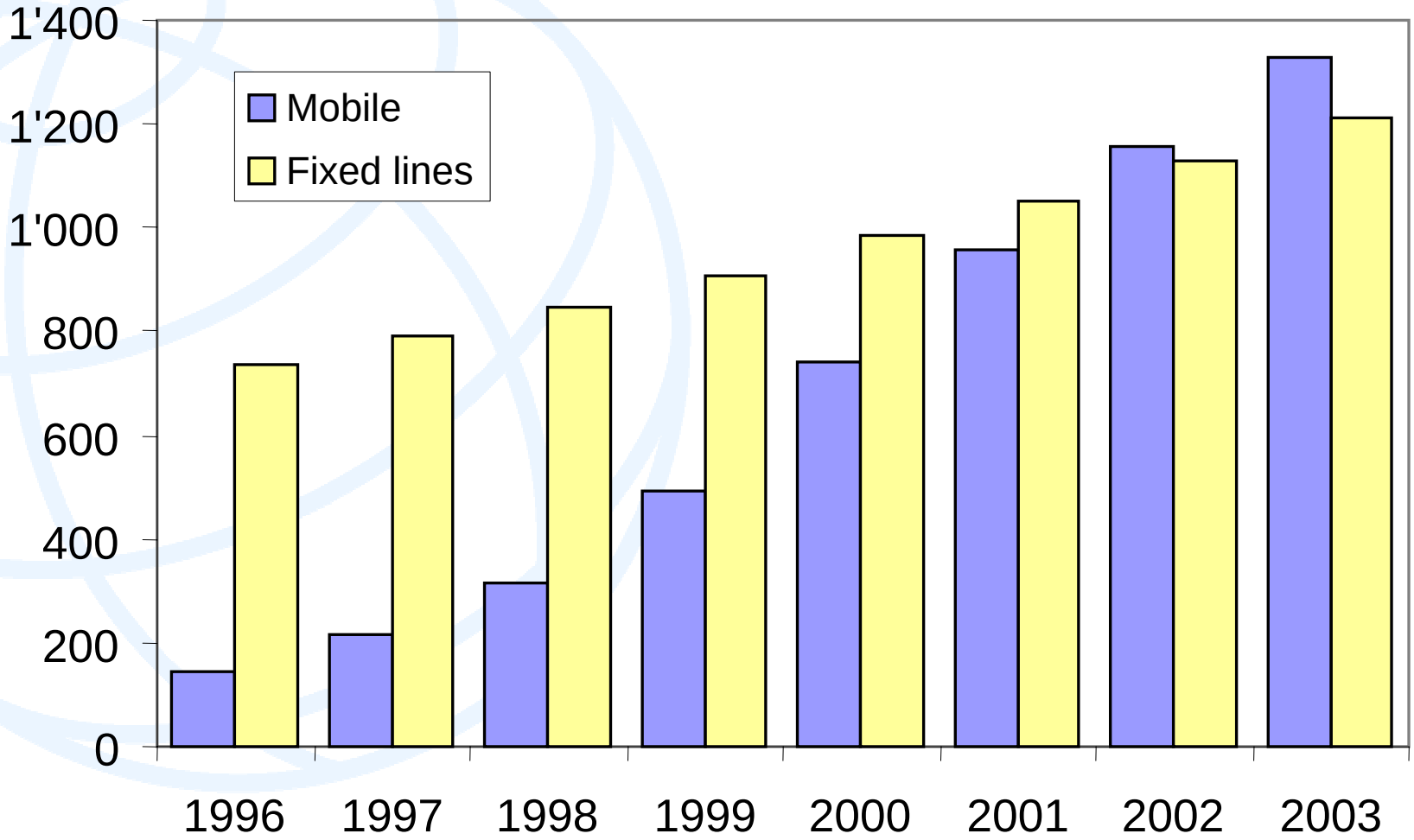
- **Fixed-line networks grew by 7.5% per year, worldwide.**
  - **305 million new telephone lines.**
- **Mobile networks grew by 28.3 % per year.**
  - **840 million new mobile phones.**
- **The Internet grew by 24.5 % per year.**
  - **438 million new Internet users.**



Note: *All numbers are for year-end.*
Source: *ITU World Telecommunication Indicators Database.*

Mobile overtaking fixed

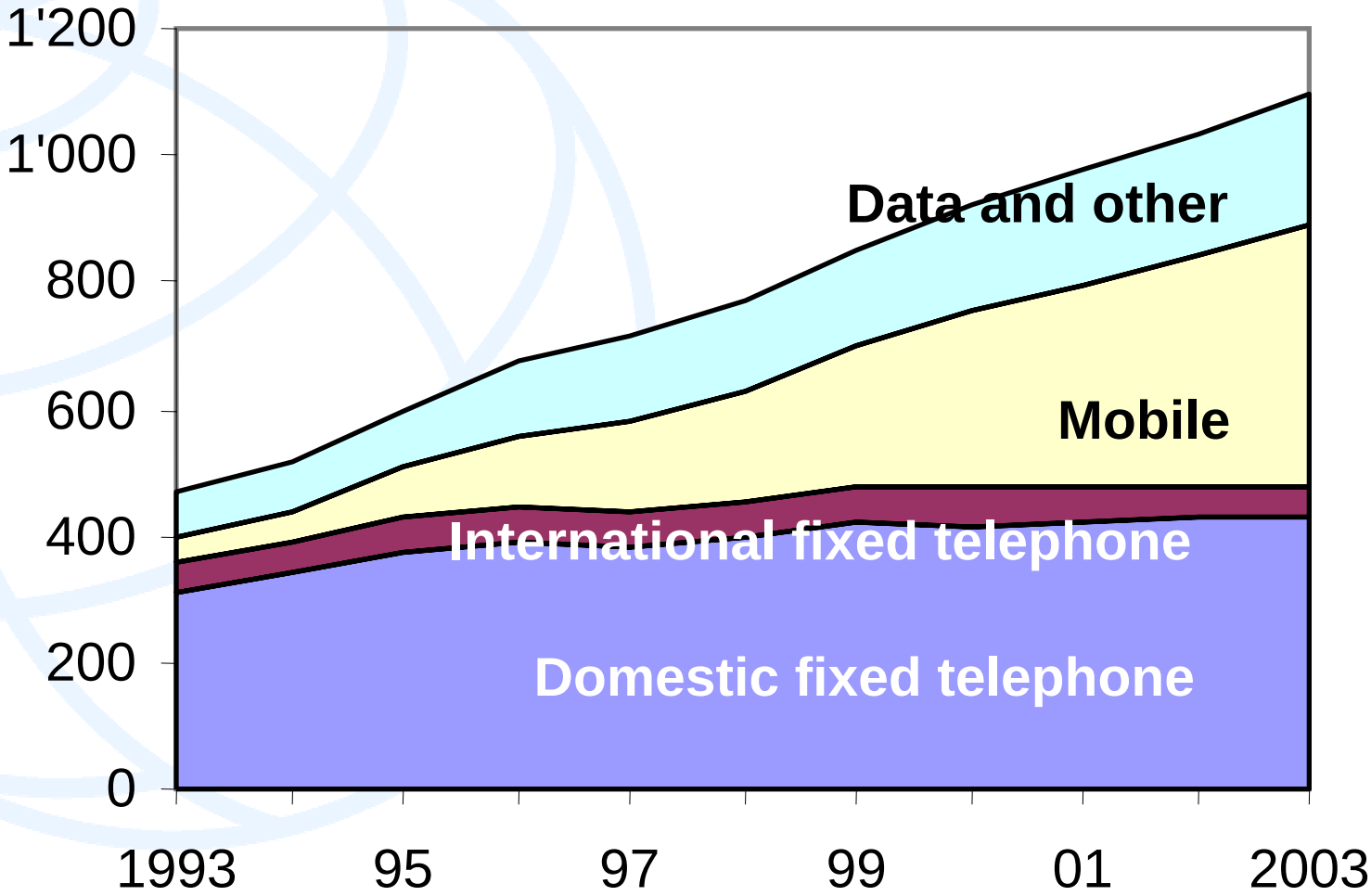
Mobile users and fixed lines worldwide, in millions



Source: *ITU World Telecommunication Indicators Database.*

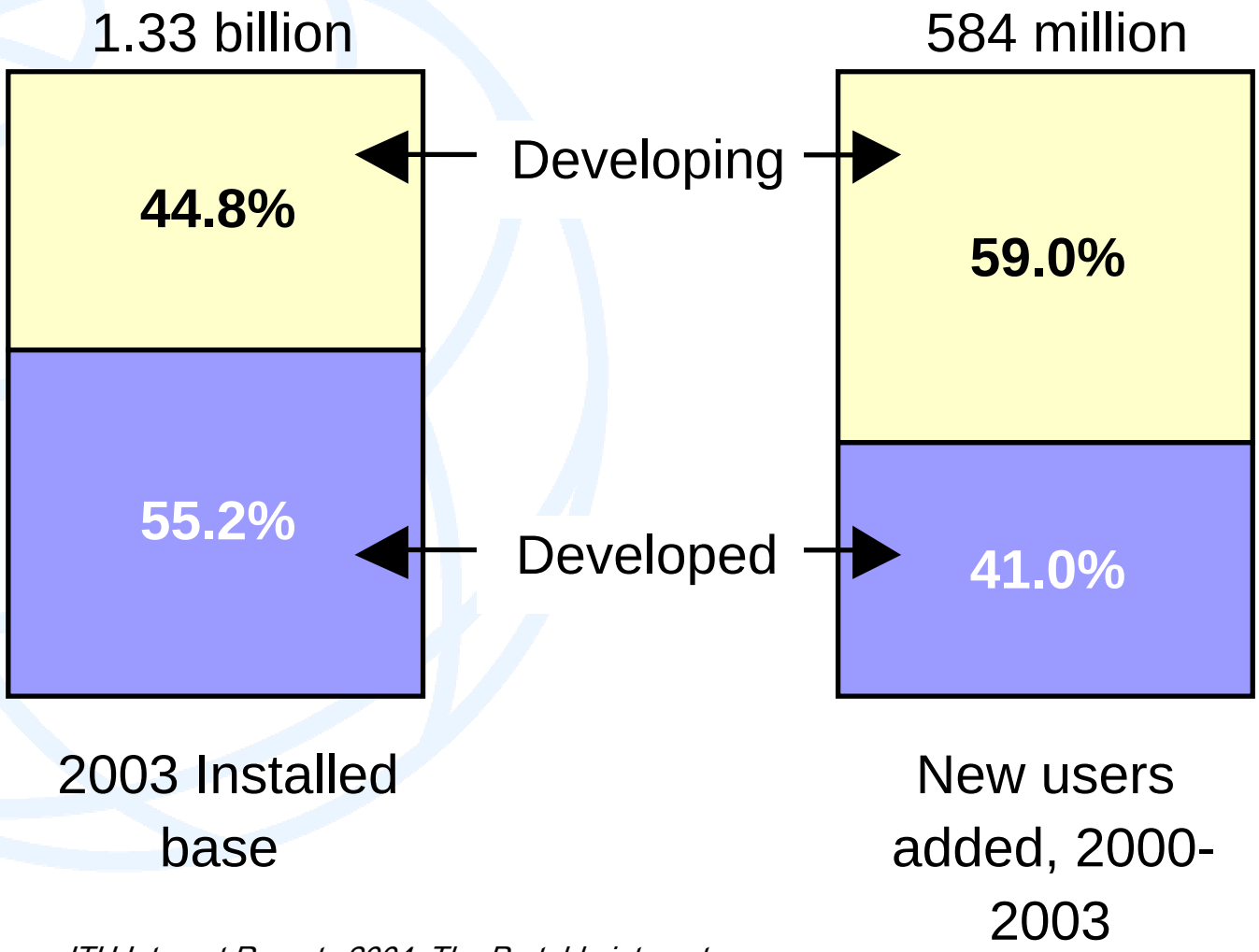
Growing service revenues

In US$ billion



Source: ITU World Telecommunication Indicators Database.

Growth shifting from developed to developing world. Mobile users, worldwide

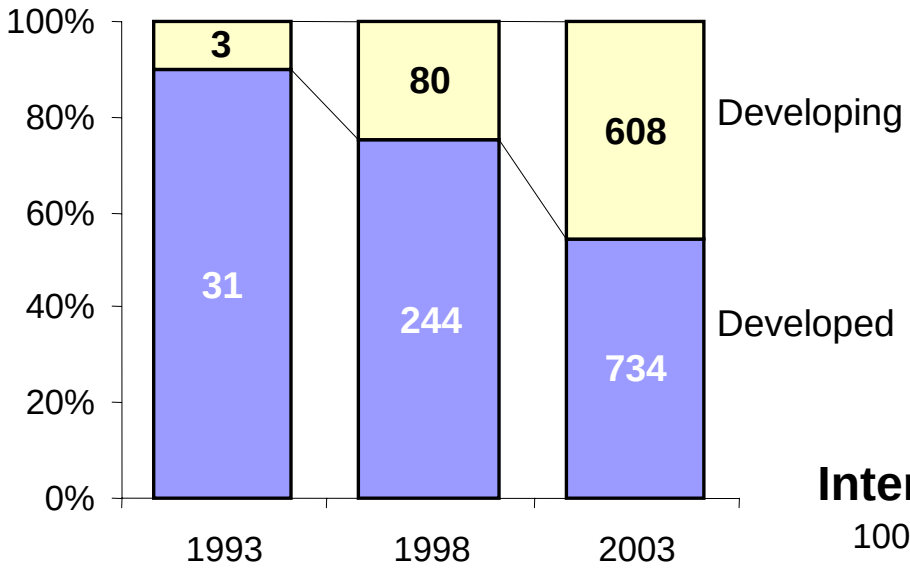


Source: *ITU Internet Reports 2004: The Portable internet.*

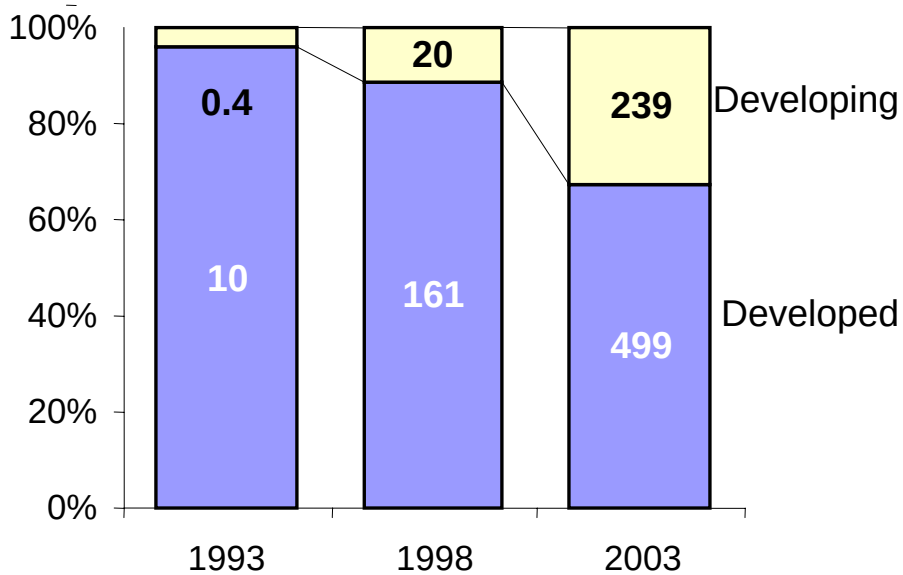
The shrinking digital divide: Global

Shares of world user population

Mobile



Internet users

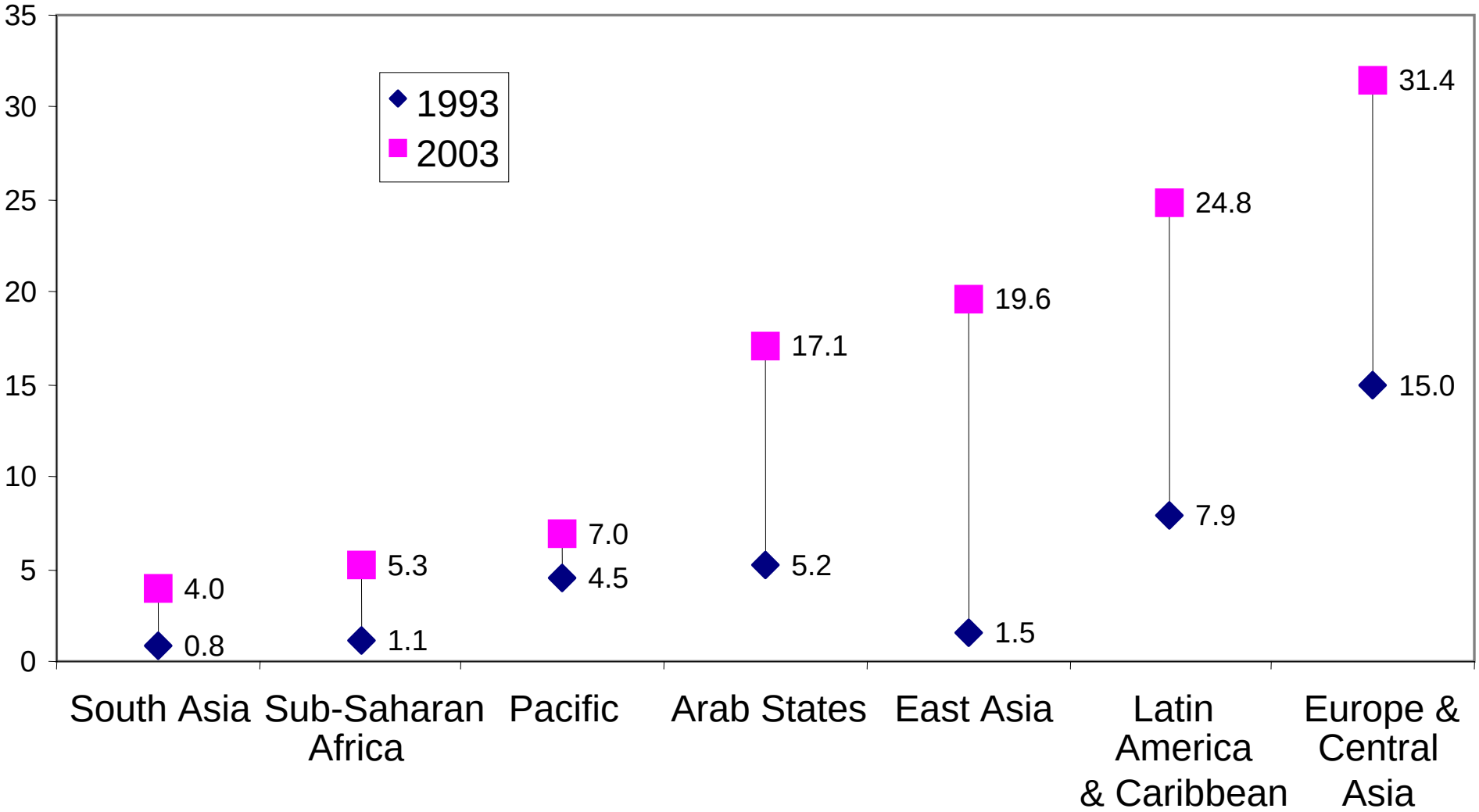


Note: Graph axes show percentage of world market. Data labels show installed base in millions.

Source: ITU Internet Reports 2004: The Portable internet.

The shrinking digital divide: Regional

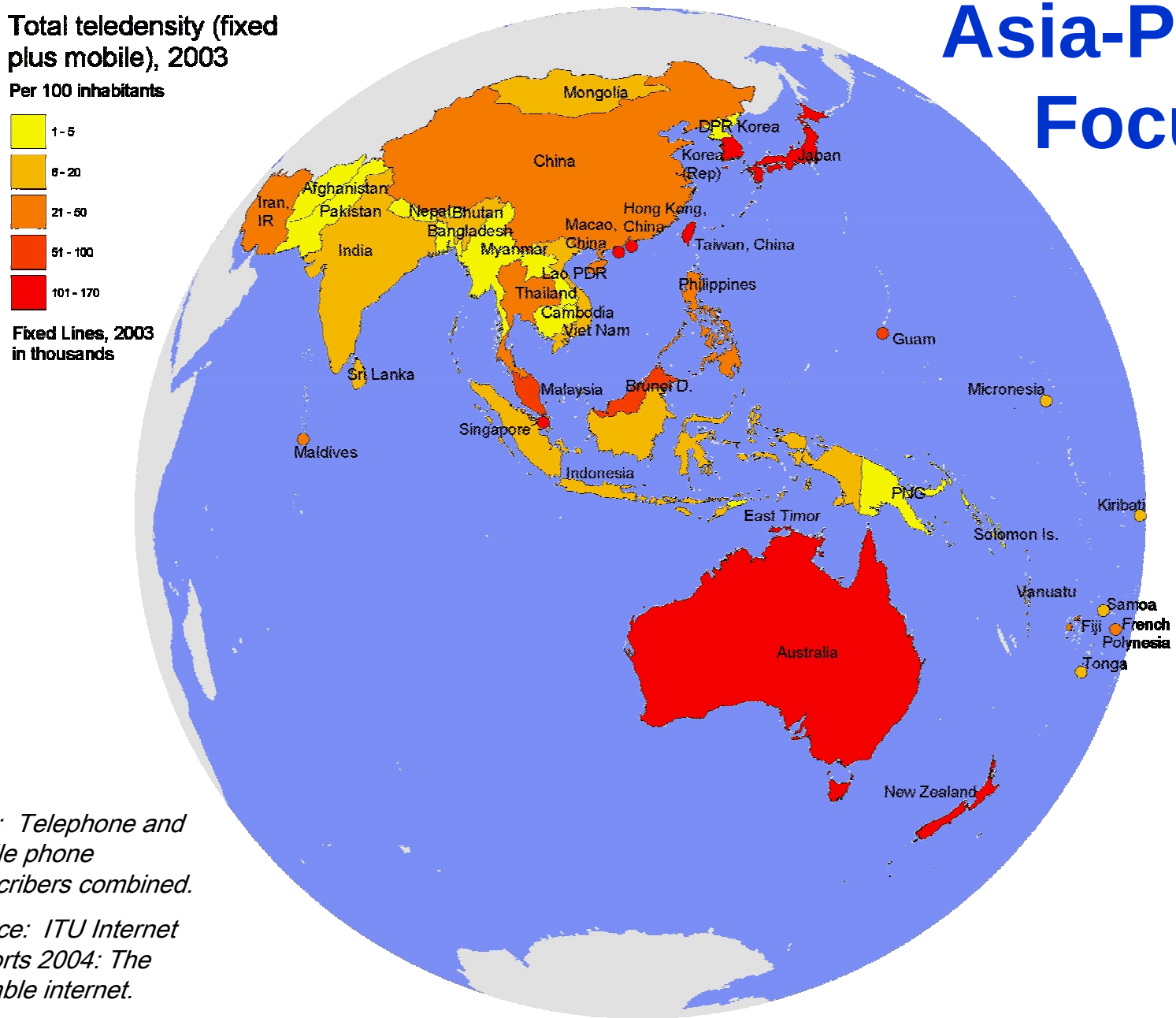
Change in effective teledensity, developing regions, 1993-2003



Note: *"Effective Teledensity" = fixed lines or mobile phones per 100 inhabitants, whichever is higher.*

Source: *ITU World Telecommunication Indicators Database.*

Asia-Pacific Focus (1)

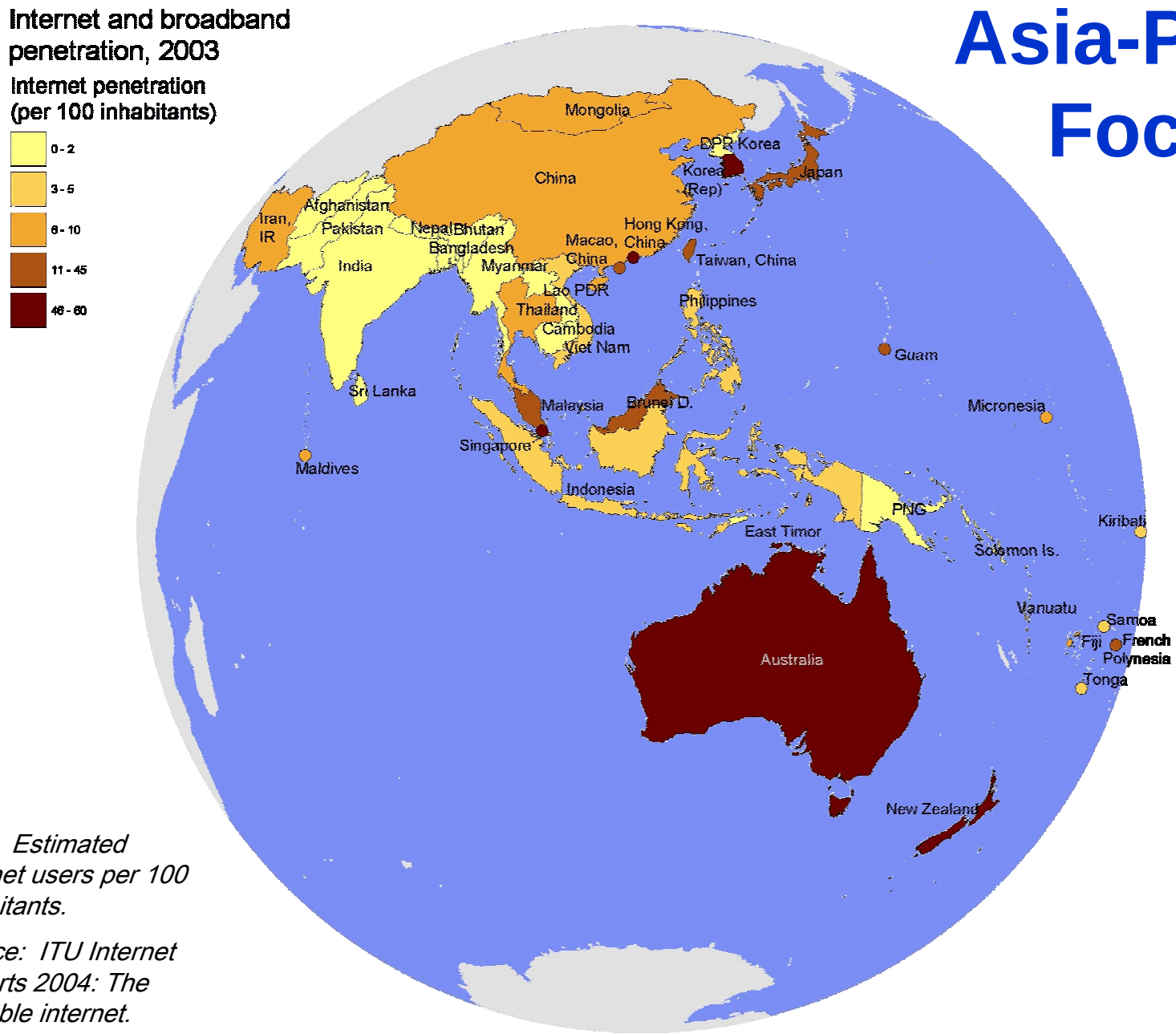


Note: Telephone and mobile phone subscribers combined.

Source: ITU Internet Reports 2004: The Portable internet.

Denominations and classifications employed in these maps do not imply any opinion on the part of the ITU concerning the legal or other status of any territory or any endorsement or acceptance of any boundary.

Asia-Pacific Focus (2)



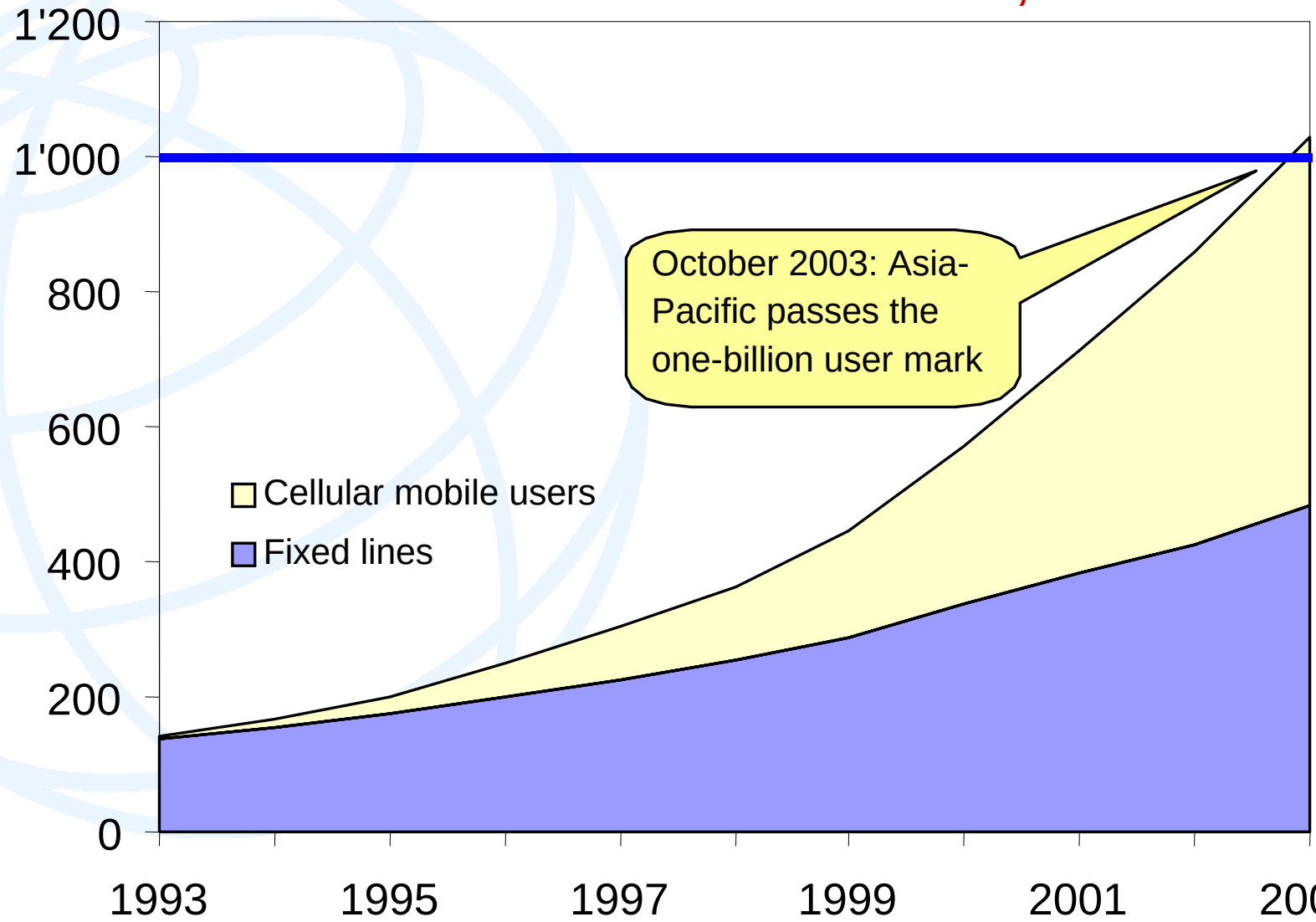
Note: Estimated Internet users per 100 inhabitants.

Source: ITU Internet Reports 2004: The Portable internet.

Denominations and classifications employed in these maps do not imply any opinion on the part of the ITU concerning the legal or other status of any territory or any endorsement or acceptance of any boundary.

Crossing the one billion mark

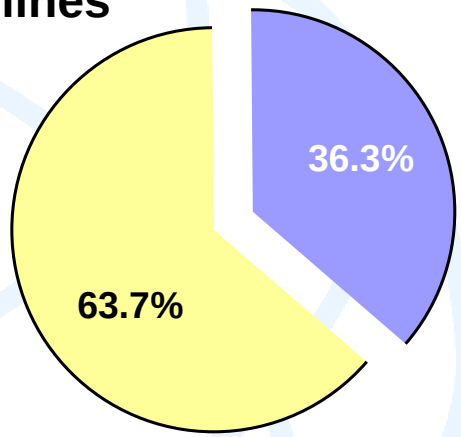
Fixed-lines and mobile users in the Asia-Pacific, million



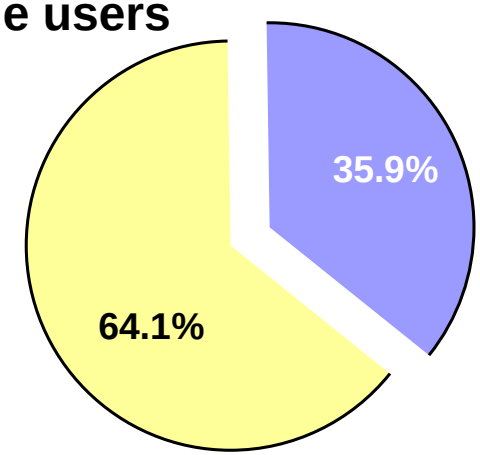
Source: *ITU World Telecommunication Indicators Database.*

Asia's growing share of global ICT markets. Year-end 2003

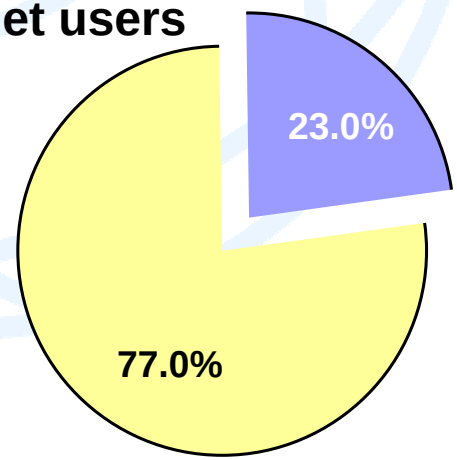
Fixed lines



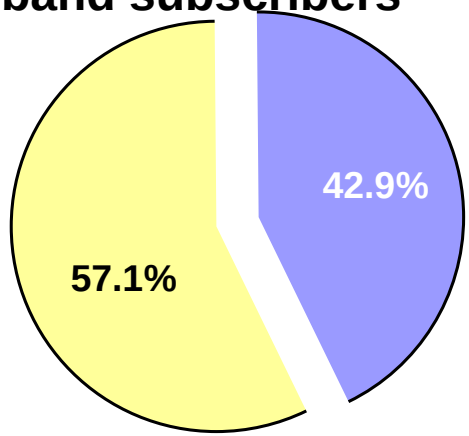
Mobile users



Internet users

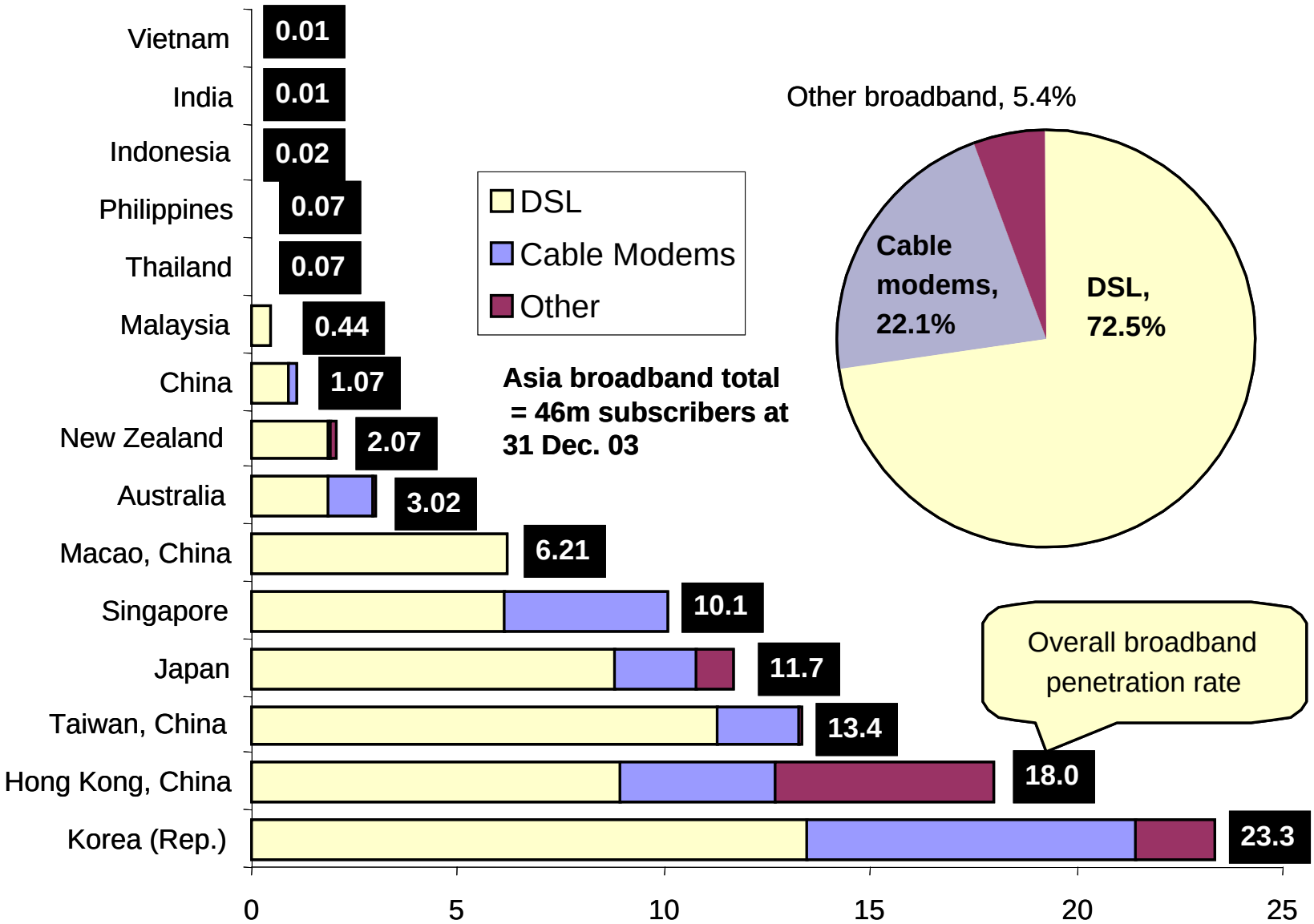


Broadband subscribers



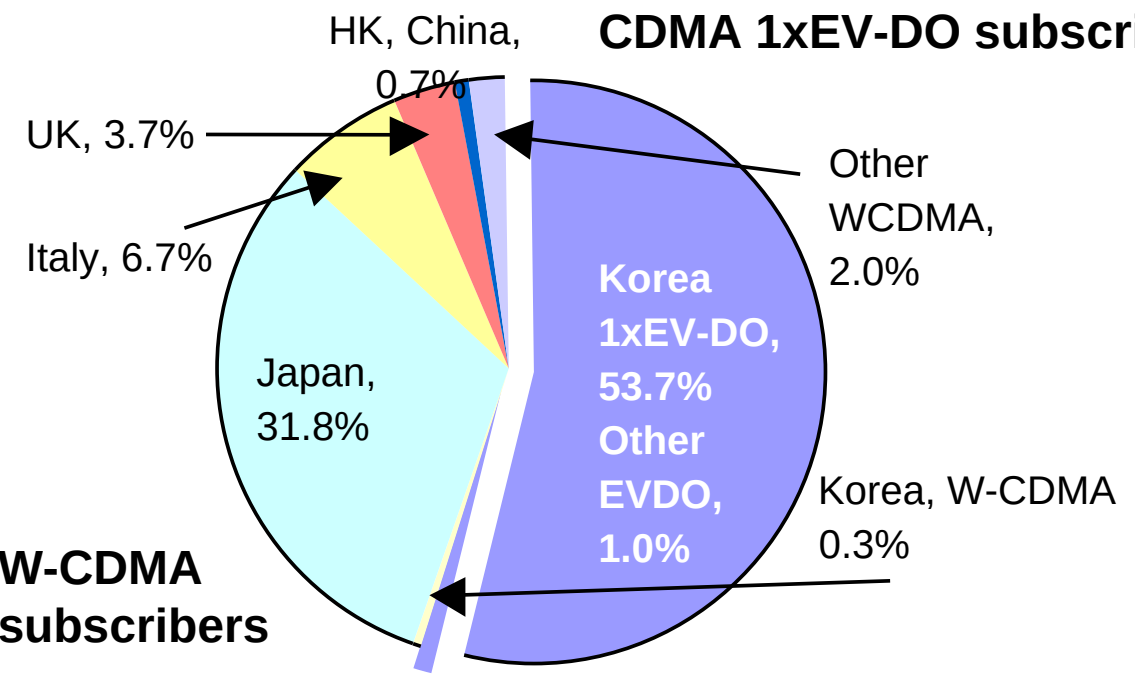
Source: ITU World Telecommunication Indicators Database.

Asia-Pacific: Leading the world in broadband. Subscribers per 100 inhabitants, year-end 2003

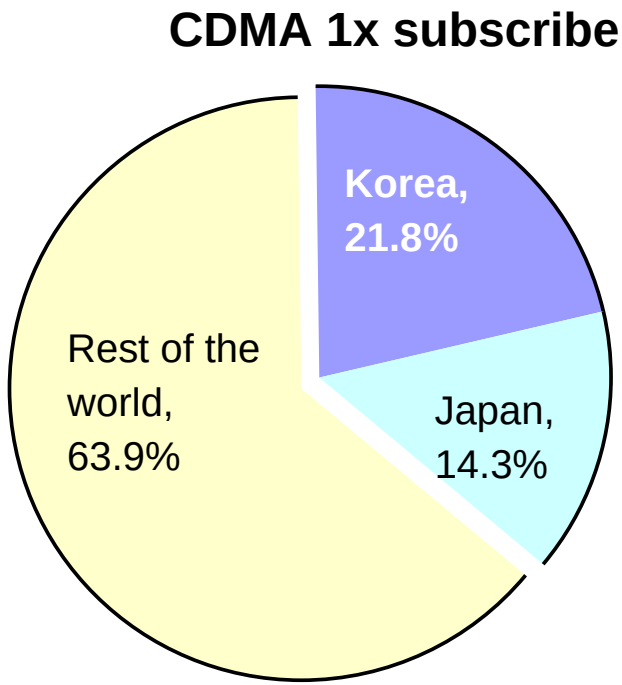


Source: ITU Internet Reports 2004: The Portable Internet.

Asia-Pacific: Leading the world in high-speed mobile (3G)



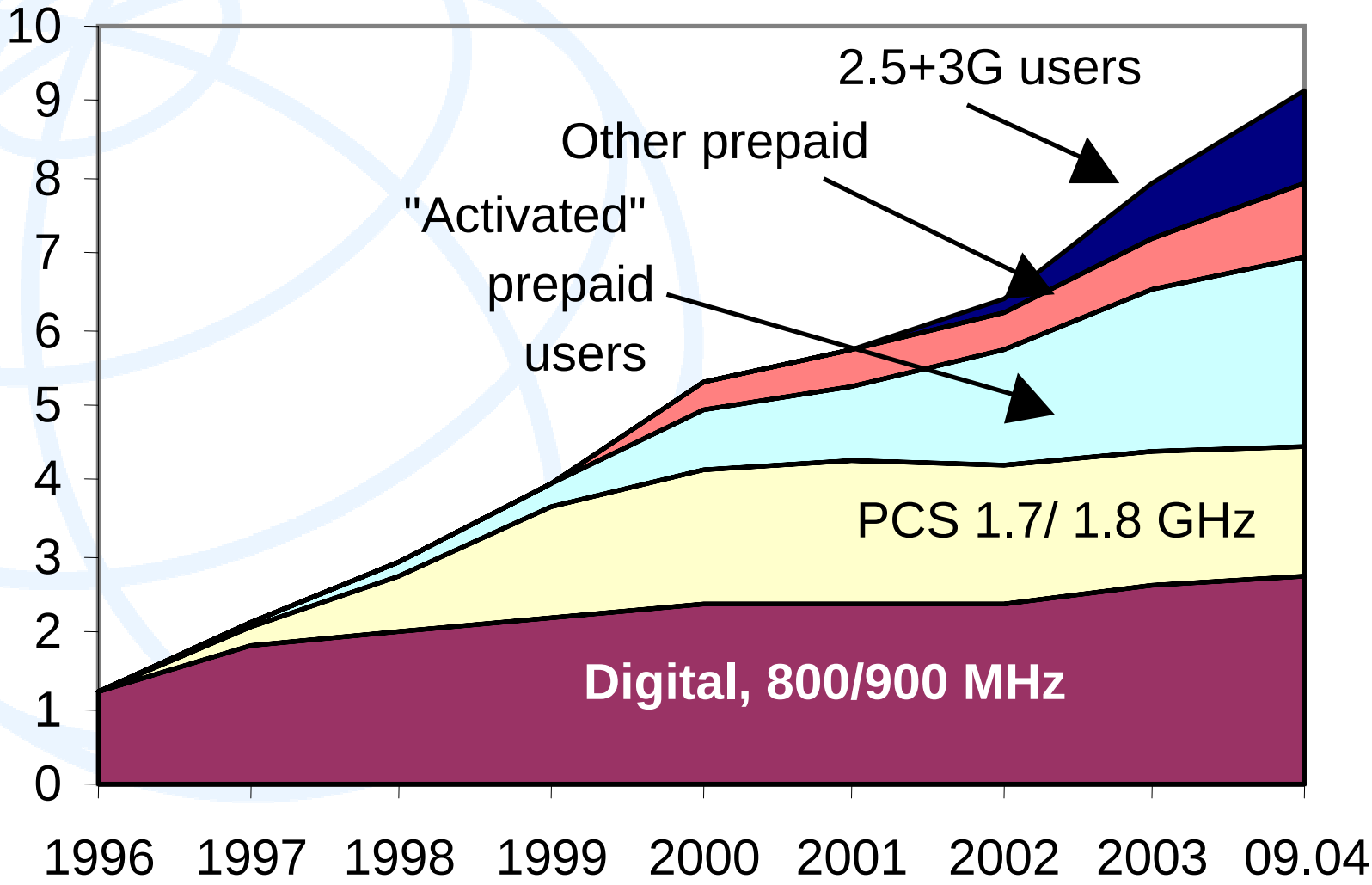
Estimated total at 30 June 2004 = **14.9 million**



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

Source: ITU Internet Reports 2004: The Portable Internet.

Hong Kong SAR: Cautious on 3G so far. Cellular mobile users, million.

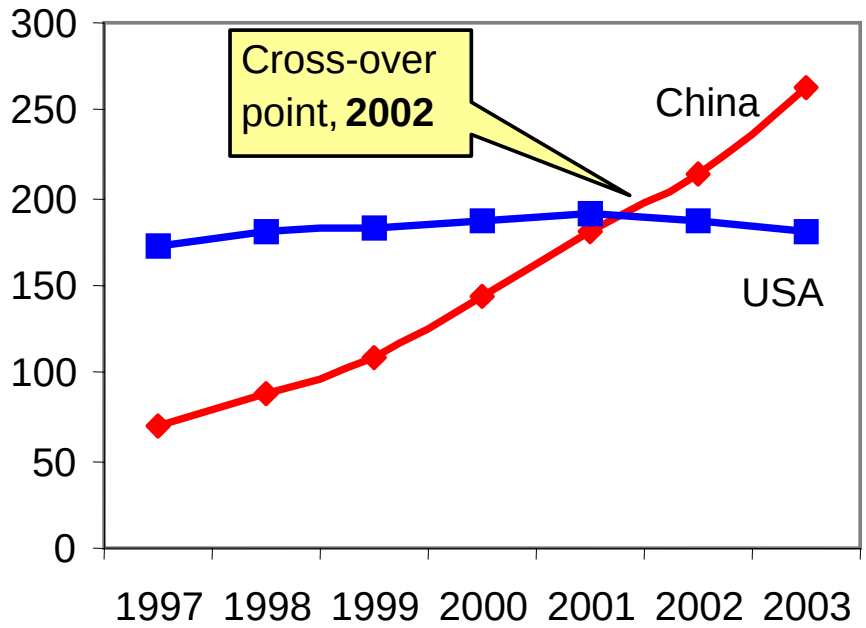


Source: ITU Internet Reports 2004: The Portable Internet.

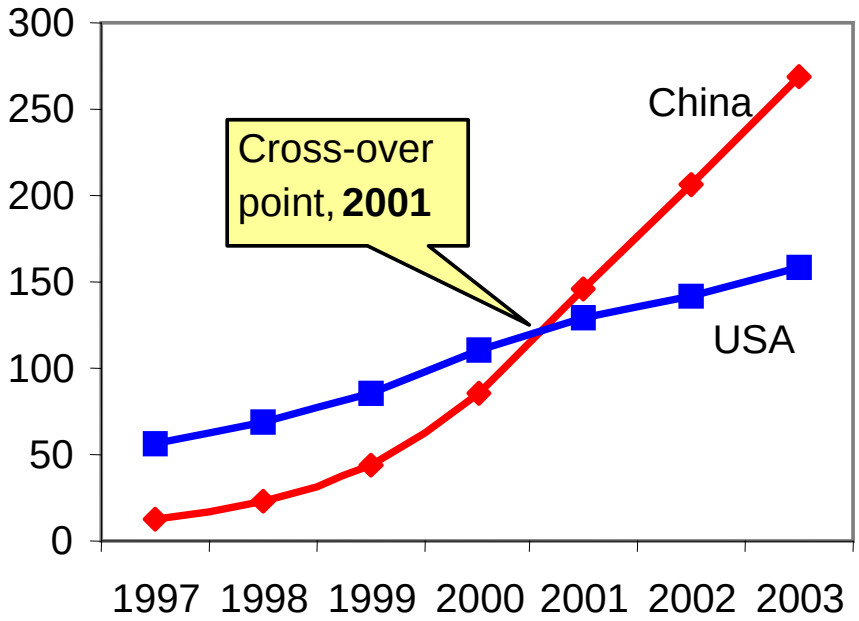
Superpower switch (1):

China overtaking USA in the telecom services market

Fixed lines, million



Mobile phones users, million

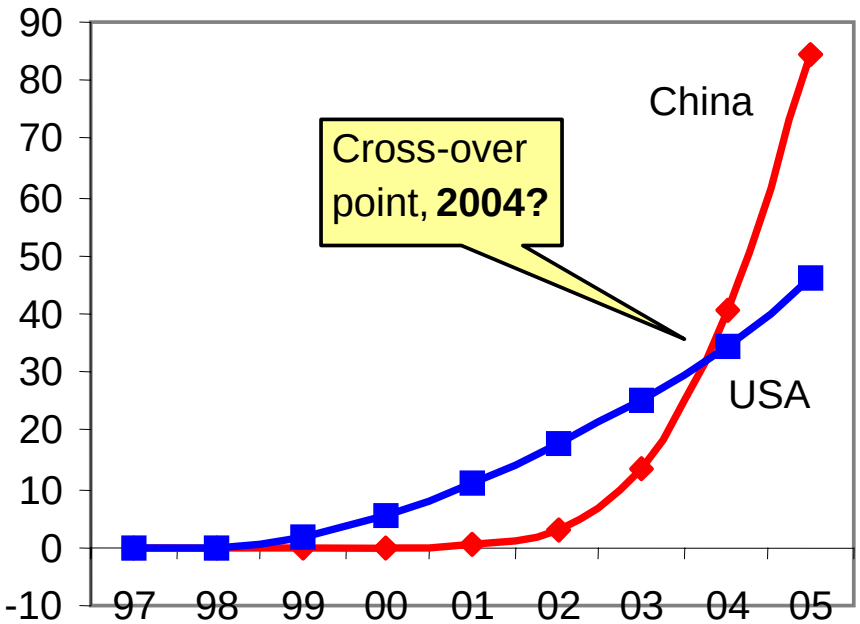


Source: ITU World Telecommunication Indicators Database.

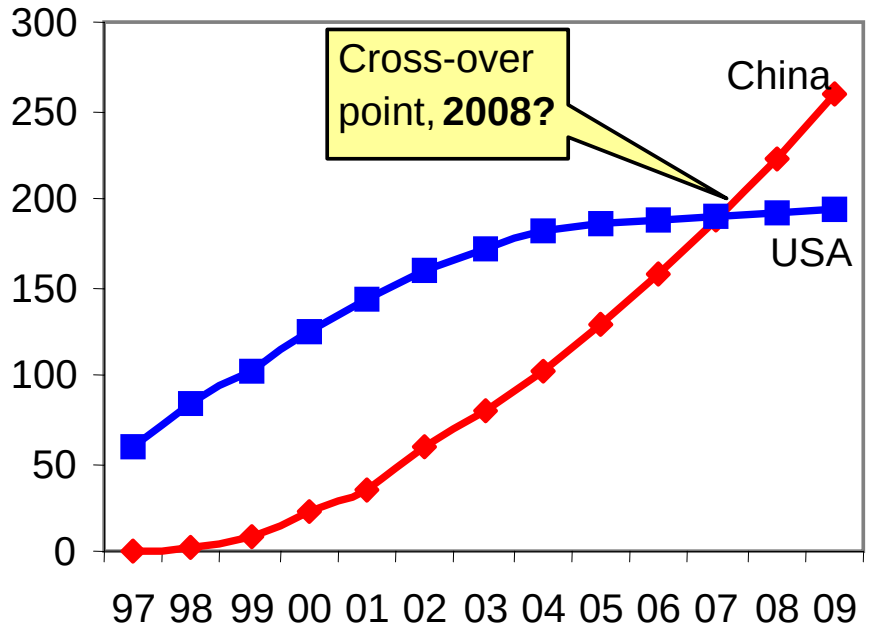
Superpower switch (2):

China overtaking USA in the Internet market

Broadband subscribers, million



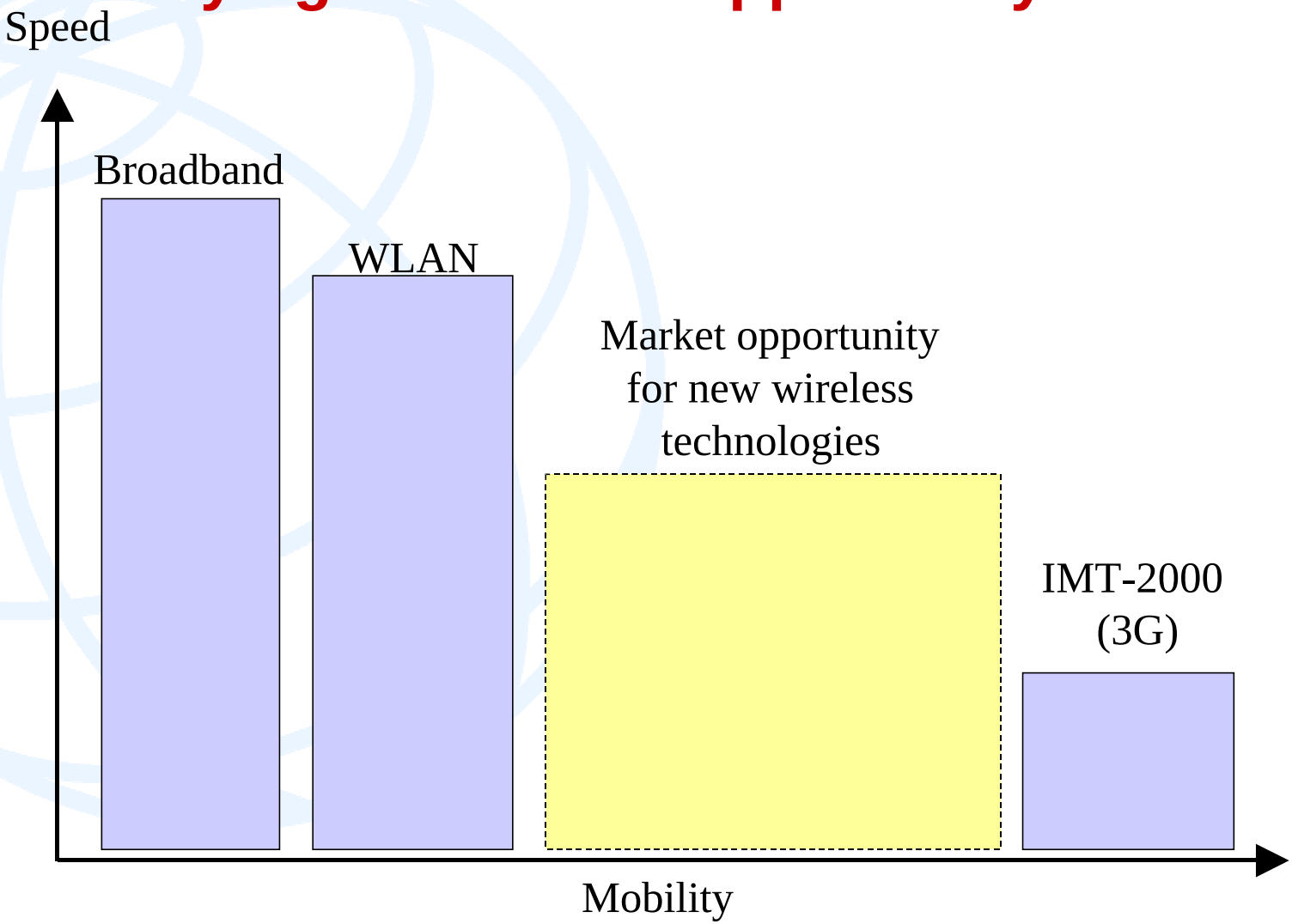
Estimated Internet users, million



Source: ITU World Telecommunication Indicators Database.

Wireless broadband

Identifying the Market opportunity



Source: ITU Internet Reports 2004: The Portable Internet.

Wireless broadband

New radio technologies

Long Range

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

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

Source: ITU Internet Reports 2004: The Portable Internet.

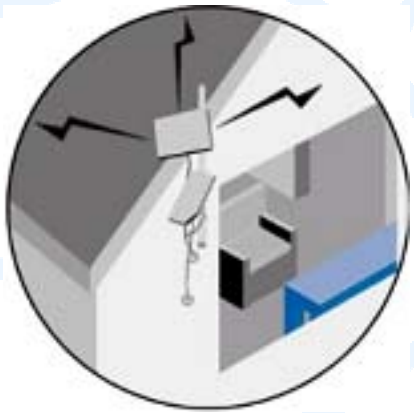
The long and short of wireless broadband

"One wireless technology to reach remote areas, another to share the connection once it's there"

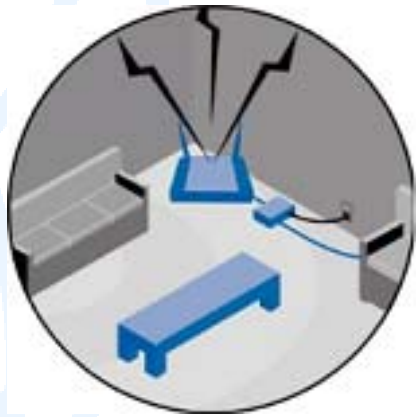
- **Long range**
  - **Technologies such as WiMax (IEEE 802.16a) and WiBro can transport large amounts of data over long distances. WiMax should provide 70 Mbit/s connection over 50 km. WiBro offers 1Mbit/s to users in moving vehicles**
- **Short range**
  - **WLAN technologies such as Wi-Fi (IEEE 802.11) can spread the connection over a short distance from the "landing spot" of a long-range connection. Wi-Fi offers between 11-54 Mbit/s over ranges of up to 100 metres.**

WiMAX development

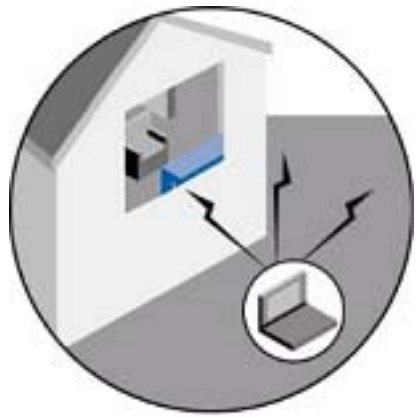
- **WiMAX equipment should appear in three stages:**



Outdoor mounted
Early 2005



Indoor installed
Late 2005

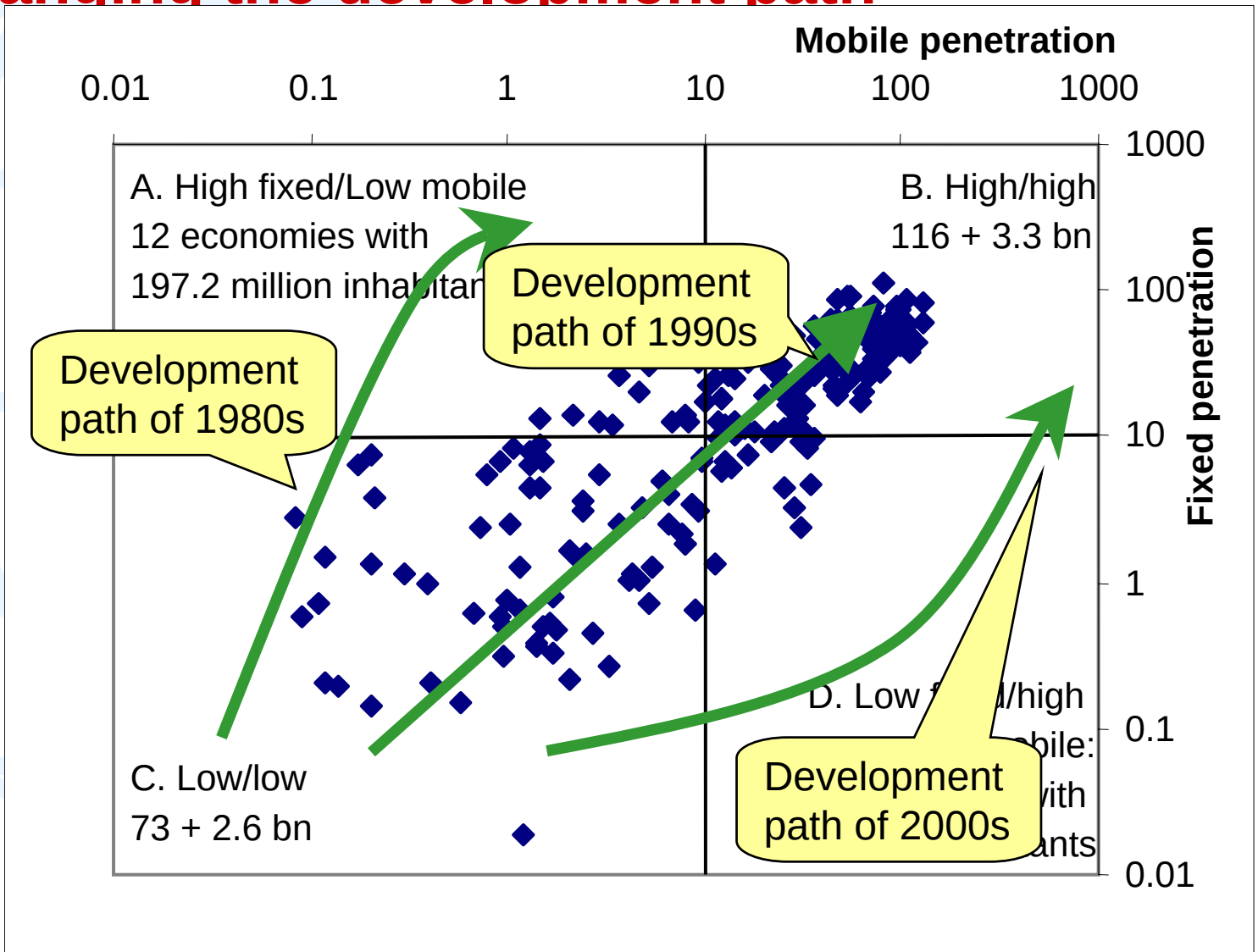


Built into devices
2006

Source: Intel

Wireless broadband

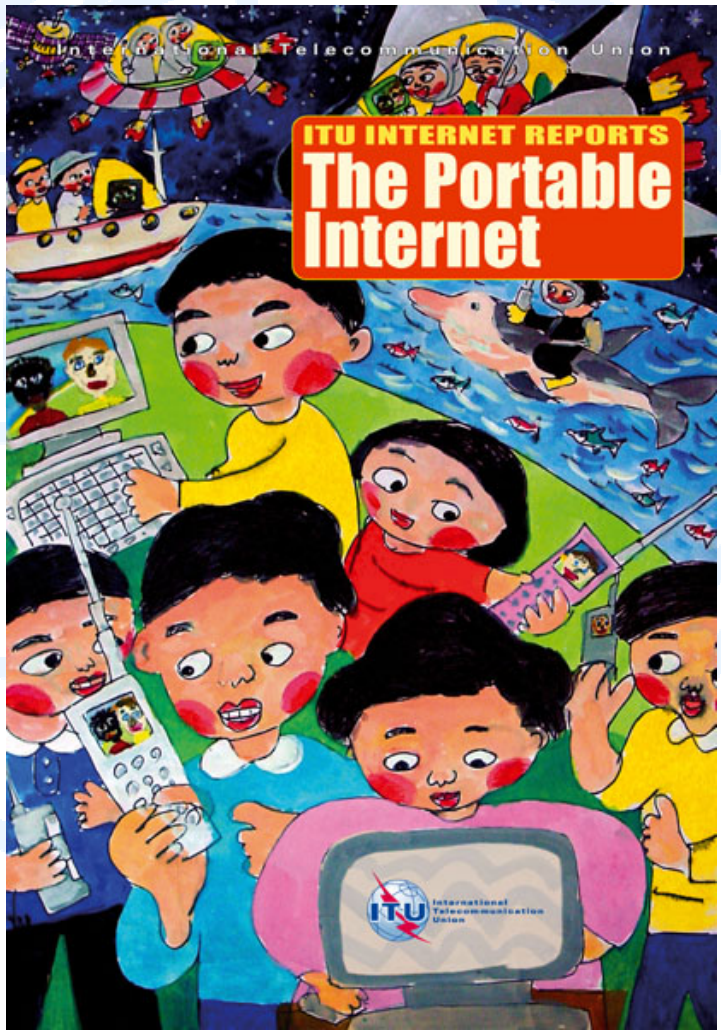
Changing the development path



Source: ITU Internet Reports 2004: The Portable Internet.

ITU Internet Report: The Portable Internet

www.itu.int/portableinternet



1. Introduction
2. Portable Internet technologies
3. Market trends
4. Policy and regulation
5. A tool for bridging the digital divide
6. The future of portable Internet technologies
7. The information society and human factors

Statistical tables

220 pages