

**INTUG**



# Benchmarks in regulatory practice

Ewan Sutherland

Executive Director

International Telecommunications  
Users Group

ewan [at] intug.net

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# INTUG contents

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- INTUG
- performance indicators
- network development
- information infrastructure
- prices
- forensic
- conclusions

# INTUG our aims

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- real and effective competition
- genuine choice for users
- lower prices
- higher quality
- more innovative services
- constructive co-operation with:
  - international bodies
  - governments
  - regulators

# INTUG priorities

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1. open access to global mobile networks
2. regulatory best practice
3. liberalization
4. leased lines
5. IP telephony
6. digital divide
7. universal access
8. numbering

# INTUG performance indicators

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- to assess progress:
  - absolute
  - relative
  - national
  - regional
- to inform decision-makers:
  - consumers
  - politicians
  - investors
- to name and to shame

# INTUG choice of indicators

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- define the purpose
- justify the selection
- use several indicators
- compare:
  - over time
  - with other countries
  - between different regions of one country
  - socio-economic groups
- don't over interpret results

# INTUG OECD top indicators

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- access lines and channels
- mobile subscribers
- Internet subscribers
- broadband subscribers (per 100 inhabitants)
- availability of DSL
- cable TV subscribers
- households with access to:
  - the Internet
  - a home computer
- Internet penetration
- businesses using the Internet
- share of ICT-related occupations in the total economy
- telecommunication services revenue
- mobile telecommunication services revenue
- telecommunication infrastructure investment
- share of ICT value added in the business sector value added
- R&D expenditure in ICT industries
- ICT patents as a percentage of national total
- shares of countries in ICT patents
- trade in ICT goods and services
- top 50 telecommunications firms and IT firms
- contribution of ICT-using services to value added per person engaged
- contributions of ICT investment to GDP growth

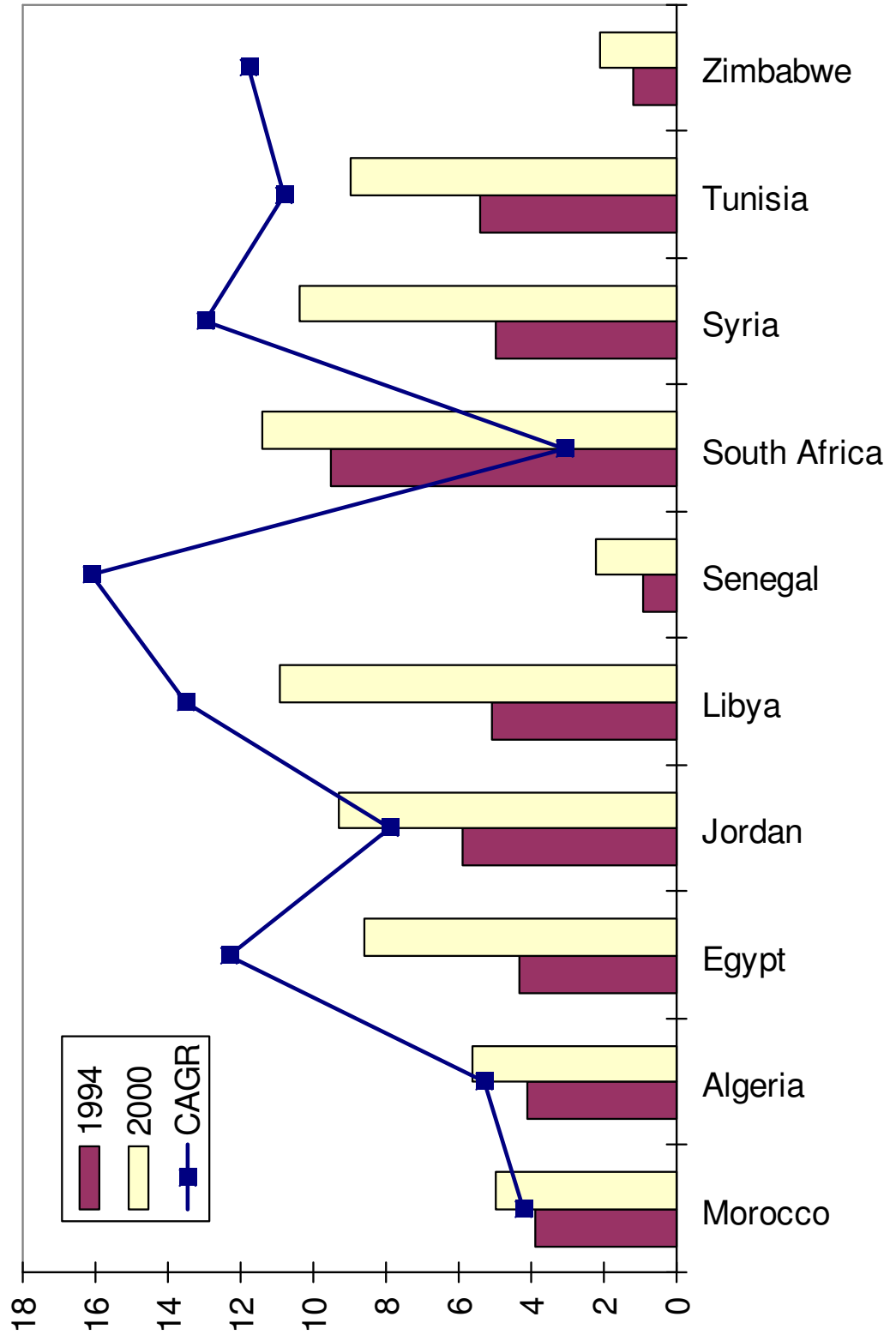
# INTUG network development

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- main lines (penetration and growth)
- but questions about:
  - household composition
  - access to telephones
  - community and commercial telecentres
- cellular subscribers (penetration & growth)
- questions about counting pre-paid subscribers
- total access lines:
  - can you add fixed and mobile?
  - limited mobility?
- leased lines
- operators



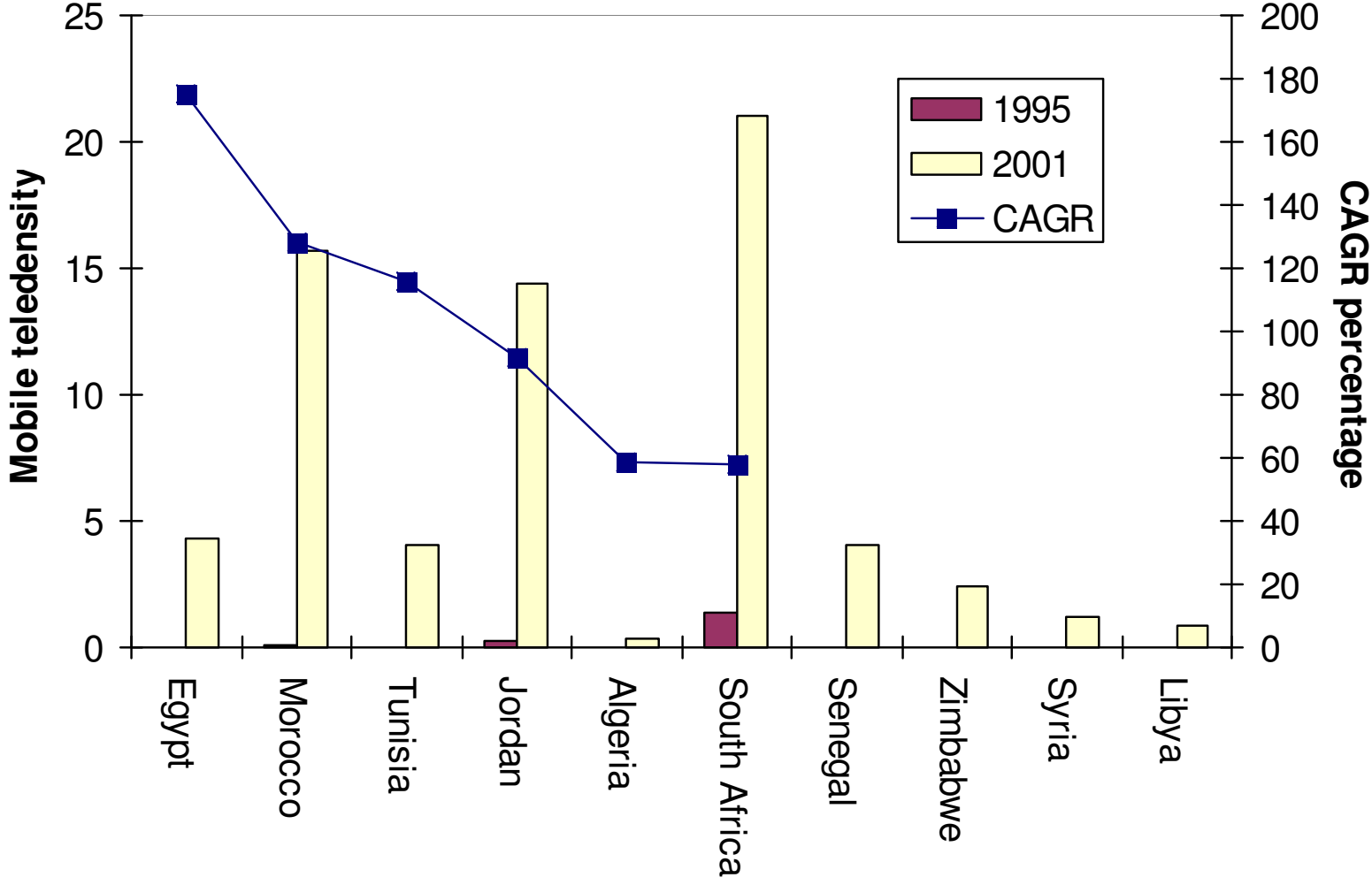
# INTUG main lines per 100 inhabitants



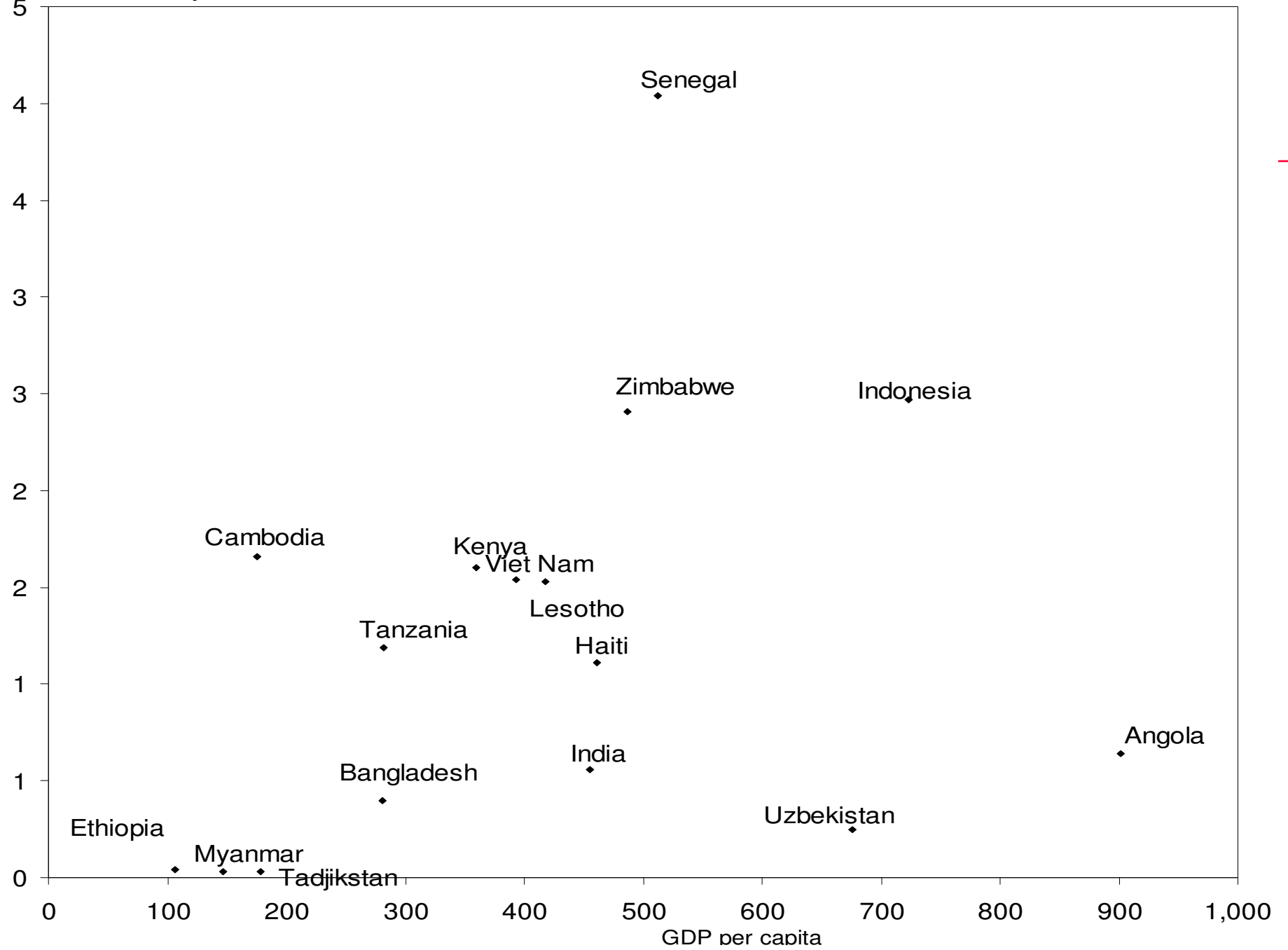
# INTUG

## mobile subscribers per 100 popn.

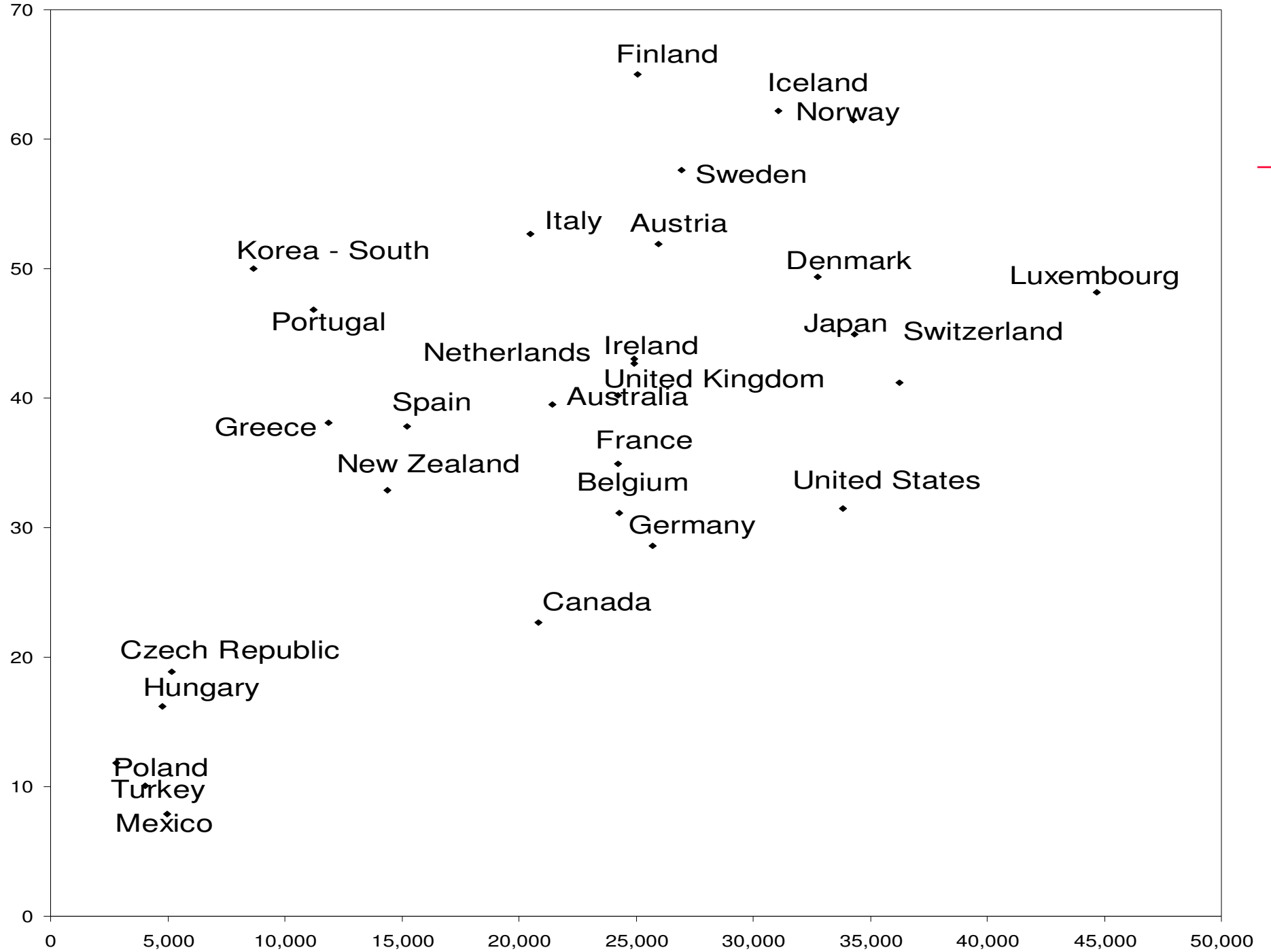
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# Mobile teledensity



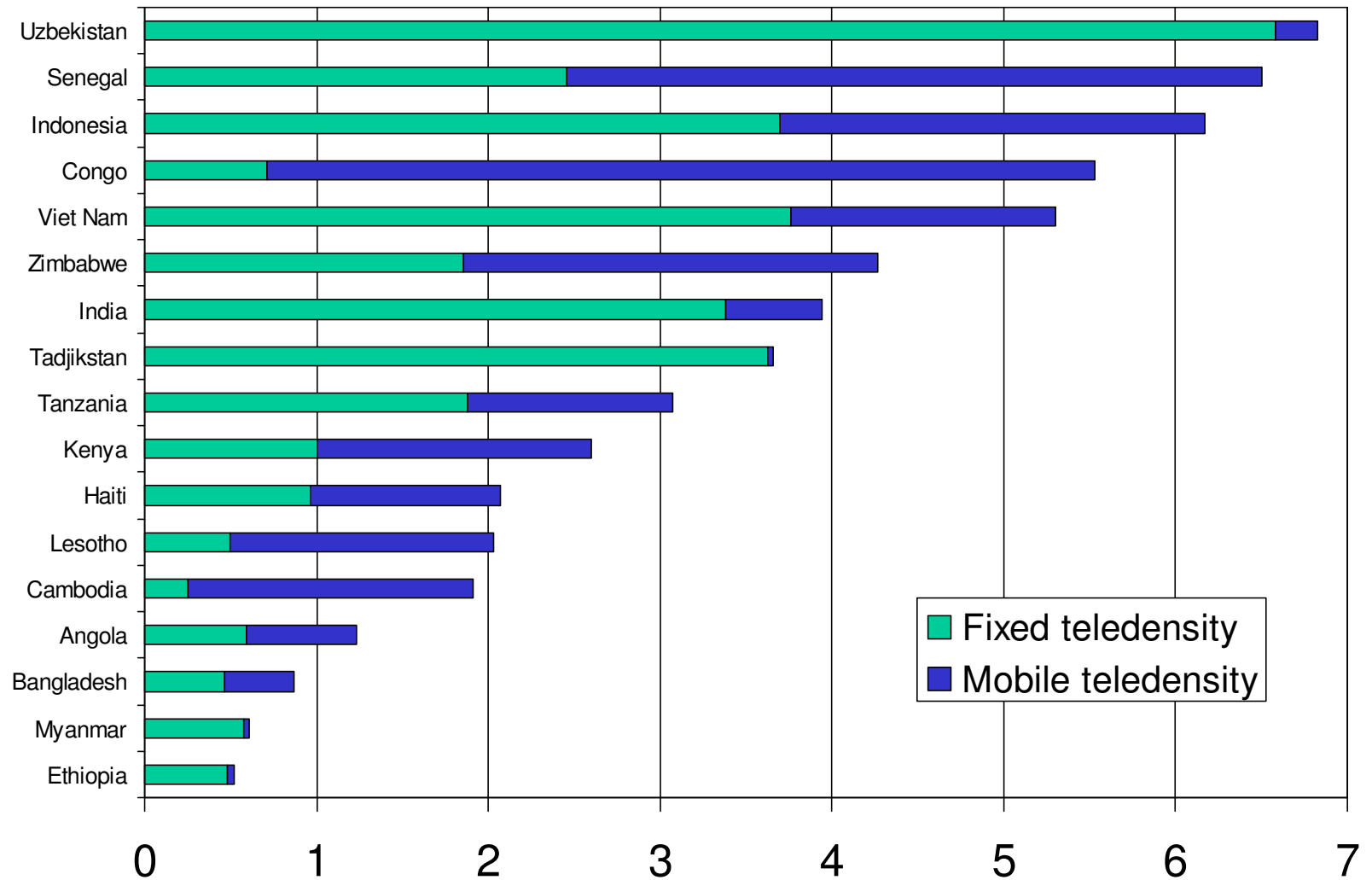
Mobile teledensity



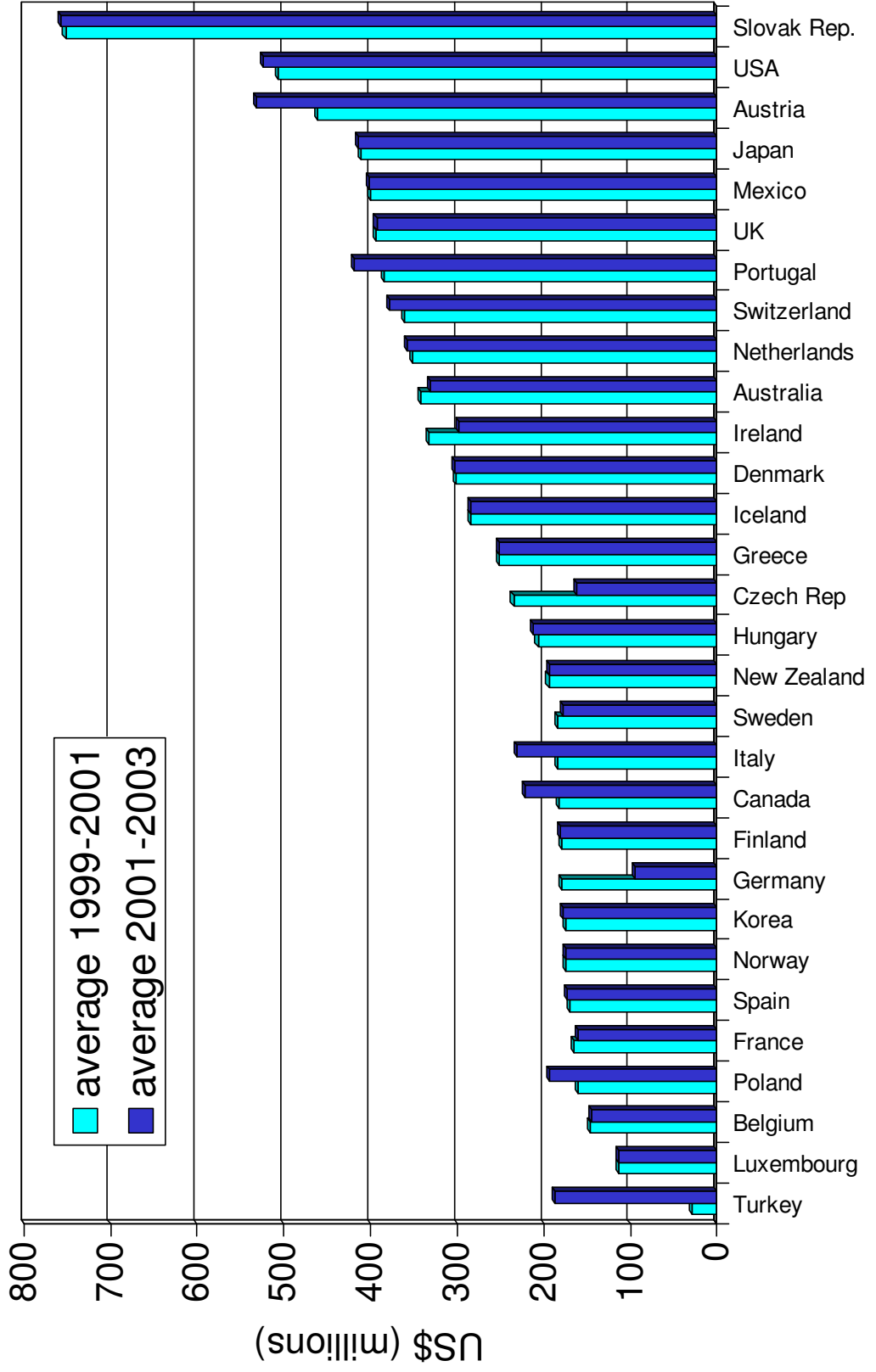
# INTUG total teledensity

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# INTUG investment per access channel



Source: OECD Communications Outlook 2003, Table 4.17 and 2005, Table 4.18

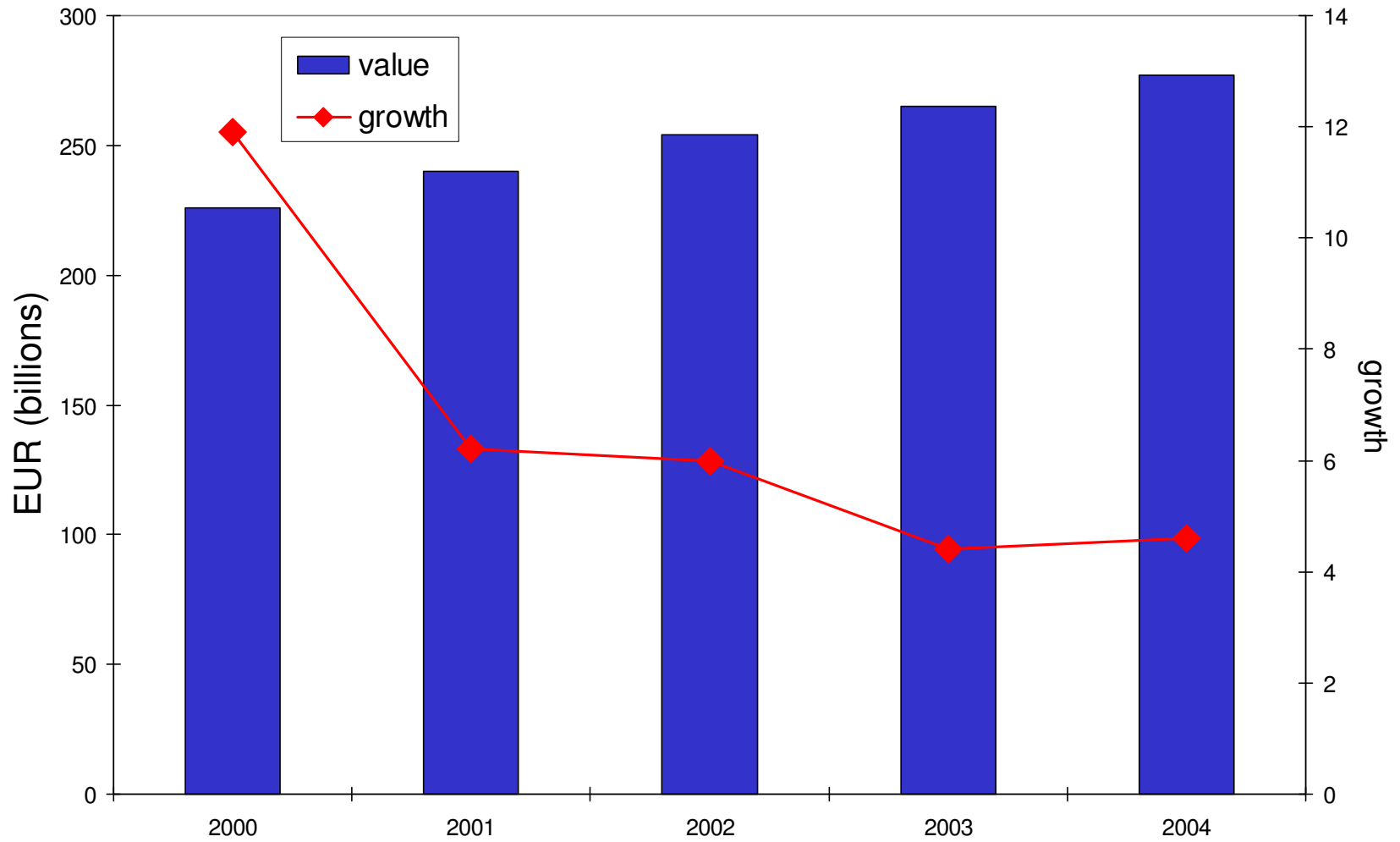
# INTUG markets

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- size of markets
- numbers of players:
  - entrances and exits
- growth
- investment
- competition:
  - market shares and HHI
  - new offers and discounts

# INTUG EU-25 market

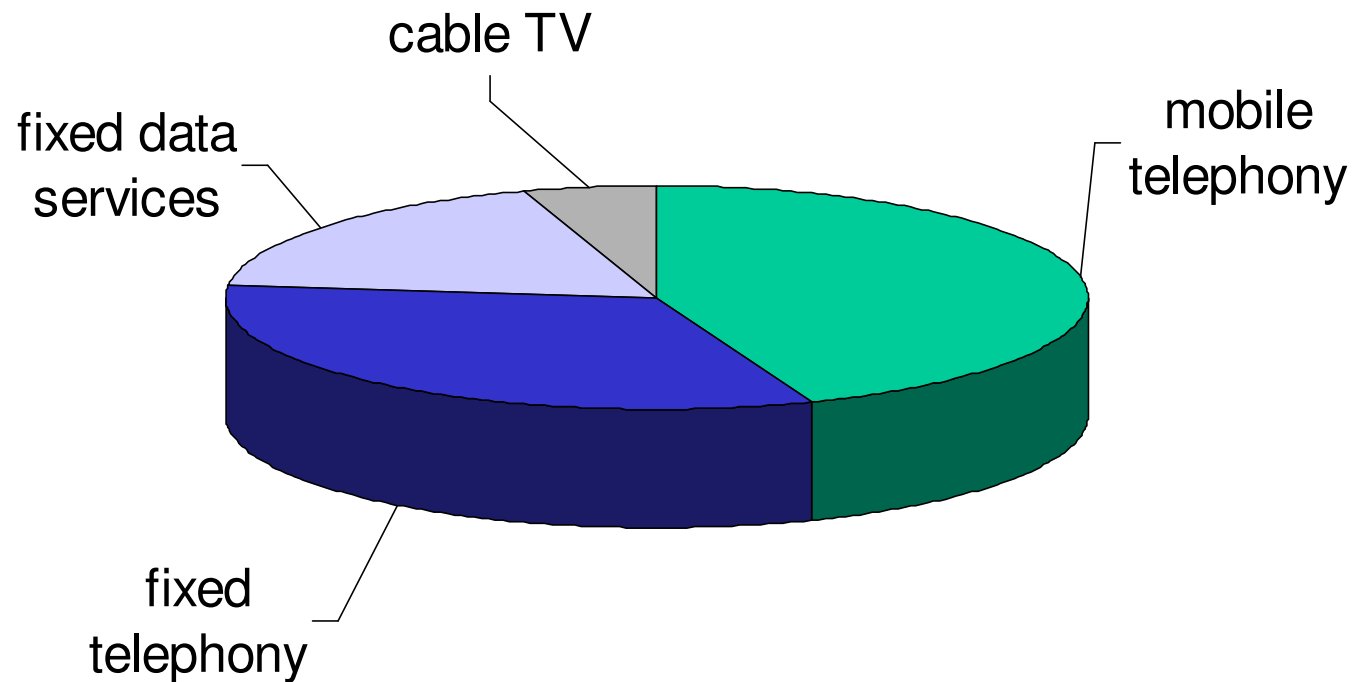
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# INTUG EU-25 in 2004

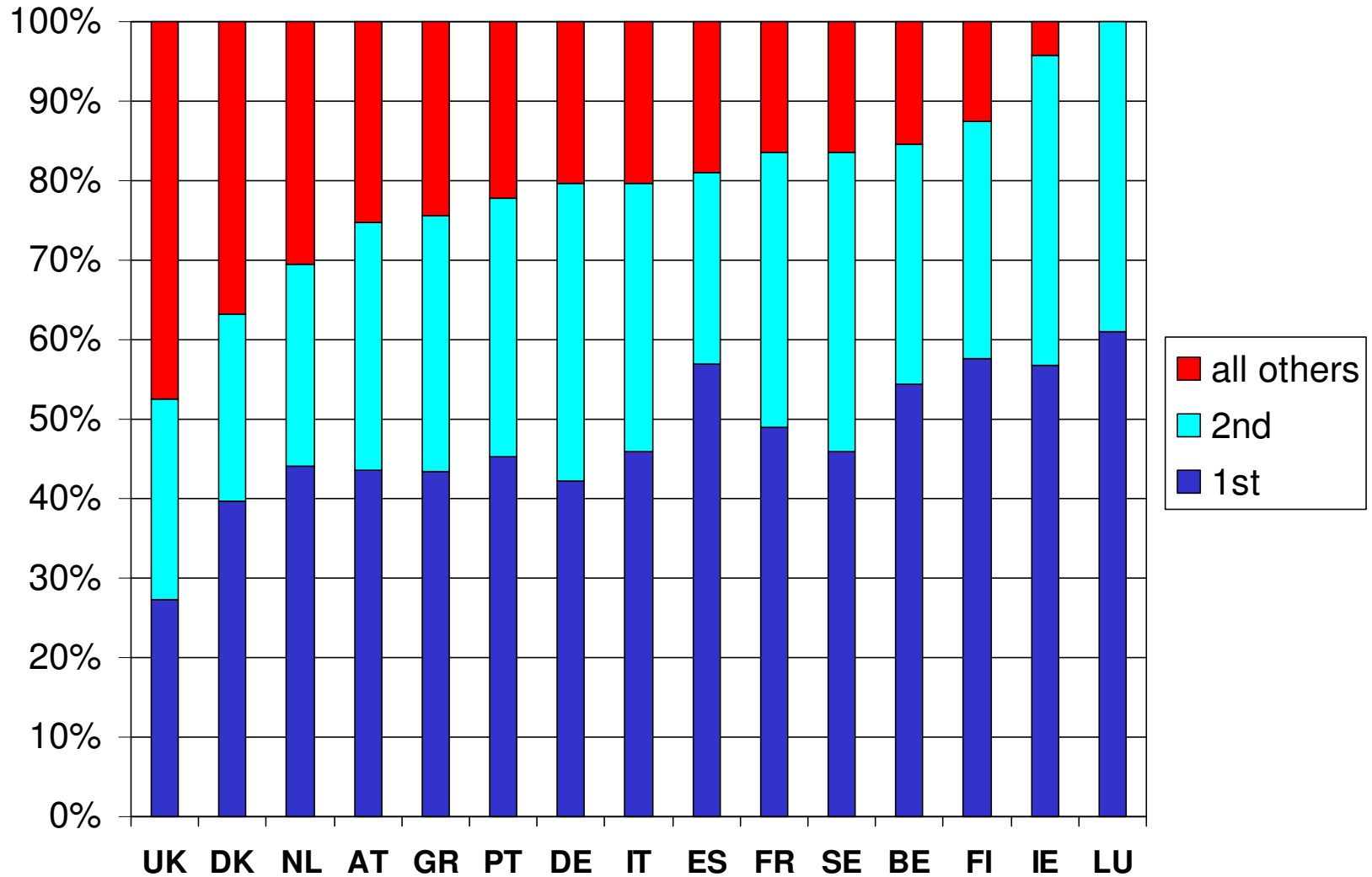
LIRNE asia, Singapore 26.ix.2005  
[www.INTUG.net](http://www.INTUG.net)



# INTUG mobile operator market shares (2002)

LIRNE asia, Singapore 26.ix.2005

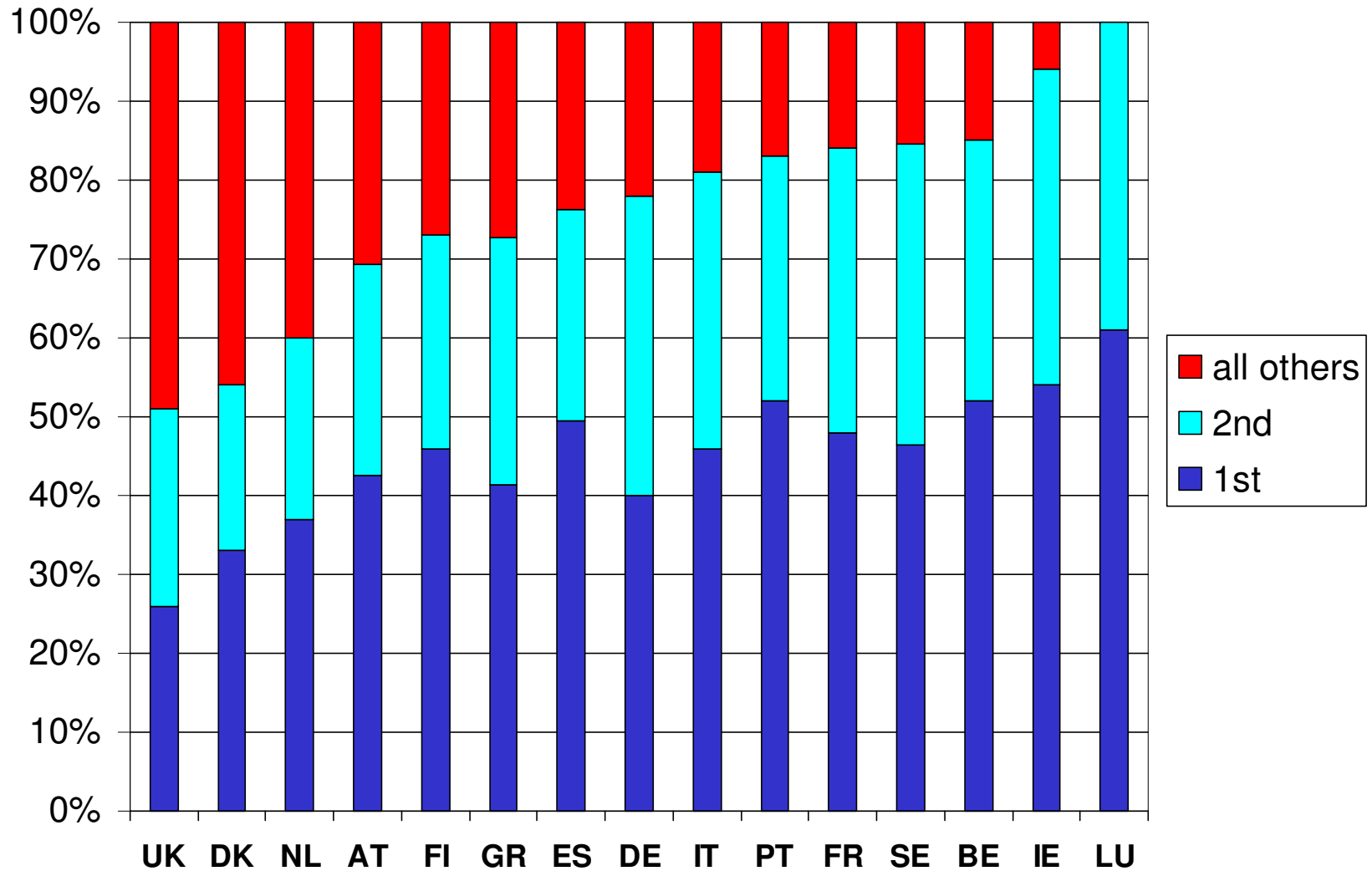
[www.intlig.net](http://www.intlig.net)



# INTUG mobile operator market shares (2004)

LIRNE asia, Singapore 26.ix.2005

www.intug.net

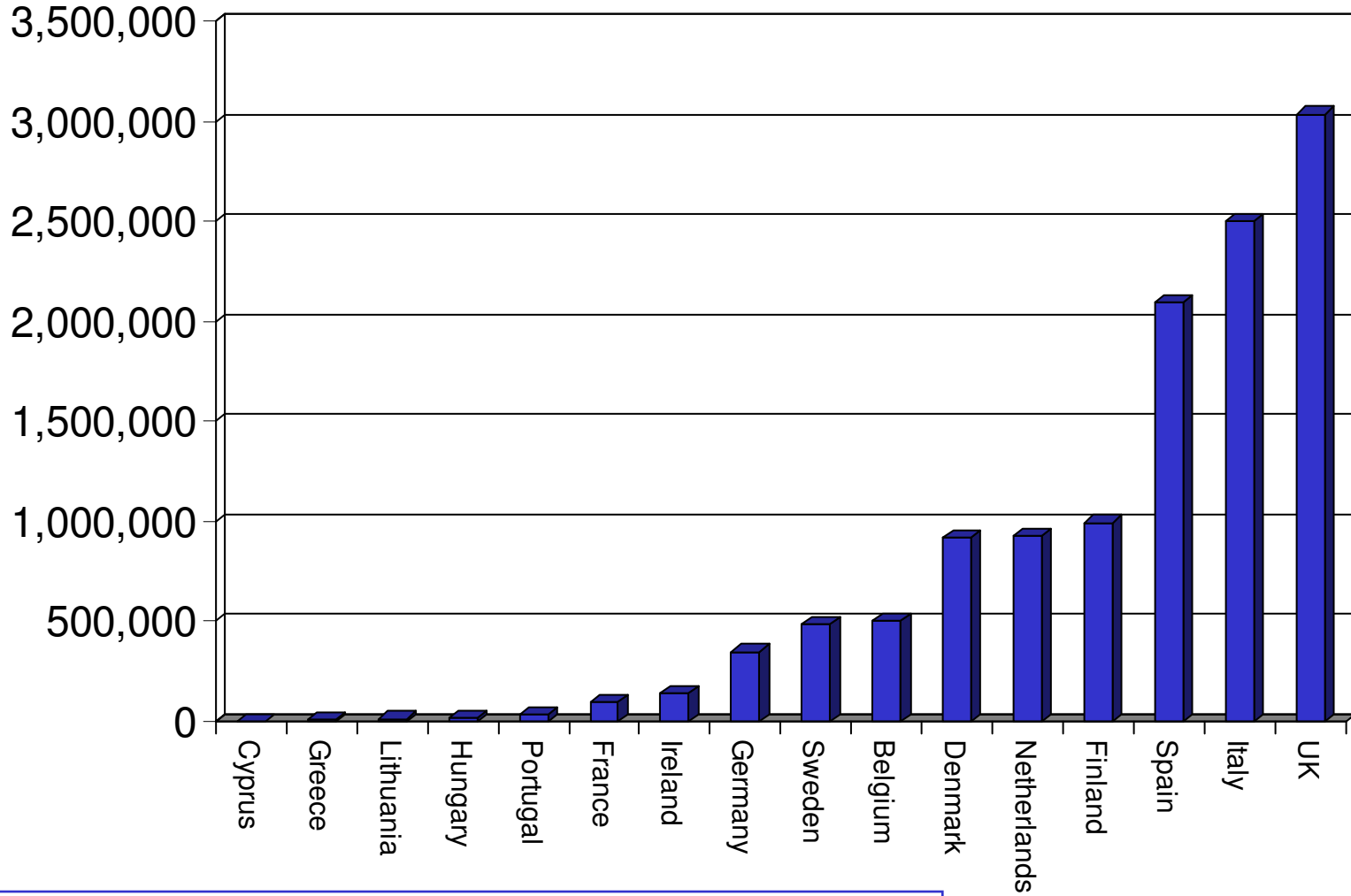


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cumulative total of mobile  
numbers ported to August 2004

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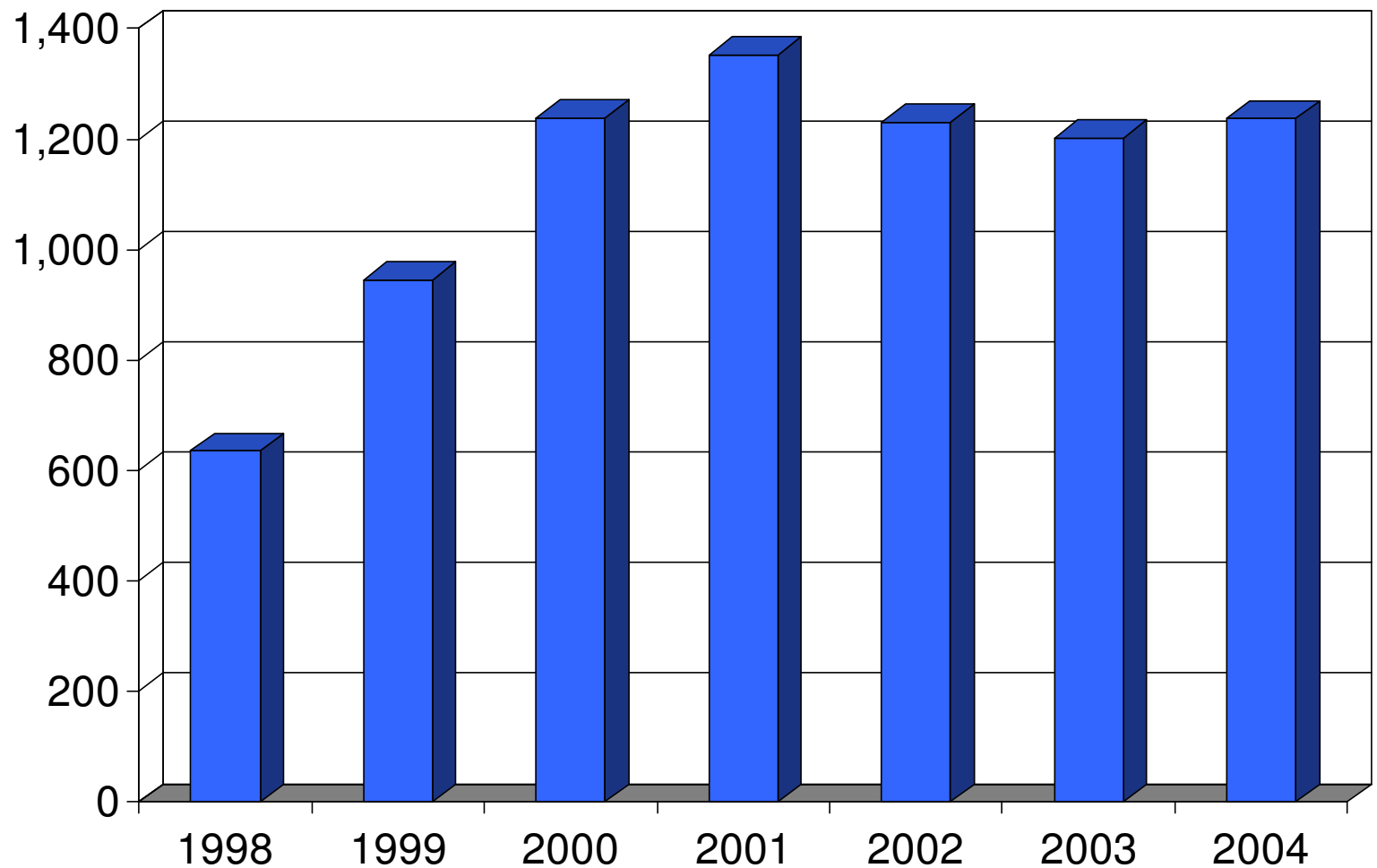
[www.INTUG.net](http://www.INTUG.net)



Source: EC 10th Implementation Report, Vol. 2, Fig. 59.

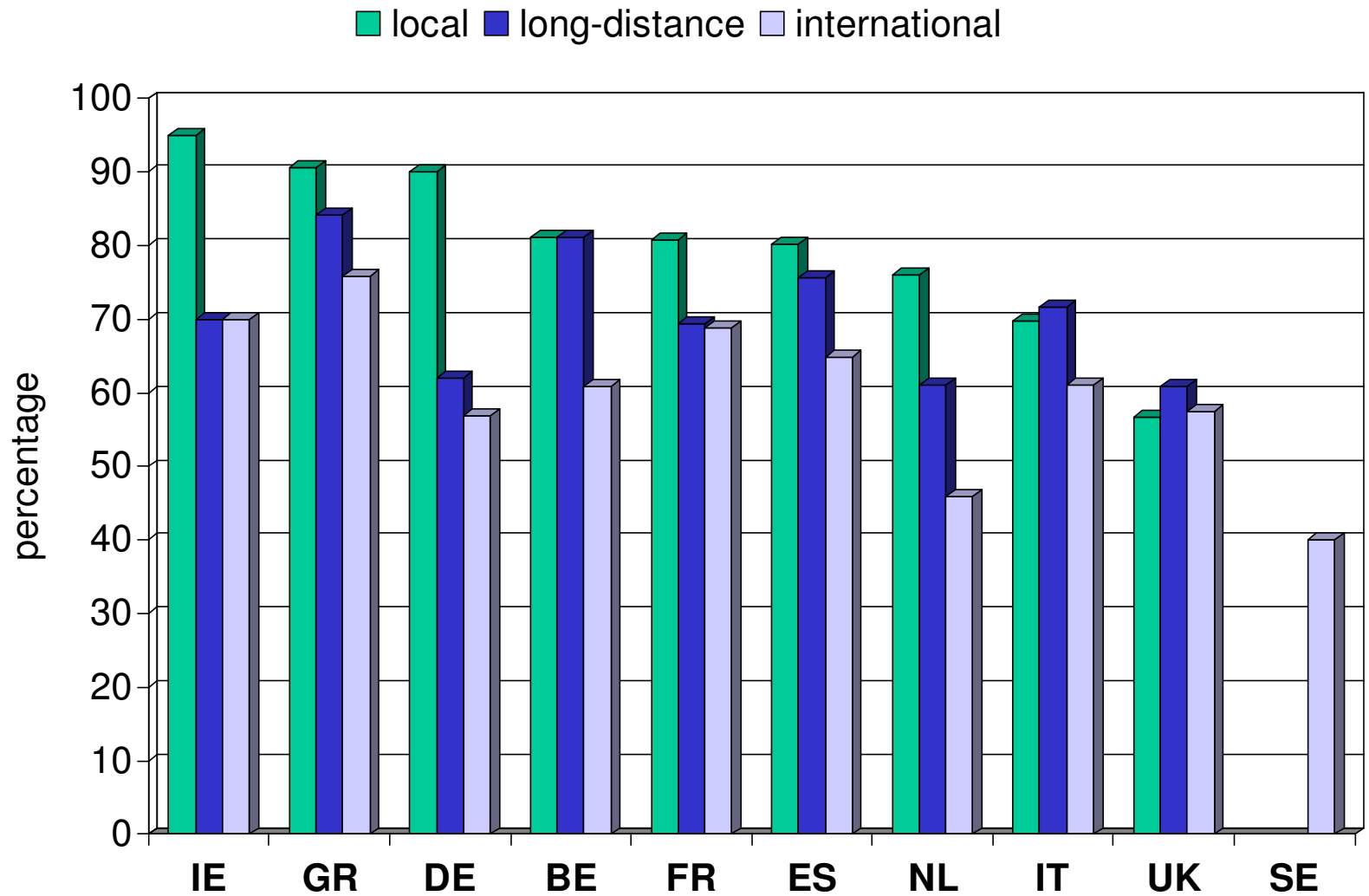
# INTUG EU-15 fixed voice operators

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[www.INTUG.net](http://www.INTUG.net)



# INTUG incumbent market shares (retail revenues)

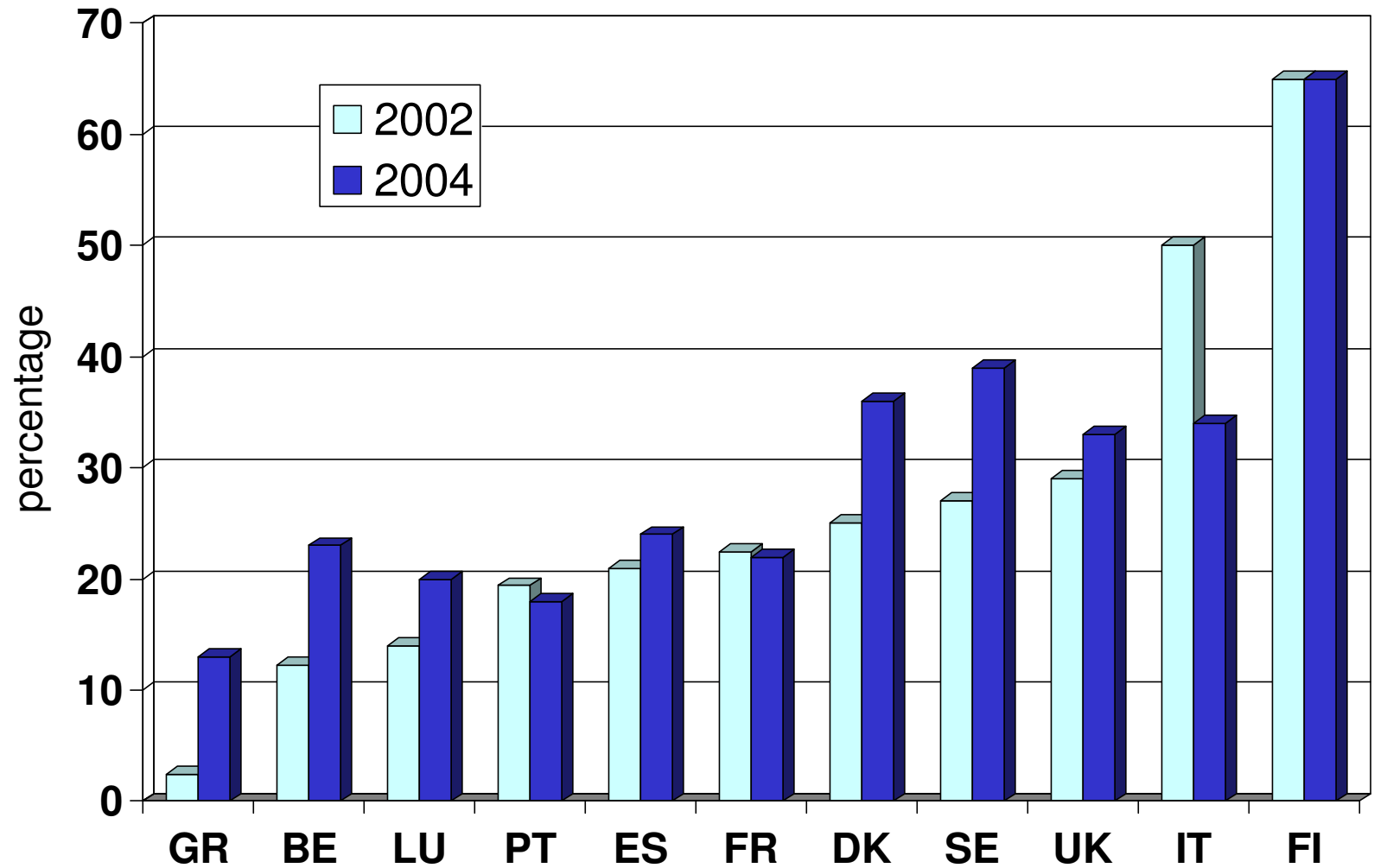
LIRNE asia, Singapore 26.ix.2005  
[www.INTUG.net](http://www.INTUG.net)



# INTUG

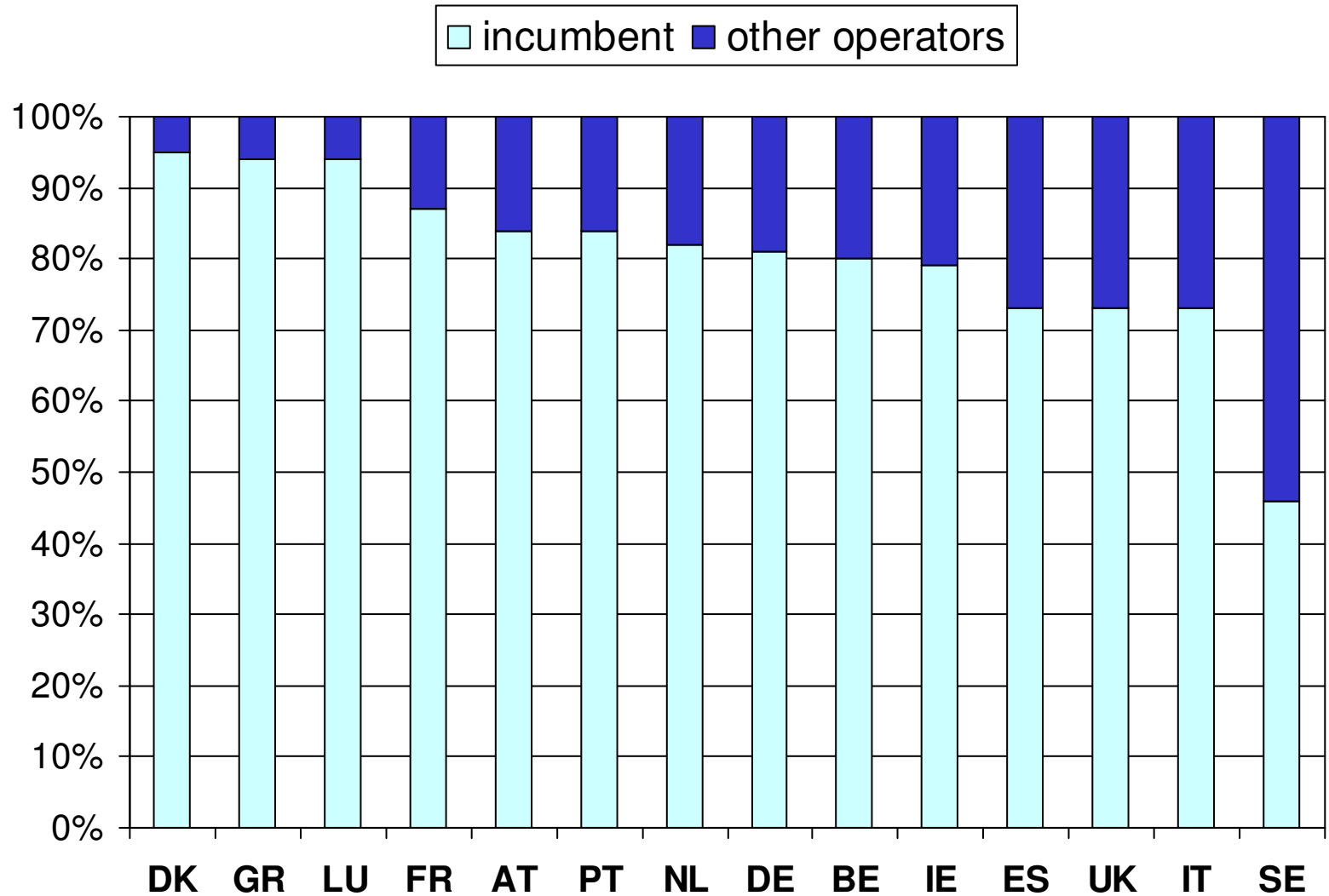
subscribers actually using an alternative provider for long distance and international

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# INTUG allocation of geographic numbers

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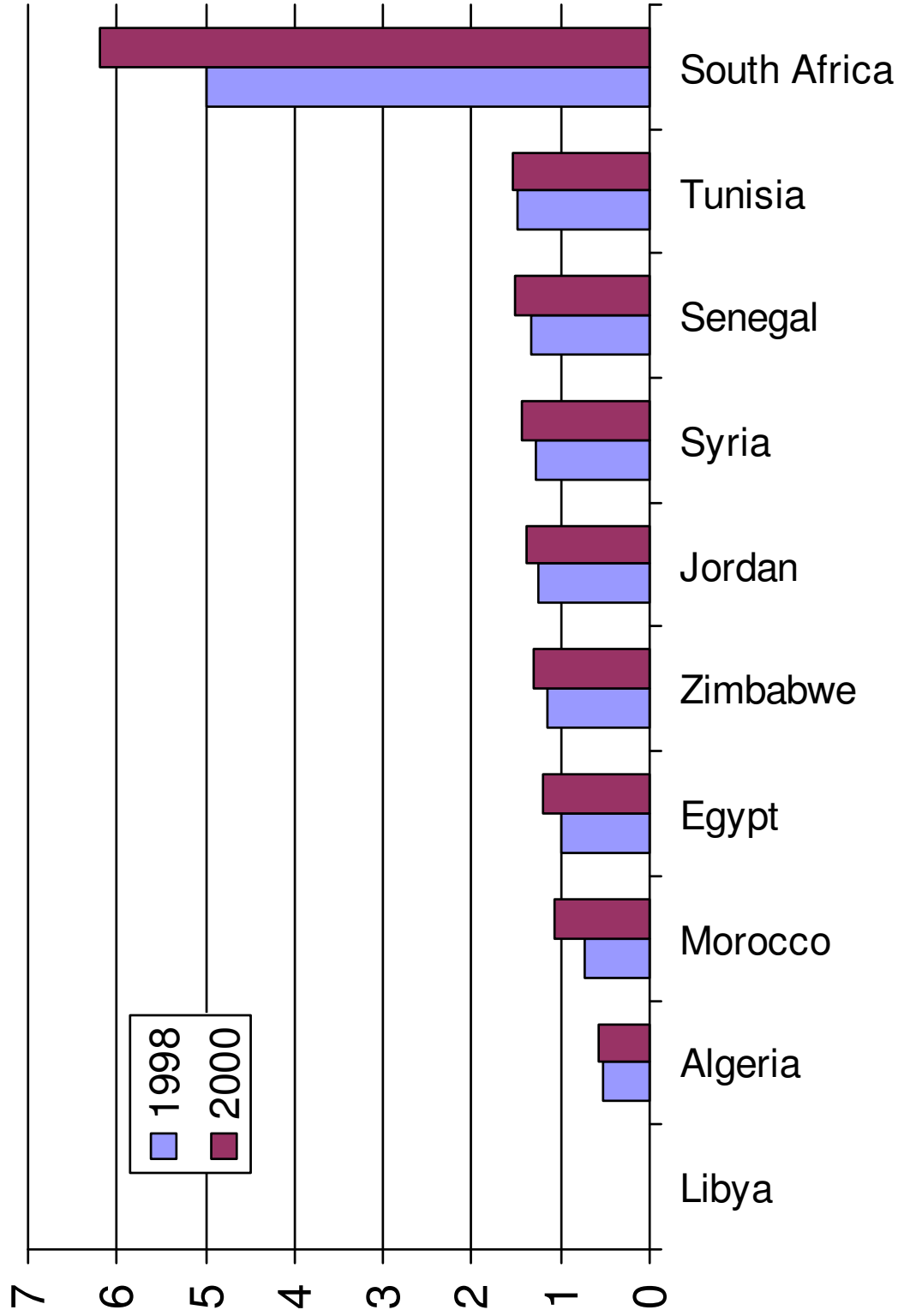


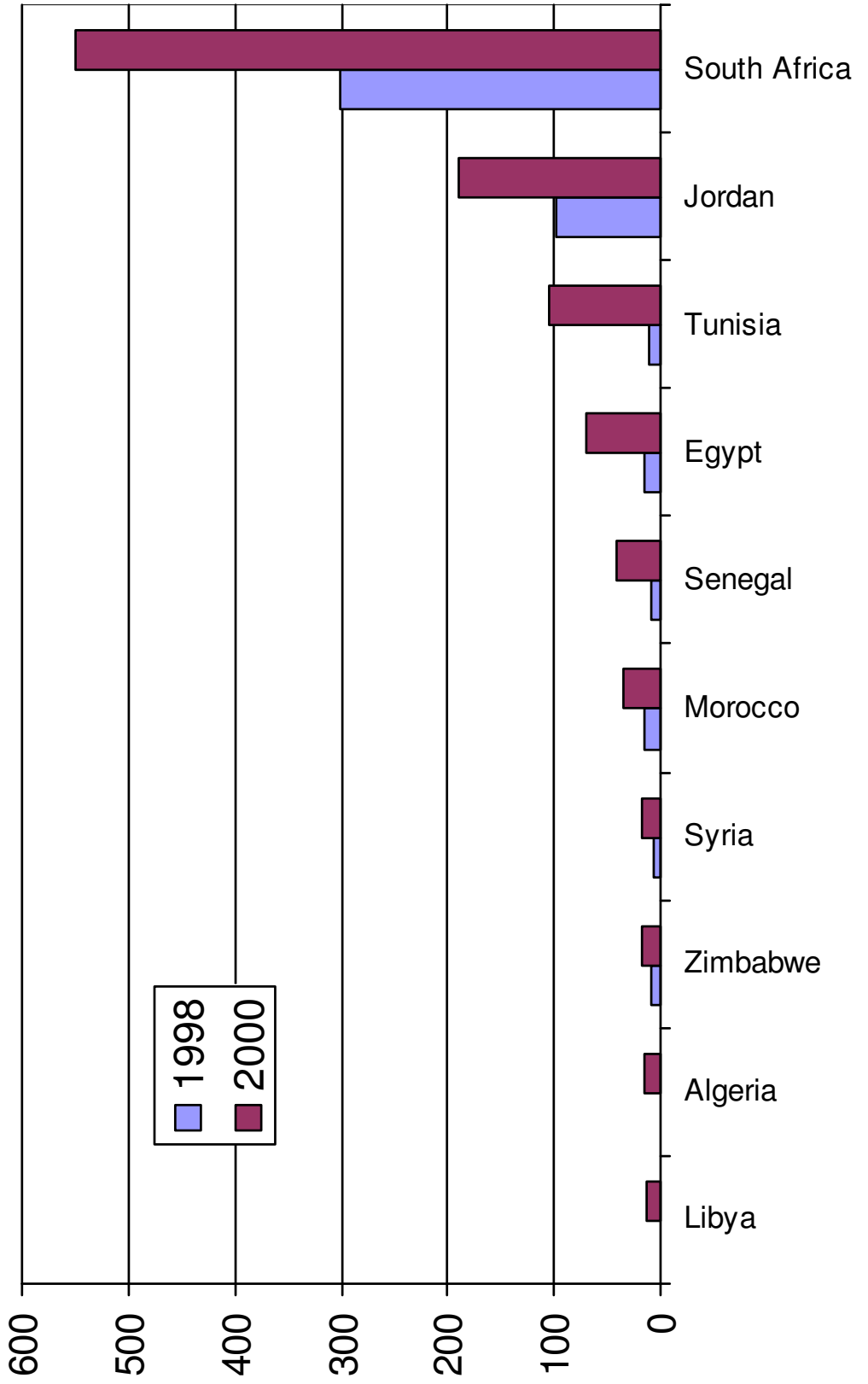
# INTUG information infrastructure

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[www.INTUG.net](http://www.INTUG.net)

- personal computers
- Internet access
- secure servers
- broadband
- wireless LAN hotspots

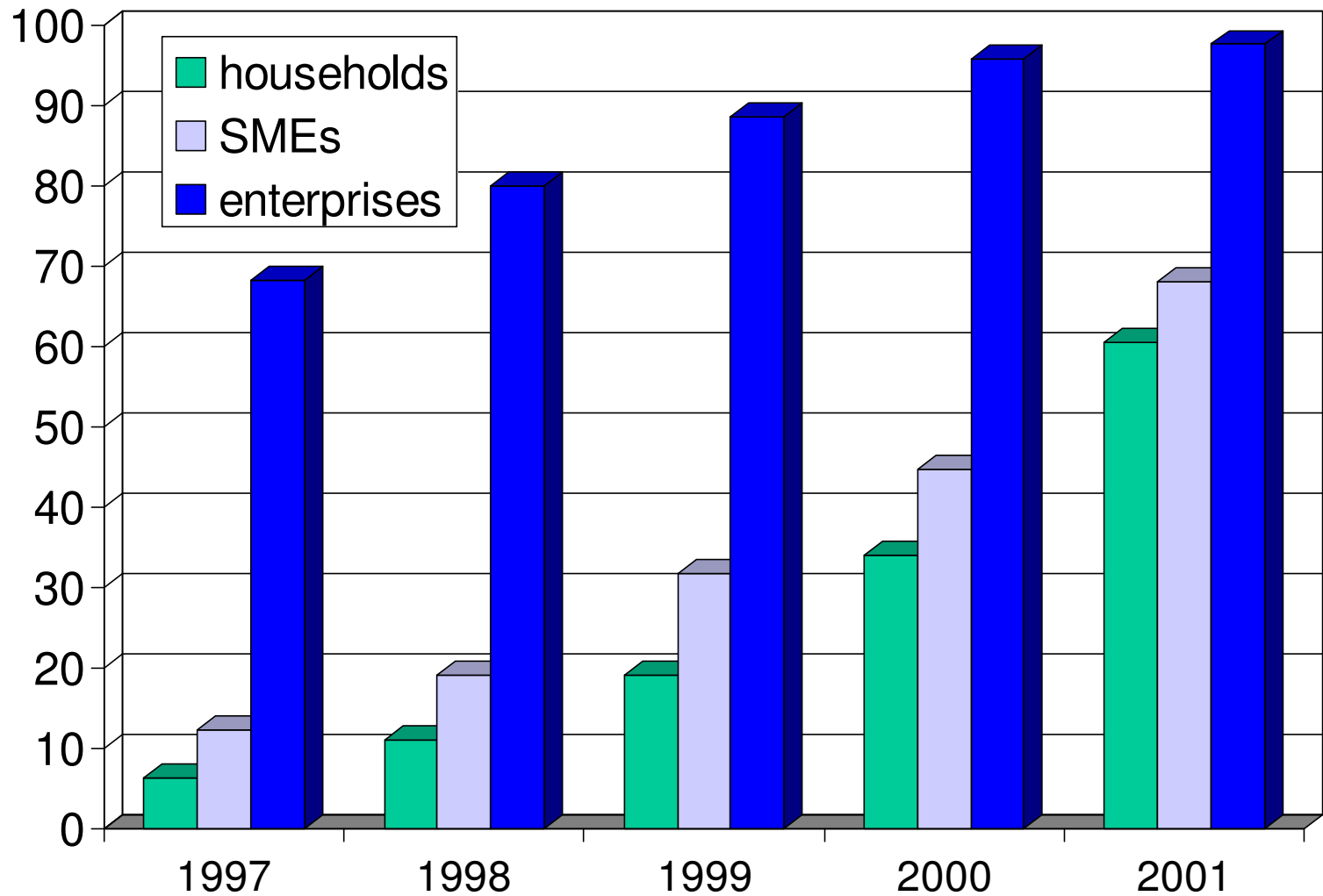
# INTUG PCs per 100 inhabitants





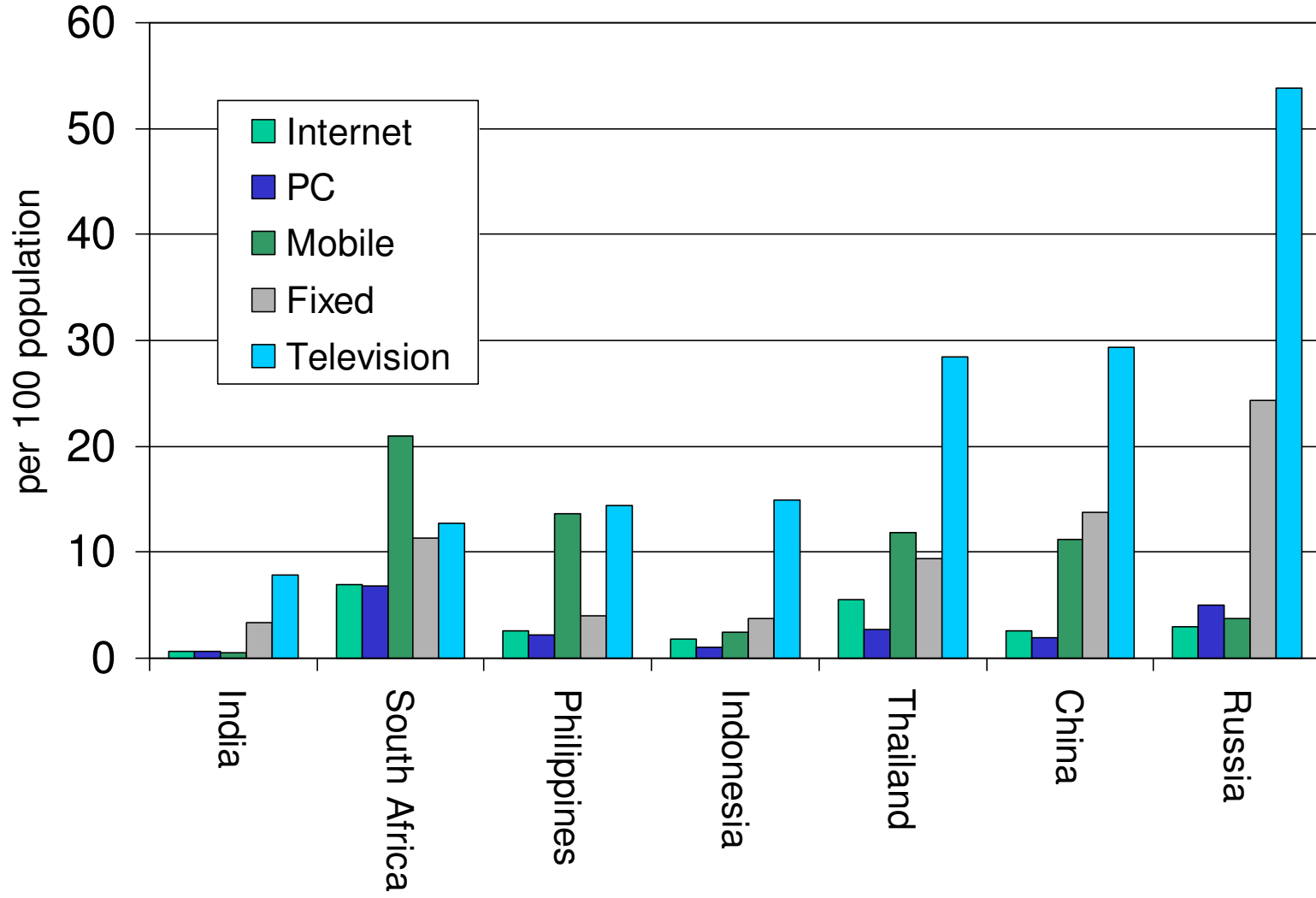
# INTUG Internet access in Japan

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[www.INTUG.net](http://www.INTUG.net)



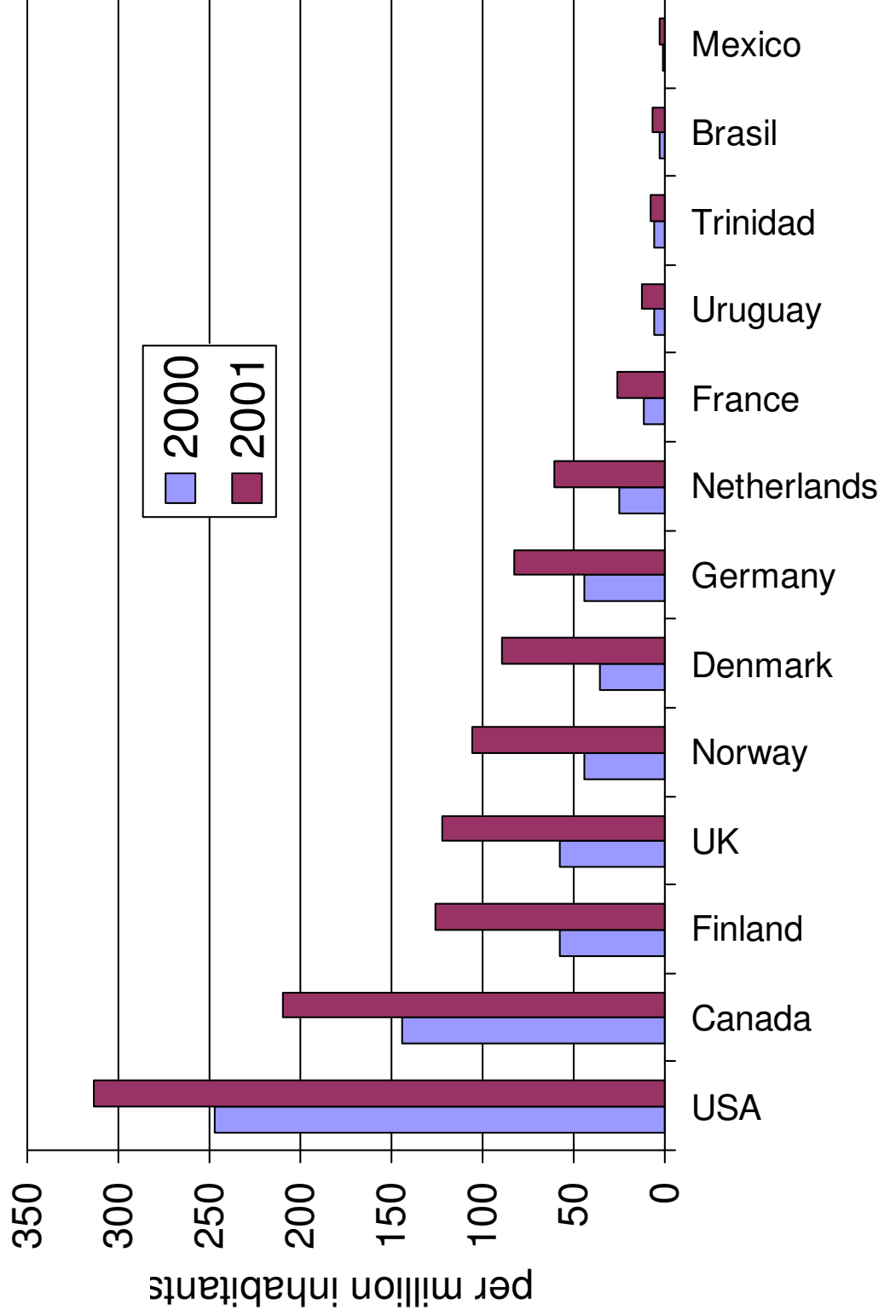
# INTUG convergence measures

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[www.INTUG.net](http://www.INTUG.net)



# INTUG secure servers (SSL)

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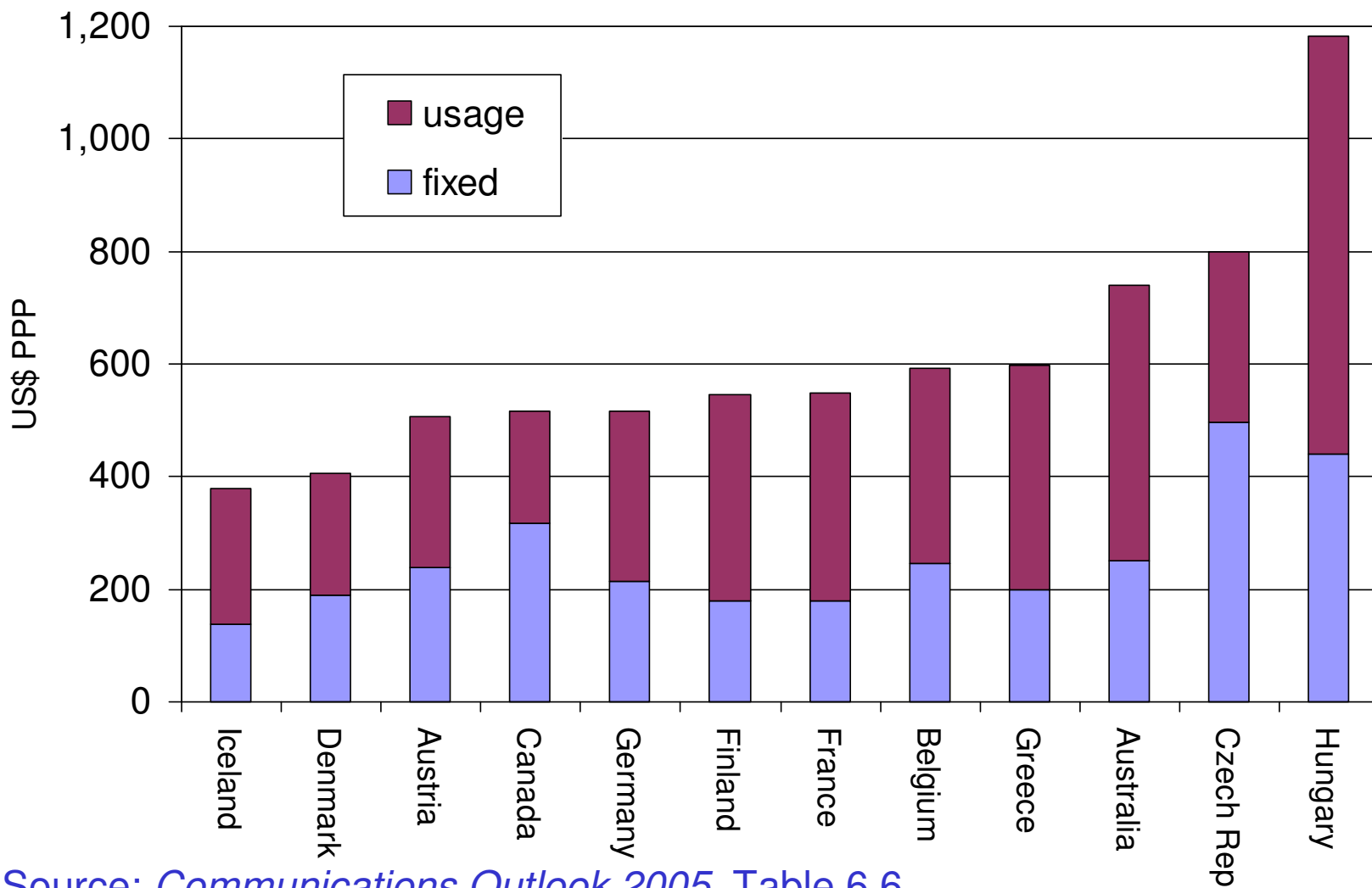


# INTUG prices

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- comparing like with like
- constructing appropriate baskets
- allowing for purchasing power parity (PPP)

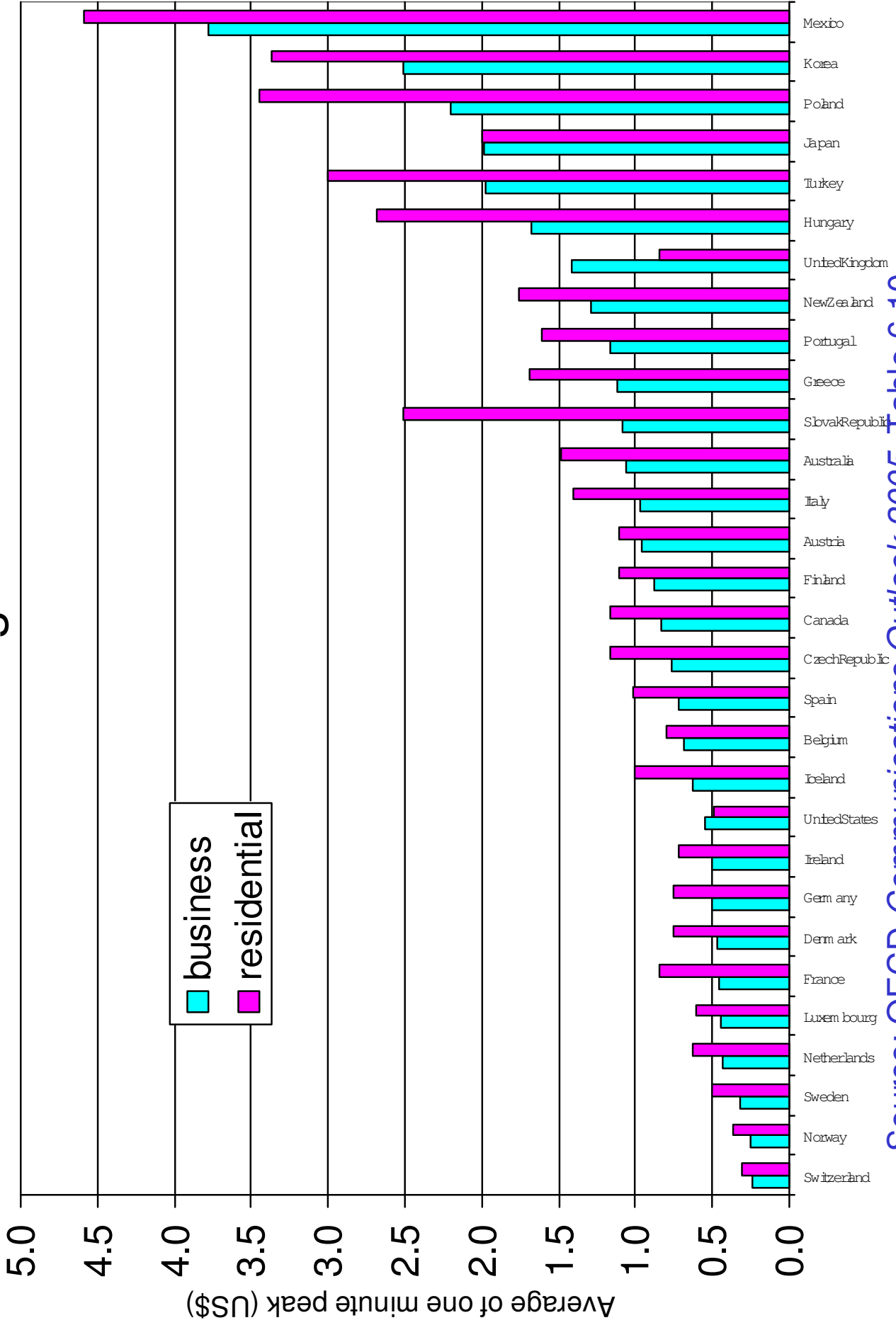
## OECD composite basket of residential telephone charges



Source: *Communications Outlook 2005*, Table 6.6



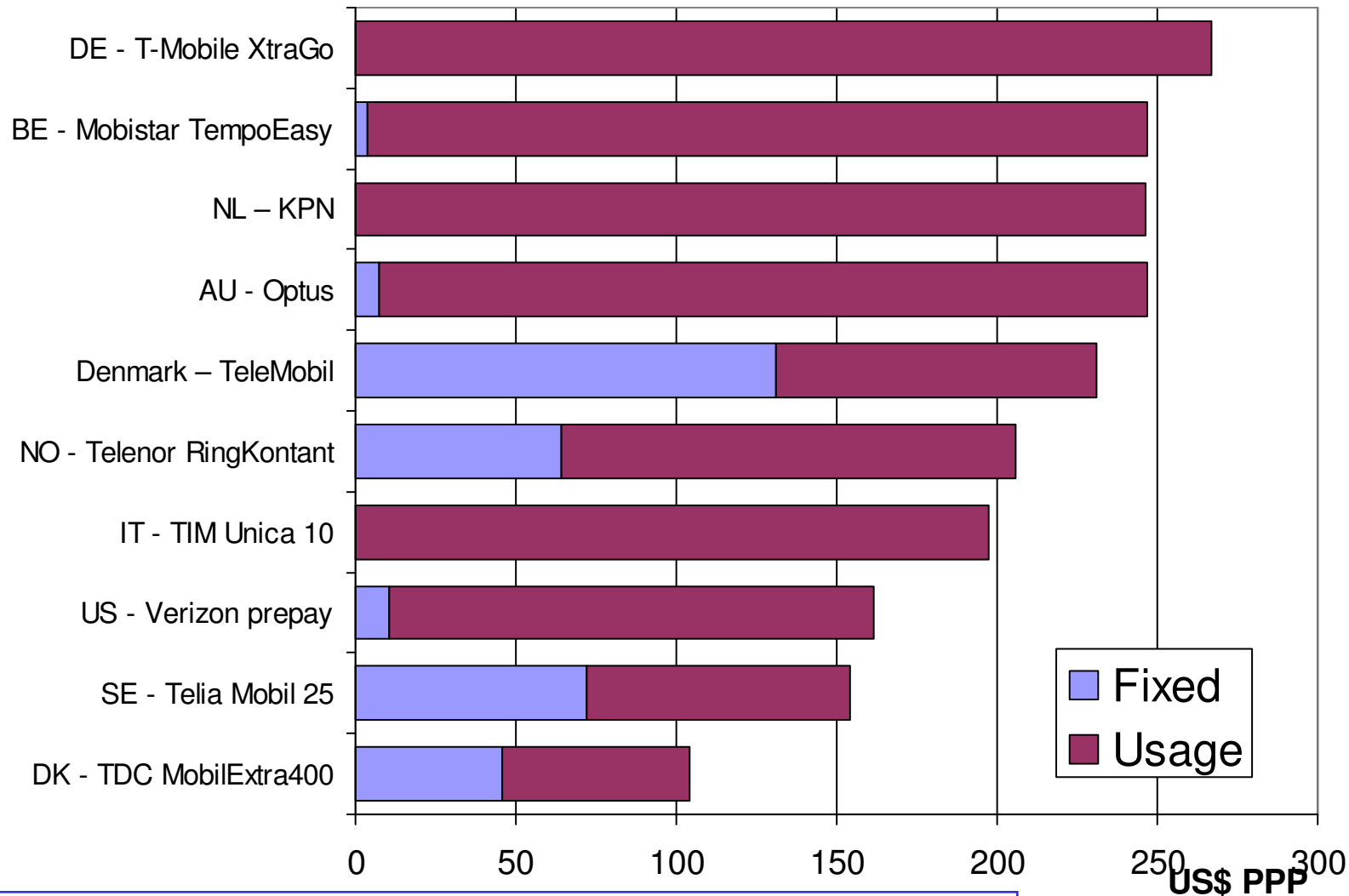
# International call charges



Source: OECD Communications Outlook 2005, Table 6.10

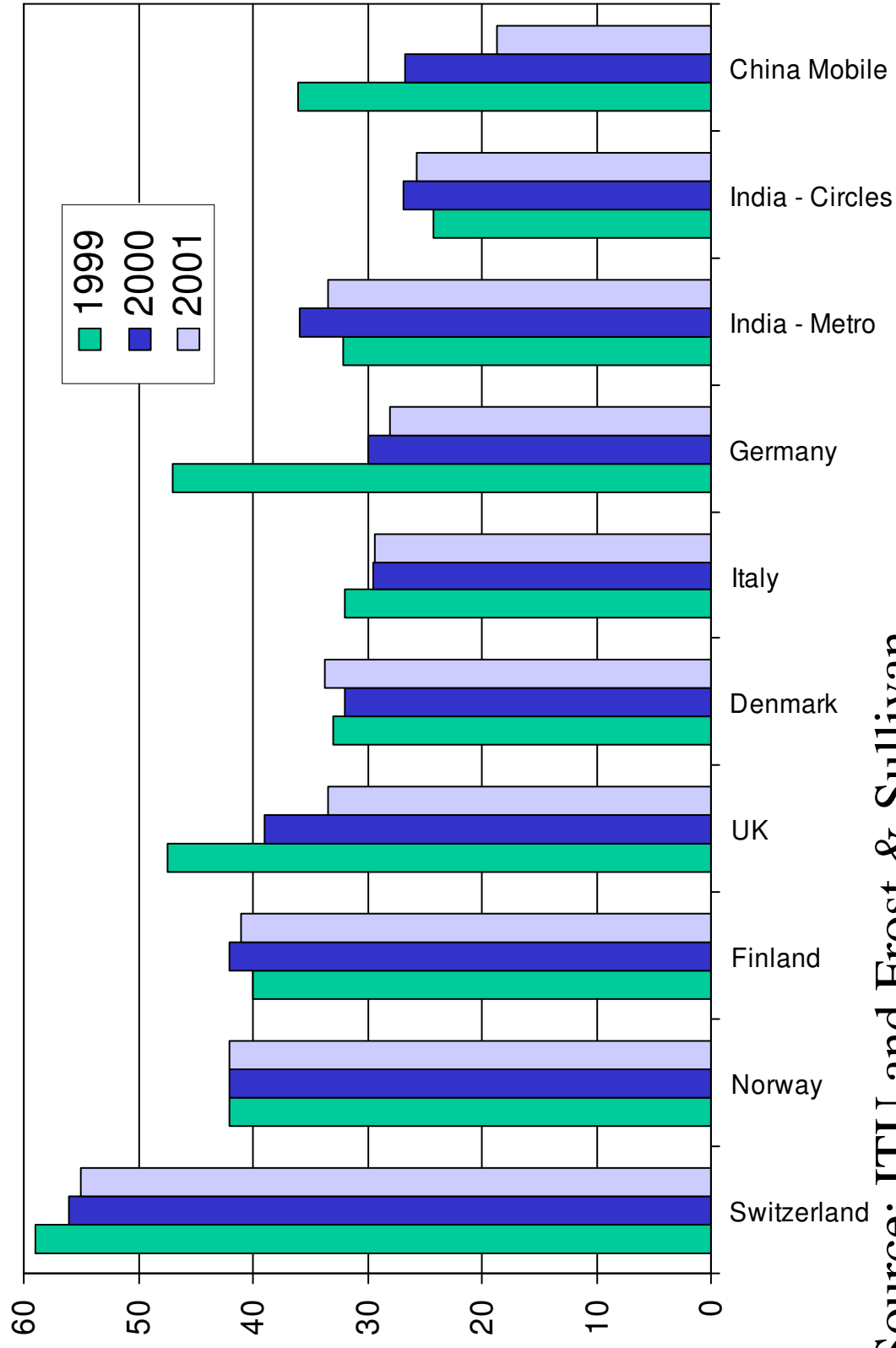
# INTUG OECD low user mobile basket

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Source: OECD *Communications Outlook 2005*, Table 6.11

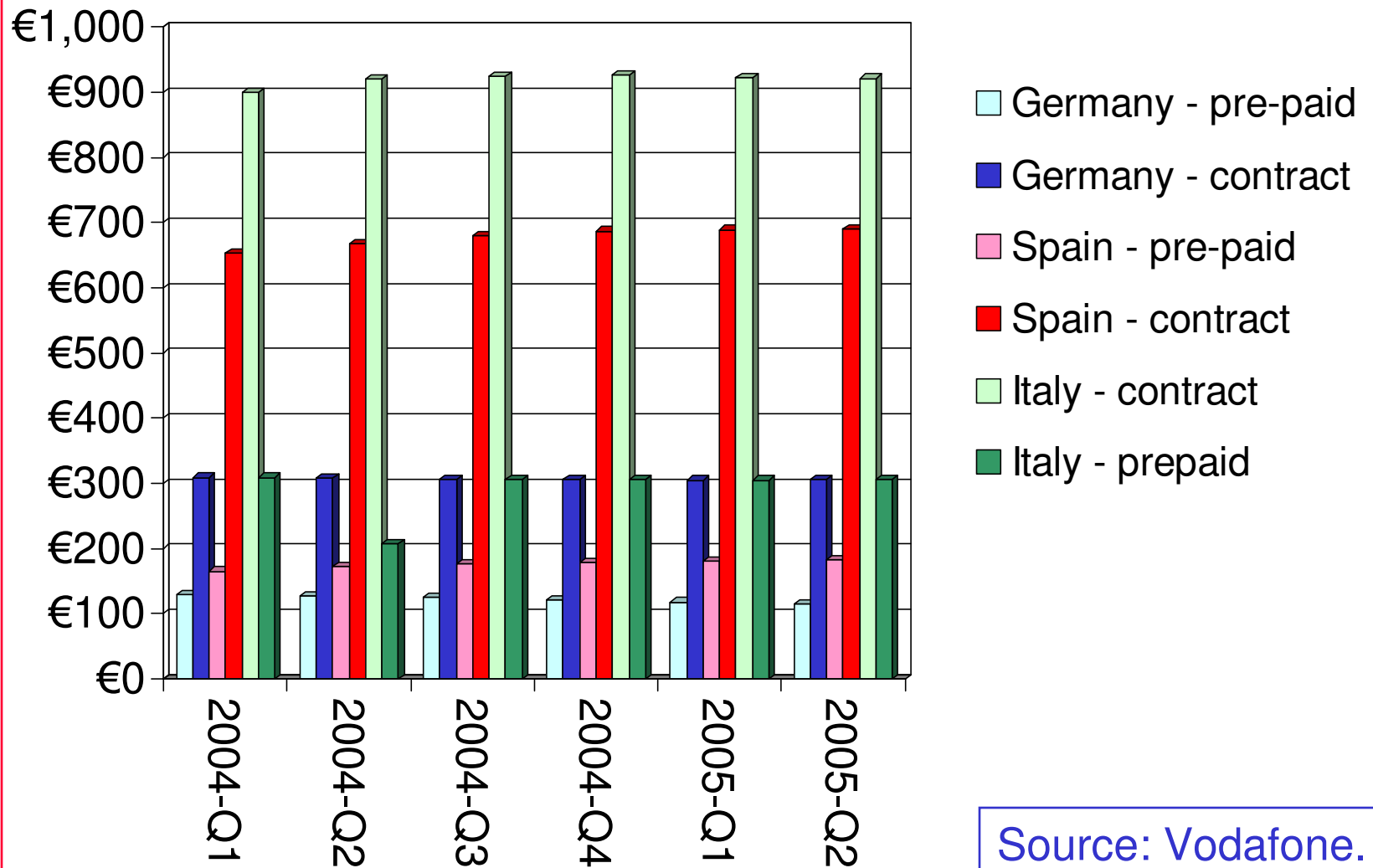
# INTUG monthly ARPU (Euros)



Source: ITU and Frost & Sullivan

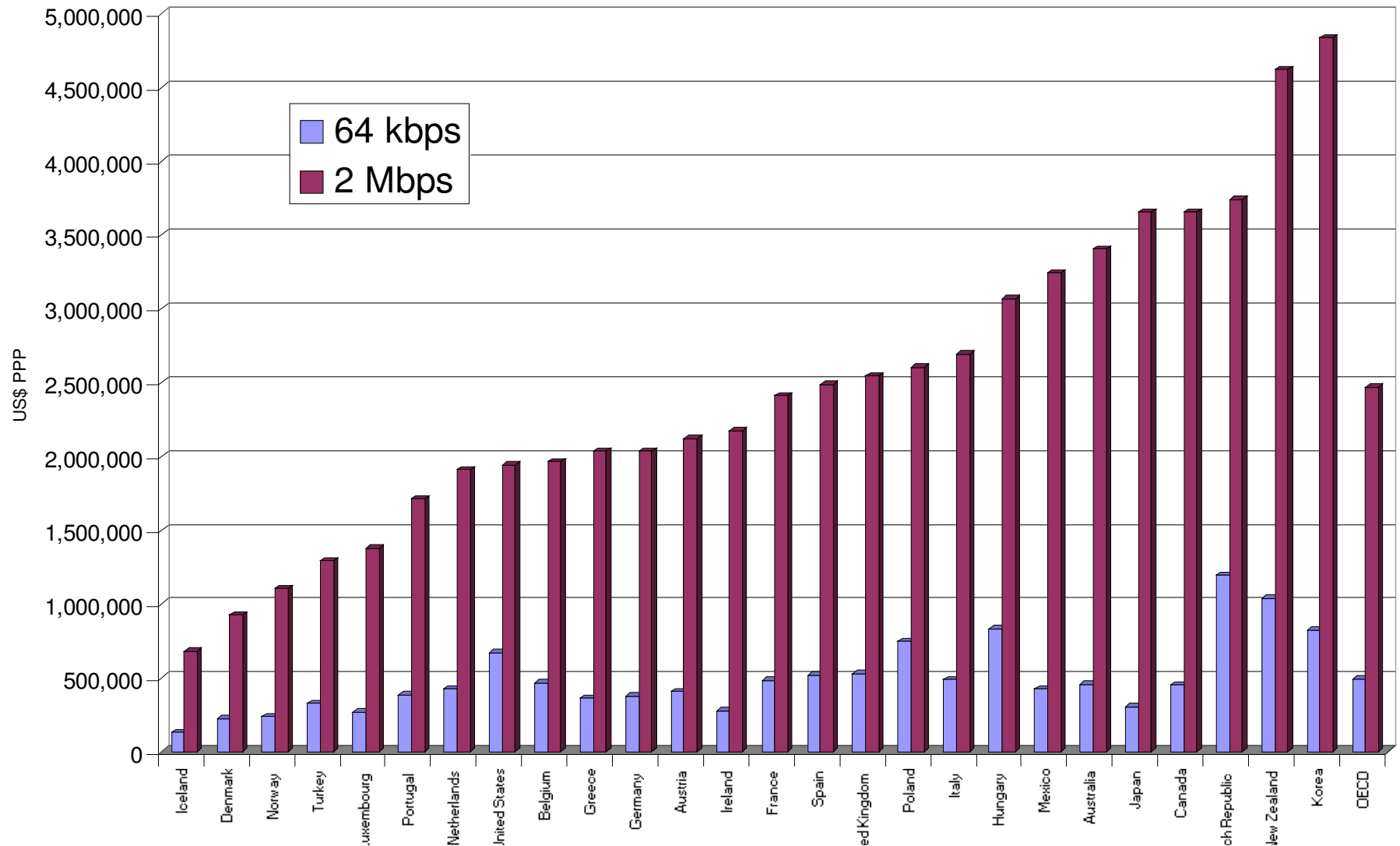
# INTUG Vodafone ARPU (annualised)

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[www.INTUG.net](http://www.INTUG.net)



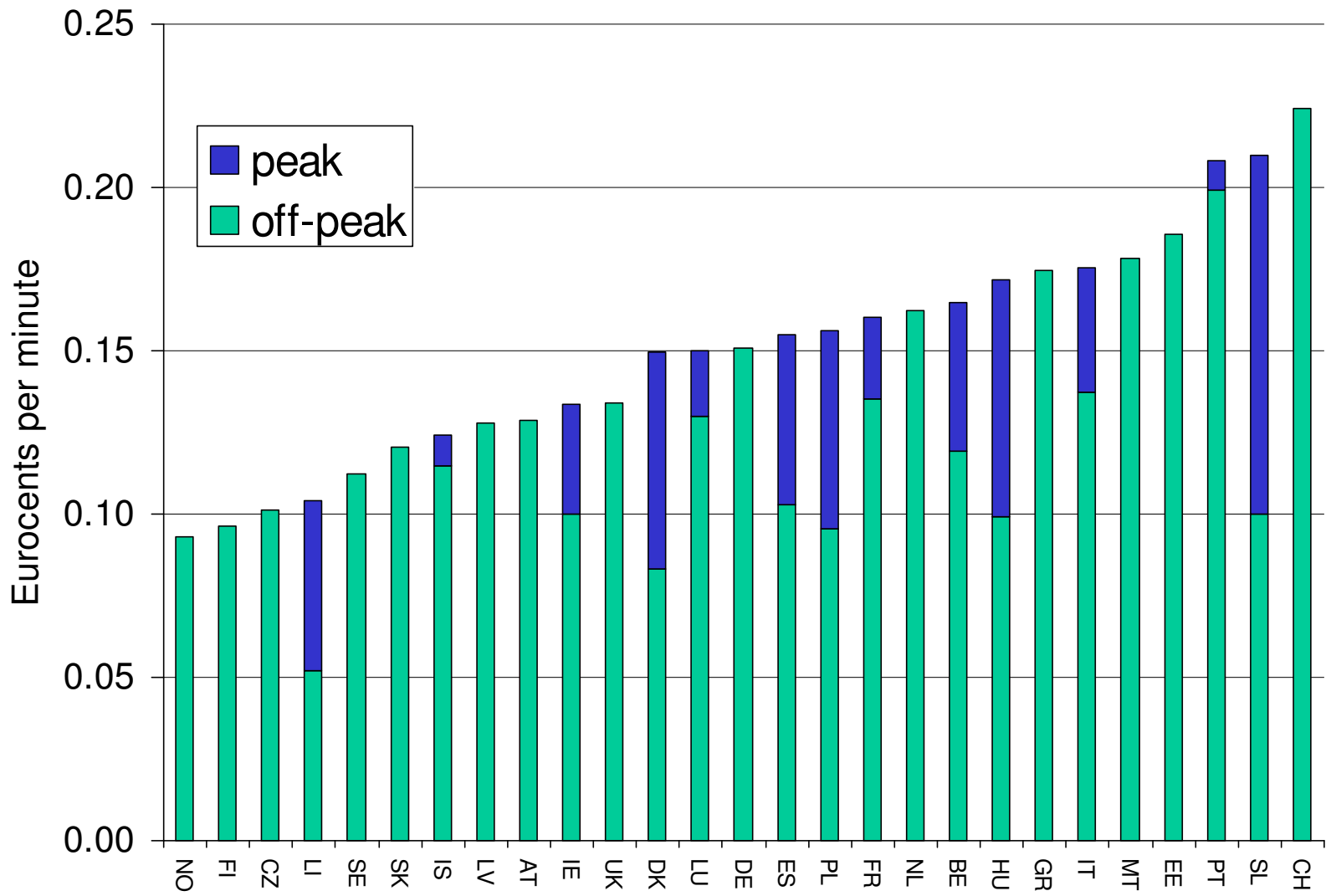
Source: Vodafone.

# INTUG OECD basket of leased line charges



# INTUG mobile termination rates

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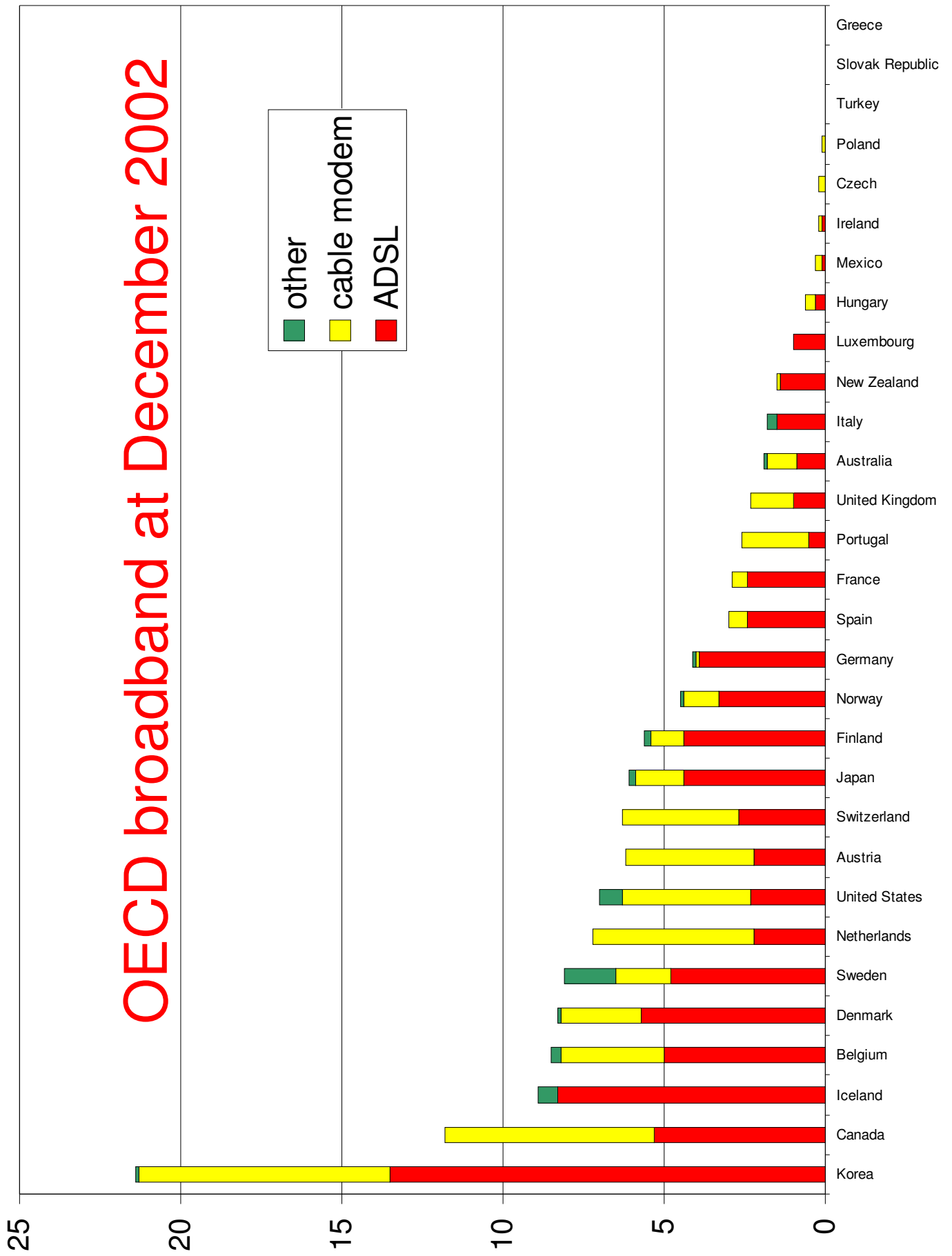
Source: ERG.

# INTUG broadband Internet access

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[www.INTUG.net](http://www.INTUG.net)

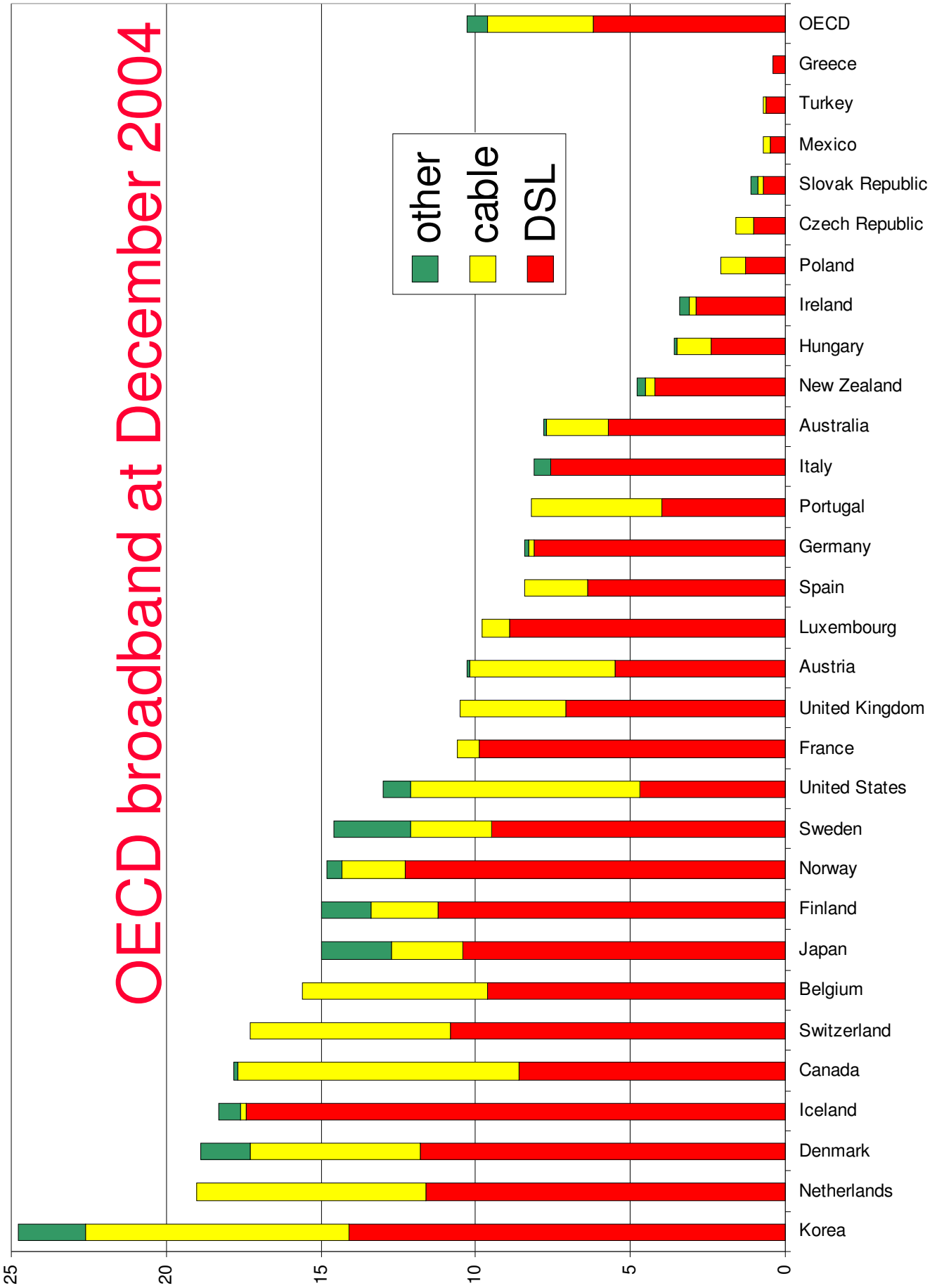
- many factors at work
- no pre-determined outcome
- strong pressure from incumbent operators against unbundling
- many potential new technologies and market players
- indicators are still emerging
- ever more complex bundling of services

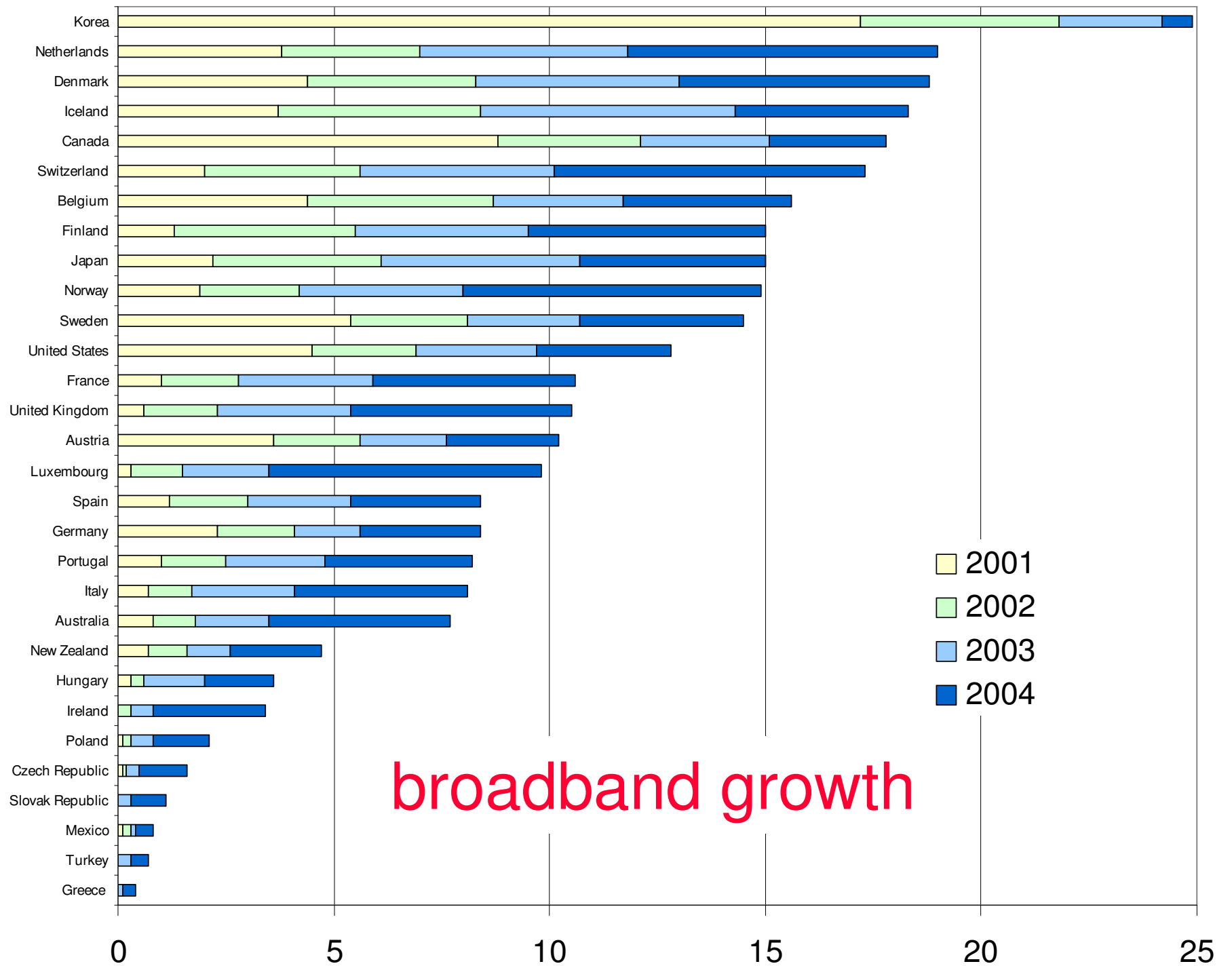
# OECD broadband at December 2002





# OECD broadband at December 2004





# INTUG leaders

LIRNE asia, Singapore 26.ix.2005  
[www.INTUG.net](http://www.INTUG.net)

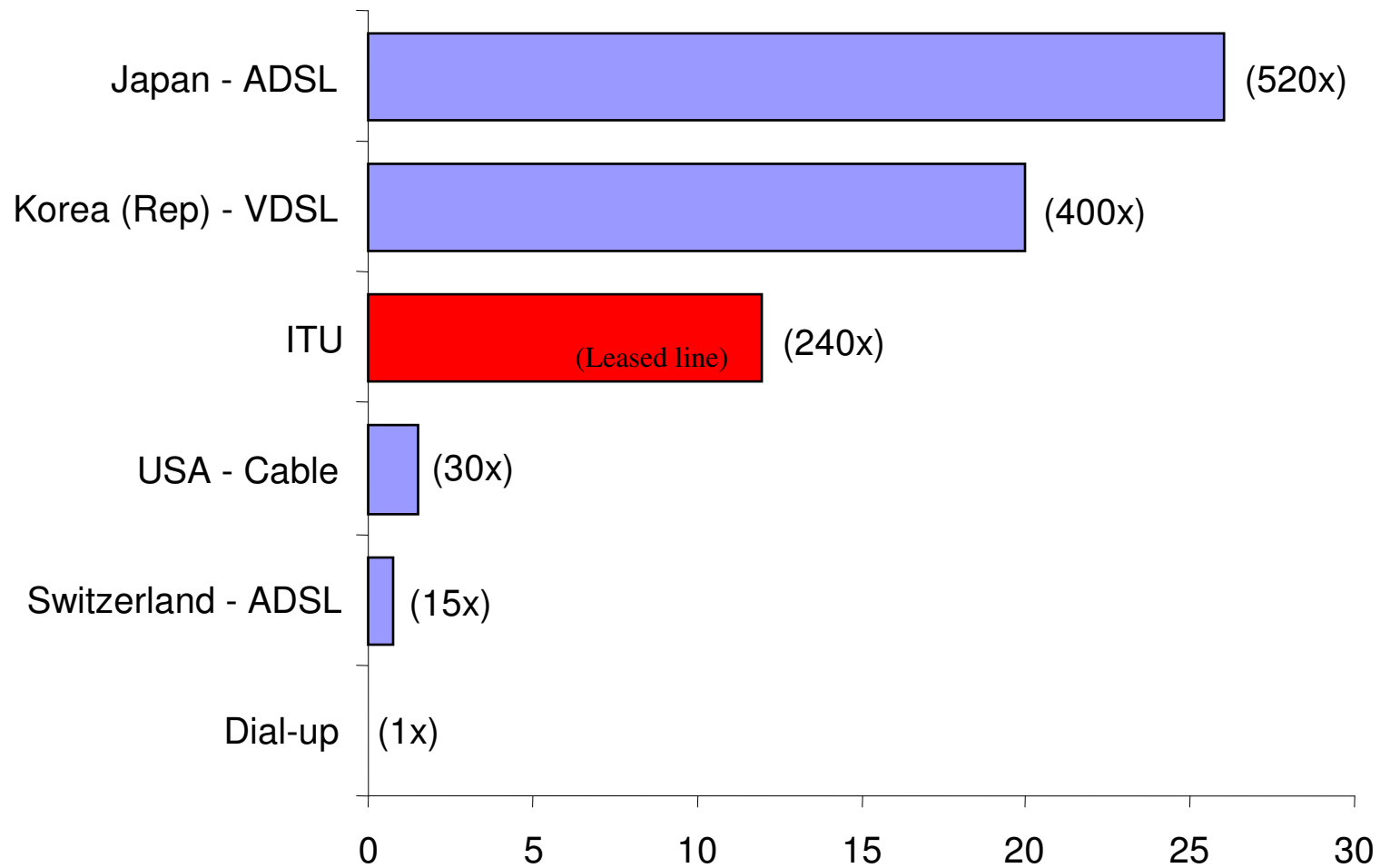
- Korea - KT Megapass
  - 20/4 Mbps KRW 39,900
  - 50/4 Mbps KRW 42,750
- Denmark - TDC
  - 512/128 kbit/s DKR 99 + 0.75 per MB
  - 8 Mbps DKR 799 per month (from 10/2005)
- Netherlands - KPN
  - “Go” now 1.5/0.256 Mbits/s (800/256) for € 79
  - ADSL 2+ announced

DKR 3.63 = SG\$ 1 = KRW 612

# INTUG relative broadband speeds

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[www.INTUG.net](http://www.INTUG.net)

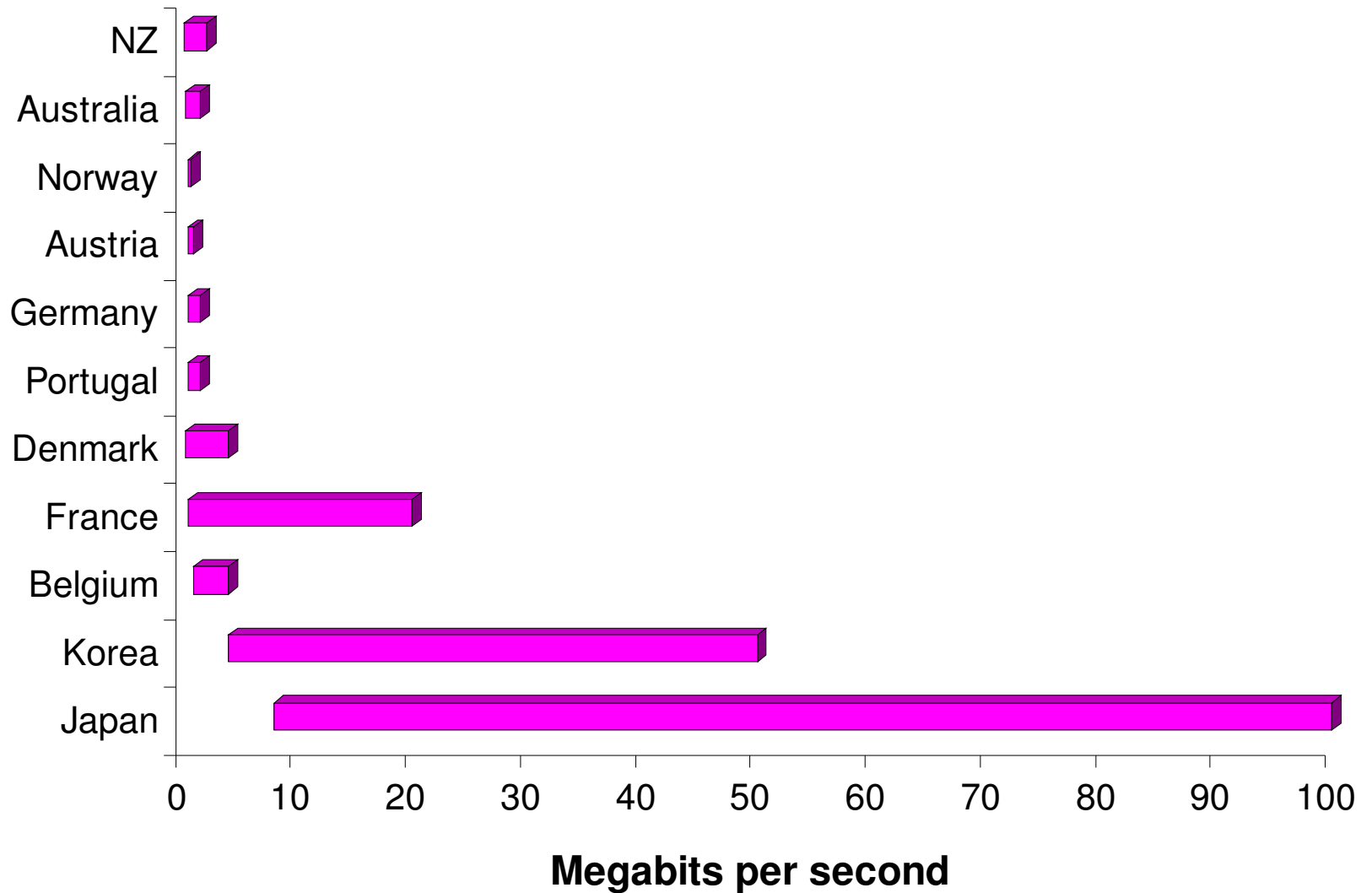
Broadband speed comparisons, Mbit/s, July 2003



Source: ITU research

# INTUG available download speeds

LIRNE asia, Singapore 26.ix.2005  
[www.INTUG.net](http://www.INTUG.net)

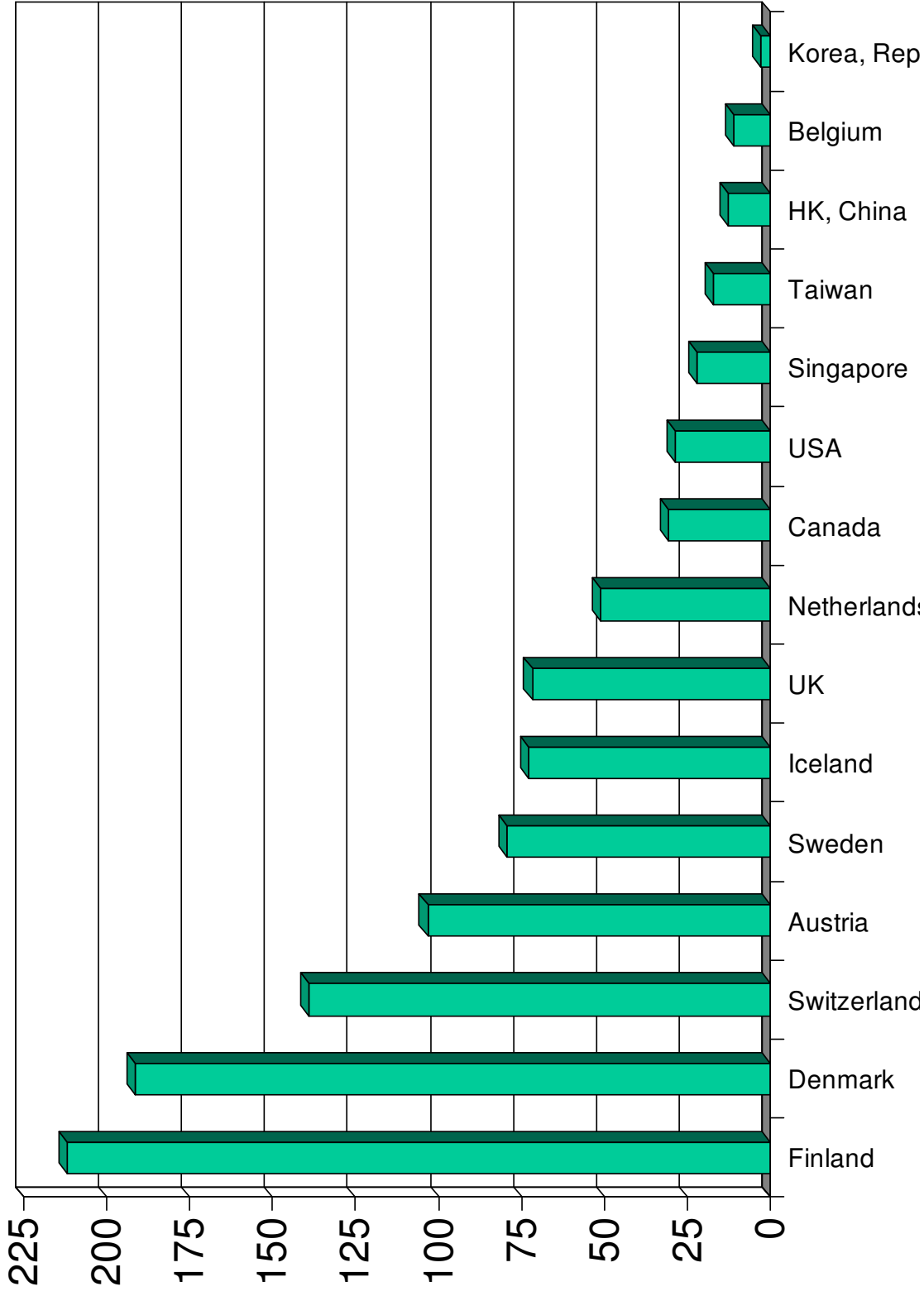


# Price (US\$) per 1Mbit/s per month, April 2003

**INTUG**

Source: ITU.

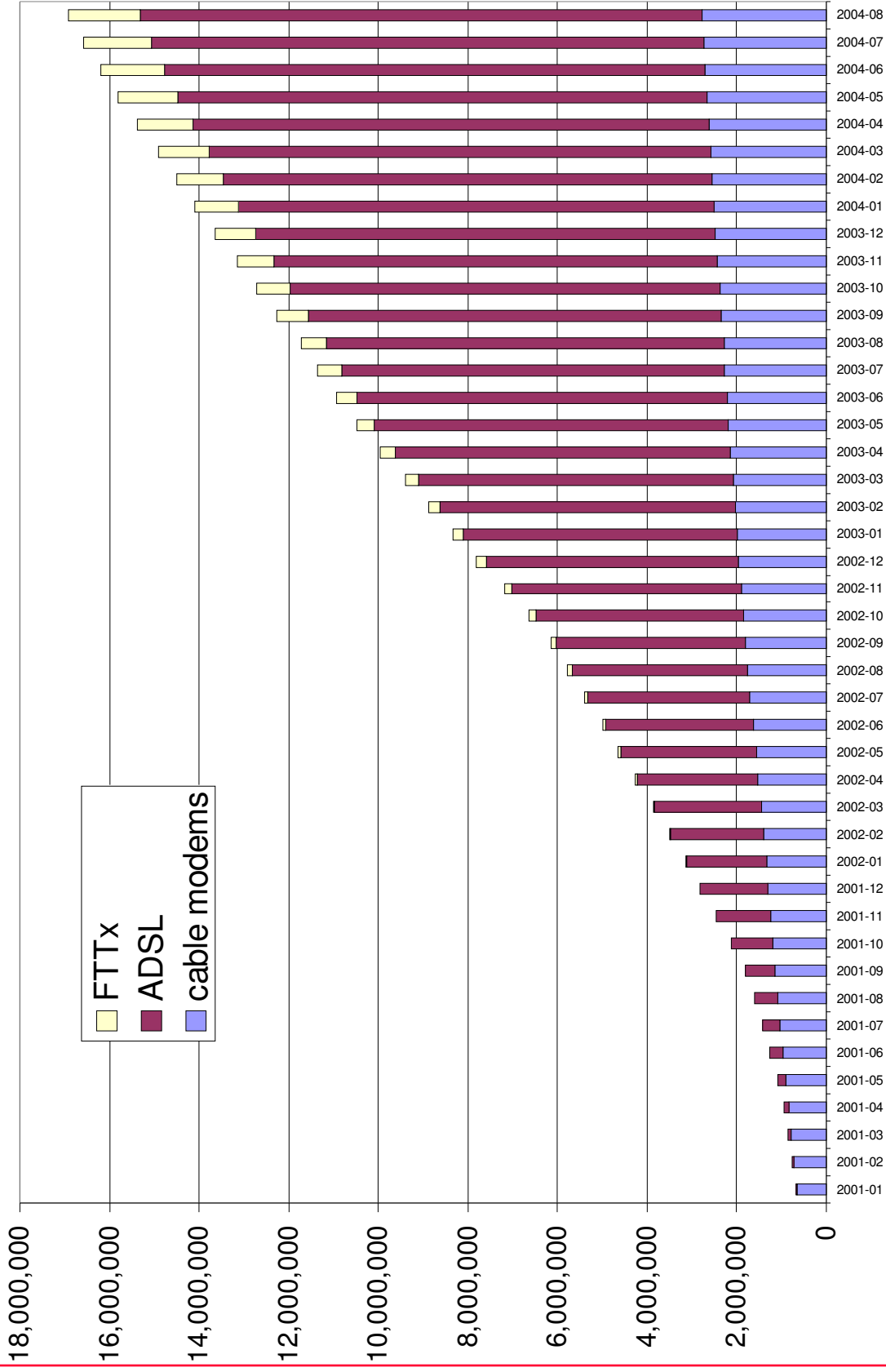
www.INTUG.net



# INTUG what does €25 buy?

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	<i>operator</i>	<i>up</i>	<i>down</i>	<i>days</i>
Hong Kong, SAR	HKBN	1000	20	4
Japan	Yahoo! BB	50	3	25
Belgium	Skynet Go	4	0.256	29
Singapore	Starhub	25	1	12

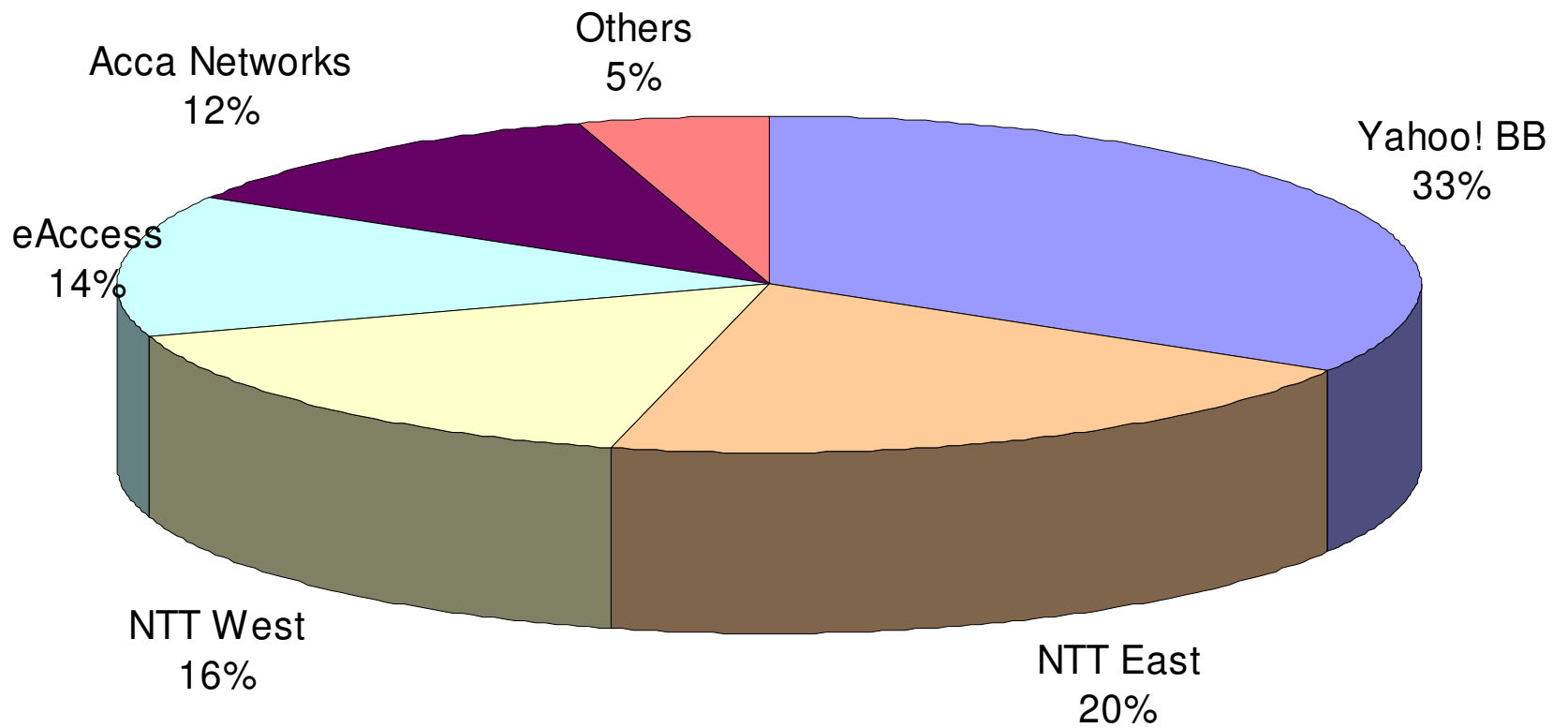




# INTUG ADSL market shares

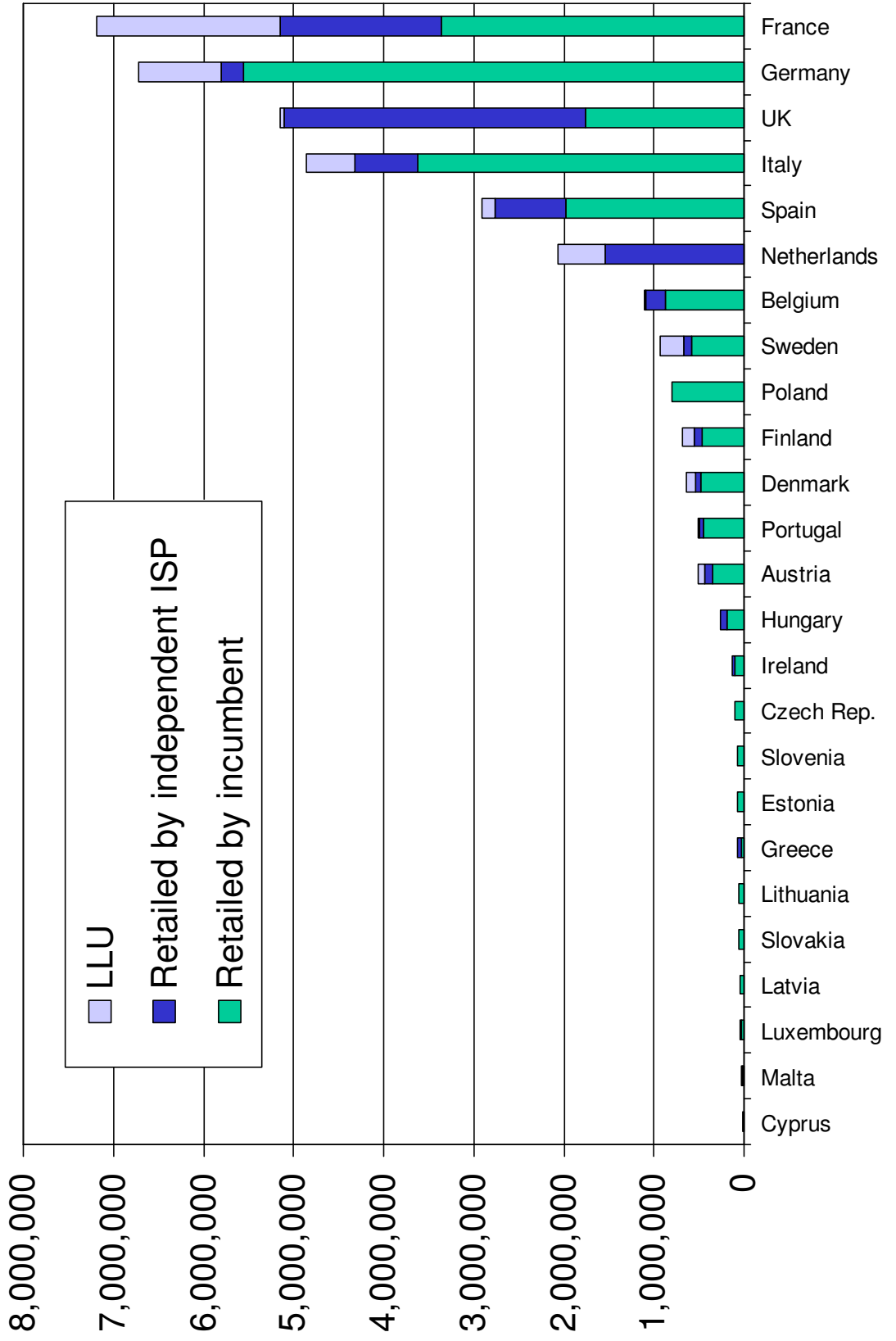
LIRNE asia, Singapore 26.ix.2005

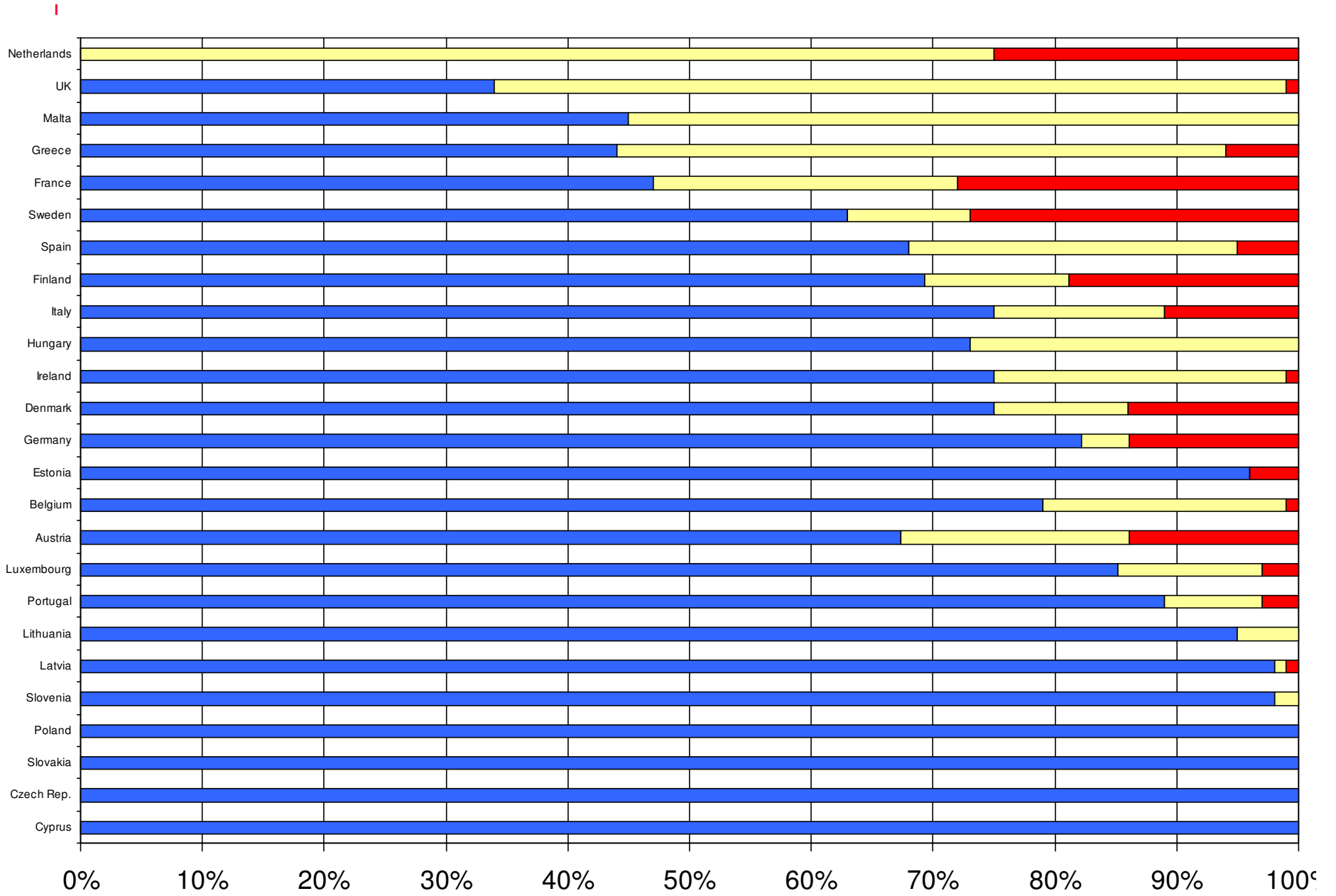
[www.INTUG.net](http://www.INTUG.net)



# INTUG unbundling in the EU

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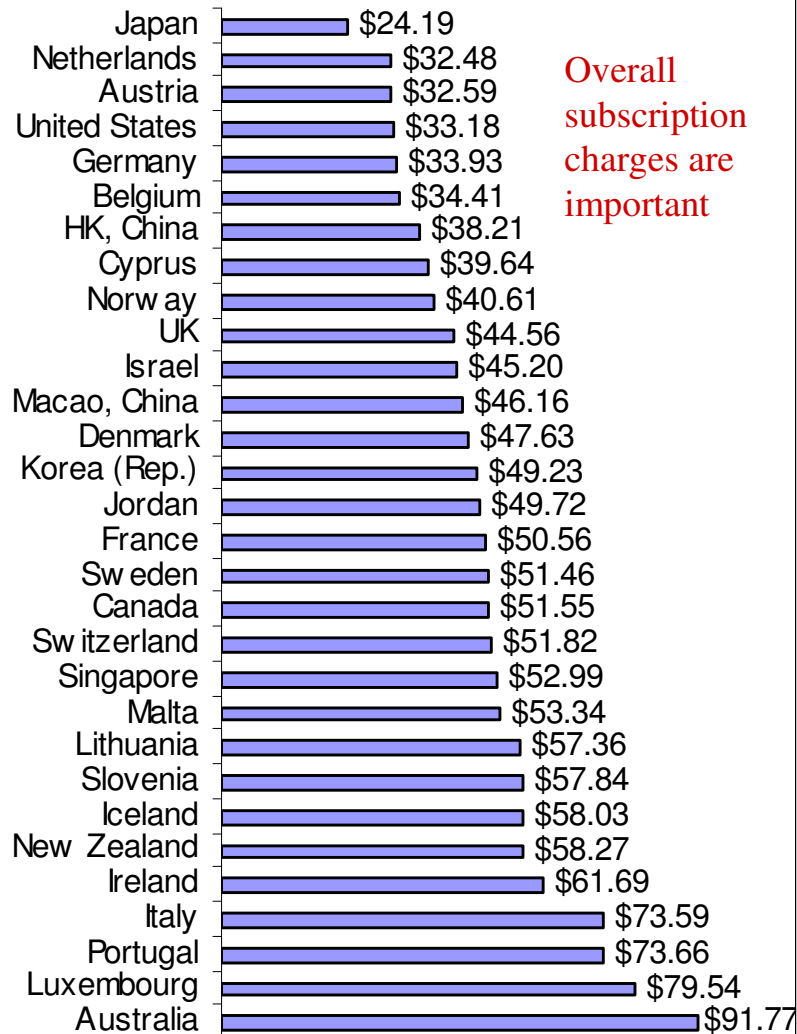


■ Retailed by incumbent 
 ■ Retailed by independent ISP 
 ■ LLU

## broband prices

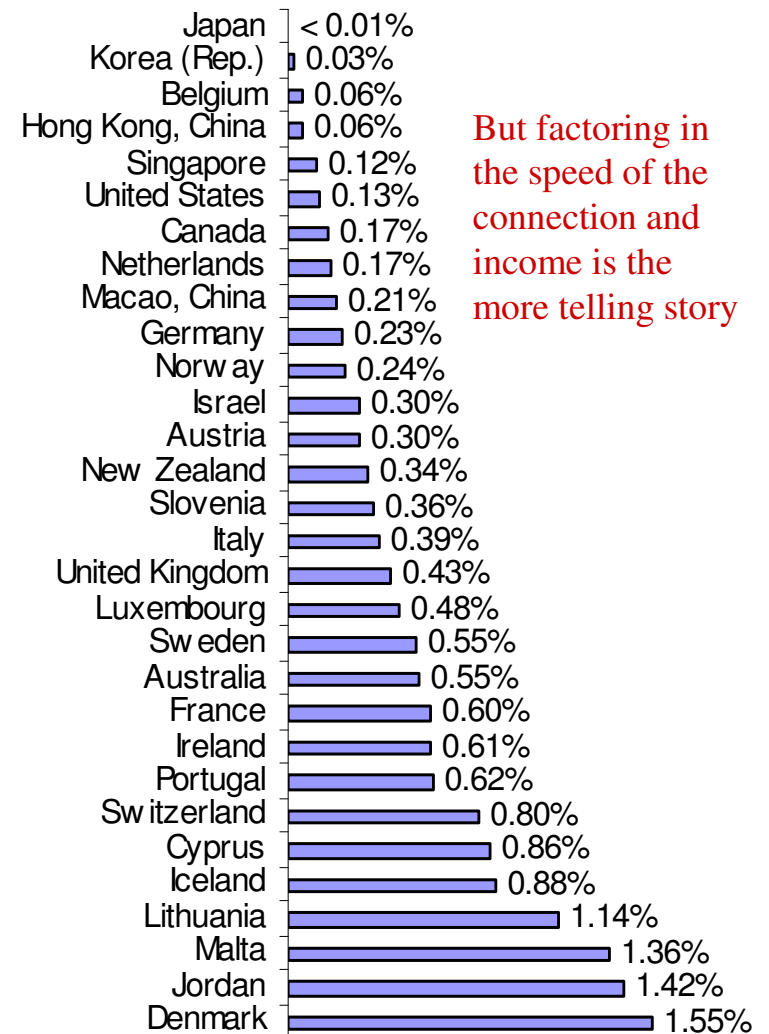
LIRNE asia, Singapore 26.ix.2005  
[www.INTUG.net](http://www.INTUG.net)

**Broadband subscription charges, July 2003, US\$**



Overall  
 subscription  
 charges are  
 important

**Cost of 100 kbit/s as % of monthly income**



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

Source: ITU research

# INTUG ubiquitous network society

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- an innovative policy model in:
  - U-Korea IT 839
  - U-Japan
- needs new indices to include:
  - person-to-machine
  - person-to-object
  - machine-to-machine
  - machine-to-object

SG\$2.05 = EUR 1

# INTUG France - retail offers

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- Wanadoo (France Telecom)
  - 18 Mbits/s for €39.90, first three months €29.90
- Club Internet
  - 20 Mbits/s for €19.90, first three months at €9.90
- Neuf
  - 20 Mbits/s for €35.90, eliminates subscription to FT
- Noos
  - 10 Mbits/s for €34.90, first year at €24.90
- Free
  - 20 Mbits/s for €29.99, with 200 TV channels
- Alice (Telecom Italia)
  - 20Mbits/s for €29.95, two months free and a wireless router

All include unlimited calls to the fixed network

# INTUG Singapore offers

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[www.INTUG.net](http://www.INTUG.net)

- SingTel - SingNet Broadband
  - SG\$ 88 for up to 10 Mbps
  - SG\$ 128 for up to 25 Mbps
- StarHub - MaxOnline
  - Ultimate SG\$ 121.80 for up to 30,000 kbps
  - “2000” SG\$ 58.80 for up to 2,000 kbps
- Pacific Internet
  - Personal Broadband unlimited SG\$ 89.25 for 1.5 Mbps (SG\$ 68.25 until end of 2005)
  - Multi-Access Unlimited 512kbps for SG\$19.85
- Qala
  - SG\$ 299 for 1.5 Mbps
  - SG\$ 199 for 0.5 Mbps

# INTUG measuring the broadband market

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- teledensity:
  - international ranking
  - variations within a country
- competition in markets
- need to compare offers:
  - price
  - download speed (advertised and observed)
  - contention ratio
  - upload speed
  - transfer limits (if any)
- advanced services e.g., SDSL and VDSL
- comparisons with other countries



# INTUG France - AFUTT

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- voluntary user group
- runs an “observatory” for the NRA
- based on individual consumer complaints
- supports individuals making complaints to operators
- provides information to consumers

2004 report (in French)

<http://www.afutt.org/particuliers/documents/CPRobservatoire2004.html>

# INTUG top complaints in 2004 (2003)

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- 1 (1) - cancellation of a contract - mobile
- 2 (2) - billing - (especially premium rate) - fixed
- 3 (8) - cancellation of a contract - Internet
- 4 (-) - no connection (loss of service) - Internet
- 5 (3) - billing - mobile
- 6 (6) - cancellation of a contract - fixed
- 7 (4) - carrier pre-selection - fixed
- 8 (7) - installation - fixed
- 9 (-) - billing - Internet
- 10 (-) - unsolicited calls - fixed

# INTUG growing threats from malware

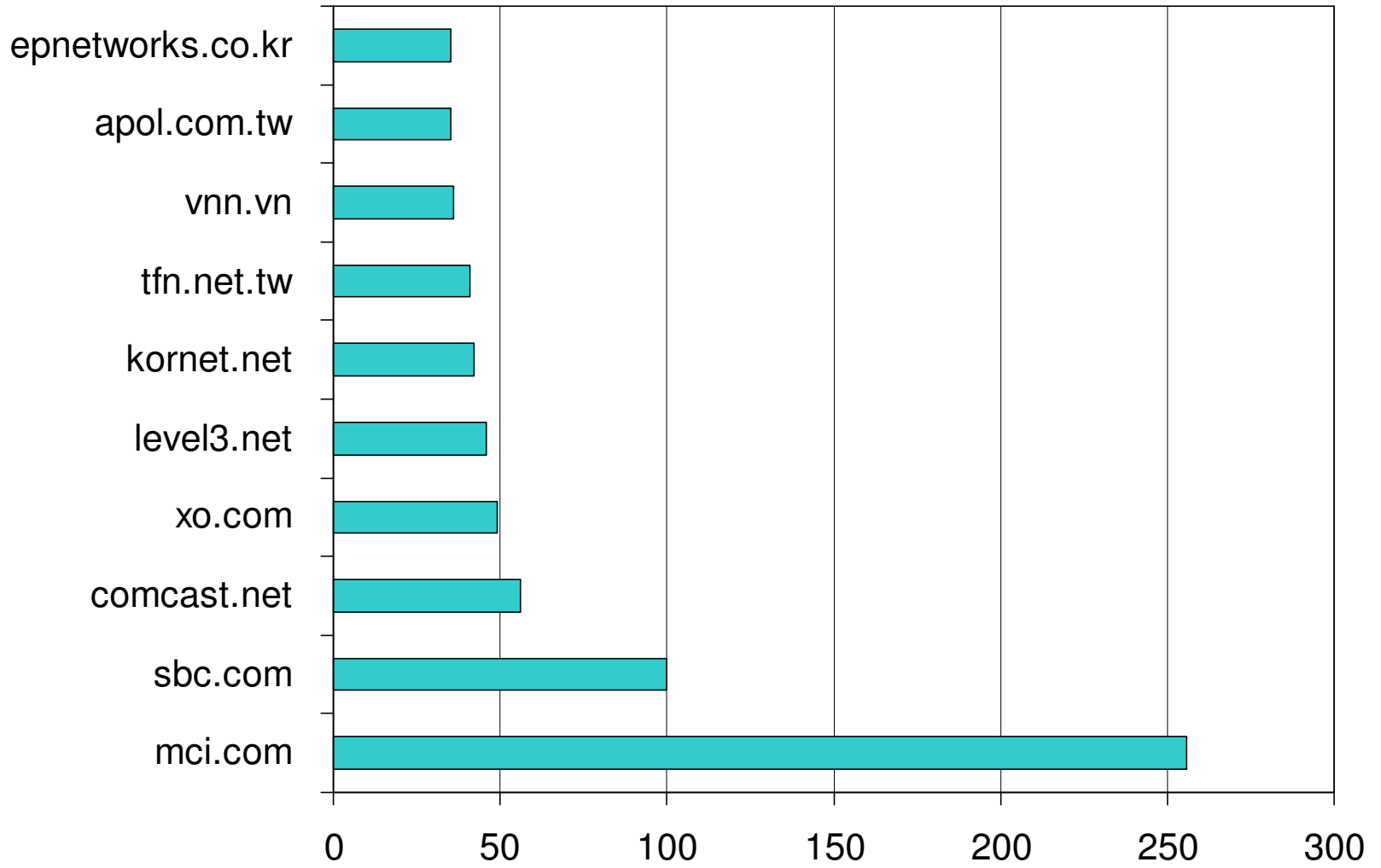
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- diallers
- viruses
- trojans
- spam
- phish
- adware
- spyware

# INTUG spamhaus: worst spam service ISPs

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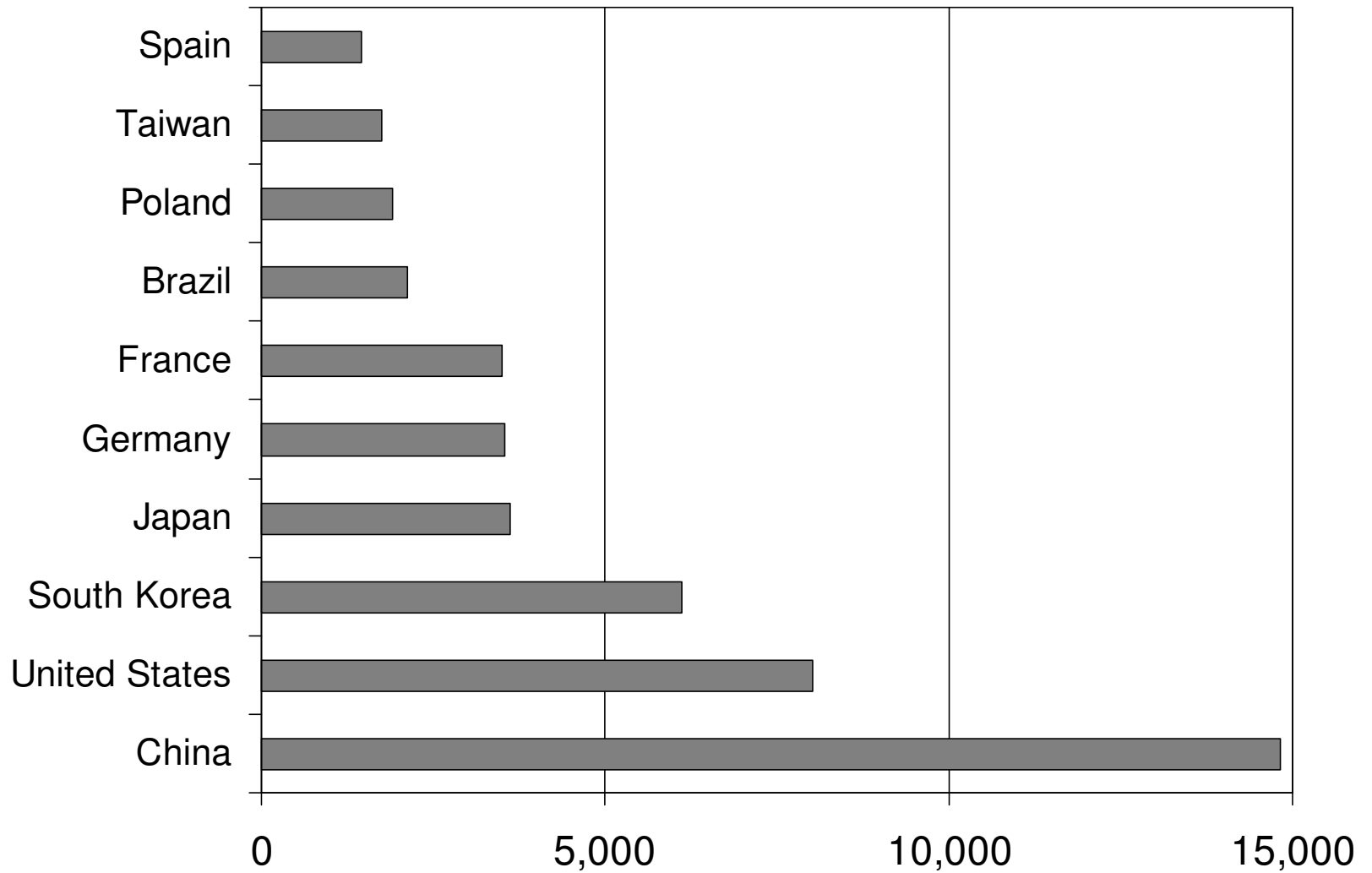
[www.INTUG.net](http://www.INTUG.net)



Source: Spamhaus

# INTUG counting “zombies”

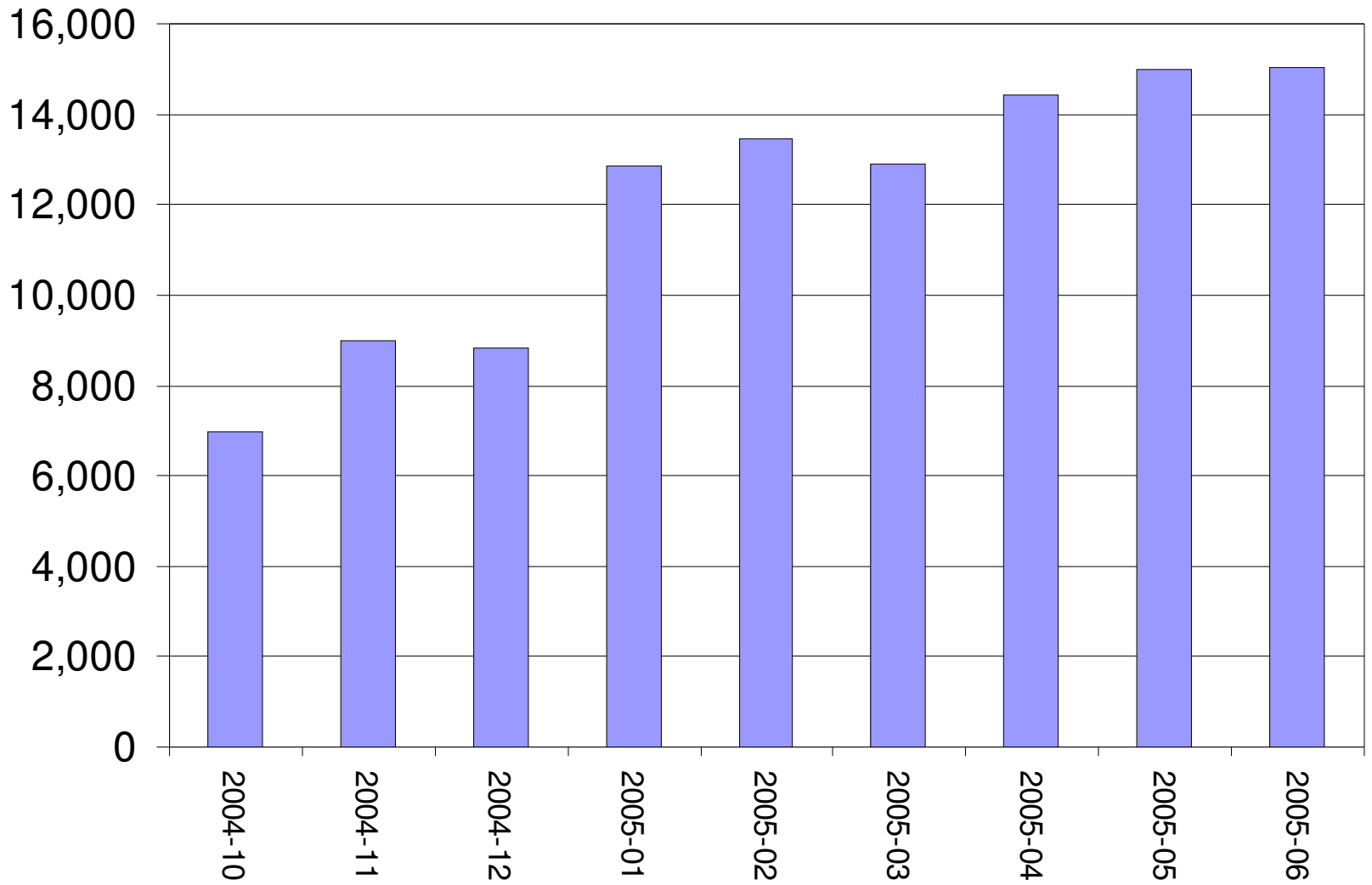
LIRNE asia, Singapore 26.ix.2005  
[www.INTUG.net](http://www.INTUG.net)



Source: CipherTrust's ZombieMeterSM

# INTUG phishing attacks

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Source: Anti-Phishing Working Group

# INTUG composite indexes

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- many institutions like to create an aggregate index to show overall ICT:
  - development
  - readiness
- such as:
  - UNDP
  - Davos World Economic Forum
  - Economist
- but can seem a bit arbitrary

# INTUG Davos - growth competitiveness

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1. Finland (1)
2. United States (2)
3. Sweden (3)
4. Taiwan (5)
5. Denmark (4)
6. Norway (9)
7. Singapore (6)
8. Switzerland (7)
9. Japan (11)
10. Iceland (8)
11. United Kingdom (15)
12. Netherlands (12)
13. Germany (13)
14. Australia (10)
15. Canada (16)
16. United Arab Emirates (—)
17. Austria (17)
18. New Zealand (14)

Source: World Economic Forum



# INTUG Davos - network readiness

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[www.INTUG.net](http://www.INTUG.net)

1. Singapore
2. Iceland
3. Finland
4. Denmark
5. United States
6. Sweden
7. Hong Kong
8. Japan
9. Switzerland
10. Canada
11. Australia
12. United Kingdom
13. Norway
14. Germany
15. Taiwan
16. Netherlands
17. Luxembourg
18. Israel
19. Austria
20. France
21. New Zealand
22. Ireland

# INTUG EIU e-readiness index

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# INTUG conclusions

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- statistics are essential to understand:
  - the nature of the problem
  - possible solutions
- monitor:
  - market developments
  - effectiveness of policy implementation
- publish:
  - national comparisons
  - international comparisons

# INTUG some sources

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[www.INTUG.net](http://www.INTUG.net)

- UN Millennium Development Goals  
<http://millenniumindicators.un.org/unsd/mi/mi.asp>
- ITU indicators  
<http://www.itu.int/ITU-D/ict/>
- OECD Communications Outlook  
[http://www.oecd.org/document/15/0,2340,en\\_2649\\_33703\\_35269391\\_1\\_1\\_1\\_1,00.html](http://www.oecd.org/document/15/0,2340,en_2649_33703_35269391_1_1_1_1,00.html)
- European Commission  
annual implementation reports  
[http://europa.eu.int/information\\_society/policy/comm/implementation\\_enforcement/index\\_en.htm](http://europa.eu.int/information_society/policy/comm/implementation_enforcement/index_en.htm)
- ECTA quarterly European LLU data  
<http://www.ectportal.com/>

# INTUG thank you

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Ewan Sutherland

INTUG

<http://www.intug.net/>

ewan [at] intug.net

<http://3wan.net/>