

INTUG

broadband

a global user perspective

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DTI, London 13 v 2004

www.INTUG.net

INTUG contents

- about INTUG
- benchmarking broadband
- Republic of Korea
- Japan, China and India
- European Union
- IP telephony
- conclusions

INTUG what is INTUG?

- members
 - national associations
 - corporations
 - individuals
- activities
 - ITU and WTO
 - OECD
 - APEC TEL, CITEL
and the European Union

INTUG our aims

- 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

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

INTUG broadband priorities

- access to incumbent operator networks
 - advocacy of local loop unbundling
 - support for wholesale broadband products
- infrastructure competition
 - separation of the ownership of potentially competitive networks, such as cable television and the PSTN
 - ensuring that licensed and unlicensed spectrum is available for operators and users
- statistics
 - rapid reporting of numbers of lines and users
 - regular reporting and review of quality of service

INTUG benchmarking

- UK against the rest of the
 - G7 and OECD
 - European Union
 - Japan and Korea
 - China and India
- technologies and services:
 - teledensity and growth
 - prices and line speeds
 - advanced technologies
 - revenues

INTUG africa

- fixed network growth has been minimal
- GSM with pre-paid cards has driven growth, but how could it migrate to broadband?
- traditionally long delays in adoption of new technologies and services
- high cost of International Internet Connectivity (IIC) because of:
 - lack of competition in international leased lines
 - incumbent operators overcharging or blocking access to submarine cables

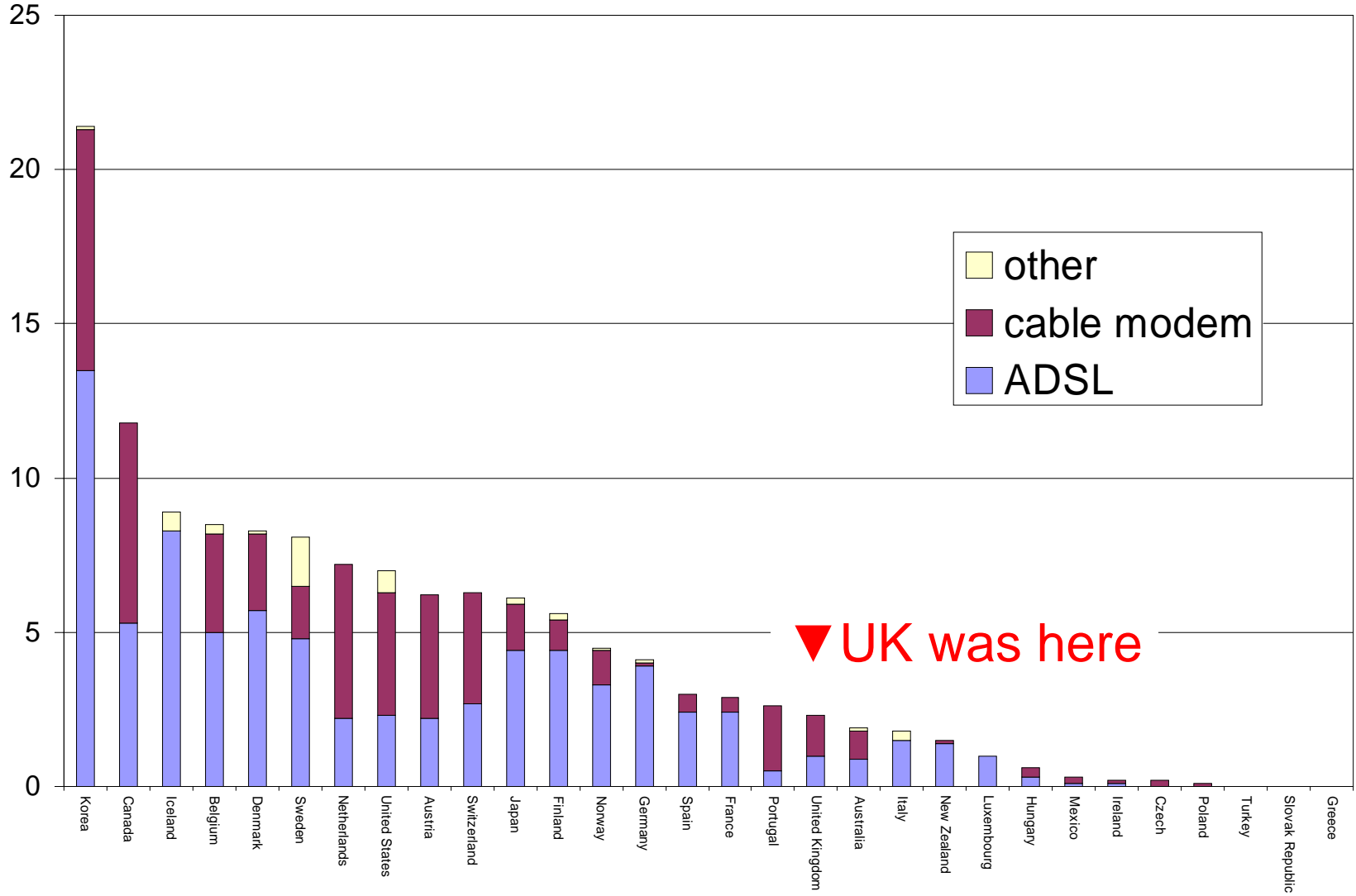
INTUG ADSL now available

- Morocco
 - Maroc Telecom and Wanadoo
- Algeria
 - Wanadoo & Asila (Telecom Algerie + Daewoo)
- Tunisia
 - TopNet ADSL and Tunet
- Egypt
 - Glory “Don't Slow Life” (DSL)
 - Mena ADSL and Internet Egypt ADSL
- Libya
- Senegal

INTUG OECD at end of 2002

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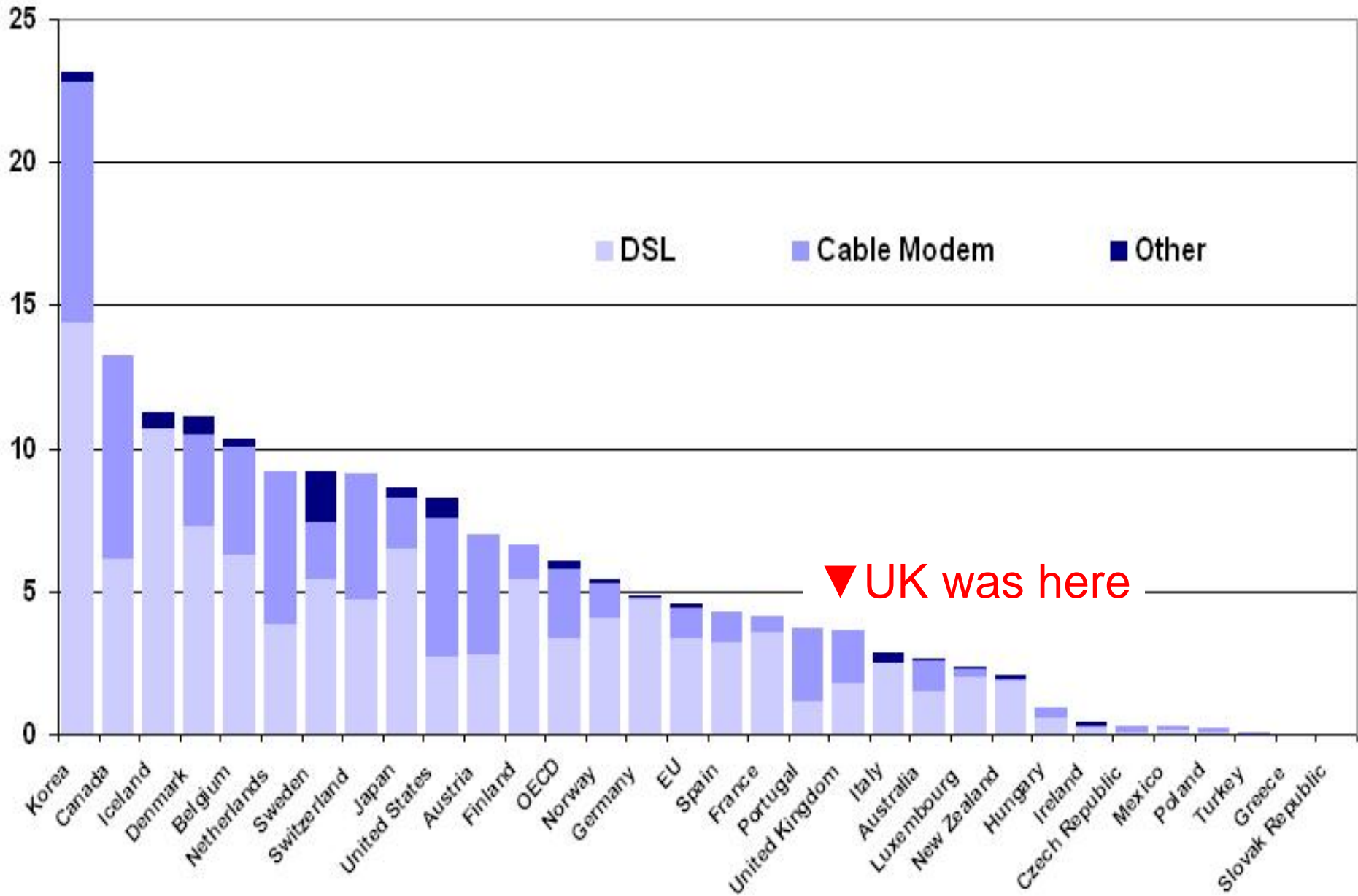
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▼ UK was here

Broadband access in OECD countries per 100 inhabitants, June 2003

Source: OECD



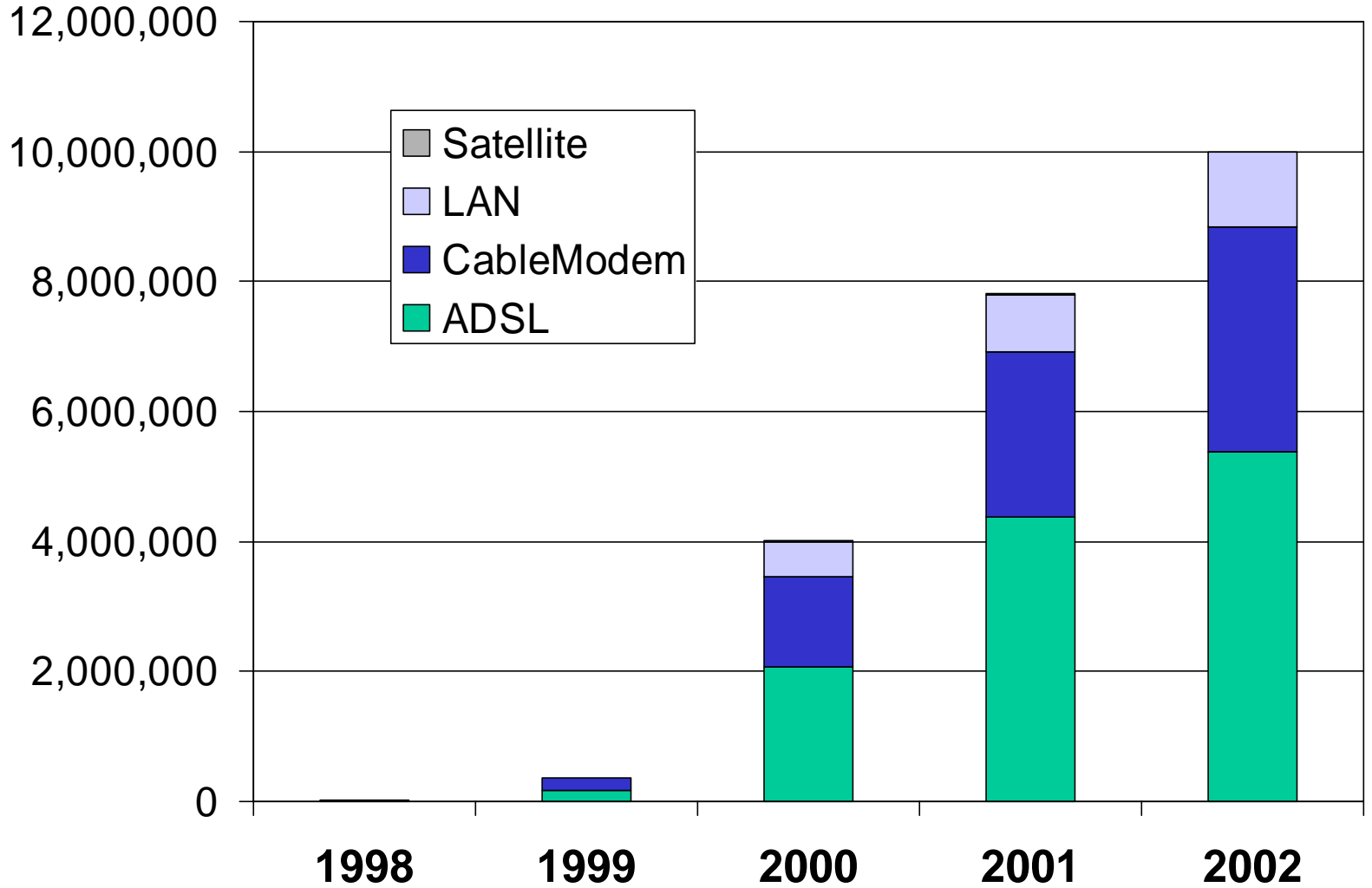
INTUG Republic of Korea

- economic growth since Korean War
- strength and depth in electronics
- cellphone exports in 2003 were US\$ 50Bn
- global broadband leader:
 - market saturated Q4 of 2002
 - 11M lines at 8Mbps at US\$ 25 per month
 - very high proportion of high-rise apartments
 - very high level of home PC ownership
 - plus 25,000 WLAN hot spots

INTUG Korean broadband growth

DTI, London 13 v 2004

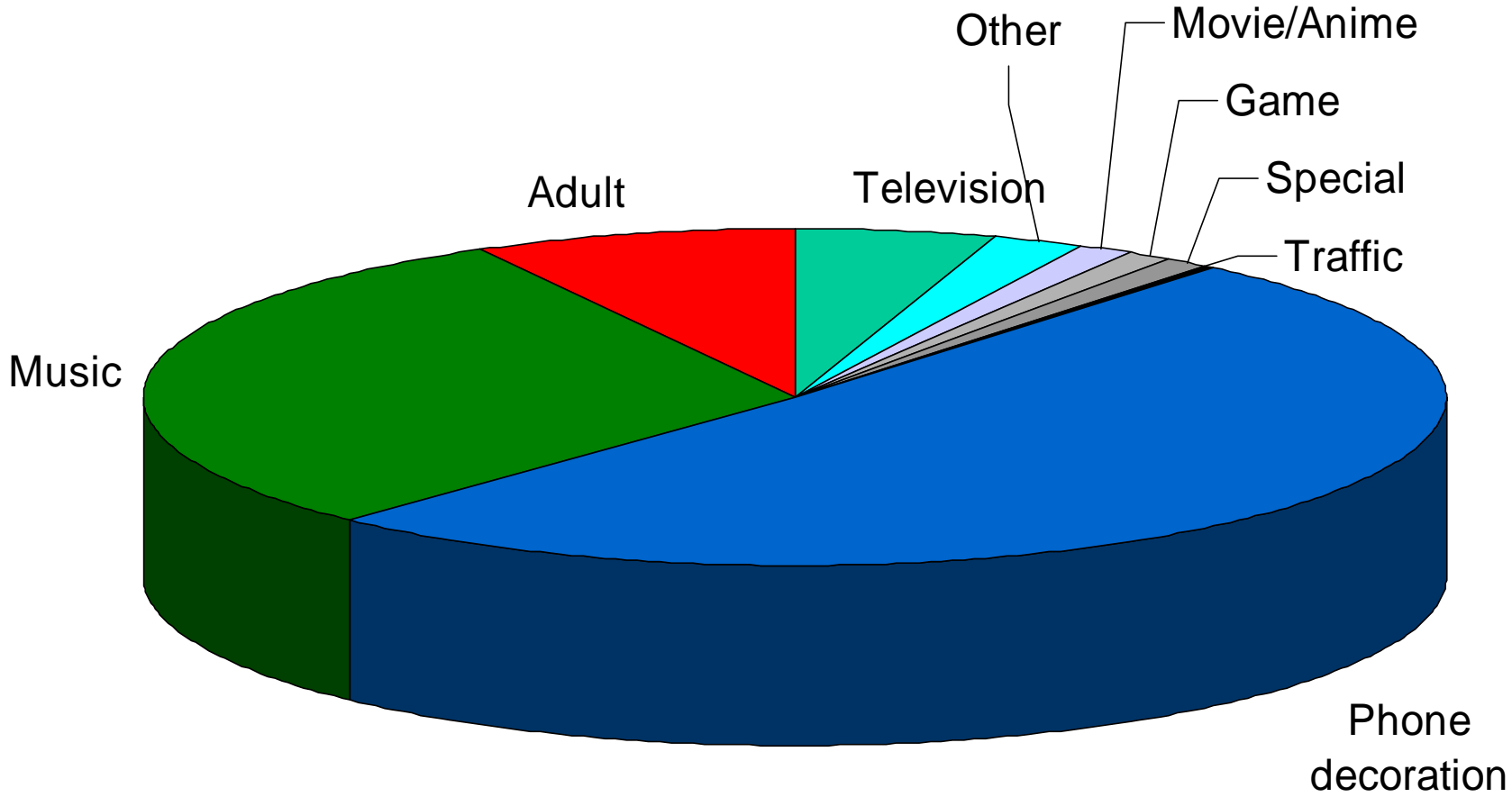
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INTUG Korea next generation

- 3G deployed and fully operational
- ADSL migrating to VideoDSL (20+ Mbps)
 - KT Megapass
1.4M VDSL lines at end of 2003 (of 5.5M)
 - Hanaro Hanafos (20M down, 6M up)
0.2M VDSL lines at Feb 2004 (of 2.7M)
- broadband convergence networks
 - 2.3 GHz
 - 100Mbit/s
 - national coverage by 2008?

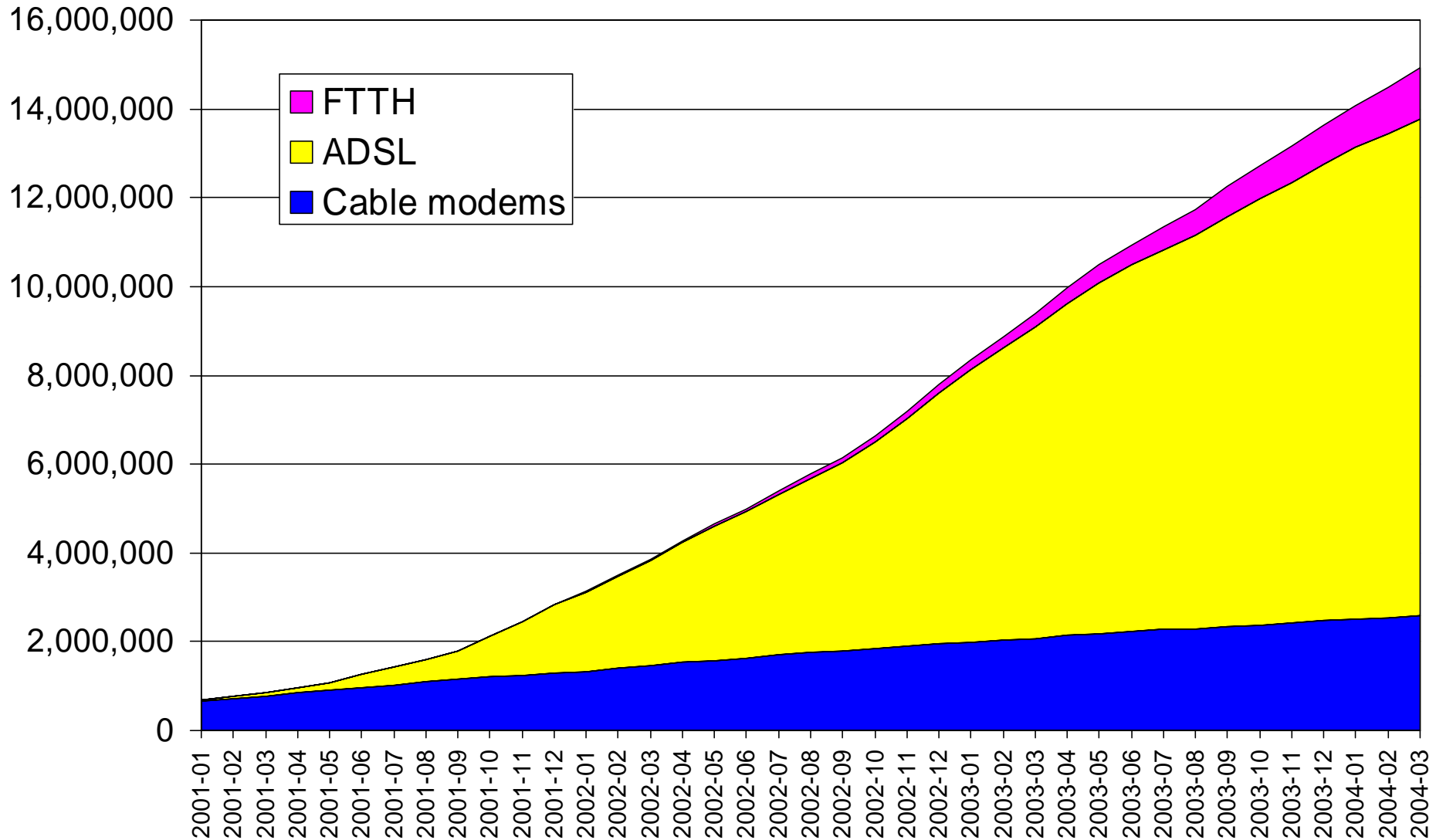
INTUG SKTelecom "June" 3G hits



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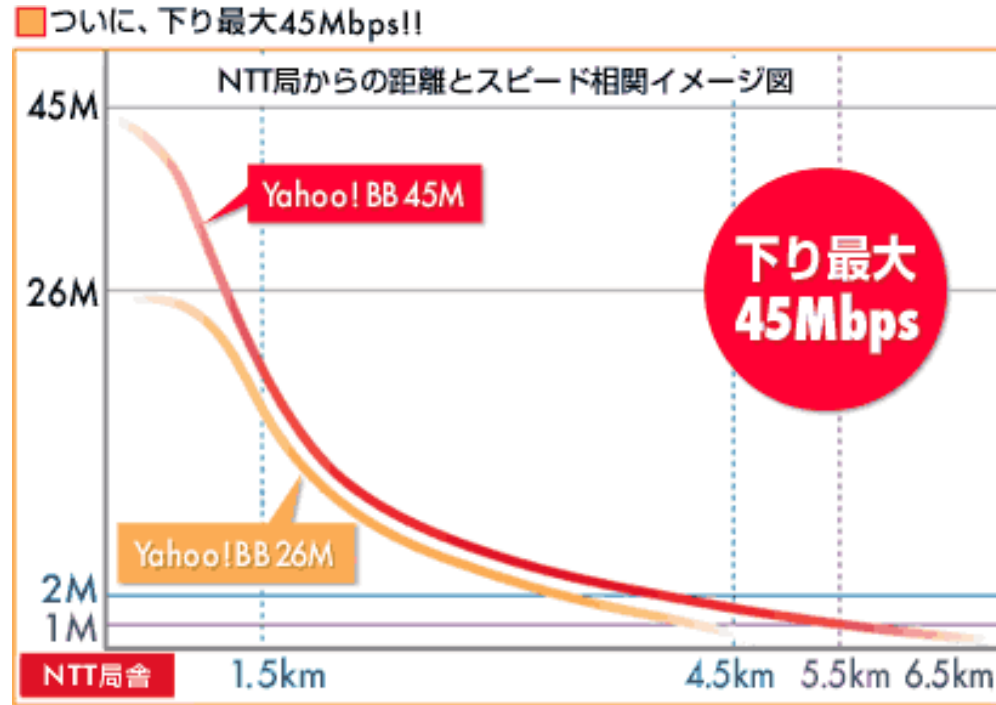
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INTUG Japanese broadband



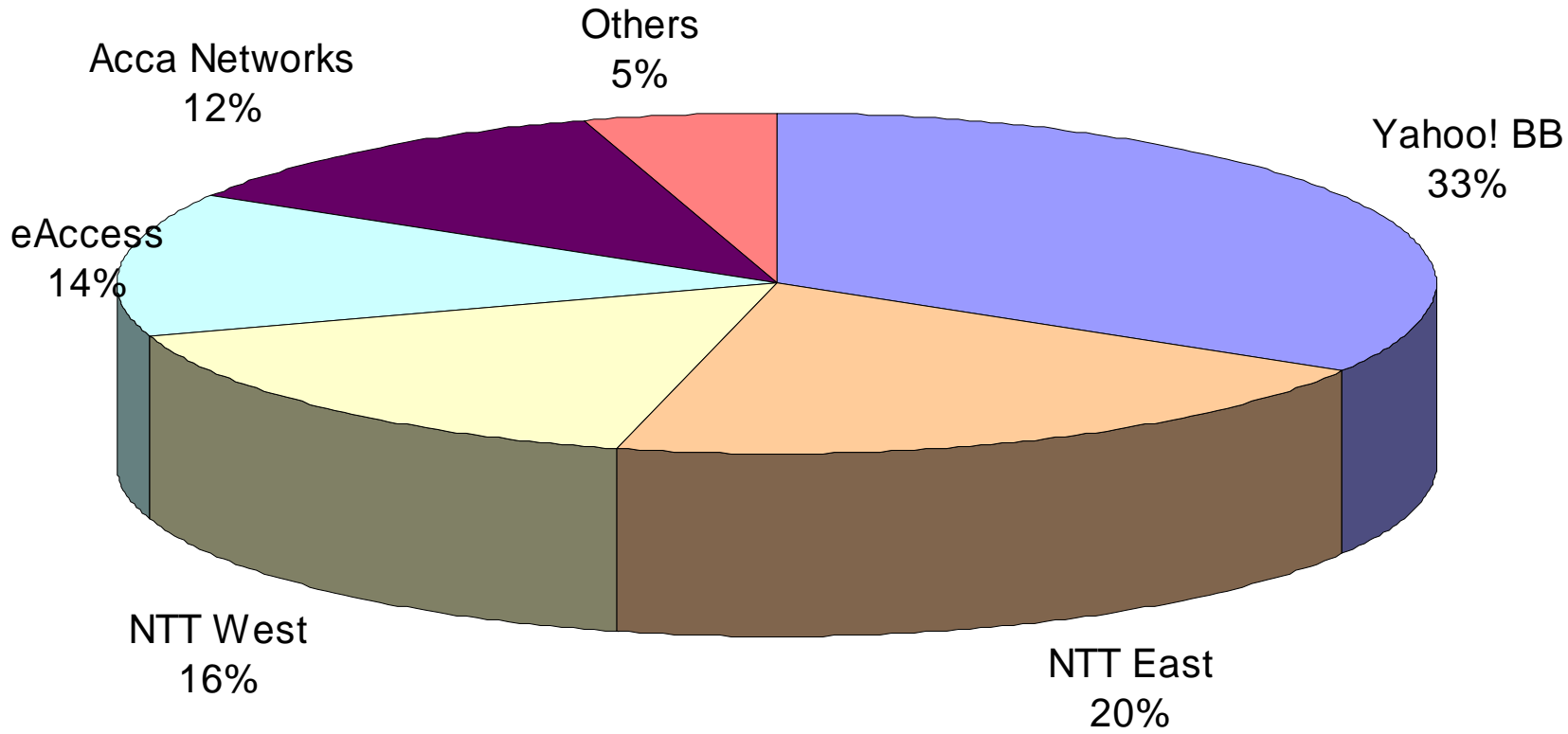
INTUG some monthly charges

- Yahoo! BB ADSL
 - 45Mbps ¥ 3,938
 - 26Mbps ¥ 3,838
 - 12Mbps ¥ 3,538
 - 8Mbps ¥ 3,138
- eAccess + InterQ
 - 40Mbps ¥ 3,880
 - 8 Mbps ¥ 3,680



£ 1 = ¥ 202

INTUG ADSL market shares



INTUG FTTx

- fibre in incumbent backhaul network opened to competitors
- Fibre To The Home (FTTH)
- Fibre To The Building (FTTB)
- entry of TEPCO
Tokyo Electric Power Company
 - 100Mbps
 - FTTH ¥6,480 per month

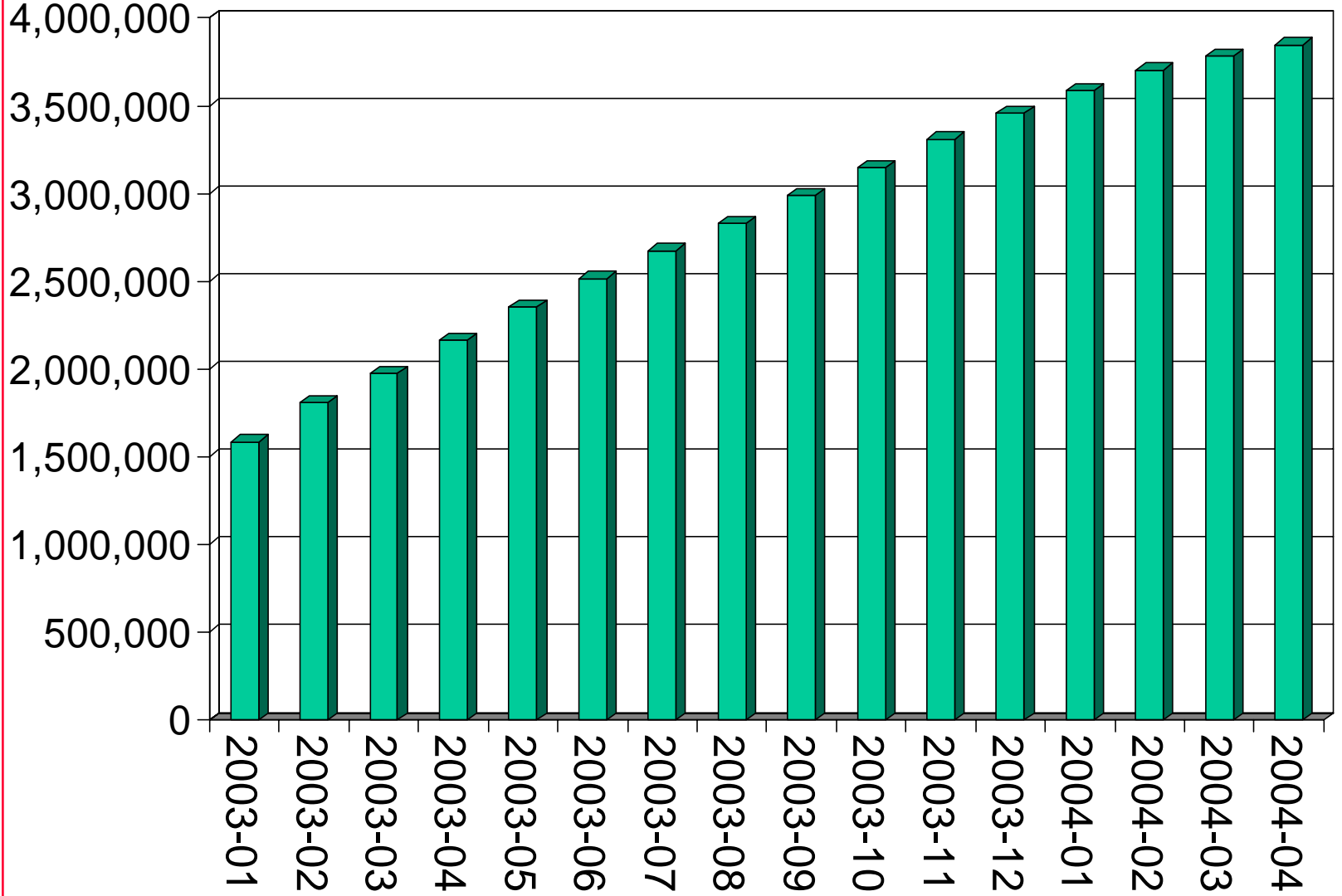
£ 1 = ¥ 202

INTUG Voice over IP

- Yahoo! BB launched in August 2002
- NTT launched in February 2003
- some operators peering August 2003
- free on-net calls offer benefits for large operators
- special 050 number range
- cheap gateways to PSTN

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Softbank BBphone (users)



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INTUG **japanese 3G**

- Games, Gambling and Girls
- needs to be fast, given ADSL speeds
- anti-spam measures
- flat rate prices for data
- KDDI
 - up to 2.4 Mbps downlink and 144kbps or more uplink (best efforts)
- NTT DoCoMo Foma
- Vodafone KK?
 - launch due soon

elsewhere: Greed, Gullibility and Grief

INTUG japan - overview

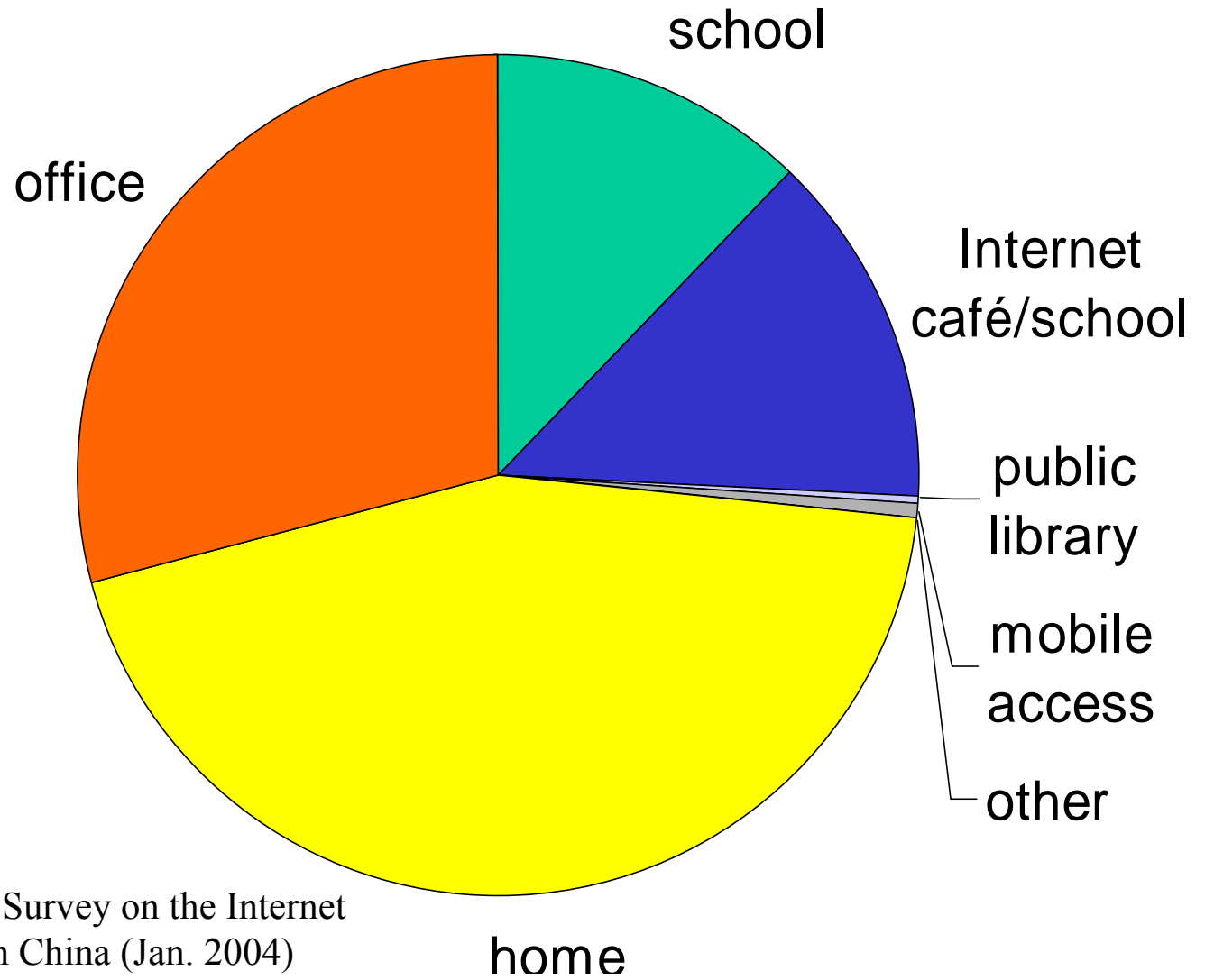
- chasing Korea very hard
- economies of scale:
 - network operators
 - manufacturers
 - modems
 - broadband appliances
 - application and service providers
- finding out what innovative customers and service providers are doing
- creating an economic cluster

INTUG china

- very rapid growth
- huge economies of scale
- cheap domestically manufactured equipment
- using many different technologies
- multi-storey apartment blocks easily connected
- huge regional disparities

INTUG china - place of access

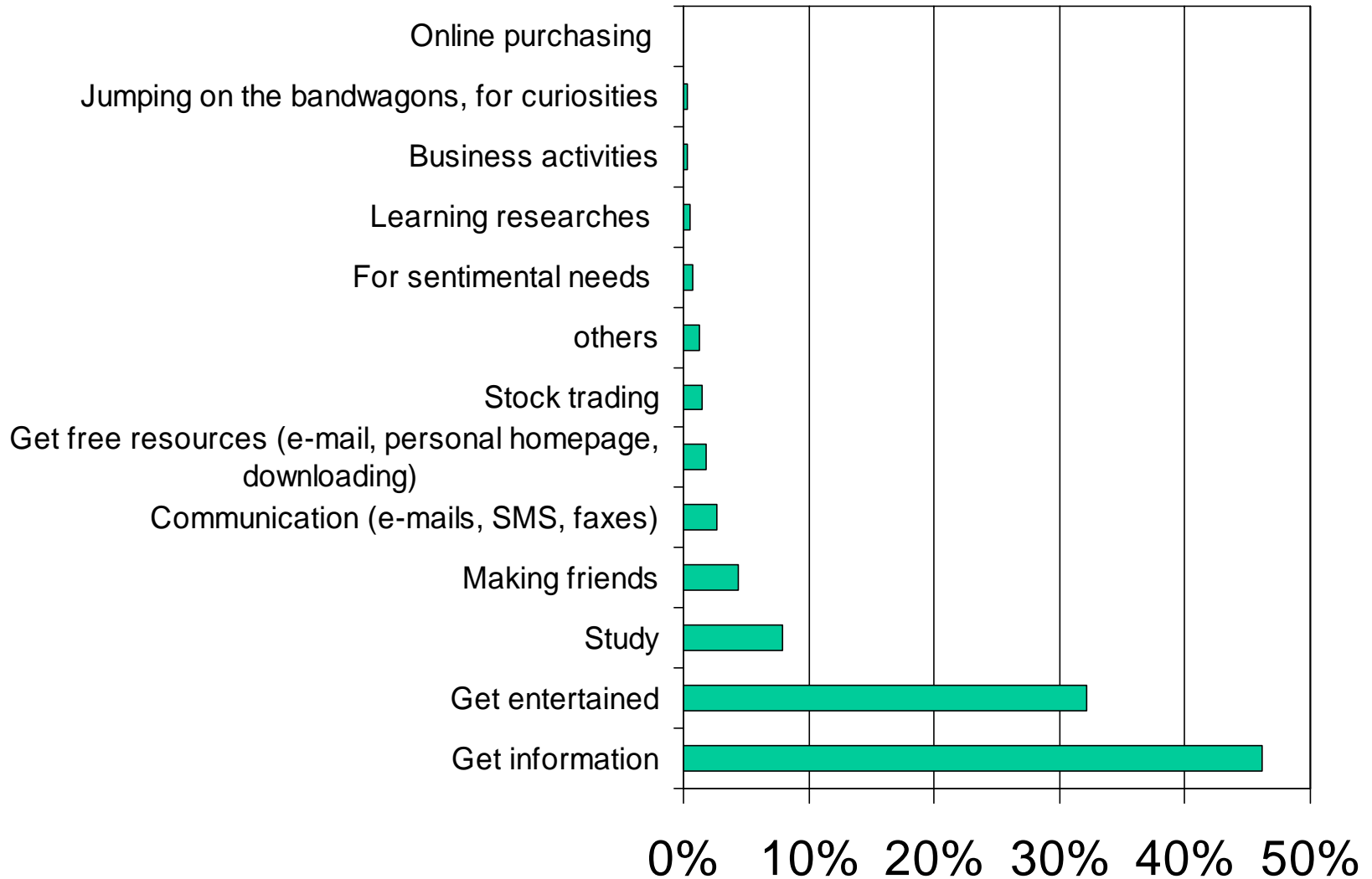
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13th Statistical Survey on the Internet
Development in China (Jan. 2004)

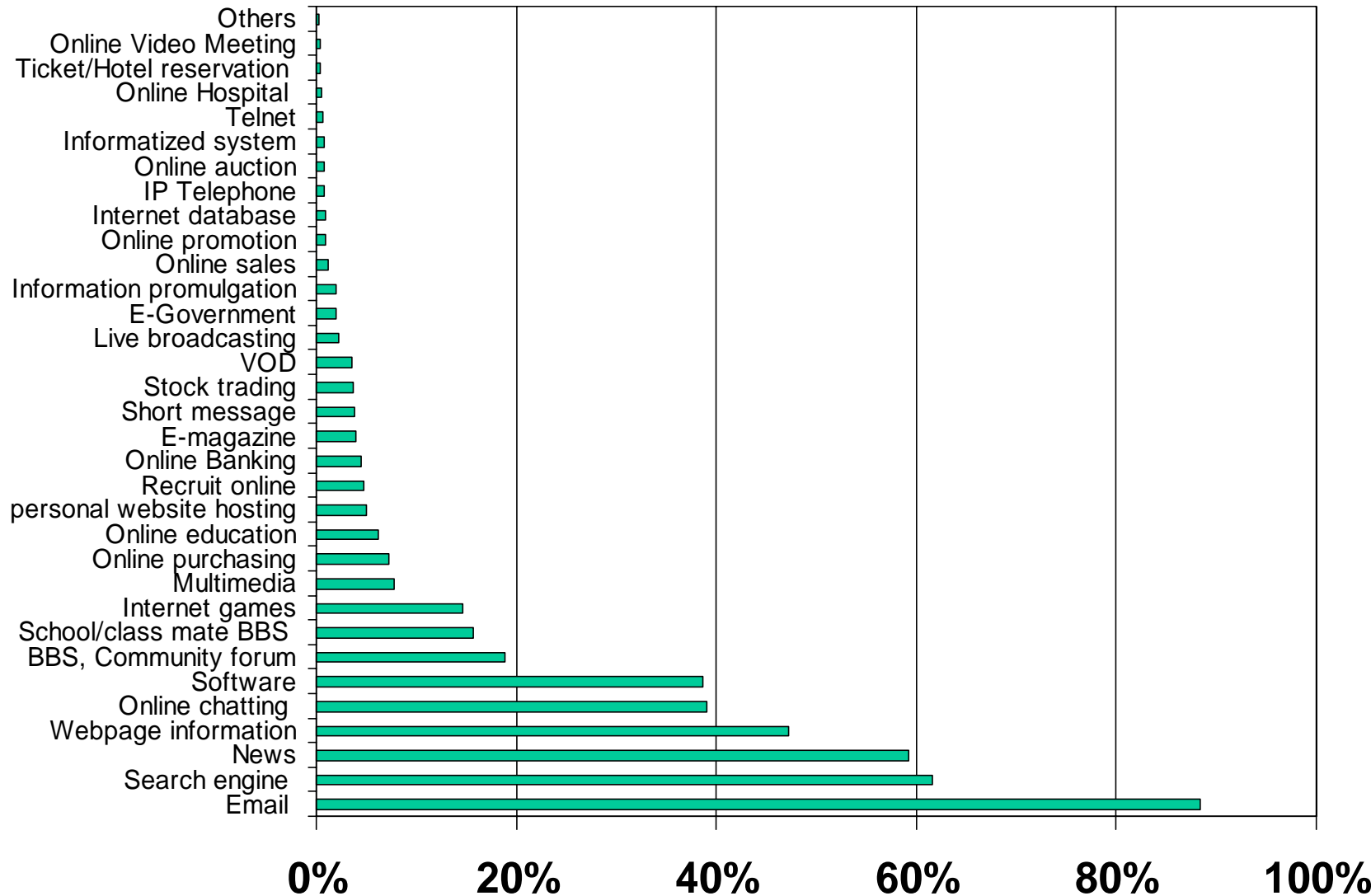
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primary goal in accessing the Internet

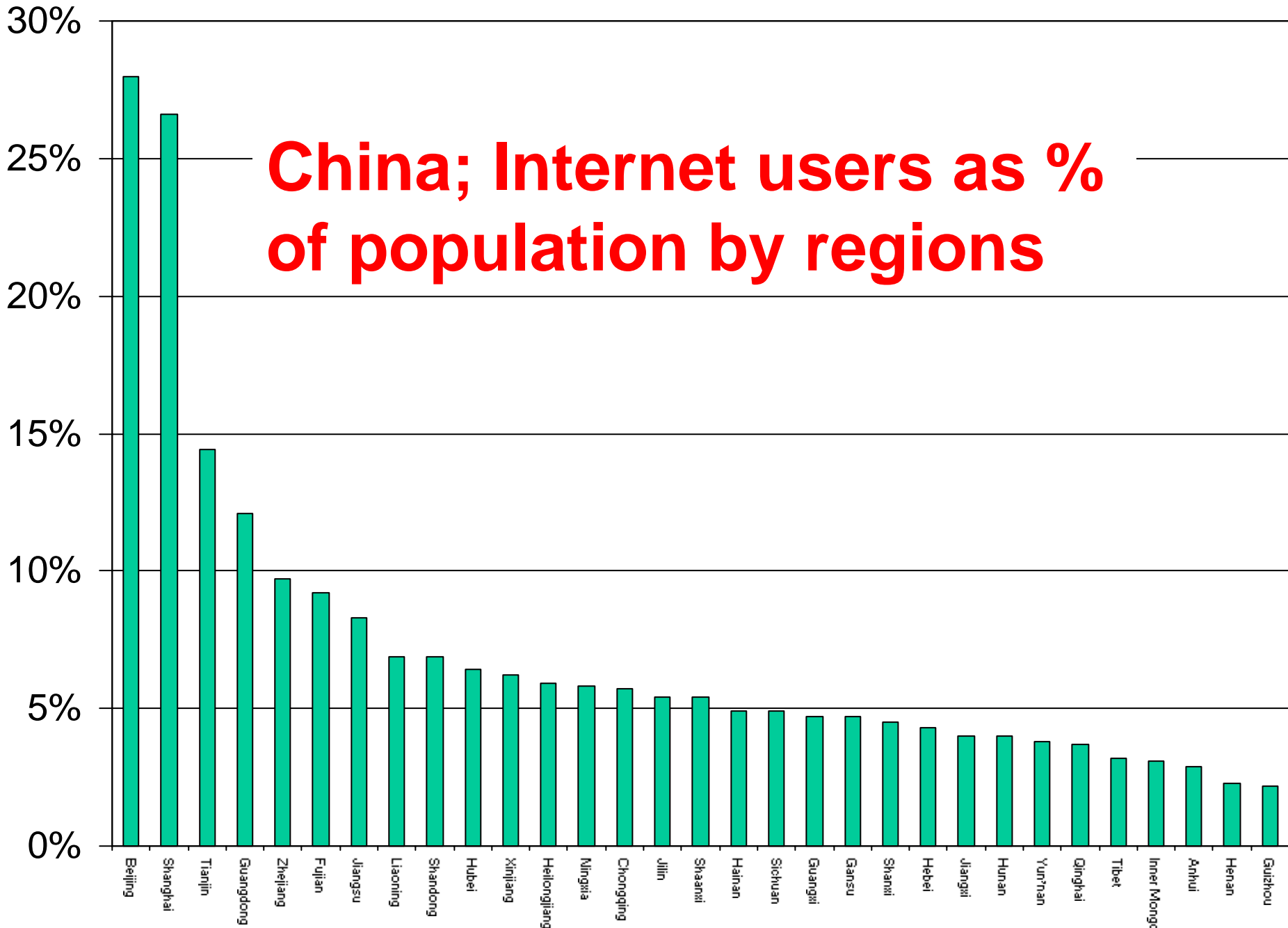


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most frequently used services (multiple choice)



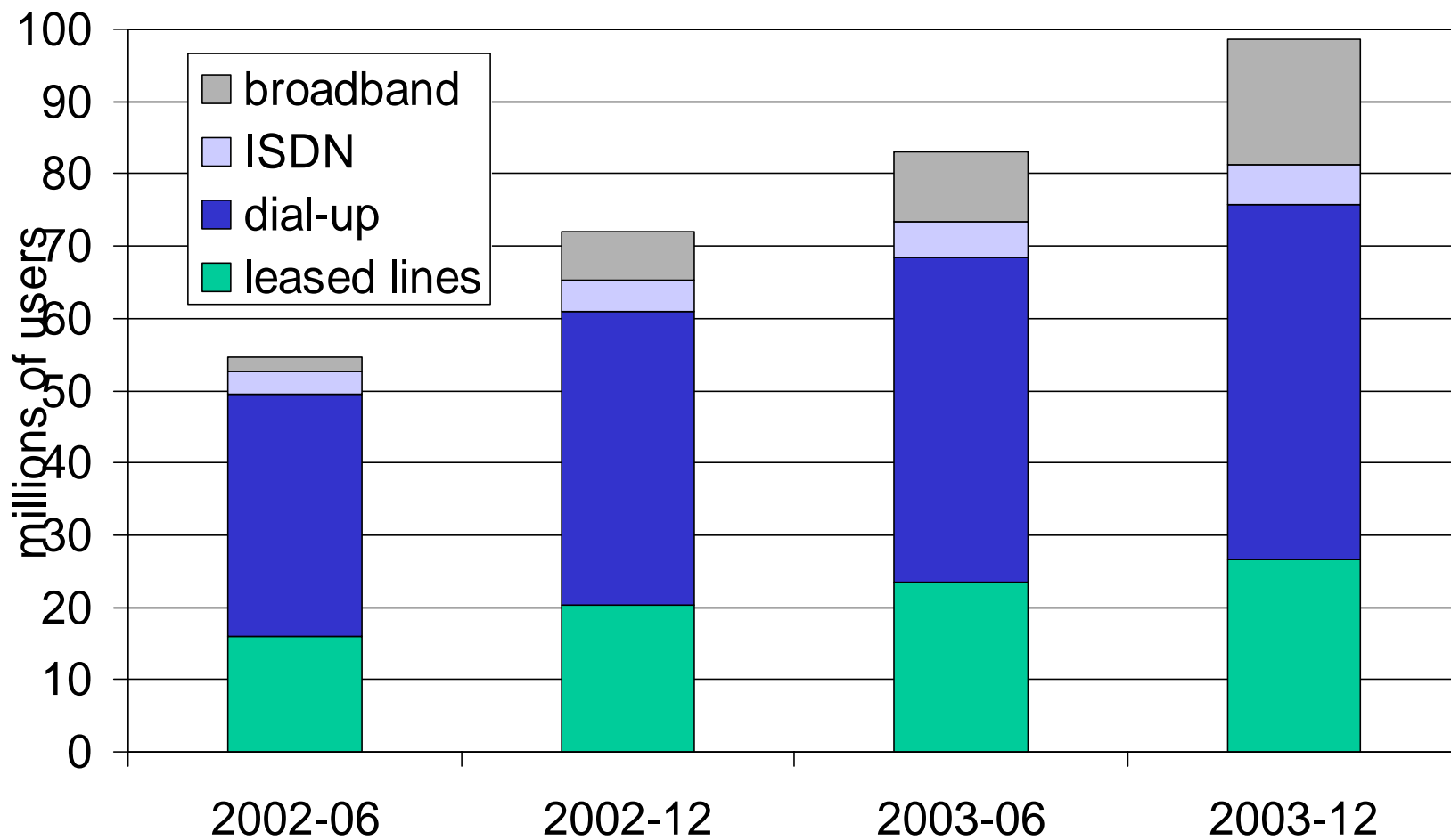
China; Internet users as % of population by regions



13th Statistical Survey on the Internet Development in China (Jan. 2004)

INTUG china – users' access methods

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10th to 13th Statistical Survey on the Internet Development in China (Jan. 2004)

INTUG china broadband

- 11 million ADSL lines at end of 2003:
 - 7.4M China Telecom Group
 - 3.5M China Netcom
 - 0.3M China Railcom
- will add:
 - 11 million in 2004
 - 15-20 million in 2005
- cable modems (1M?)
- BWA on 3.5GHz (1M “lines”?)
- still adding a lot of dial-up users

Should overtake EU in number of lines during 2004/5

INTUG singapore

- early push on core infrastructure
- Singtel ADSL:
 - 256k SG\$ 57.75 or 512k for SG\$ 78.75
- Starhub cable modem:
 - 1.5M for \$58.80 or 3M for \$79.80
- government as Temasek Holdings controls:
 - SingTel
 - ST Telemedia which owns 50% of Starhub
 - SMRT (railway company)
 - a number of electricity and gas companies
- cannot get competition

SG\$ 3 = £1

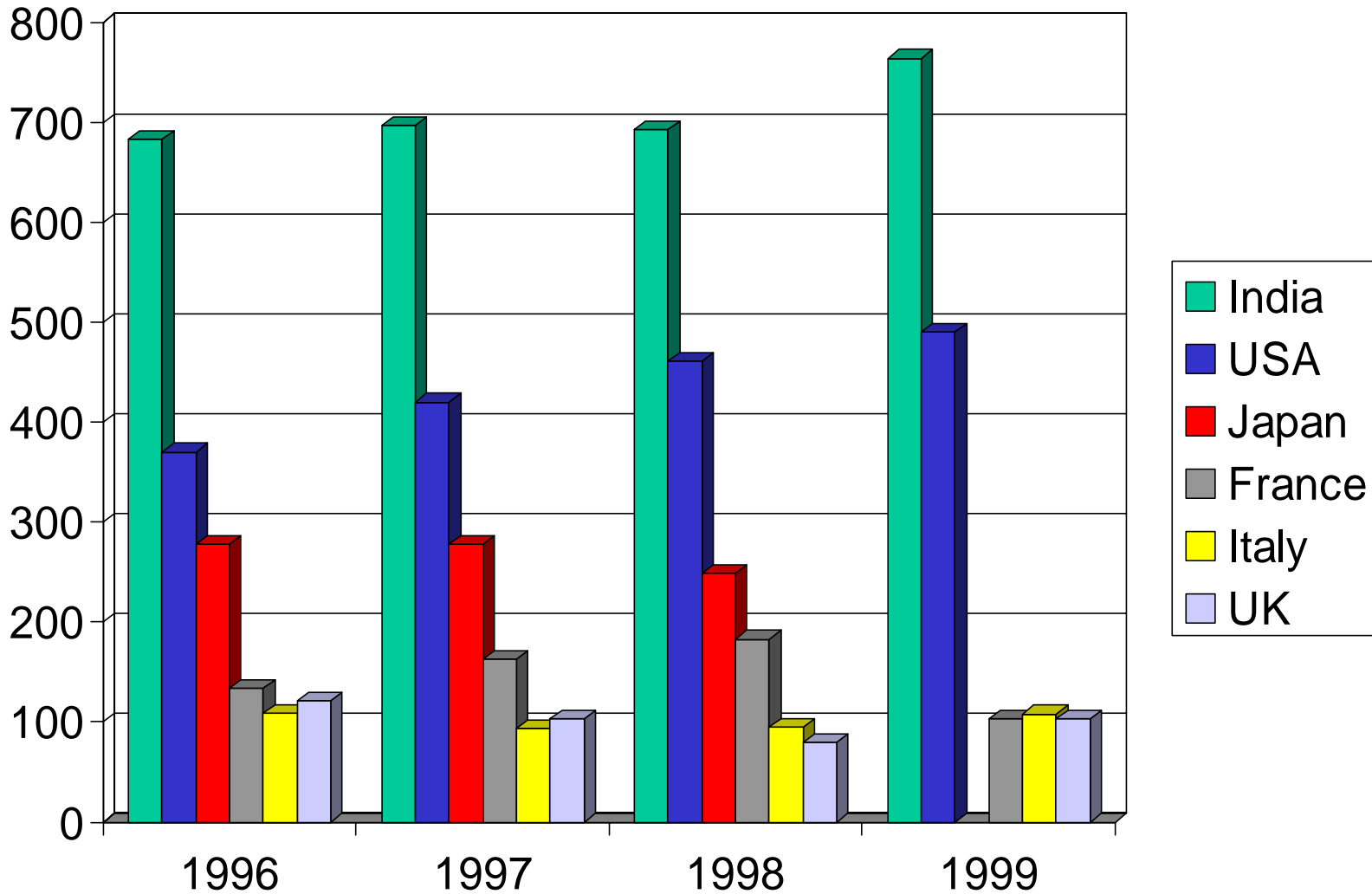
INTUG india

- rivalry with China
- competition worked with GSM (adding about 1.5M per month)
- likely to be repeated in broadband
- aiming at an initial 10 million lines
- ISPs authorised to build own last mile
- likely to be second largest English language broadband market by 2005

INTUG indian prospects

- new TRAI policy
- fixed incumbent and mobile operators
- cable operators
- ISPs
- national backhaul:
 - incumbent operators
 - IPStar (satellite)
 - Tata Power (carriers' carrier)
- international cable capacity
 - FLAG, i2i and SEA-ME-WE 4
- truly massive content industry

INTUG movie titles produced



Source: UNESCO.

INTUG drivers

Low subscription prices

High residential PC ownership

Cheap and free telephony

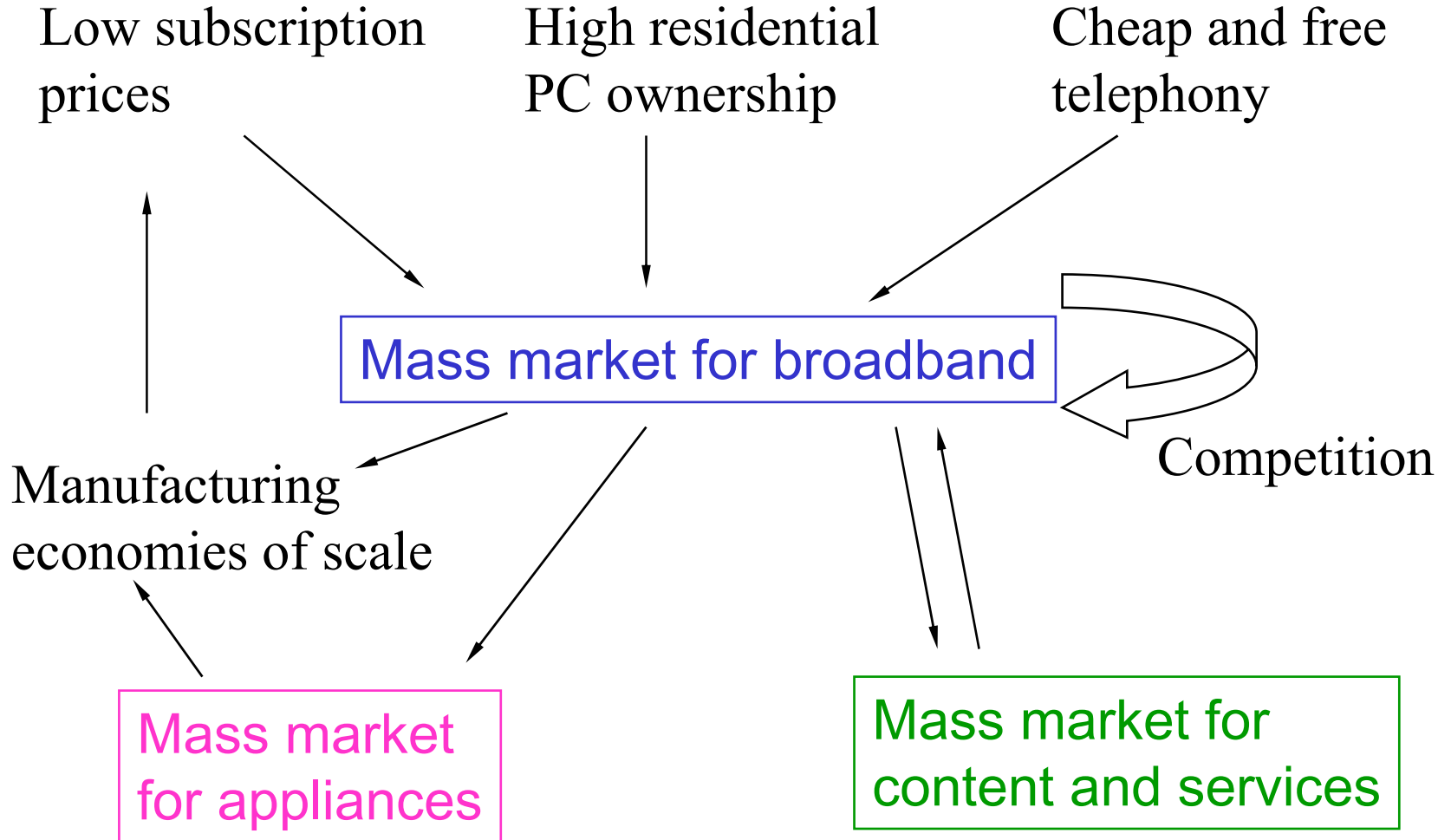
Mass market for broadband

Manufacturing economies of scale

Competition

Mass market for appliances

Mass market for content and services



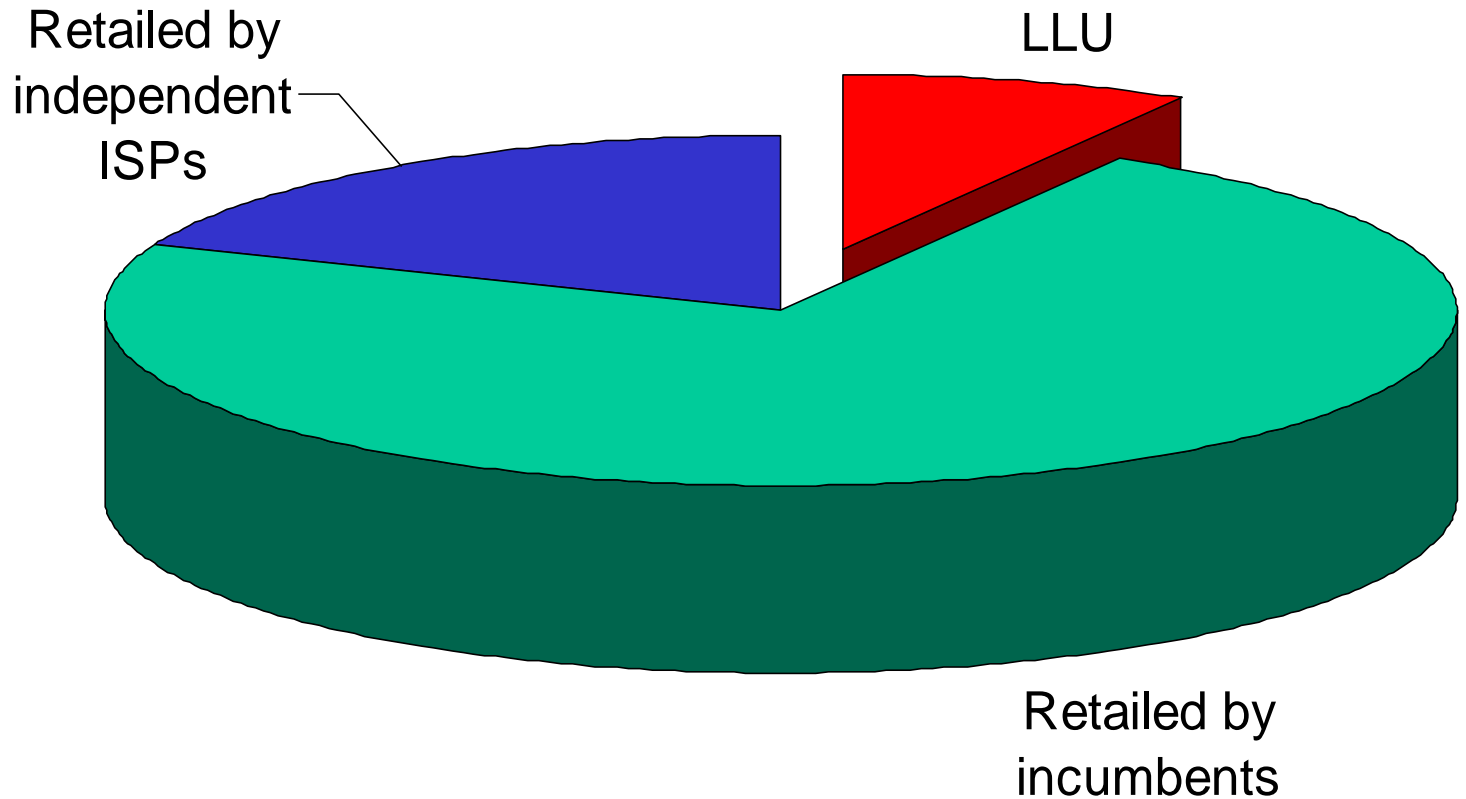
INTUG NE Asia *versus* Europe

- very high bandwidth
- access
 - to all content
 - from all networks
- massive scale for
 - operators
 - manufacturers
 - service providers
- competitive market structure
- mostly “bonsai” broadband: < 1Mbps
- protecting leased line revenues
- incumbents deny/delay/degrade LLU for rivals
- incumbents bundle to block/stifle rivals
 - VoIP to protect telephony market share
 - content to control path to VDSL

INTUG european union

- goal is to be the most dynamic knowledge-based economy
- local loops unbundled in January 2002
- results mediated by performance of
 - (weak) national regulatory authorities
 - (strong) incumbent operators
- absence of cross-border market entry
- new regulatory framework very slowly being put into place

INTUG EU-15 ADSL

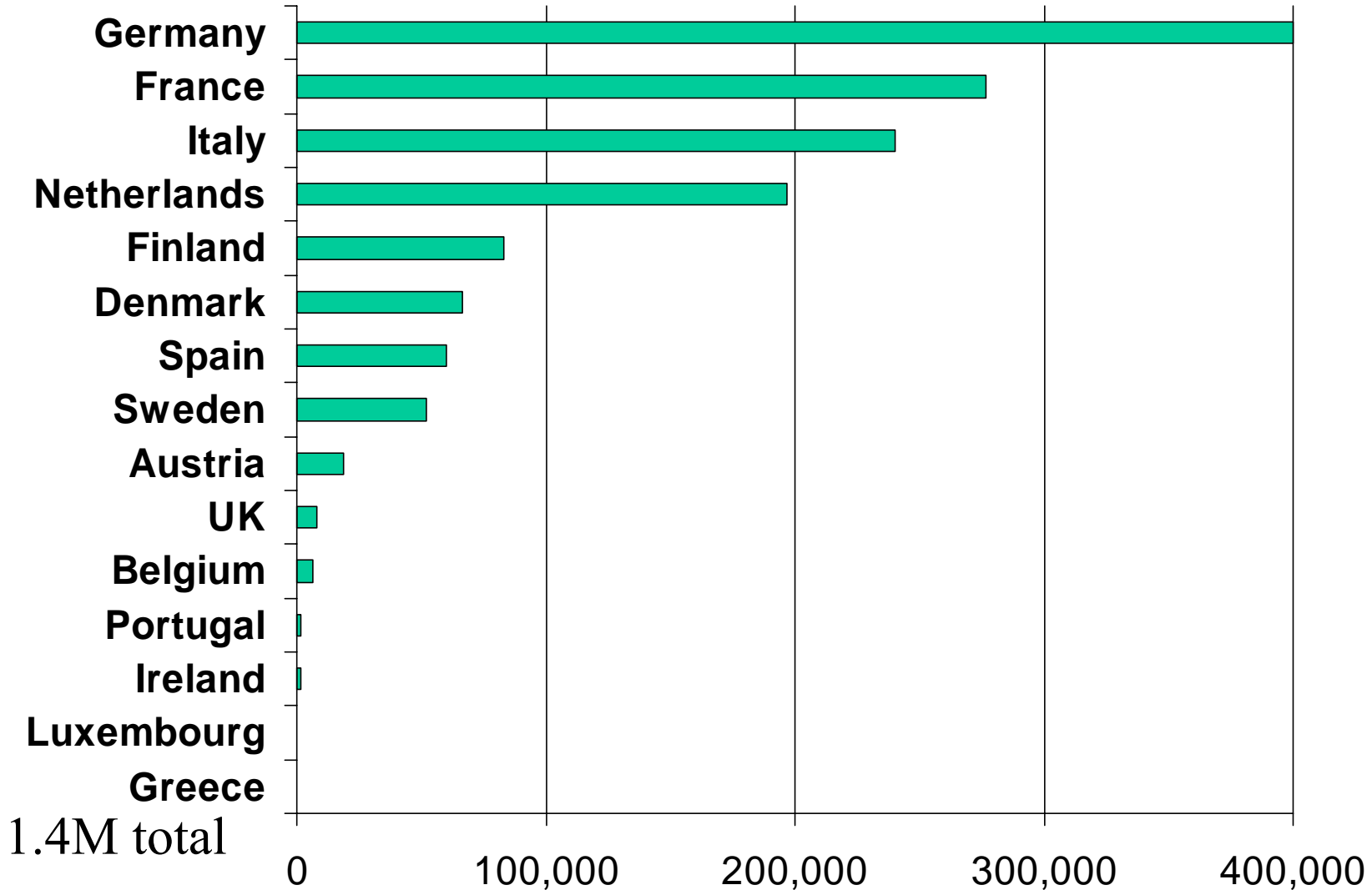


Source: ECTA.

INTUG unbundled lines in EU15

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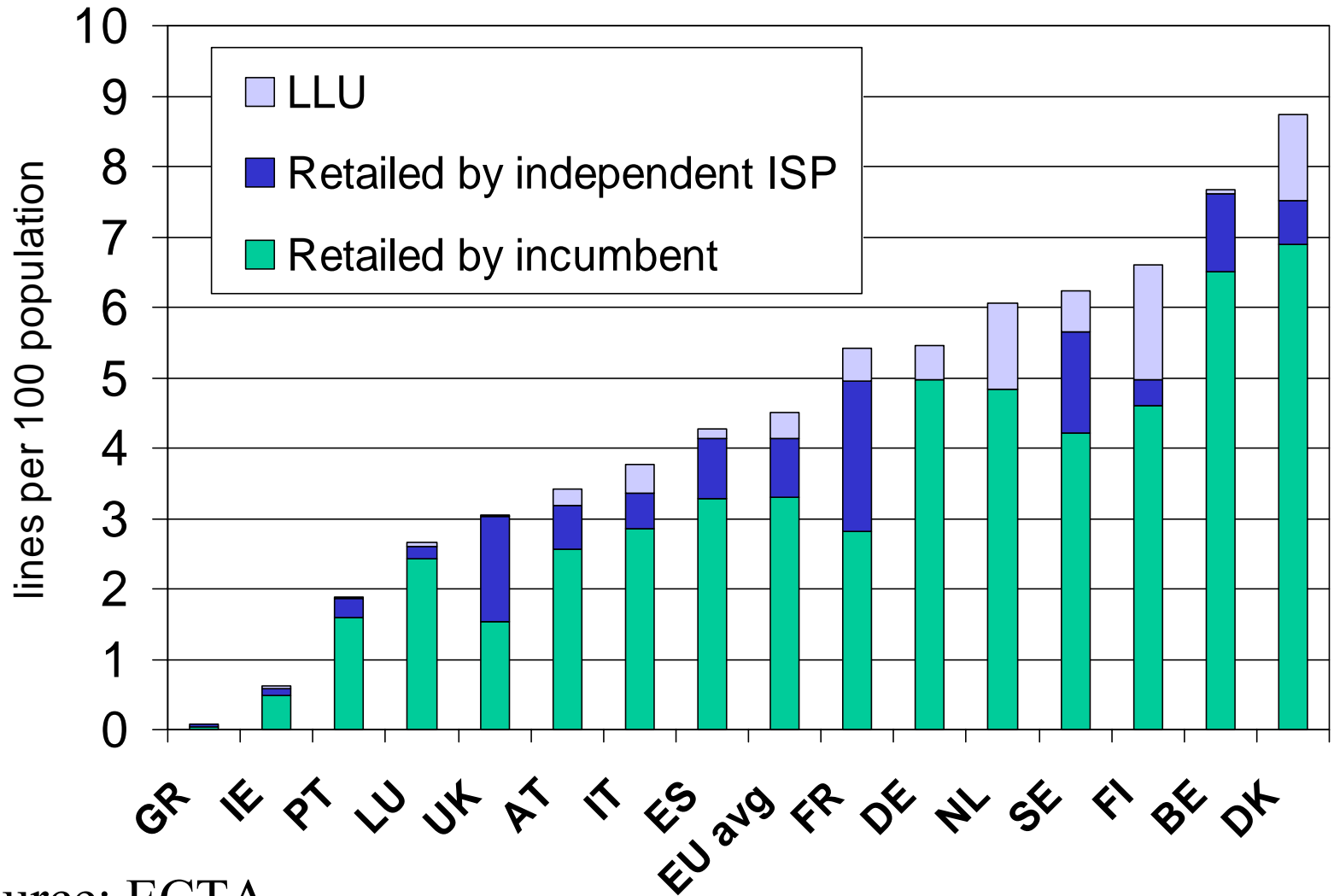
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INTUG EU-15 ADSL by country

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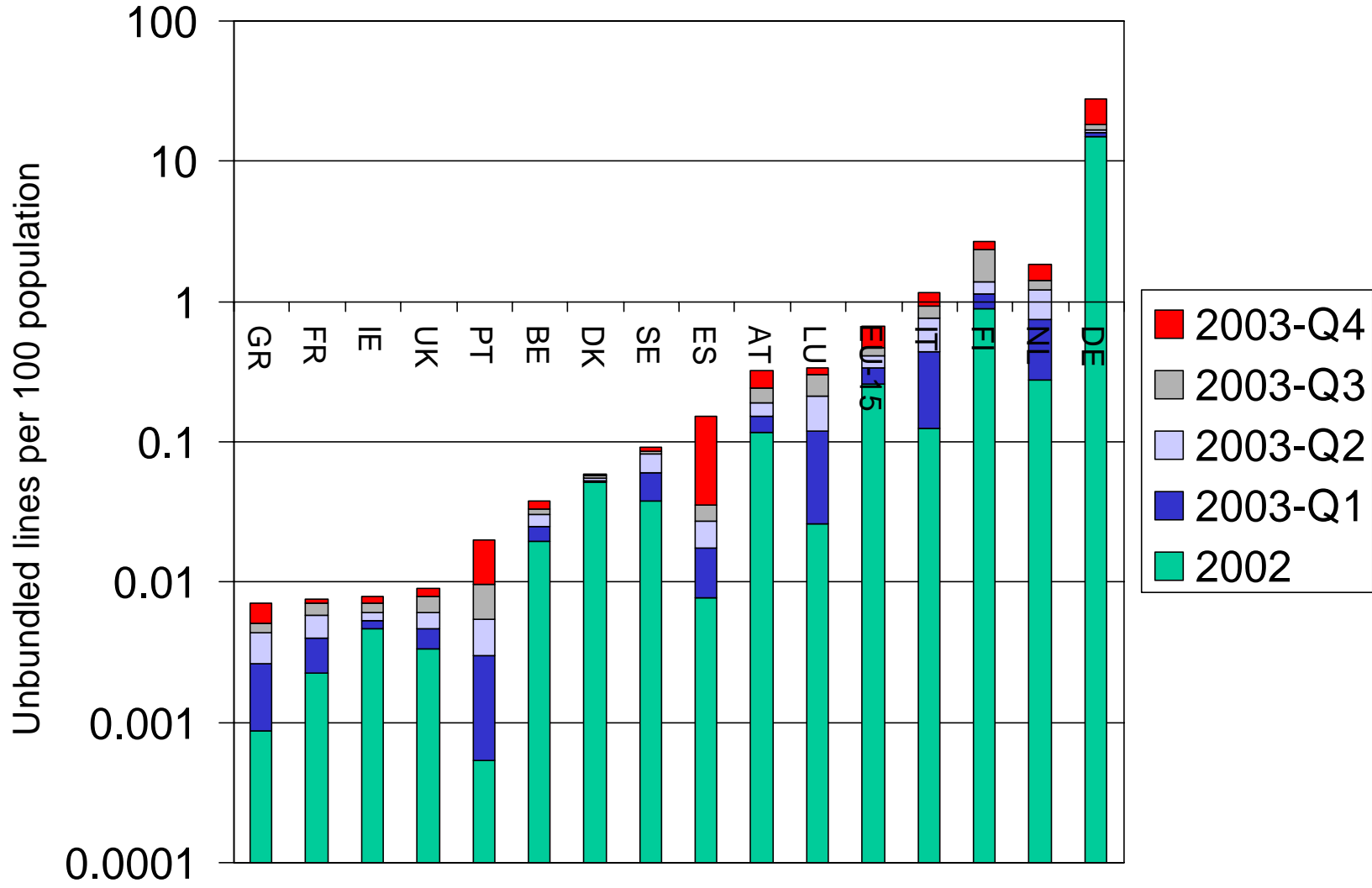
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Source: ECTA

INTUG growth of LLU in EU-15

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INTUG european union

- no trace or hope of a single market
- some countries slow-starters or no-shows
- few countries have robust competition
- deeply divided national markets and regulation
- minimal cross-border market entry
- mostly “bonsai” broadband
 - 256k or 512k offers
 - EUR 15 to EUR 25 per month
- steep price gradient to higher speeds
- price competition rather than line speed competition

INTUG the good boys

- Belgium
 - 3Mbits/s ADSL and 4Mbits/s cable modems
- Denmark
 - lots of “bonsai” broadband 256kbits/s
 - some interesting municipal initiatives
- Sweden
 - Bostream 26Mbits/s ADSL
 - Bredbandsverket 10 and 100Mbits/s
 - now TeliaSonera is speeding up
- Italy
 - Fastweb FTTB in some major cities

INTUG rural and remote

- very little patience
- yet no clear target!
(technology, speed, market structure, etc)
- no business model yet
- wild enthusiasm for money from:
 - HM Treasury (after 20 years of liberalisation)
 - European Union structural funds
- OECD report says let markets work
- evidence of success of Wireless ISPs

INTUG IP telephony

- not one technology or one service
- already heavily deployed
- users benefit through reduced prices only if there is competition
- an obvious incumbent response is to bundle in order to conceal rates:
 - all you can eat
 - DSL plus “telephony” (plus video)
 - but not fixed-to-mobile
- free on-net calls combined with Metcalf’s law favours big operators

INTUG **Analysys report**

- helps the evasion of public service obligations
- emergency services
 - unhelpful proposal for a standard for 112 access for business premises (c.f. Article 137 of EC Treaty)
 - unacceptable assumption of reduced access (c.f. positive efforts of NENA)
- assigning geographic numbers would
 - mis-present sub-standard services
 - reflect distorted tariffs of MNOs
- such numbers would not be portable

INTUG IPtel and wireless

- makes F2M look yet more expensive
- voice over Wi-Fi already works:
 - early adopters
 - special handsets
 - softphones
 - corporate campuses
- eventually a way to overcome international mobile roaming charges

INTUG wireless content

- GPRS/EDGE are grossly over-priced
 - roaming is £10 per Megabyte
- alternatives in:
 - DAB and DVB
 - WiMAX (overhyped?)
 - Broadband Convergence Network

David Beckham:
the ads say he uses MMS, but not the tabloids.

INTUG towards 100Mbits/s

- it will not be one specific technology
- it will not be one network
- Korea is already pushing ahead with Video-DSL 20-50Mbits/s (2M lines)
- Japan has 1M FTTH lines 100Mbits/s and growing at ~70,000 per month
- some high capacity radio technologies are being deployed

INTUG Fibre To The Home

- cannot consider this alone
 - interacts with ADSL and radio
 - tricky questions of fibre in the PSTN
- will it be competitive?:
 - not in rural areas
 - not if incumbent operators can help it
- opening for utility companies
- how do you regulate access regime; “must carry” and “must have”?

INTUG conclusions

leadership around East

China Sea:

- Korea (11M)
- China (11M + 11M)
- Japan (14M + 5M)

economic clusters:

- hardware
- applications
- services
- research

drivers:

- growth
- low prices
- content
- VoIP
- broadband appliances
- network effects
- peer-to-peer

INTUG government roles

- national ICT strategy
- ensuring real competition
- raising PC home ownership
- supporting local and linguistic content
- keeping a steady course

INTUG looking ahead

- target is **not** ADSL
- but the stage after!
(and the one after that)
- certainly **not** 0.25 to 2Mbit/s
- ubiquitous networks
 - wireline and wireless
 - 50 to 100 Mbits/s (and more)
- revenue from content and services

INTUG thank you

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