Counting the Net:
Internet Access Indicators

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The views expressed are those of the author
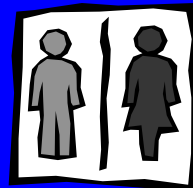*and may not represent those of the ITU or its Members*

Topics

- Reason
- Indicators – The 3 'P's

Physical   People   Policy

- Conclusions
- Sources & Samples

Reason

- Internet indicators essential for quantifying "The State of the Internet" & the "Digital Divide"

- A variety of statistics are used to measure Internet access

- Data often not *comparable*, poor *choice* of indicators, statistics not available for many *developing countries*

"…analysts largely ignore the developing world, and the paucity of information available about the developing countries' use of technology guarantees that they will remain on the global scrap heap."—NUA
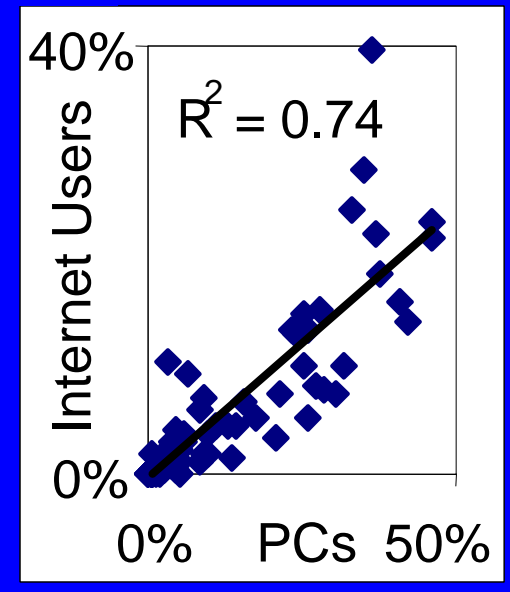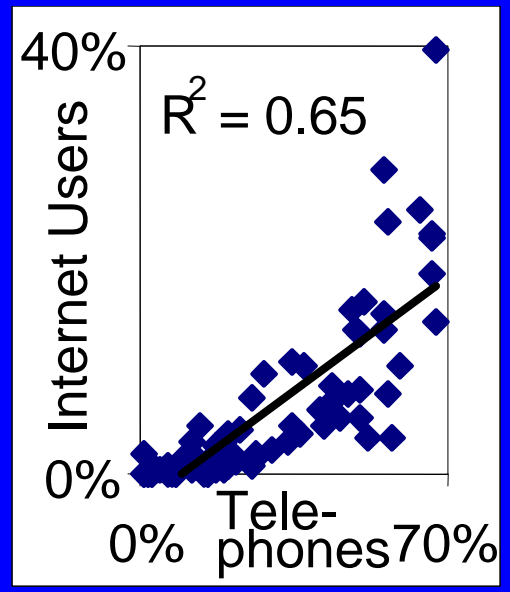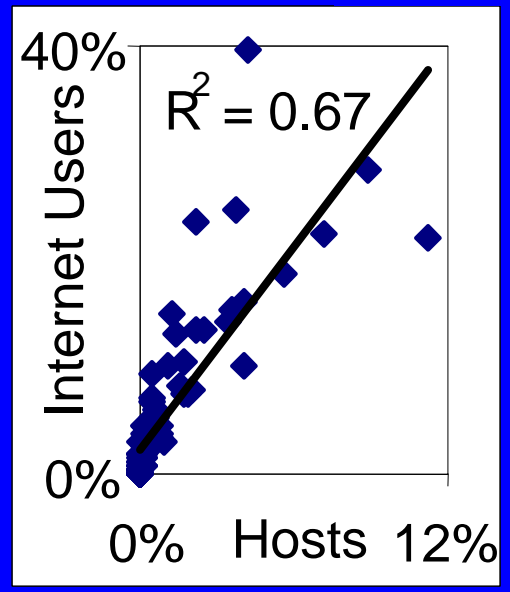
Physical indicators

- Need infrastructure for accessing the Internet
  - Host computers
  - Telephone lines
  - Personal computers

Percent of population, 1999

$R^2 = 0.67$

Internet Users — 0% to 40%
Hosts — 0% to 12%

$R^2 = 0.65$

Internet Users — 0% to 40%
Telephones — 0% to 70%

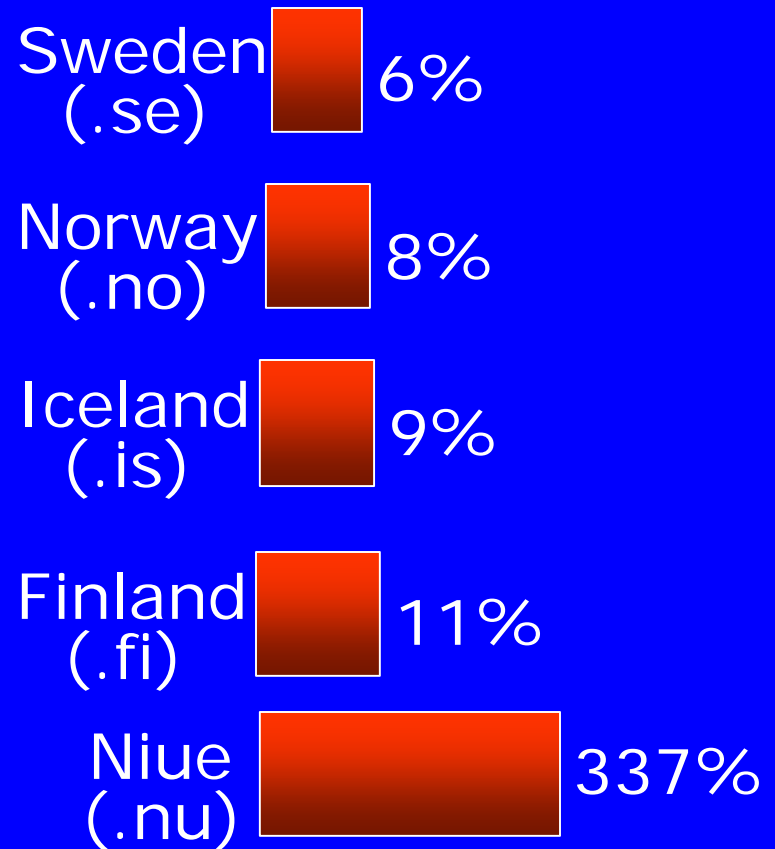$R^2 = 0.74$

Internet Users — 0% to 40%
PCs — 0% to 50%

Hosts

- Host computers most commonly (ab)used indicator of Internet penetration
- What are we trying to measure?
- Where is that dot.com?

**Internet domain names
Top 5 countries
As % of population, 7-99**

Sweden (.se) ▮ 6%

Norway (.no) ▮ 8%

Iceland (.is) ▮ 9%

Finland (.fi) ▮ 11%

Niue (.nu) ▬ 337%

Source: ITU adapted from www.isc.org

Telephones

- Dial-up still most common Internet access method

- Broadband Lines (ISDN, leased, DSL)

- Other connection indicators
  - Cable TV subscribers
  - Mobile phone subscribers

US Internet subscribers By access method, Q1'00

Dial-Up 93%

DSL 0.4%

TV 2%

Cable 5%
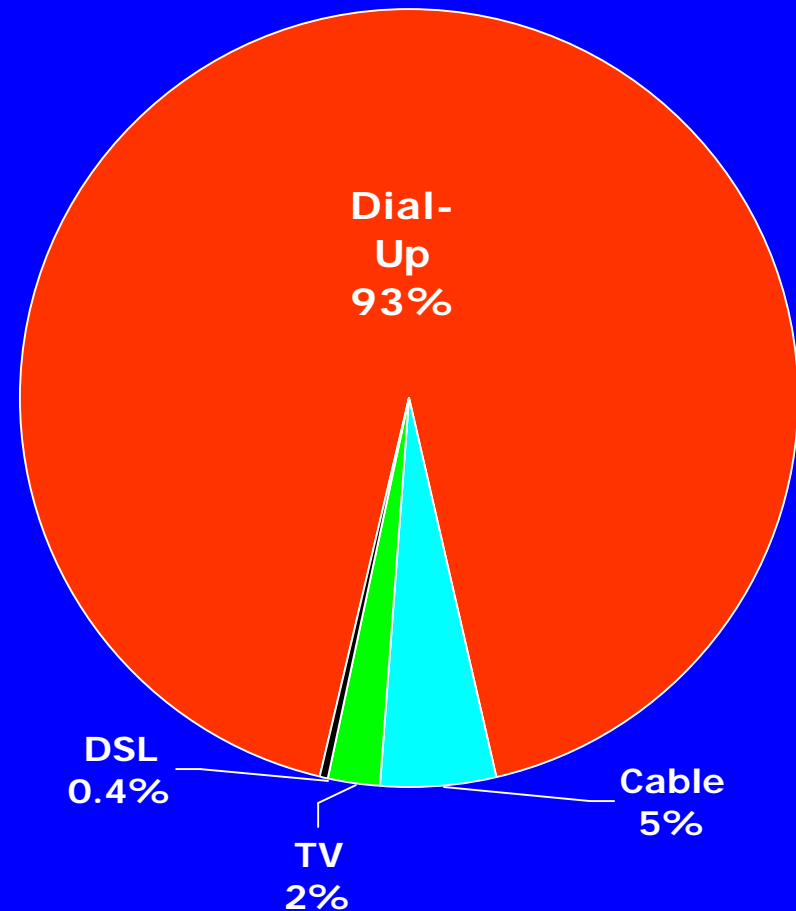
Source: TR's Online Census
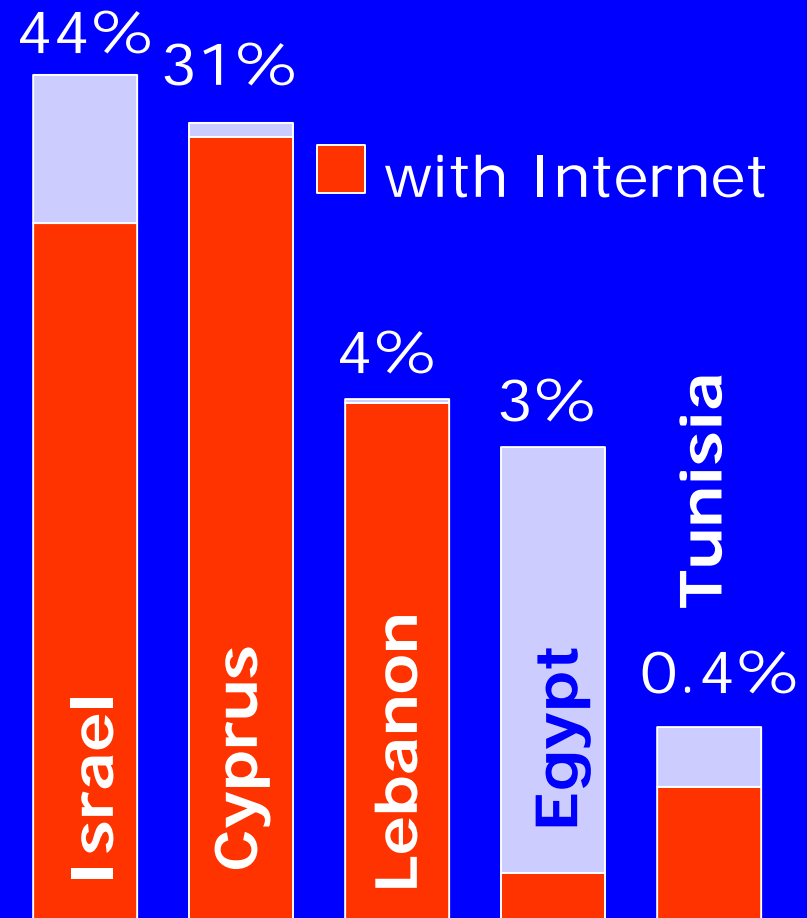www.cch.com

PCs

- PC most common method of accessing the Internet
- Breakdown between business and household useful
- Difficult to obtain for developing countries
- Often proprietary data

Homes with a PC, 1999, %

44% 31% ▢ with Internet

4% 3% 0.4%

Israel Cyprus Lebanon Egypt Tunisia
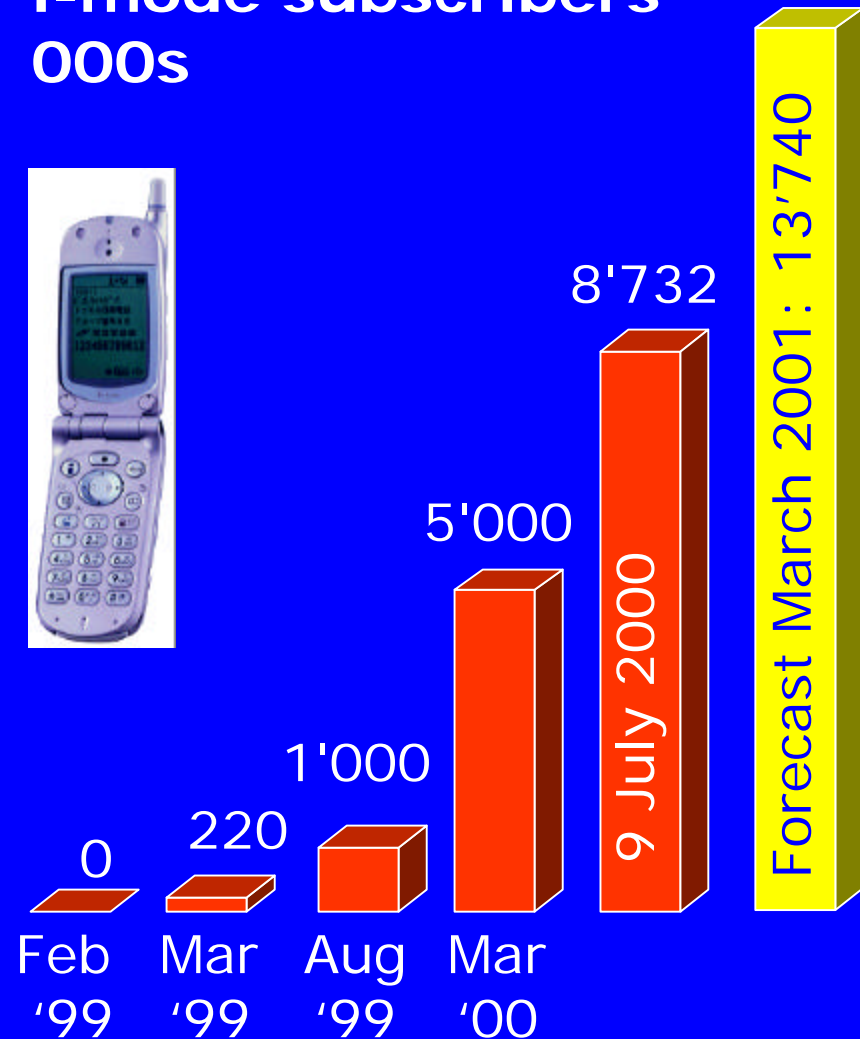
Source: ITU adapted from www.ispo.cec.be/esis

Cellphone meets the PC

Cellular evolution

- 1G: Analog
- 2G: Digital
  - SMS
- 2.5G:
  - WAP, GPRS
  - i-mode
- 3G:
  - IMT-2000, UMTS, W-CDMA
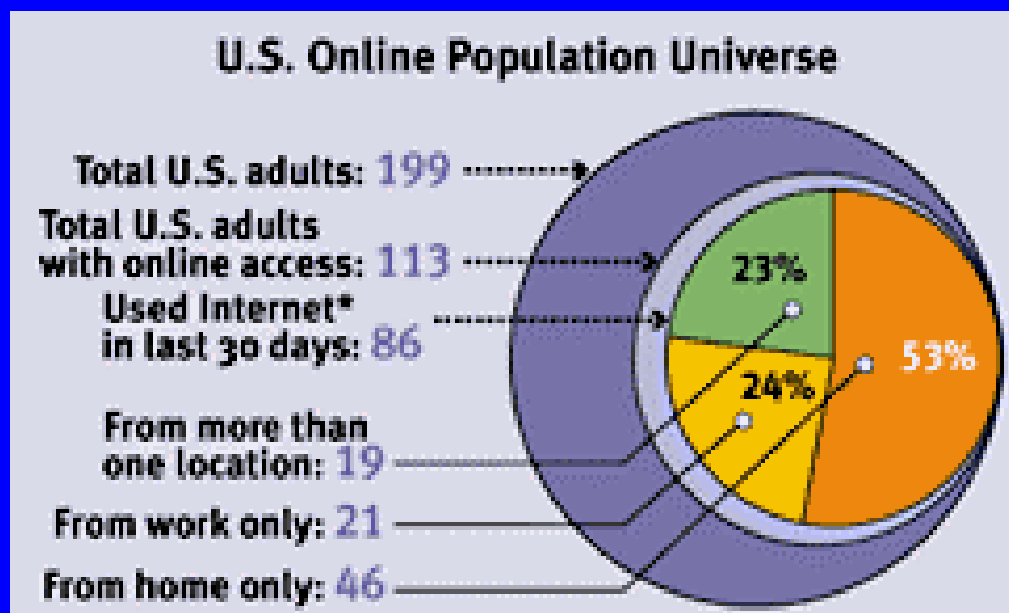- Handset as terminal or modem?

i-mode subscribers 000s

0 — Feb '99
220 — Mar '99
1'000 — Aug '99
5'000 — Mar '00
8'732 — 9 July 2000
13'740 — Forecast March 2001

Source: NTT DoCoMo.

People indicators

Population

Aware

Covered

Use

Subscribe

U.S. Online Population Universe

Total U.S. adults: 199

Total U.S. adults with online access: 113

Used Internet* in last 30 days: 86

From more than one location: 19

From work only: 21

From home only: 46

23%

53%

24%
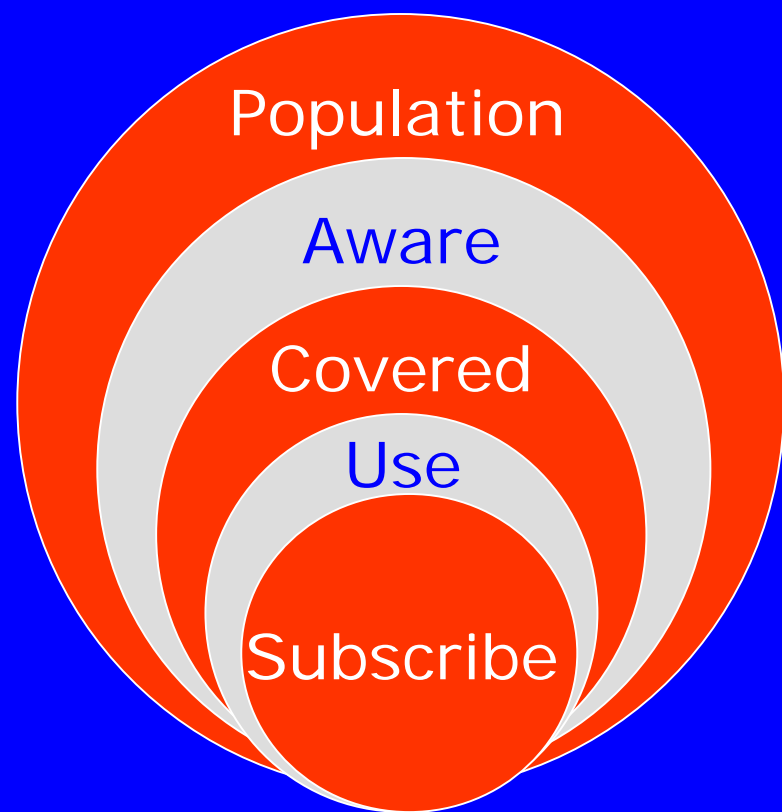
Source: www.thestandard.com

Awareness

- Awareness of Internet far from universal!
- Some people just do not want to use it

"Can't surf, won't surf -15 million say 'No' to Internet"—Which?Online
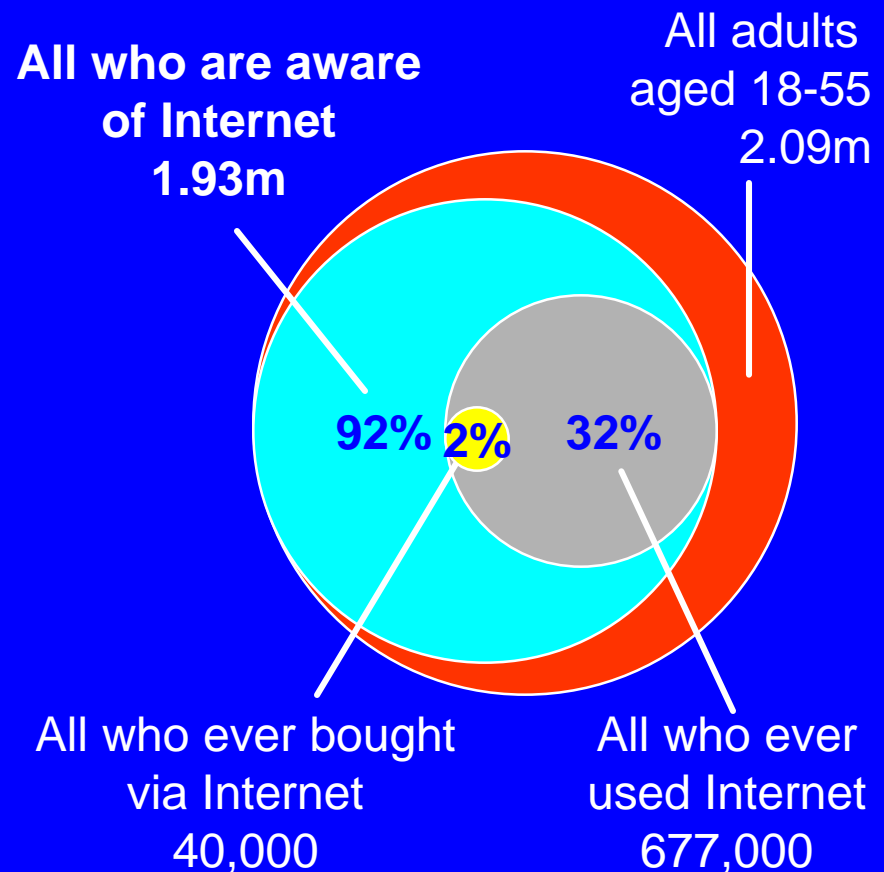
Singapore: Level of Internet Awareness

All who are aware of Internet 1.93m

All adults aged 18-55 2.09m

92% 2% 32%

All who ever bought via Internet 40,000

All who ever used Internet 677,000

Source: National Computer Board, 1998. http://www.ec.gov.sg/ECSurvey.html

Coverage

South African households

No access 18%

Have telephone 29%

Use another phone 11%

Use neigh-bours 6%

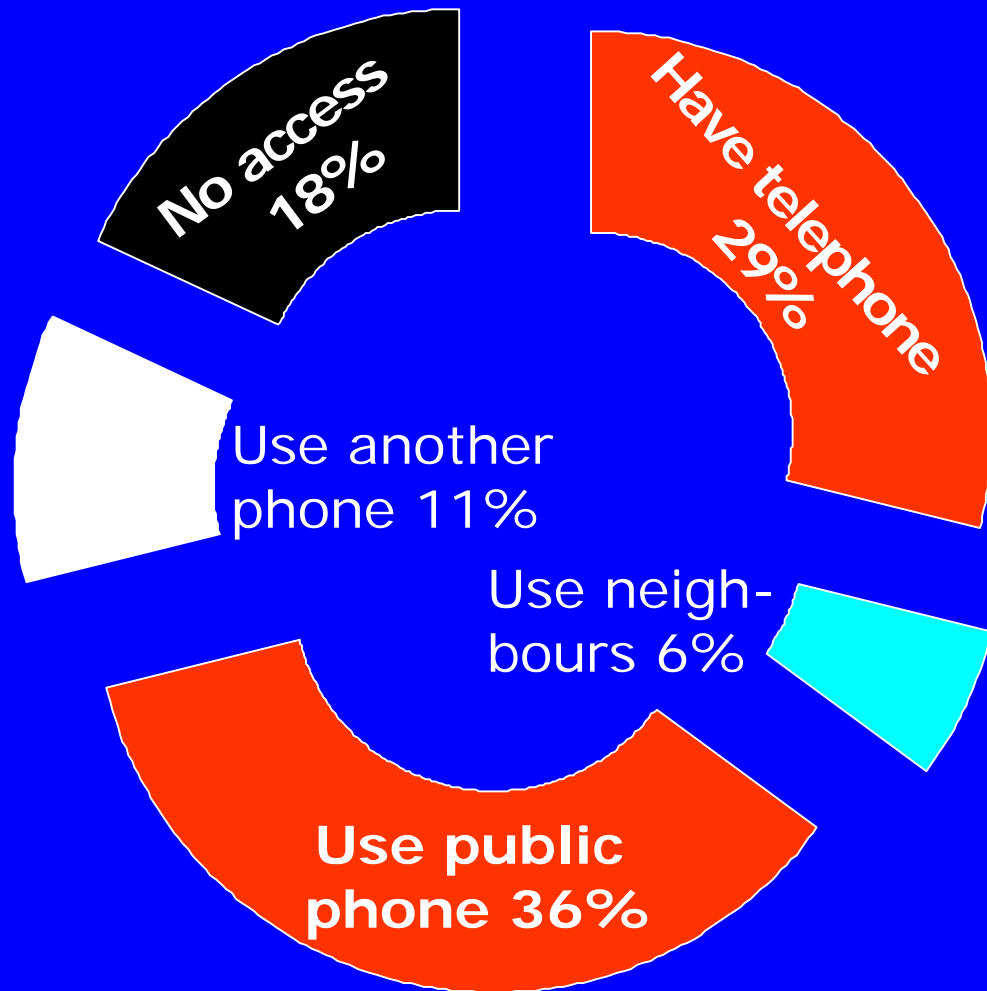Use public phone 36%

- To be covered by Internet (access) is not same as using it!
- Where is Internet used from?
- Households with a telephone example
- Towns with Internet
- Schools with Internet
- Cybercafes and other public access points
- Distance from Internet
- Time from Internet

Source: Statistics South Africa. 1997 Census in Brief.

Users

- Basic and comprehensible measure of Internet access
- No standard definition of
  - user population,
  - frequency or
  - type of usage
- Many collecting
  - NUA
  - Nielsen
  - Statistical offices

poor but improving coverage of developing countries

US Online Users Dec.99-May.00, millions
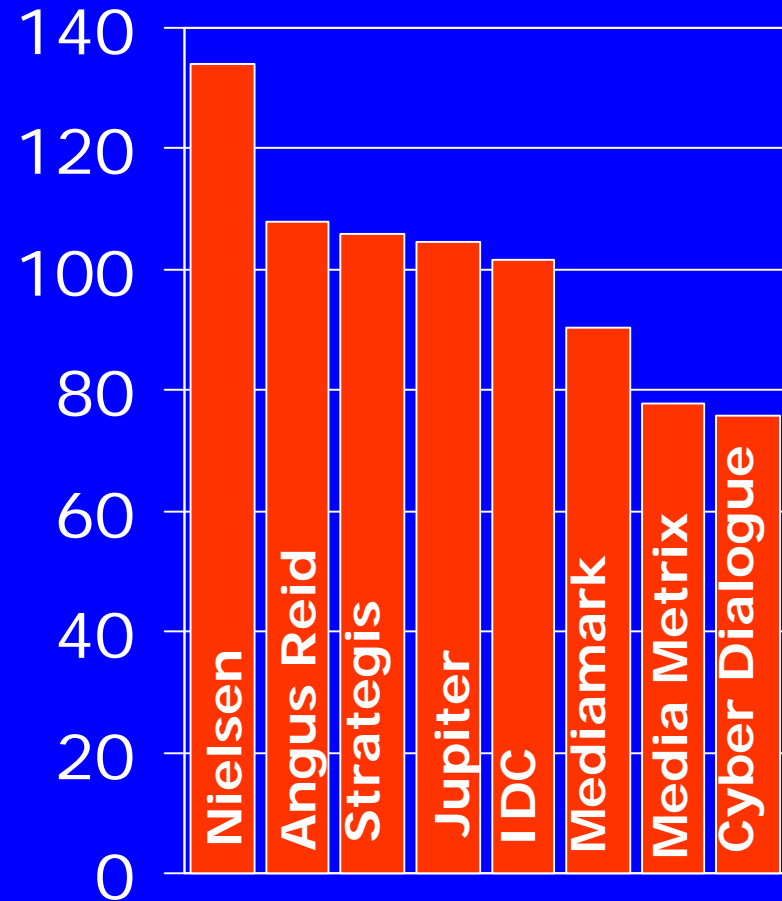
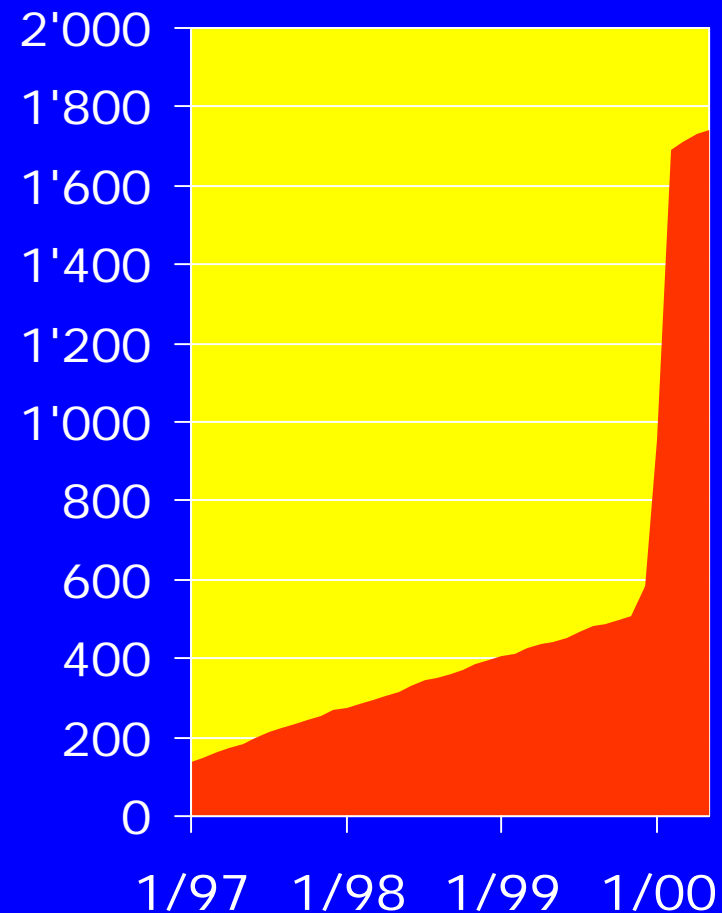*Source*: ITU adapted from www.thestandard.com

Subscribers

- Most measurable access indicator
- Available from ISP associations, government sources, ISPs
- Paid versus free access
- Not always close relationship between subscribers and users
- Dis-aggregate

Dial-up Internet subscribers Singapore, 000s

Source: IDA.

Policy indicators

- Statistics that have an impact on the development of the Internet
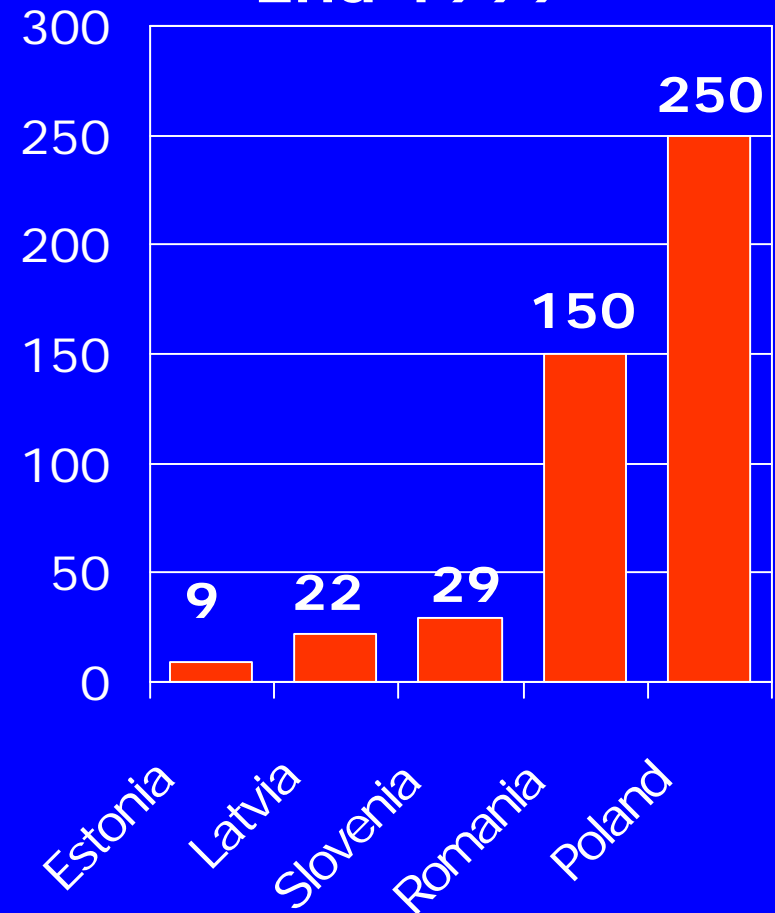 - ISP market
  - Pricing
  - Usage

ISP market

- Qualitative rather than quantitative is more relevant
- Competition?
- Operational versus licensed?
- Price of license?
- Allowed own infrastructure?
- Peering?

Number of ISPs in CEE End 1999

| Country	Number
Estonia	9
Latvia	22
Slovenia	29
Romania	150
Poland	250

Source: ESIS.

Pricing

- Affordability major barrier to Internet use

- Internet tariff comparisons complex

- ISP charge

- Telephone usage

- Different access (telephone, ISDN, DSL, cable modem, satellite, leased line)

Internet Access Prices US$, 30 hours, 2000

UK

Ireland

N. Zealand

USA

■ Telephone fixed
■ Telephone usage
■ ISP

0   50   100
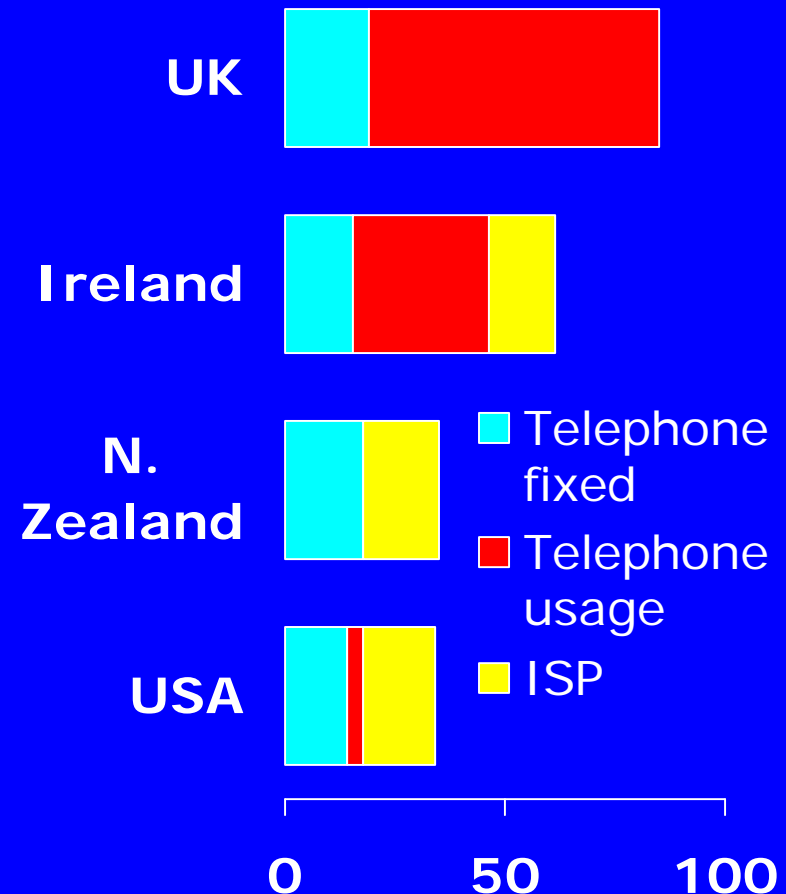
Source: OECD.

Usage

- From a policy perspective, useful to know how long users are spending on the Internet

- Low usage might reflect affordability or lack of sophistication

- Methodology

"Having to pay for local phone charges discourages heavy usage"—Nielsen

Hours spent surfing March 2000

Ireland **4:23**

UK **5:17**

Singapore **6:18**

N.Zealand **7:57**

USA **9:42**

Source: Nielsen//NetRatings.

Conclusions

- Usage of standard set of indicators
- Governments need to coordinate of collection, compilation and dissemination of Internet indicators
  - One-stop 'shopping'
- International assistance for developing countries

Putting it all together for Singapore

Category	Indicator	Value	Date	*
Infrastructure	Hosts	148'249	01/99	1
	Telephones	1.9 m	04/00	2
	PCs (home)	47%	12/98	3
Access	Population	3.2m	06/99	3
	Awareness	92%	1988	2
	Coverage	99%	School+Work+Home	6
	Users	0.4/1.7m	03/00	4
	Subscribers	1.7 m	04/00	2
Policy	ISPs	18	06/00	2
	Price 1 hour	US$0.50	07/00	5
	Usage	6:18	03/00	4

* 1/ ISC. 2/ IDA. 3/ SingStat. 4/ Nielsen. 5/ Starhub. 6/ ITU estimate.

One-stop shopping

- Ability to obtain all relevant data from one location

- International assistance

"...fund the extension of the European Survey on the Information Society to CEECs and, in particular, to identify and analyse regional disparities in terms of basic telecommunications services, information infrastructures and applications." —EU

Internet penetration Central & Eastern Europe 1999
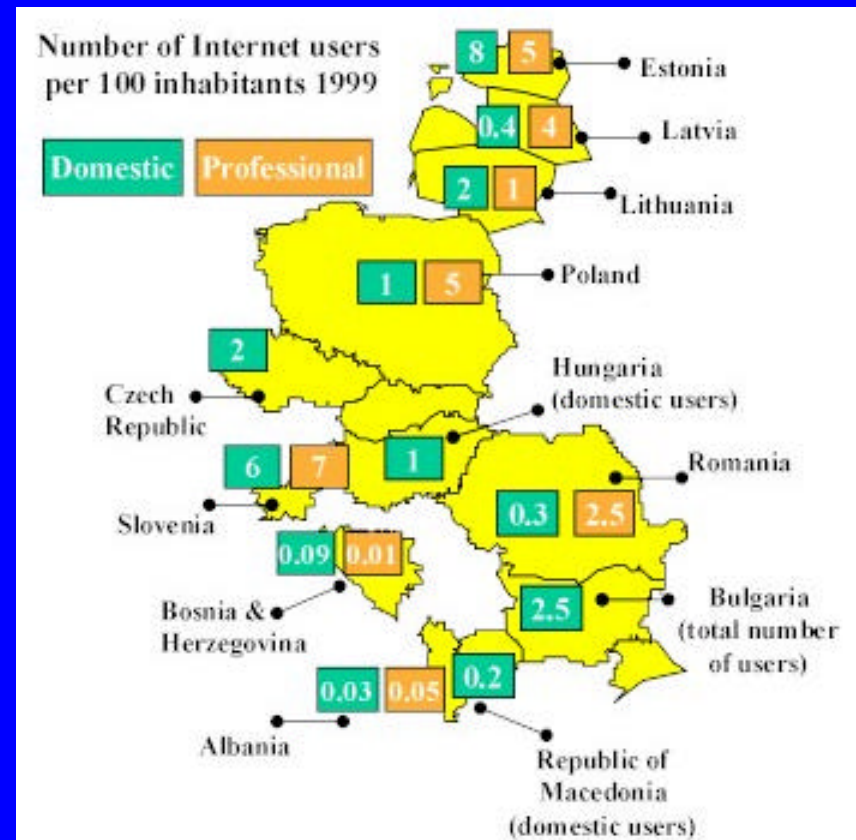
Source:
www.ispo.cec.be/esis/default.htm

Sources, Samples & Ideas

- Advertising
- Public access
- 'Soft' indicators
- Analytical
- Quality of service
- Profiles
- e-commerce

A word from the advertiser

Ireland, April 2000

Internet Universe	All members (2+) of households which currently have access to the Internet	712,741
Active Internet Universe	All members of the universe who actually use the Internet during the period	319,121
Unique Sites Visited	A unique URL (e.g. www.acnielsen.com)	17
Page Views	The total number of times a web page has been fully loaded on the user's browser	358 (month)

Source: Nielsen//NetRatings.

Public access

Turkey	Total	# Online	% Online
Primary & secondary schools	62'000	190	0.3
High schools & universities	80	66	82.5
National ministries	18	15	83.3
Regional & local authorities	4'179	82	2.0
Hospitals & clinics	1'098	56	5.1
Museums	283	29	10.3
Libraries	811	48	5.9

Source: ESIS.

'Soft' indicators

| Indicator	Resources
Government	www.freedomhouse.org www.gksoft.com/govt
Income	UNDP Human Development Report www.undp.org/hdro
Literacy	
Education	
Language -Users -Content	www.glreach.com/glob stats/index.php3 www.sil.org/ethnologue www.isoc.org:8080/pal mares.en.html

"...45 countries now restrict Internet access..."
—Freedom House

Analysis

## State of the Internet in Uganda
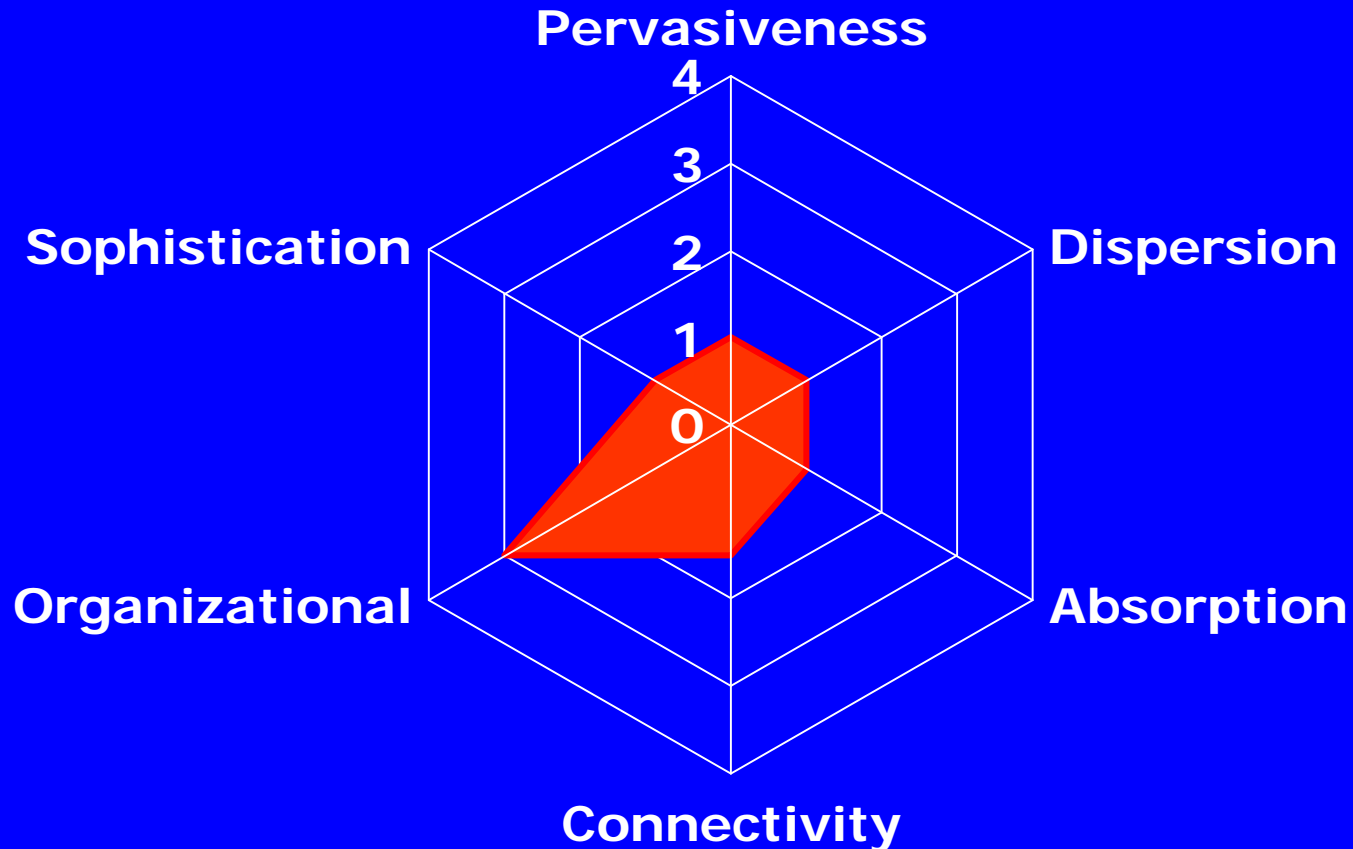
0 = (non-existent) to 4 (highly developed)

Source: ITU (framework from Mosaic Group mosaic.unomaha.edu/gdi.html)

Quality of Service

- Dial-up system availability (able to connect 95% of the time)

- Service activation time (less than 3 working days)

- Number of complaints per 1'000 subscribers

Dial-up Access Availability, Singapore

■ SingNet   ■ Pacific-Net
■ StarHub   Month (2000)
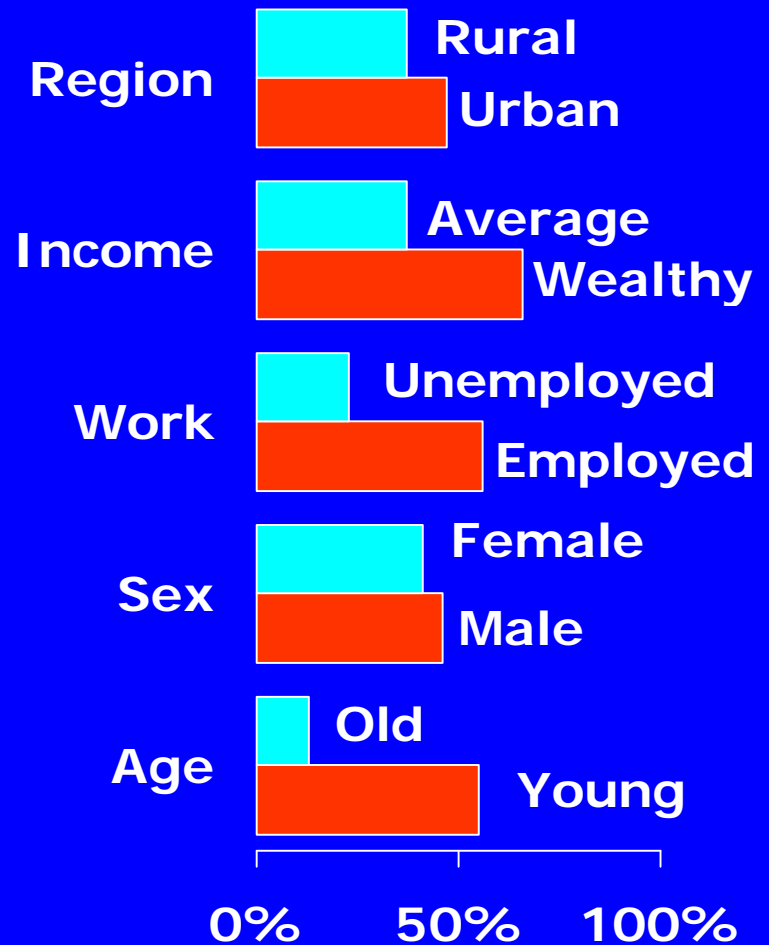
100%

50%

0%

Jan   Feb   Mar
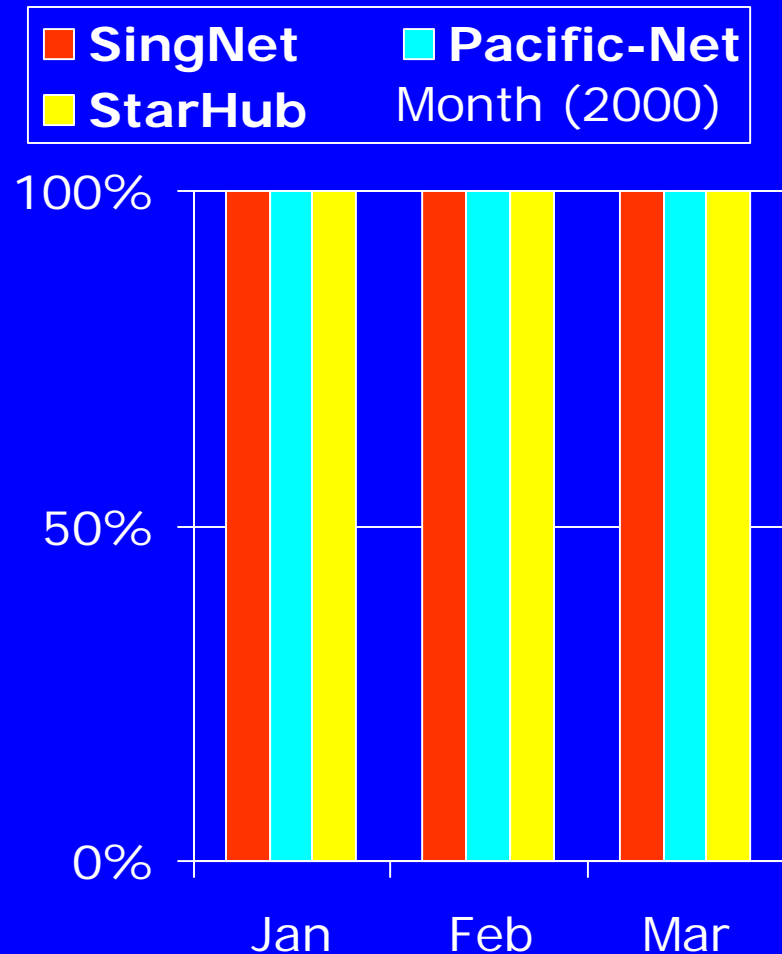
Source: IDA.

Profiles

- Breakdown of users useful for understanding who has access and who does not

"… there is a growing digital divide between those who have access to the Internet and those who don't, and that the divide exists along the lines of education, income, region and race."—Bill Clinton

Australia, Household Internet access, %

Region
- Rural
- Urban

Income
- Average
- Wealthy

Work
- Unemployed
- Employed

Sex
- Female
- Male
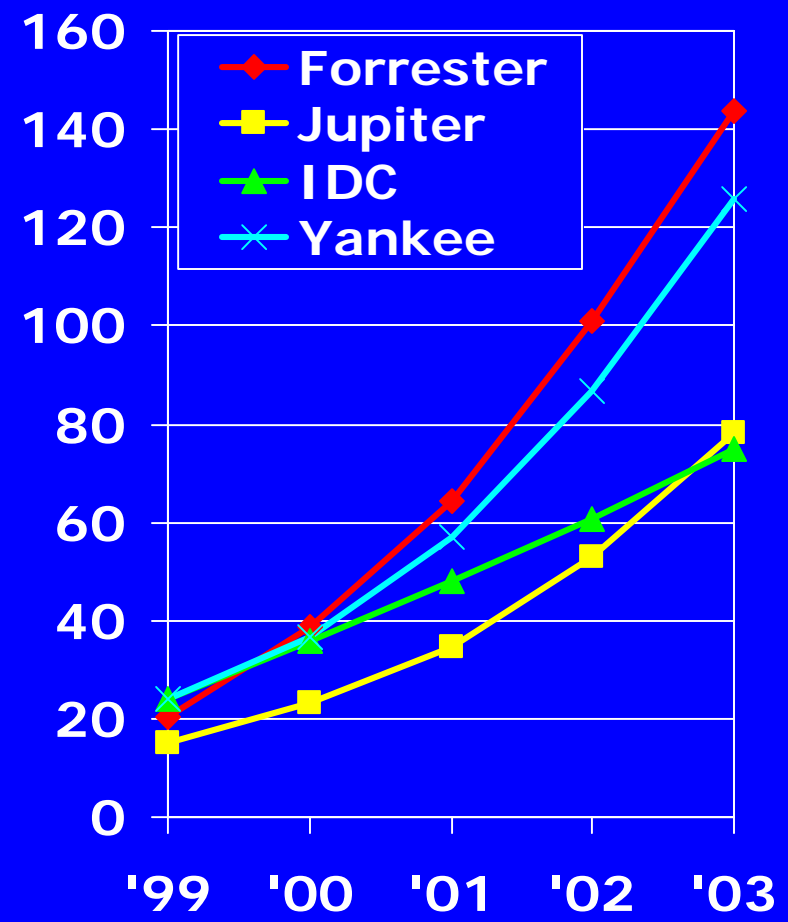
Age
- Old
- Young

0%   50%   100%

Source: ITU adapted from Australian Bureau of Statistics.

e-commerce

- Consultants love it!
- Your guess is as good as mine
- What is it?
  - B2B vs. B2C
- Developing methodology
  - See www.singstat.gov.sg/ EC/echome.html
- Business use of web

US Online Shopping Forecasts

Legend:
- Forrester
- Jupiter
- IDC
- Yankee

y-axis: 0, 20, 40, 60, 80, 100, 120, 140, 160

x-axis: '99, '00, '01, '02, '03

Source: www.thestandard.com

www.itu.int/ti

ITU Telecommunication Indicators

Publications Online | **Speeches & Papers** | **Telecoms at a glance** | **Useful Sites**
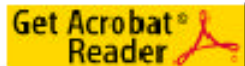
The ITU's Telecommunication Indicator Reports present an analysis of trends and developments in the global telecommunications sector, backed by official statistics from the world's leading source of telecommunication information. These reports and databases are available online.

See also the publication:
Trends in Telecommunication Reform, 1999

African Internet Meeting

World Telecommunication Indicators Meetings Final reports

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Publications for Sale (Online Versions Available)

NEW **World Telecommunication Development Report 1999: Mobile Cellular** - *now available in French and Spanish*

NEW **Americas Telecommunication Indicators 2000** - *now available in Spanish*

NEW **Yearbook of Statistics 2000, Chronological Time Series 1989-1998**

➡ **Brochure of Telecom Indicator reports** (April 2000)

➡ **Register for notification of new publications**