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International Telecommunication Union

Ensuring the quality of indicators

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LIRNEasia
Learning Initiatives on Reforms for Network Economies

IDRC CRDI

Workshop on benchmarking performance in network and services development
Delhi, 1-3 March 2006

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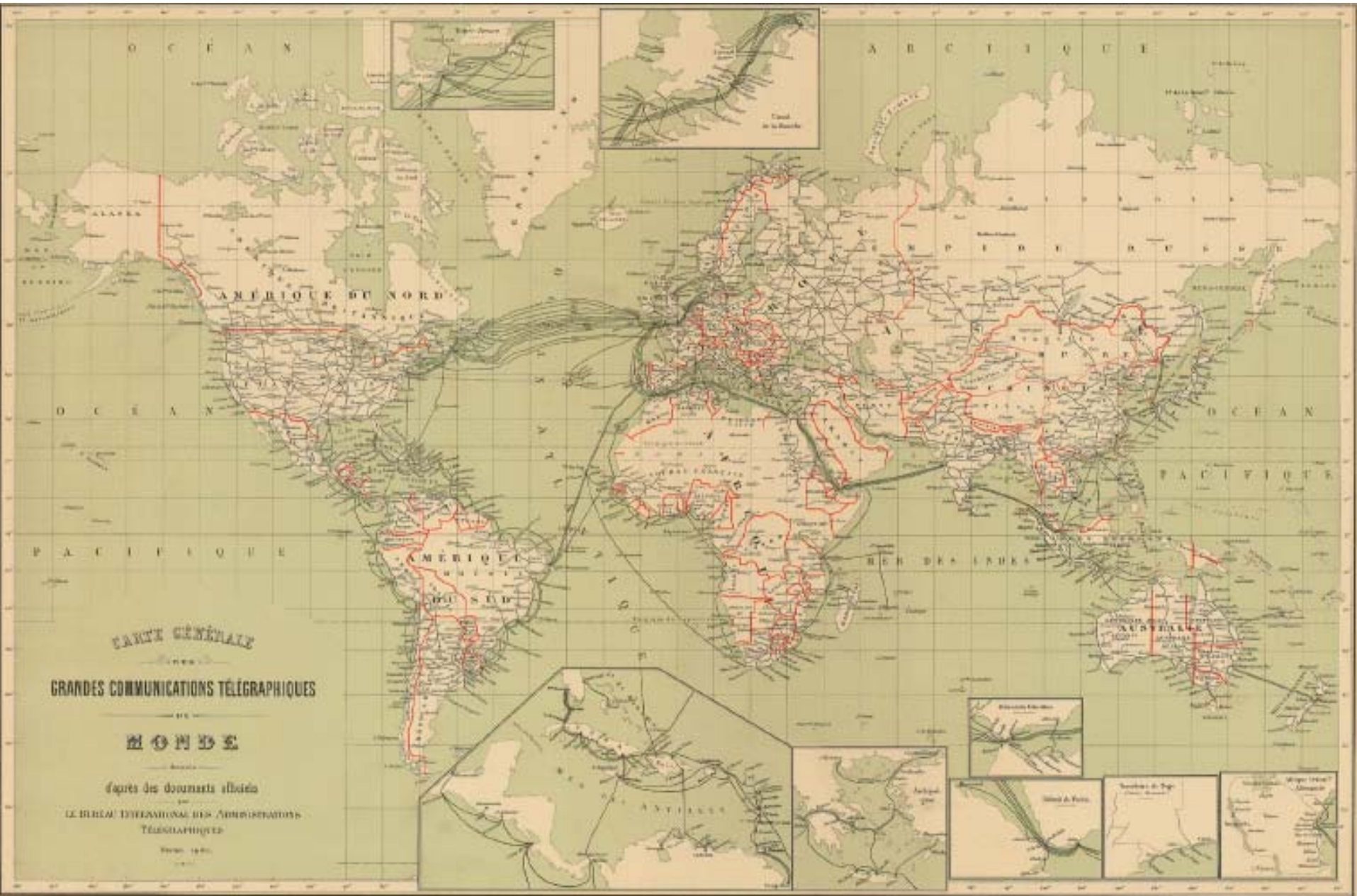
Agenda

- **Then and now**
  - **Why we know less now than we did in 1900**
  - **Does it matter?**
- **When indicators go wrong: A cautionary tale**
  - **Role of faulty indicators in inflating and deflating the Internet bubble**
  - **Using proxies to estimate unknowns**
- **Doing it right: An exemplary tale**
  - **Hong Kong's system of ICT indicators reporting**
  - **The value of benchmarking and inter-country competition in stimulating better performance**
- **Some issues for discussion**

The Telecoms World in 1900



What we knew in 1900 and what we think we know now

In 1900:

- Bilateral data for annual flow of telecom traffic:
  - Domestic telegrams
  - International telegrams
  - Priority telegrams
  - International telephone
- Number of subscribers:
  - Public call offices
  - Private subscribers
- Details of operators in each country/territory
- Bilateral relations between operators

In 2006:

- We can only guess at the volume of telecom traffic
  - (to the nearest order of magnitude)
- We can estimate the number of subscribers
  - but it increasingly involves guesswork, e.g., pre-paid mobile, Internet users
- No reliable data on split between business, residential and government traffic
- Operators come and go, so we can never be sure that data for all operators is being recorded

Does our lack of knowledge matter?

Yes!

- Information economy is large chunk of the overall economy
- Good data assists with regulation, competition policy, benchmarking and consumer protection
- Data transparency
  - Attracts investment
  - Guides sensible investment decisions
- Data on traffic flows makes it easier to track tax payments and avoid tax evasion

No!

- Data transparency may hinder market behaviour in a competitive market
  - Ease of market entry and exit
  - Competitive secrecy
- Data reporting may impose bureaucratic burden
- Market data has a commercial market value, which can be bought and sold
- "Real" data is financial data
  - Turnover and profitability
  - Share price

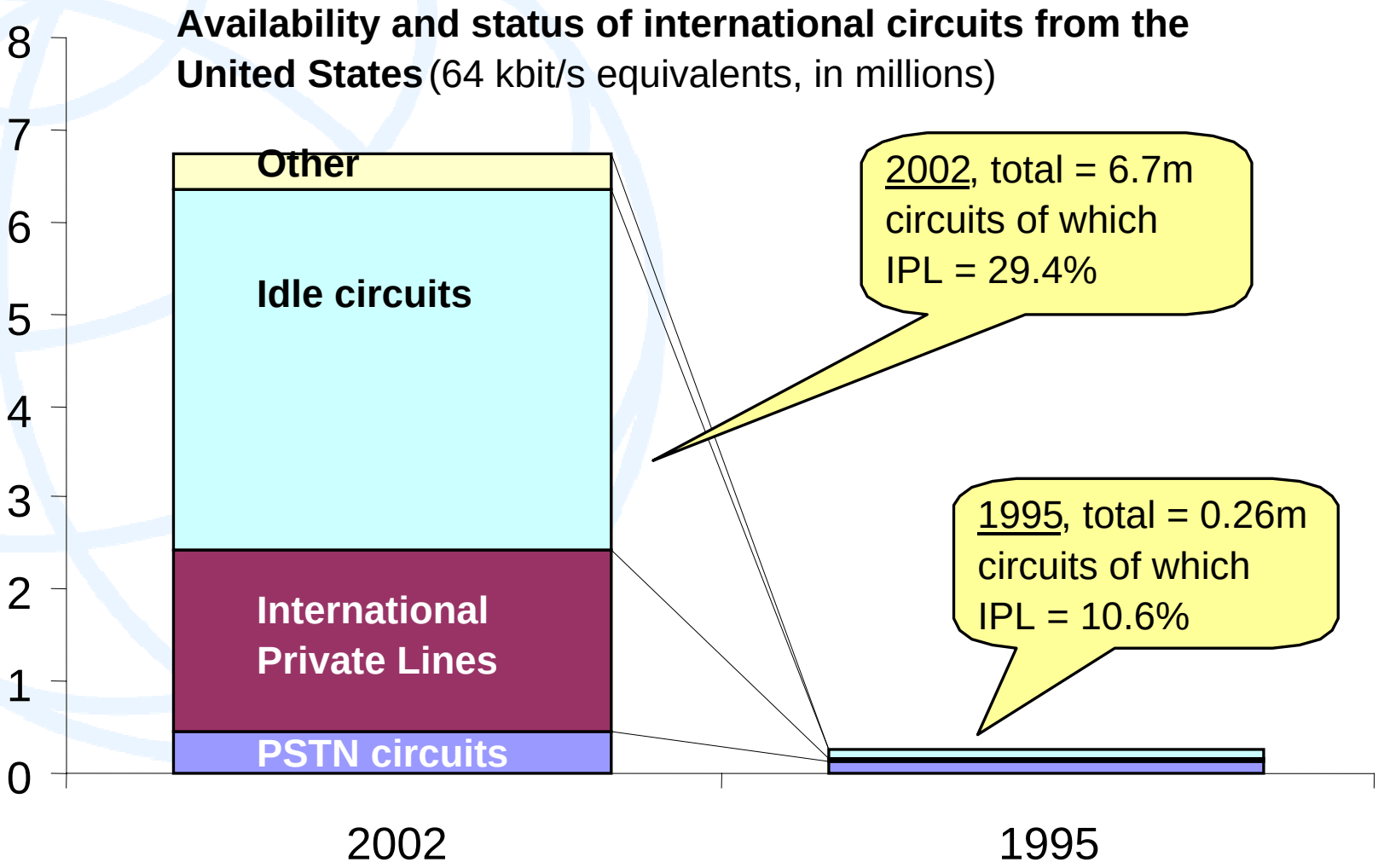
A cautionary tale of a faulty indicator

"Traffic on the Internet is doubling every 90 days"

- **Claim by Reed Hundt, FCC Chair, 2000 and repeated by many others as "urban myth"**
- **Original source: Bernie Ebbers, WorldCom**
- **Would imply traffic growing more than 16-fold each year**
- **Unspoken assumption: Sustained growth at exponential rates**
- **Reality**
  - **May have been true for one network (WorldCom) on one route (trans-atlantic) for one quarter (1995/6)**
  - **Was false long before Internet bubble burst**

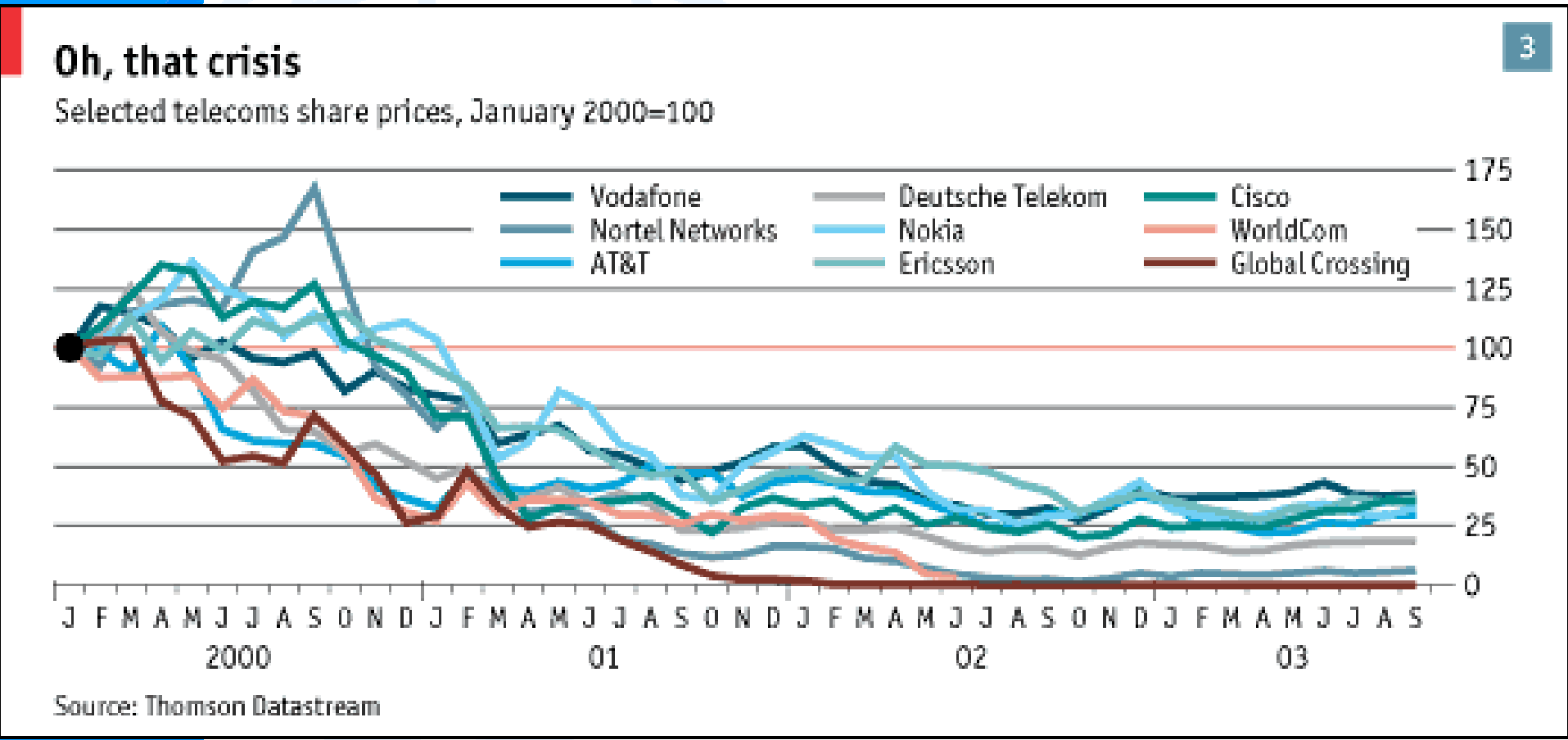
Source: Andrew Odlyzko: A refutation of Metcalfe's Law.

The consequence of faulty data: Overinvestment and overcapacity



Source: ITU, adapted from FCC Circuit Status Report.

Consequences of overinvestment and overcapacity: Share price meltdown



Source: Economist, 9 October 2003: “Beyond the Bubble”

Other examples of faulty data assumptions

- **Assuming traffic growth = revenue growth**
  - **In reality, revenue growth is much smaller than traffic growth because of tariff cuts, productivity gains etc**
- **Assuming website traffic = revenue**
  - **In reality, much website traffic is from search engines, or other automated visits**
- **Assuming today's growth rates will continue tomorrow**
  - **In reality, most markets follow an S-curve with early growth rates (from a low base) not sustained; esp. ARPU**
- **Comparing "users" (e.g., Internet) with subscribers**
  - **Subscribers generate revenue whereas many "users" are free-riders**
- **Assuming all pre-paid users are active**
  - **Leads to inflated subscriber counts for mobile, above 100 per 100 inhabitants**

If you can't measure it precisely, try using proxies

- **If you can't measure traffic, measure circuits**
  - **FCC data on international circuit status are an underutilised resource**
- **If you can't measure real prices, divide revenue by minutes**
  - **Dividing revenue by minutes gives a measure of the effective revenue from a service where operators are offering price discounts**
- **If you can't forecast the market, estimate the ceiling and work backwards**
  - **Forecasting backwards from the theoretical market ceiling can help to avoid problems of unrealistic forecasts based on growth projections**

A best practice example of data collection and reporting: Hong Kong

- **Statistical data collection to support clear goals:**
  - **Digital 21 Strategy, to make HK a leading digital city in the globally connected world of 21st Century**
  - **Established in 1998, reviewed in 2001 and 2004**
- **Actions in eight areas:**
  - **Government leadership**
  - **Sustainable e-government programme**
  - **Infrastructure and business environment**
  - **Institutional review**
  - **Business development**
  - **IT industry**
  - **Human resources in the knowledge economy**
  - **Bridging the digital divide**

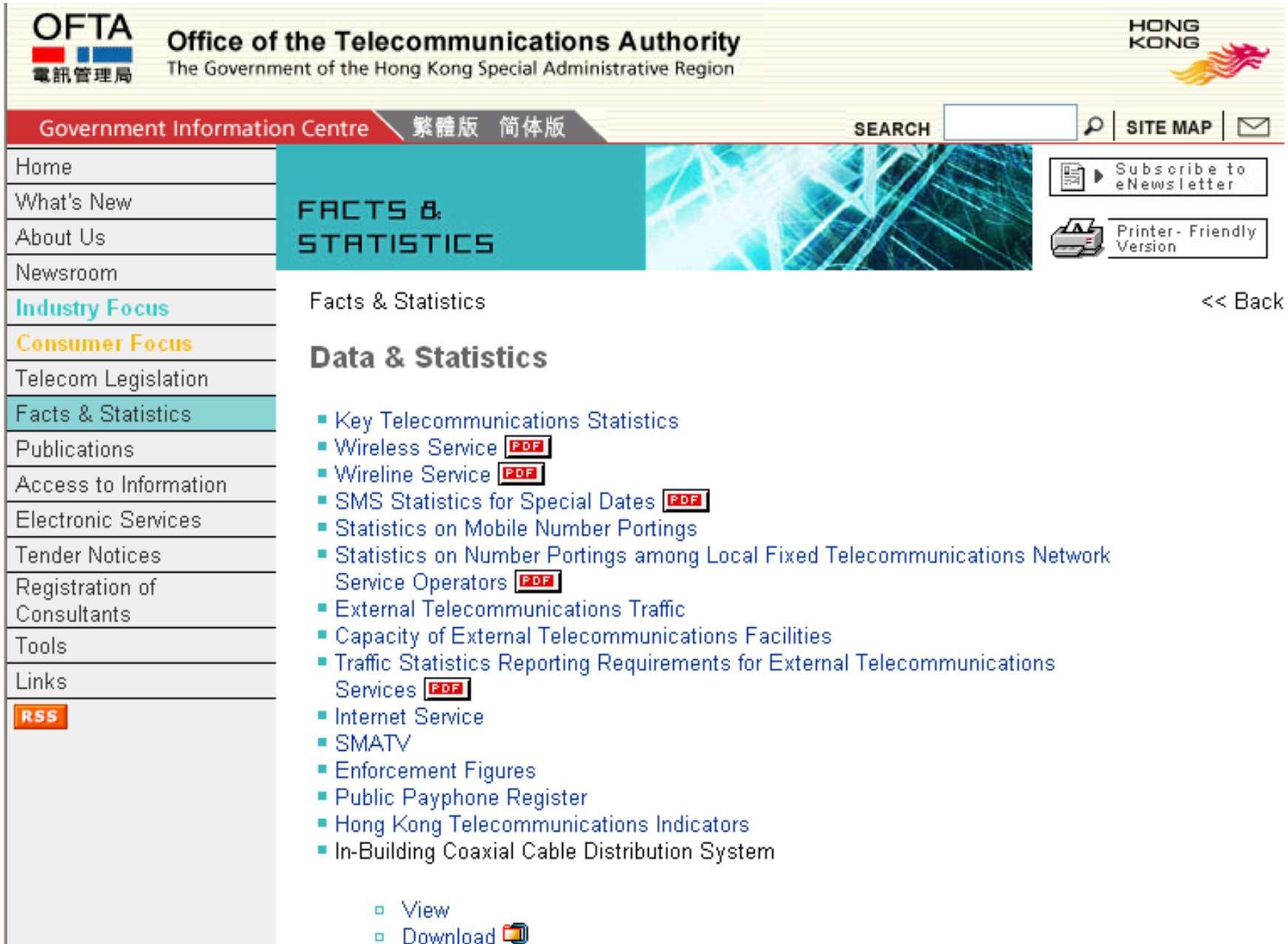
Coordinated data collection

- **Office of the Government Chief Information Officer (OGCIO)**
  - **Policy and strategy advisor on IT matters**
  - **Works with C&SD on survey design**
- **Census and Statistics Department (C&SD), national statistics office**
  - **Conducts or commissions surveys of businesses, households and individuals**
  - **Conducts data processing and analysis and releases reports**
- **Office of Telecommunications Authority (OFTA)**
  - **Collects data from telecom operators**
  - **Reports data via website and to ITU**

Available surveys

1. Thematic **Household Survey**
   - Started in 2000, conducted annually
   - Around 13’000 households surveyed
2. **Survey on Information Technology Usage and Penetration in the Business sector (Establishment survey)**
   - Around 5’000 establishments surveyed
3. **ICT availability in education and government agencies, collected by Education and Manpower Bureau and OGCIO**
4. Other **independent surveys**
   - e.g., by City University of HK, since 2000

OFTA website (www.ofta.gov.hk/en/datastat)



Key features of OFTA statistics

- Good range of statistical and regulatory information
- Covers fixed, wireless and broadcast networks
- Presentation of data on monthly basis
- Up-to-date (2-3 months in arrears)
- Detailed breakdowns
  - E.g,, stats for different mobile networks
  - post and pre-paid subscribers
  - different traffic types (incl. SMS)

Key Telecommunications Statistics

Telecommunications Services	Quantity
Mobile network operators (Jan 2006)	6
Wireline-based local fixed telecommunications network services (FTNS) operators (Jan 2006)	10
Wireless-based local FTNS operators (Jan 2006)	1
FTNS operators for distribution of domestic free TV programme service (Jan 2006)	2
Satellite-based external FTNS operators (Jan 2006)	6
Cable-based external FTNS operators (Jan 2006)	20
External telecommunications services operators (Jan 2006)	226
Household fixed line penetration rate (Nov 2005)	92%
Mobile subscriber penetration rate (Nov 2005)	121.1%
Mobile subscribers (Nov 2005)	8,410,852
2.5G and 3G mobile subscribers (Nov 2005)	1,829,169

Internet Services	Quantity
Internet service providers (Jan 2006)	186
Registered customer accounts with dial-up access (estimated) (Nov 2005)	977,549
Registered customer accounts with broadband access (estimated) (Nov 2005)	1,665,770
Household broadband penetration rate (Nov 2005)	66.6%

Source: OFTA, http://www.ofta.gov.hk/en/datastat/main.html.

How comparative benchmarking promotes better performance

- Race between Rep of Korea and Japan to be #1 in broadband
- Competition between Singapore and HK to be #1 digital city
- Rivalry in Scandinavia to be #1 in mobile penetration
- Concerns in USA that it is not ranked in top 15 for broadband
- South Africa's high prices for broadband forces review of industry structure and regulation

Issues for discussion

- Understanding why benchmarking matters
- Which is the correct peer group for statistical benchmarking in SE Asia?
- What are the indicators that will demand the attention of press and policy-makers?
  - Tariff comparisons
  - Broadband penetration
  - Mobile usage
- Using indicators to counter “urban myths”
- Using proxies in absence of reliable data
- Developing “best practice” data collection and reporting

Thank you

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