Telecommunication traffic & mobile communications statistics

- International traffic & tariff indicators
  Mr. T. Kelly, ITU, Switzerland

- Mobile communications indicators
  Mr. M. Minges, ITU, Switzerland

- Mobile communications questionnaire
  Mr. M. Minges, ITU, Switzerland

- Telecommunication statistics in Togo
  Mr. S. Mensah, Togo Telecom

- Data definition, data collected by different entities, data on the Internet
  Mr. M. Minges, ITU, Switzerland

- Challenges to the Network 1999
  Mr. B. Petrazzini & Ms. L. Männistö, ITU, Switzerland

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Document WTIM99/13-E
12 March 1999
Original: English

2nd World Telecommunication Indicators Meeting
(Geneva, 29 - 31 March 1999)

SOURCE: MR. TIM KELLY, ITU/BDT

TITLE: INTERNATIONAL TRAFFIC & TARIFF STATISTICS

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International traffic and tariff statistics

Dr Tim Kelly *,

Strategic Planning Unit,

International Telecommunication Union,

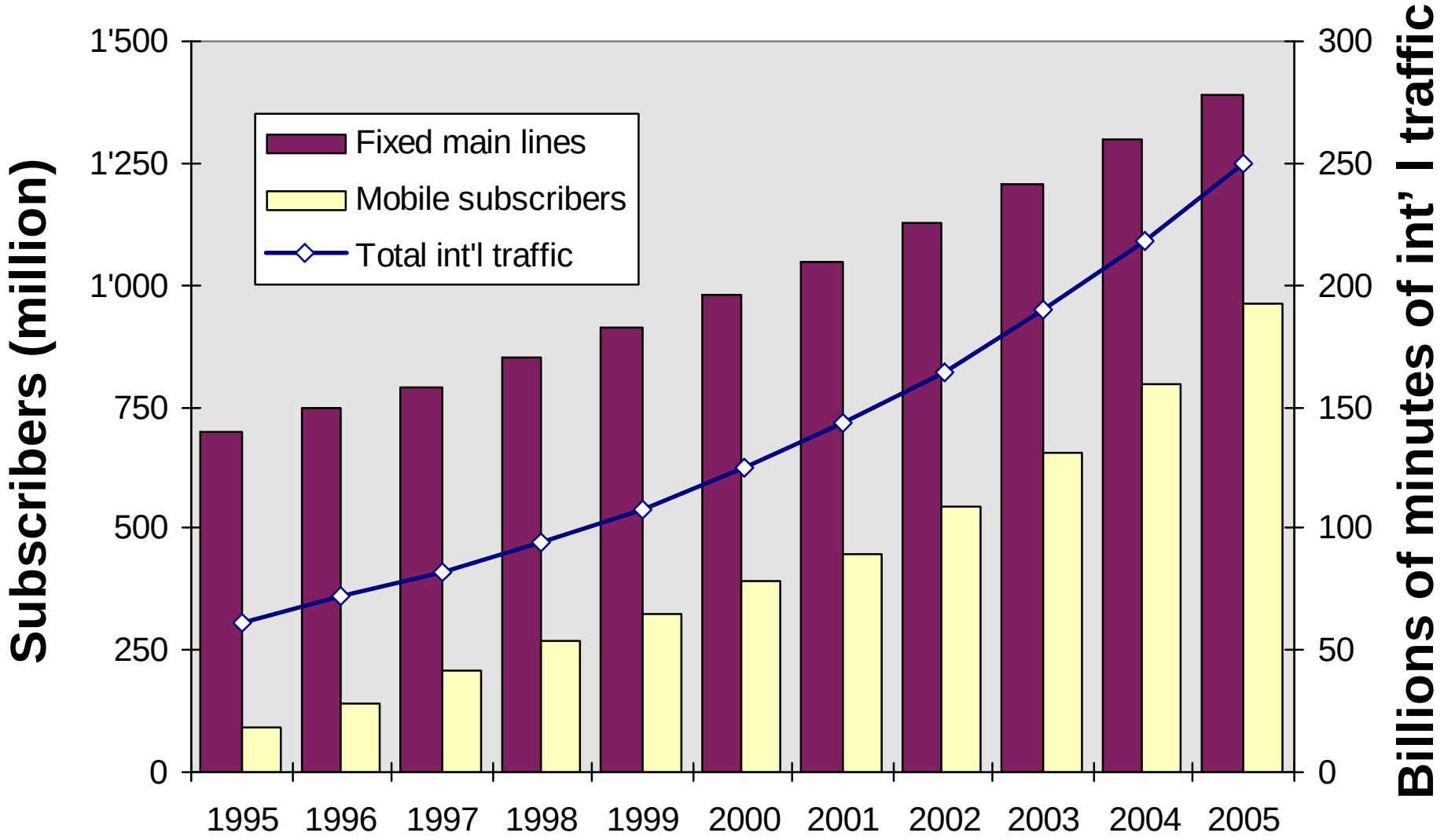
WTIM '99, March 30, 1999

* The views expressed in this presentation are those of the author, and do not necessarily reflect the opinions of the ITU or its membership. Tim Kelly can be contacted by email at Tim.Kelly@ itu.int.

Agenda

- **Why traffic and tariff statistics matter**
  - ⇨ **Measuring "globalisation"**
  - ⇨ **Death of distance**
  - ⇨ **Trade in telecommunication**
- **Minutes, megabytes or circuits?**
  - ⇨ **Telephone/fax traffic versus Internet traffic**
  - ⇨ **Tariff comparisons**
- **ITU/TeleGeography activities**
  - ⇨ **Data collection**
  - ⇨ **Reports, Databases, Projects**
- **What does it all add up to?**

Projection of growth trends, fixed and cellular subscribers and int'l traffic, 1995-2005

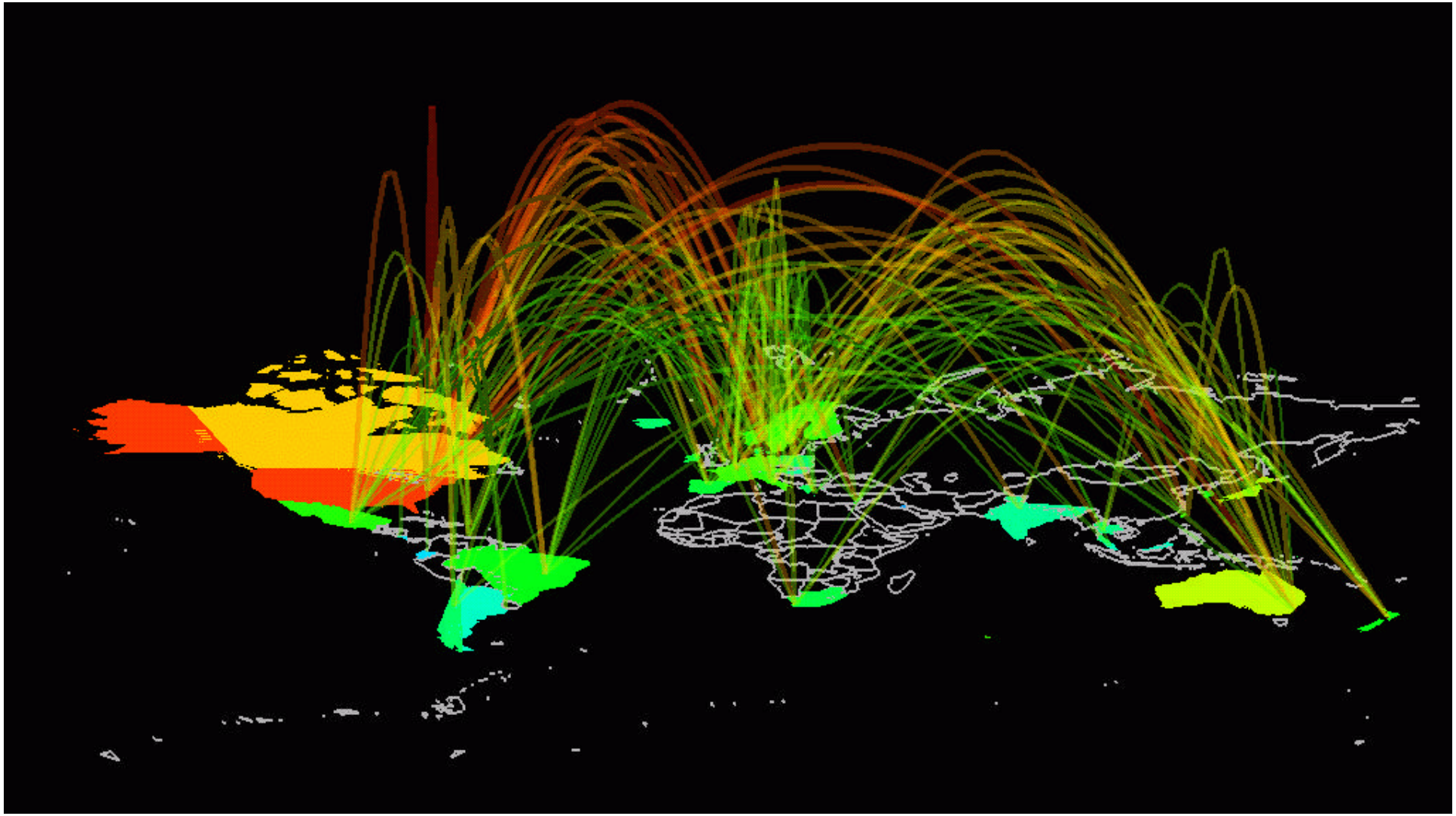


Source: ITU.

Why measure minutes of international traffic?

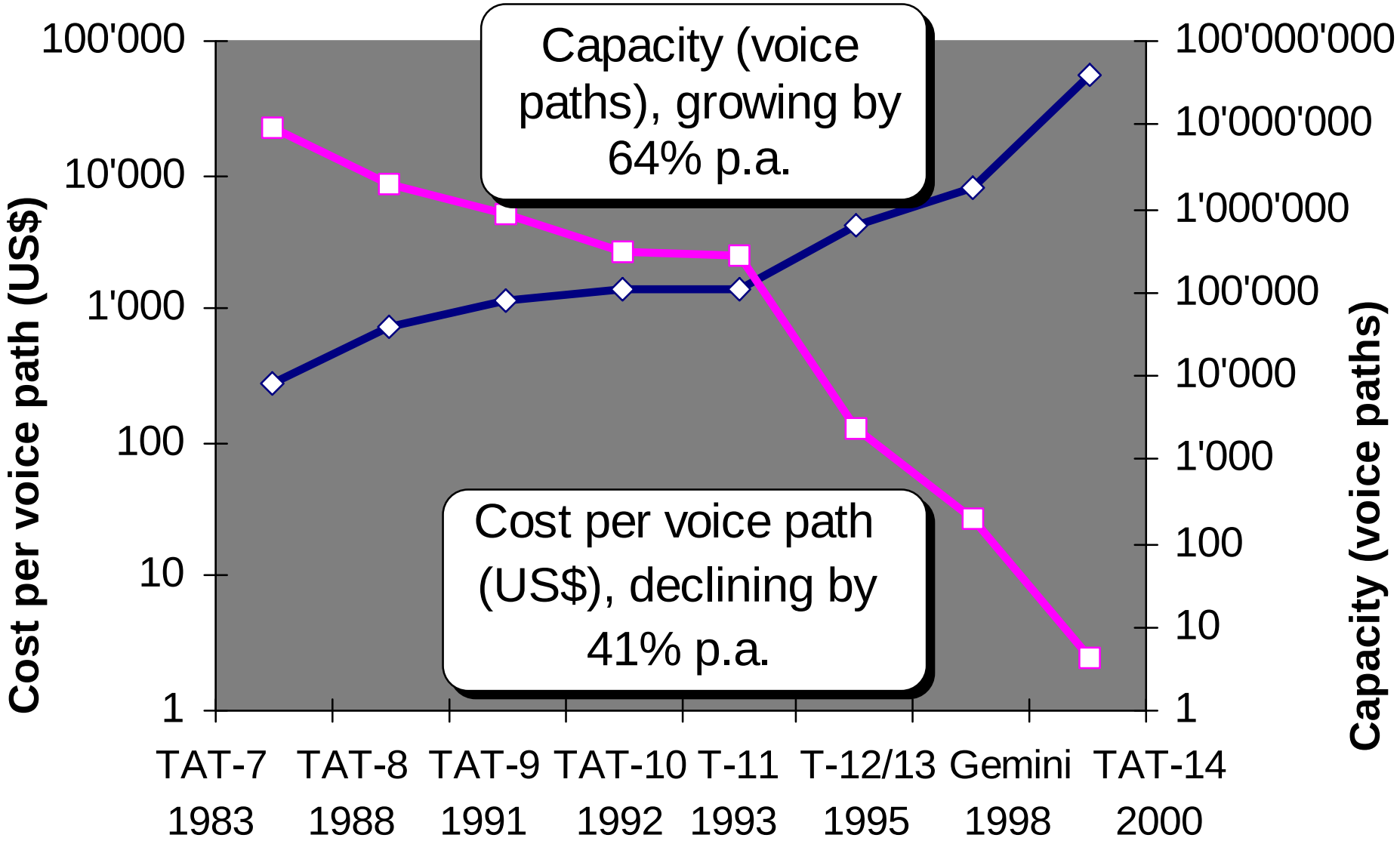
- **Traffic = Trade**
  - ⇨ **International telephone, telex, fax and e-mail traffic closely mirror international trade flows**
- **Minutes = Money**
  - ⇨ **Under the international accounting rate system, net balances of minutes of traffic translate into cash payments**
- **Phone calls = Families**
  - ⇨ **Bilateral calling patterns bear imprint of historical migration patterns between countries**

Traffic flows show globalisation in action

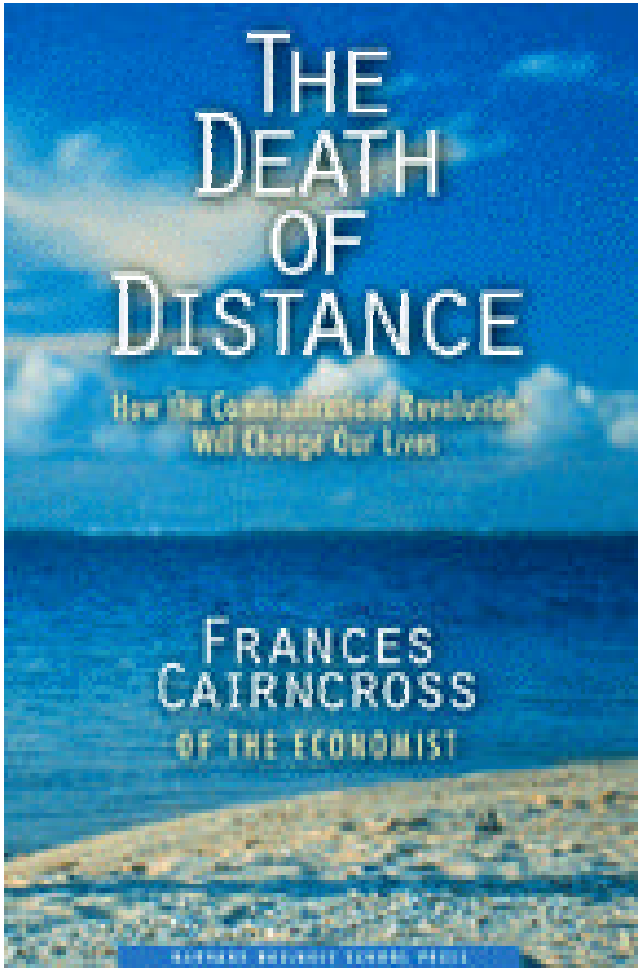


A visualisation of a sample of Internet Traffic Flows:
Source: Stephen Eick, Bell Labs.

Infrastructure capacity and costs, TransAtlantic cables, 1983-2000



Source: ITU, TeleGeography Inc., FCC.
Note: Voice-path numbers assume a compression ratio of 5:1 to number of circuits.



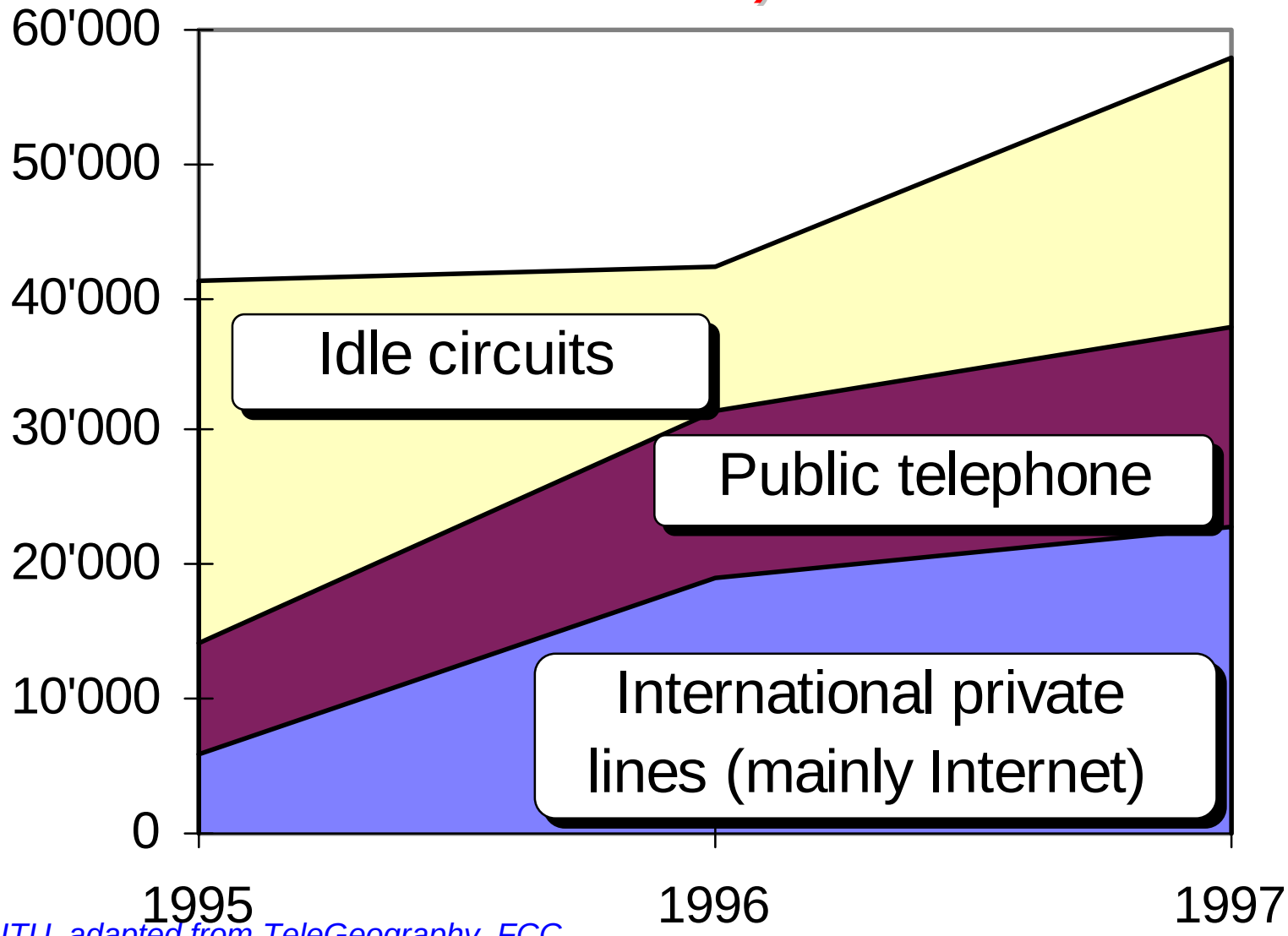
"The death of distance as a determinant of the cost of communicating will probably be the single most important factor shaping society in the first half of the next century."

Frances Cairncross, "The Death of Distance", 1997

What should we measure? Traffic

- **Measure minutes?**
  - ⇨ **Traditional approach, useful for telephone and fax traffic. Good statistics for end-to-end traffic due to exchange of international accounts.**
  - ⇨ **BUT, competition and technological change are eroding the relevance of minutes**
- **Measure megabytes?**
  - ⇨ **Would seem to be a logical evolution from minutes for measuring mixed data/voice/video flows**
  - ⇨ **BUT, in IP networks, traffic rarely flows end-to-end**
- **Measure circuits?**
  - ⇨ **Best technology-neutral measure of capacity**
  - ⇨ **BUT, does not measure end-to-end interaction**

Circuit capacity shows shift from Telephone to Internet. Usage of int'l circuits between US & UK, 1995-97

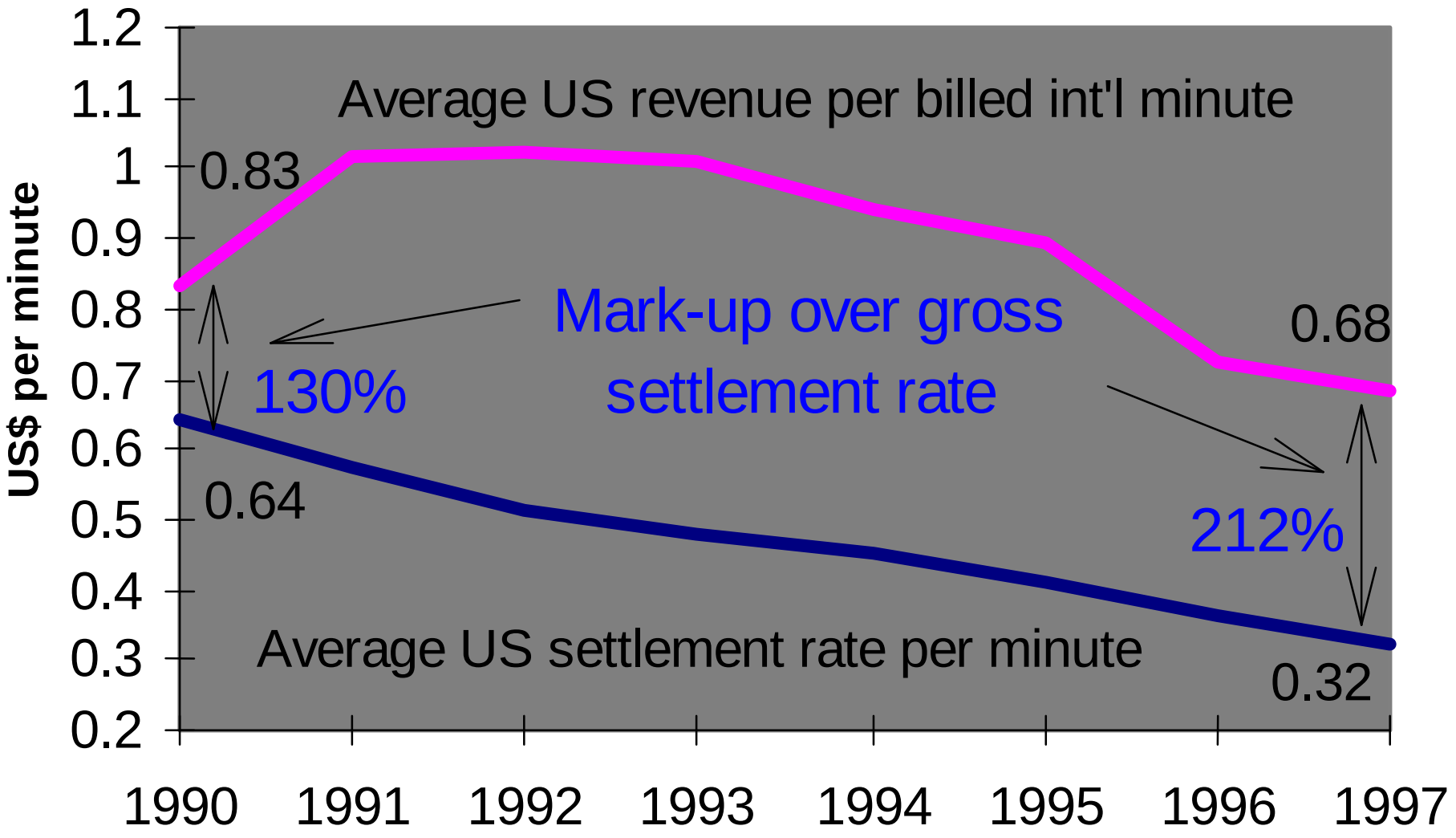


Source: ITU, adapted from TeleGeography, FCC.

What should we measure? Tariffs

- **Measure retail prices?**
  - ⇨ **Retail prices (e.g., 3 minute call from X to Y) are the indicator of most relevance to consumers**
  - ⇨ **BUT, widespread availability of discounts, offers & surcharges makes headline prices less relevant**
- **Measure wholesale prices?**
  - ⇨ **Settlement rates have traditionally set floor for telecom prices. Wholesale prices mirror settlement rates.**
  - ⇨ **BUT, emerging paradigm is for national interconnect**
- **Measure revenue per minute of traffic?**
  - ⇨ **Effectively captures differences in availability of discounts**
  - ⇨ **BUT, only limited data is available**

Divergence over time between retail and wholesale prices. USA, 1990-97

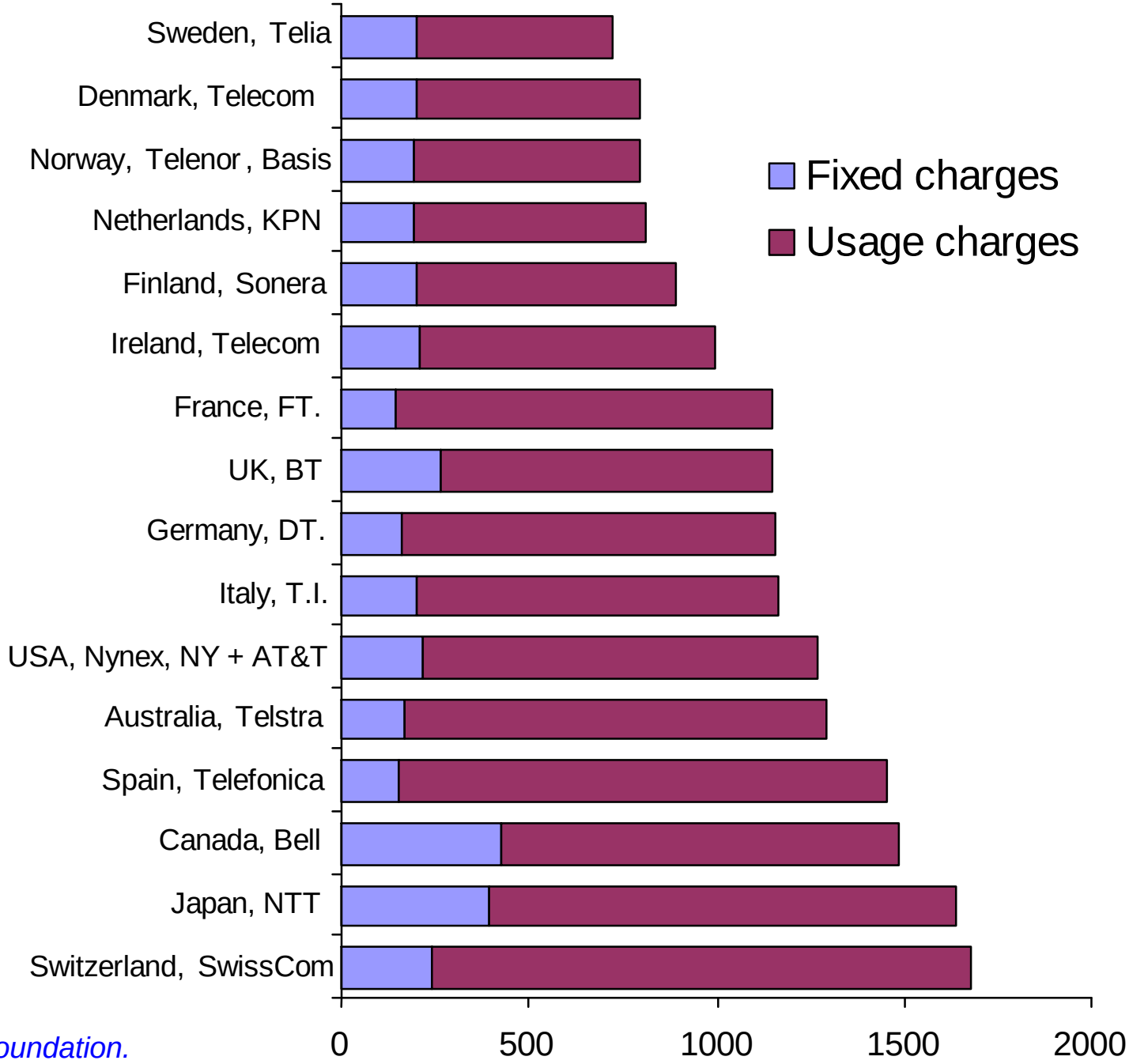


Source: ITU, adapted from FCC.

Note: "Average US revenue per billed minute" = total int'l IMTS revenue divided by total outgoing int'l minutes.

Tariff baskets

National business basket, Feb 1999 in US$



Source: OECD/Eurodata Foundation.

Data collection questionnaire

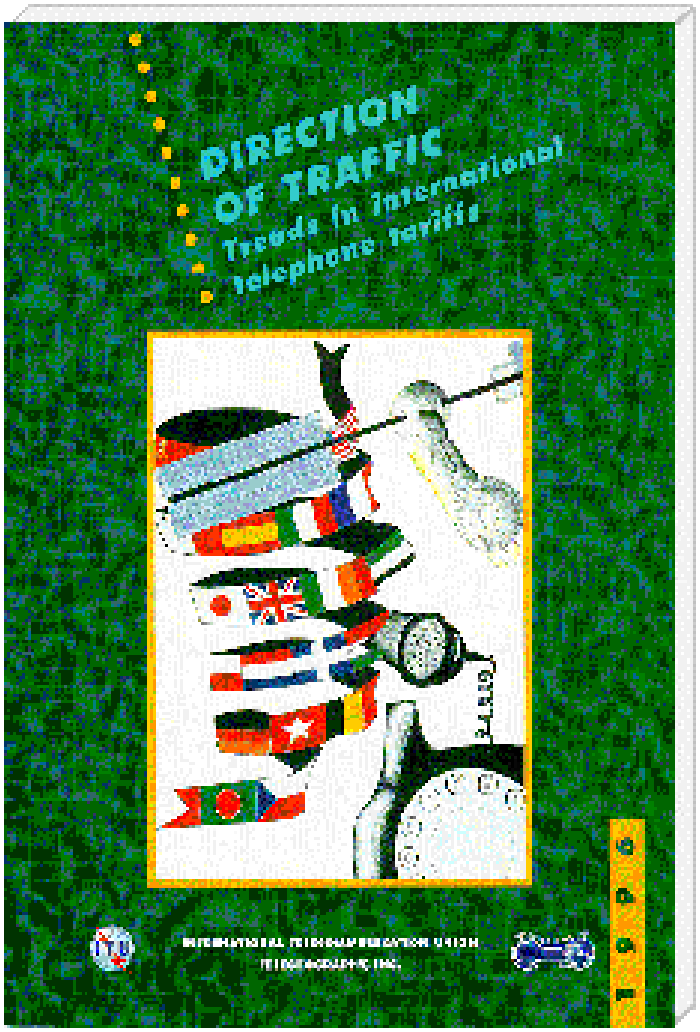
- **Incoming and outgoing traffic minutes to major (top 20) traffic destinations**
  - ⇨ **by country**
  - ⇨ **(where necessary, by carrier, if no aggregated statistics exist)**
  - ⇨ **by year**
- **Peak and off-peak cost of a 3 minute direct-dialled call to major destinations**
  - ⇨ **for major carriers**
  - ⇨ **by year**
  - ⇨ **in local currency**
- **Published settlement rate data (e.g., US, UK, NZ)**

ITU/TeleGeography activities

- **Publications**
  - ⇨ **"Direction of Traffic" report and database**
  - ⇨ **"TeleGeography" annual report (http://www.telegeography.com)**
- **ITU-T Study Group 3 Focus Group**
  - ⇨ **Analysis of settlement rates, transit rates (http://www.itu.int/intset/focus/index.html)**
  - ⇨ **Use of "average of lowest 20%" to define indicative target rates**
  - ⇨ **13 country case studies commissioned by ITU, CTO, EU (http://www.itu.int/wtpf/cases/index.htm)**
- **ITU Asia-Pacific Regional Office**
  - ⇨ **Tariff comparisons for Asia-Pacific region**

International traffic and tariff statistics

"Direction of Traffic"



- **1994: Trends in international telephone traffic**
- **1996: Trends in international telephone tariffs**
- **1999: Trading Telecom Minutes *(forthcoming, July 1999)***

For more information: http://www.itu.int/ti/publications/index.htm#TRAFFIC96

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Document WTIM99/12-E
12 March 1999
Original: English

2nd World Telecommunication Indicators Meeting
(Geneva, 29 - 31 March 1999)

SOURCE: MR. MICHAEL MINGES, ITU/BDT

TITLE: MOBILE COMMUNICATION STATISTICS

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Mobile Communication Statistics

Michael Minges

Telecommunication Development Bureau (BDT)

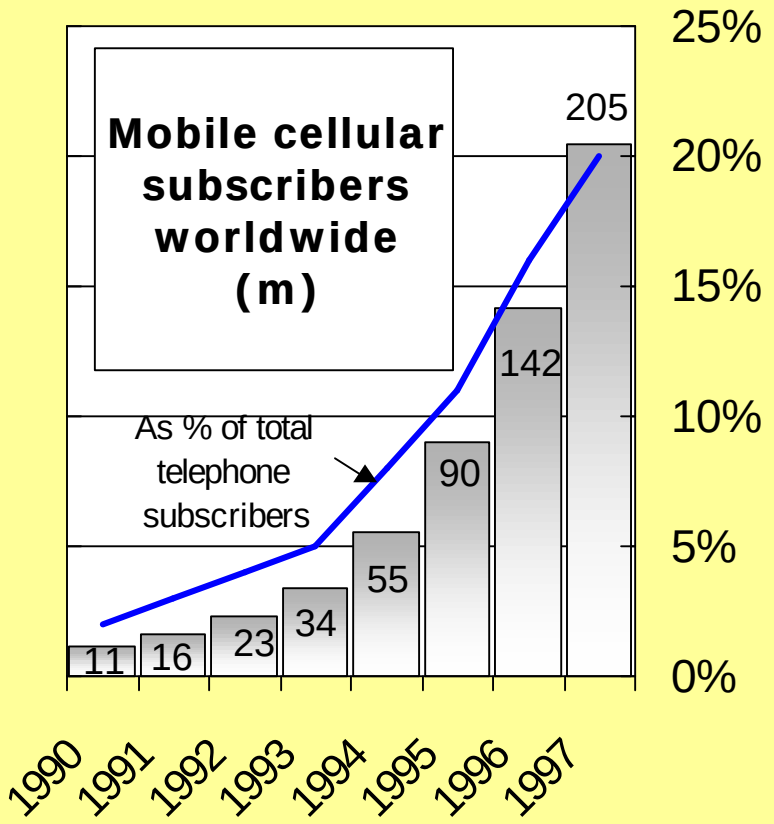
International Telecommunication Union (ITU)

Contents

- Importance of mobile communication statistics
- Types of mobile communication statistics
- Collection by national regulatory authorities

Importance of mobile communications

- In terms of subscribers, revenue and other indicators ***mobile cellular*** is growing much faster than fixed networks
- In Finland, mobile penetration exceeds fixed while in Cambodia, there are more mobile cellular subscribers than fixed



Mobile Communication Statistics: Categories

- Network & subscribers
- Revenue & Investment
- Employment
- Traffic
- Tariffs

Mobile network & subscriber statistics

- Number of mobile cellular subscribers
  - Analogue
    - AMPS
    - NMT
    - TACS
    - Other
  - Digital
    - D-AMPS
    - GSM
    - CDMA
    - Other

- Number of prepaid mobile cellular subscribers
- Number of base stations
- % of population covered
- % of territory covered

Mobile staff, investment & revenue statistics

- Staff employed by mobile cellular operators
- Investment in mobile cellular networks

- Revenue from mobile cellular
  - Connection charges
  - Subscription charges
  - Call charges
    - Local
    - National
    - International
    - Roaming

Mobile traffic statistics

- Units:
  - Both minutes and calls
- Could further divide by:
  - Mobile-fixed
  - Fixed-Mobile
  - Mobile-Mobile

- Incoming
- Outgoing
  - Local
  - National
  - International
- Roaming

Mobile tariff statistics

- Increasingly rare to find a single plan
- Better to collect all plans from all operators
- Basket approach essential for tariff comparisons
- Growing number of operators have their tariffs on the web
- Handset bundling

- Connection charge
- Monthly subscription
  - Free minutes
- Call charges: Mobile-Fixed, Mobile-Mobile
  - Peak rate per minute
  - Off-peak rate per minute

Mobile tariffs

vodafone

Digital Tariffs

With the Vodafone Digital Network, you can enjoy 98% coverage and make or receive calls in over 81 countries worldwide

	Connection	Monthly Line Rental	Inclusive Calls	Standard Call Prices		Local Call & Group Saver call prices			
				Peak per minute	Off-Peak per minute	Peak		Off-Peak	
						Local	VODA To VODA	Local	VODA To VODA
Vodafone 20	£35	£17.50	20min	35p	5p	10p	10p	2p	5p
Vodafone 60	£35	£25.00	60min	32p	5p	10p	10p	2p	5p
Vodafone 120	£35	£40.00	120min	21p	5p	10p	10p	2p	5p
Leisure 180	£35	£17.50	180min (Off Peak)	35p	5p	N/A	N/A	N/A	N/A
Vodafone 300	£35	£70.00	300min	19p	5p	10p	10p	2p	5p
Vodafone 500	£35	£100.00	500min	16p	5p	10p	10p	2p	5p

Mobile communications statistics on the Internet

- Colombia - Ministry of Communications
- France - Telecommunication Regulatory Authority (ART)
- Hong Kong SAR - Office of Telecommunication Authority (OFTA)
- United States - Cellular Telecommunication Industry Association (CTIA)

Colombia

MINISTERIO DE COMUNICACIONES

REPUBLICA DE COLOMBIA

ESTADISTICAS

Telefonía Movil Celular

INFORME TRIMESTRAL OCTUBRE-DICIEMBRE 1998

OPERADOR	EN SERVICIO	TRIMESTRE	PROCESADAS TRIMESTRE	AL AIRE	PROMEDIO LLAMADA	5%	ACUMULADO 5%
CELUMOVIL	561,832	23,269	83,218,366	167,516,711	2.01	3,886,554,888.00	35,689,297,574.
COMCEL	508,330	47,354	97,408,948	175,076,694	1.80	4,722,503,875.00	39,626,053,450.
COCELCO	280,295	53,567	41,962,448	76,096,396	1.81	1,530,950,171.00	13,971,329,357.
OCCEL	188,503	39,846	50,408,103	87,935,598	1.74	1,807,057,580.00	14,186,258,312.
CELCARIBE	137,500	25,215	14,956,381	24,077,135	1.61	1,004,261,606.00	7,832,639,215.
CEL. DE LA COSTA	123,769	7,527	16,464,926	32,919,574	2.00	755,750,647.00	7,338,993,270.
TOTAL	1,800,229	196,778	304,419,172	563,622,108	1.83	13,707,078,767.00	118,644,571,178.

Division de Gestion de Frecuencias, TMC febrero de 1999 — FUENTE: Informes trimestrales operadores TMC

France

L'OBSERVATOIRE DES MOBILES

www.art-telecom.fr

CHIFFRES AU 31 DECEMBRE 1998

● **Radiotéléphone**

	Parc (1) d'abonnés	CROISSANCE NETTE mensuelle	%	6 derniers mois	%
FRANCE TELECOM					
▪ Itinéris-Ola	5.450.200	557.200	11,4%	1.566.700	40%
▪ Olla **(2)**	3.500	-400	-10,3%	-2.300	-40%
▪ Améris **(3)**	88.900	19.600	28,3%	48.400	120%
Total numérique	5.542.600	576.400	11,6%	1.612.800	41%
▪ Radiocom 2000 TDV&mixte	9.700	-3.100	-24,2%	-15.900	-62%
TOTAL	**5.552.300**	**573.300**	**11,5%**	**1.596.900**	**40%**
CEGETEL					
▪ SFR GSM	4.163.500	499.600	13,6%	1.248.300	43%
▪ SRR **(4)**	50.300	3.500	7,5%	14.400	40%
Total numérique	4.213.800	503.100	13,6%	1.262.700	43%
▪ SFR Analogique	37.500	-3.000	-7,4%	-19.400	-34%
TOTAL	**4.251.200**	**500.100**	**13,3%**	**1.243.300**	**41%**
BOUYGUES					
▪ Bouygues Télécom	1.406.500	247.700	21,4%	607.900	76%
TOTAL numérique	11.162.900	1.327.200	13,5%	3.483.400	45%
TOTAL analogique	47.200	-6.100	-11,4%	-35.300	-43%
TOTAL GENERAL	**11.210.100**	**1.321.100**	**13,4%**	**3.448.100**	**44%**
Taux de Pénétration (5)	**19,2%**				

Hong Kong SAR

OFTA 電訊管理局

Key Statistics for Wireless Services in Hong Kong

				Public Mobile Radiotelephone Subscriber Units						Trunk Radio Stations			
End of Month	Public Radio Paging Receivers	Private Mobile Radio Stations		Analogue (800/900MHz)		Digital (800/900MHz)		PCS (1.7/1.8GHz)	Total	Base Units	Mobile Units	Portable Units	Total
		Base Stations	Mobile Stations	Mobile	Portable	Mobile	Portable	Portable					
12/1998	571,800	2,850	109,197	0	0	5,080	2,080,940 *	772,080	2,858,100	561	2,942	3,950	7,453
11/1998	600,579	2,870	109,322	0	0	5,072	2,044,167 *	712,799	2,762,038	573	3,046	4,034	7,653
10/1998	628,459	2,834	108,886	0	0	5,869	1,983,977 *	649,620	2,639,466	574	3,074	4,119	7,767
9/1998	662,269	2,886	109,144	0	0	5,915	2,004,530	573,890	2,584,335	584	3,097	4,189	7,870
8/1998	695,235	2,904	109,003	0	0	6,587	2,039,237	514,360	2,560,184	599	3,067	4,274	7,940
7/1998	736,563 !	2,921	109,000	0	0	7,477	2,012,941	452,419	2,472,837	618	3,051	4,345	8,014
6/1998	769,763	2,937	108,739	0	0	8,837	1,992,458	409,370	2,410,665	615	3,049	4,154	7,818
5/1998	795,192	2,939	108,434	0	0	8,876	1,939,309	379,130	2,327,315	616	2,987	3,535	7,138
4/1998	816,662	2,950	107,971	230	359	9,242	1,900,693	357,789	2,268,313	626	3,012	3,562	7,200
3/1998	844,297 !	2,963	108,185	507	474	9,638	1,880,820	338,423	2,229,862	641	2,925	3,511	7,077
2/1998	877,558	2,950	108,069	612	544	10,207	1,841,753	313,661	2,166,777	650	2,948	3,652	7,250

USA

CTIA's ANNUALIZED WIRELESS INDUSTRY DATA SURVEY RESULTS
June 1985 to June 1998

Reflecting Domestic U.S. Commercially-Operational Cellular, ESMR and PCS Providers

Date	Estimated Total Subscribers	Annualized Total Service Revenues (in 000s)	Annualized Roamer Revenues (in 000s)	Cell Sites	Direct Service Provider Employees	Cumulative Capital Investment (in 000s)	Average Local Monthly Bill	Average Local Call Length
1985	203,600	$354,316	n/a	599	1,697	$588,751	n/a	n/a
1986	500,000	$666,782	n/a	1,194	3,556	$1,140,163	n/a	n/a
1987	883,778	$941,981	n/a	1,732	5,656	$1,724,348	n/a	n/a
1988	1,608,697	$1,558,080	n/a	2,789	9,154	$2,589,589	$95.00	2.25
1989	2,691,793	$2,479,936	$210,699	3,577	13,719	$3,675,473	$85.52	2.35
1990	4,368,686	$4,060,494	$365,549	4,768	18,973	$5,211,765	$83.94	2.32
1991	6,380,053	$5,075,963	$565,989	6,685	25,545	$7,429,739	$74.56	2.20
1992	8,892,535	$6,688,302	$838,050	8,901	30,595	$9,276,139	$68.51	2.38
1993	13,067,318	$9,008,700	$1,124,493	11,551	36,501	$12,775,967	$67.31	2.38
1994	19,283,306	$12,594,947	$1,552,382	14,740	45,606	$16,107,921	$58.65	2.36
1995	28,154,414	$16,460,516	$2,173,003	19,833	60,624	$21,721,711	$52.45	2.27
1996	38,195,466	$21,525,861	$2,737,177	24,802	73,365	$26,707,046	$48.84	2.24
1997	48,705,553	$25,575,276	$2,858,432	38,650	97,039	$37,454,294	$43.86	2.25
1998	60,831,431	$29,637,742	$3,166,656	57,674	113,111	$50,178,812	$39.88	2.34

Mobile statistics in action: Tele Yearbook Denmark '97

Mobile subscribers	1 '444 016
NMT (Analogue)	232 '610
GSM (Digital)	1 '211 '406
Mobile subscribers per 100 inhabitants	27.3
Outgoing mobile traffic (1 '000 minutes)	1 '301 '430
Outgoing mobile minutes per subscriber	943
Base stations	3 '441
Mobile telephony revenue (DKK million)	5 '030

Mobile tariff statistics in action: ITU basket for Africa

Country	Operator Plan	Connect-ion	Subscr-iption	Peak minute	Off-peak minute	Basket *	Rank	Exchange rate (to US$)	Note
Cote d'Ivoire	Comstar	$ 60.35	$ 31.04	$ 0.32	$ 0.32	$ 67.97	8	579.92	No mention of whether tax is included or not.
Madagascar	Sacel *Ravinala*	$ 28.30	$ 15.58	$ 0.32	$ 0.26	$ 46.95	5	5300	No mention of whether tax is included or not.
Malawi	TNM	$ 20.41	$ 6.80	$ 0.02	$ 0.02	$ 10.77	1	44.1	No mention of whether tax is included or not.
Morocco	IAM	$ 64.41	$ 25.76	$ 0.34	$ 0.31	$ 63.92	7	9.315	Excludes tax. Includes roaming.
Mozambique	mCel *Executivo*	$ 93.43	$ 42.04	$ 0.37	$ 0.19	$ 77.86	9	12416	Including 20% tax.
Namibia	MTC	$ 42.46	$ 16.99	$ 0.24	$ 0.15	$ 40.40	3	5.8875	Includes tax.
South Africa	MTN Companion	$ 15.80	$ 18.93	$ 0.42	$ 0.11	$ 34.83	2	6.0228	Includes 14% VAT. Includes 15 minutes peak and 85 minutes off-peak.
South Africa	Vodacom *Family Call*	$ 15.77	$ 18.26	$ 0.42	$ 0.11	$ 46.06	4	6.0228	Includes 14% VAT.
Zambia	Telecel *IN TOUCH 60*	$ 49.00	$ 43.50	$ 0.40	$ 0.28	$ 58.78	6	1	Excluding tax. Includes 60 free minutes. Prices quoted in US$.
AVERAGE		**$ 43.33**	**$ 24.32**	**$ 0.32**	**$ 0.20**	**$ 49.73**			

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Document WTIM99/30-E
26 March 1999
Original: English

2nd World Telecommunication Indicators Meeting
(Geneva, 29 - 31 March 1999)

SOURCE: ITU, SWITZERLAND

TITLE: WORLD TELECOMMUNICATION DEVELOPMENT REPORT 1999
MOBILE COMMUNICATIONS QUESTIONNAIRE

_____

World Telecommunication Development Report 1999
Mobile Communications Questionnaire

Name of country: _____

Fiscal Year to which data refer:

? Ending 31 Dec 98 ? Ending 31 March 99 ? Ending 30 June 98 ? Ending 30 September 98

I. Mobile Indicators

	Actual		Forecast		
	1997	**1998**	**2000**	**2005**	**2010**
Number of mobile cellular subscribers					
Of which:					
- Analogue-AMPS					
- Analogue-TACS					
- Analogue-NMT					
- Analogue-Other (please specify_____)					
-Digital-GSM					
-Digital-D-AMPS (TDMA)					
-Digital-CDMA					
-Digital-Other (please specify _____)					
Number of prepaid mobile cellular subscribers					
Number of base stations					
% of population covered					
% of territory covered					
Staff employed by mobile cellular operators					
Investment in mobile cellular networks					
Revenue from mobile cellular					
Of which					
Connection charges					
Subscription charges					
Call charges					
Local					
National					
International					
Roaming charges					
National					
International					
Traffic					
Incoming minutes to mobile cellular networks					
Outgoing minutes from mobile cellular networks					
Of which international roaming					

World Telecommunication Development Report 1999
Mobile Communications Questionnaire

II. Mobile Cellular Policy and Regulatory

2.a. Mobile cellular licenses

Please provide the information below on mobile cellular licenses issued:

Operator	Date of license	License area	Amount paid for license (US$)	Start-up date of operations	System	Subscribers December 1998

2.b.: Do mobile cellular license holders have any universal service / access obligations?
? Yes ? No
If yes please specify (e.g. coverage requirements, public payphones, tariffs, etc.)

2.c.: Are mobile cellular tariffs regulated? ? Yes ? No
Comments:

2.d.: Is Calling Party Pays available? ? Yes ? No
Comments:

2.e.: Is there an air interface (e.g., GSM, CDMA, AMPS, TDMA, etc.) standard in your country?
? Yes ? No
Comments (including frequency issues, analog phase-out issues, etc.)

2.e.: Please indicate any other relevant mobile cellular policy and regulatory issues:

World Telecommunication Development Report 1999
Mobile Communications Questionnaire

III. Mobile Cellular Tariffs

Mobile cellular tariffs are increasingly complex with many plans and options. Therefore we prefer that you attach a document containg all the tariff options for one (or all) of the mobile cellular operators in your country (preferably the largest by market share). However if such a document is not available, please complete the table below.

	Entry level	**100 minutes**	**Pre-paid**
Connection charge			
Monthly Rental			
Peak rate minute to fixed network			
Off peak rate minute to fixed network			
Peak rate minute to same mobile cellular network			
Off peak rate minute to same mobile cellular network			
Peak rate minute to another mobile cellular network			
Off peak rate minute to another mobile cellular network			
Free minutes included			
Are taxes included (Yes/No)			
Tax rate (in percent)			
Note (e.g. handset included? If so is it free or is there a payment?)			What demoninations do pre-paid cards come in?

Any information about handsets would be useful such as models available, prices, import duties, restrictions, etc.

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INFORMATION SYSTEMS UNIT

Document WTIM99/31-E
10 May 1999
Original: French

2nd World Telecommunication Indicators Meeting
(Geneva, 29 - 31 March 1999)

SOURCE: TOGO TELECOM, TOGO

TITLE: COLLECTION AND DISSEMINATION OF STATISTICS

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TOGO TELECOM

SECOND WORLD TELECOMMUNICATION INDICATORS MEETING
Geneva, 29 - 31 March 1999

COLLECTION AND DISSEMINATION OF STATISTICS

In the TOGO TELECOM company one division deals essentially with statistics and key business indicators: the Statistics and Key Business Indicators Division (DSTB).

The key business indicators provide the input for the Telecommunication Management Information System (SIGET) from which the statistical data as at 31 December are extracted.

Indicator collectors and correspondents have been made responsible for the various stages of the process.

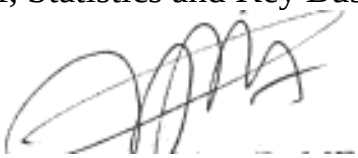
All these players follow a precise transmission schedule and precise information circuits which are installed in the the attached diagrams.

Indicators are currently calculated on paper, but an Intranet project is being developed and the whole system will be automated during 1999.

The Directorate of National Statistics provides us with projections and estimates on demographic and macroeconomic data.

The division provides statistical data for national and international institutions on request.

Lomé, 26 March 1999
Chief, Statistics and Key Business Indicators Division



William Séwa D. MENSAH

SOCIETE DES TELECOMMUNICATIONS DU TOGO

Avenue Nicolas Grunitzky Boîte Postale: 333 LOME - TOGO	Téléphone: 21 – 44 – 01 Fax: 21 – 03 - 73	Télex: 5245 Télégramme: TOGOTEL TG

VII. DEFINITION OF INFORMATION CIRCUITS AND TRANSMISSION TIMETABLE

INFORMATION CIRCUITS

From the collection of elementary data to the distribution of key business indicators, there are three information circuits:

a) A circuit for the collection of elementary data for the purpose of preparing the indicator for a given sector

Following this circuit, the collector captures the basic data and transmits then to the indicator correspondent.

b) A circuit for transmission of the indicator

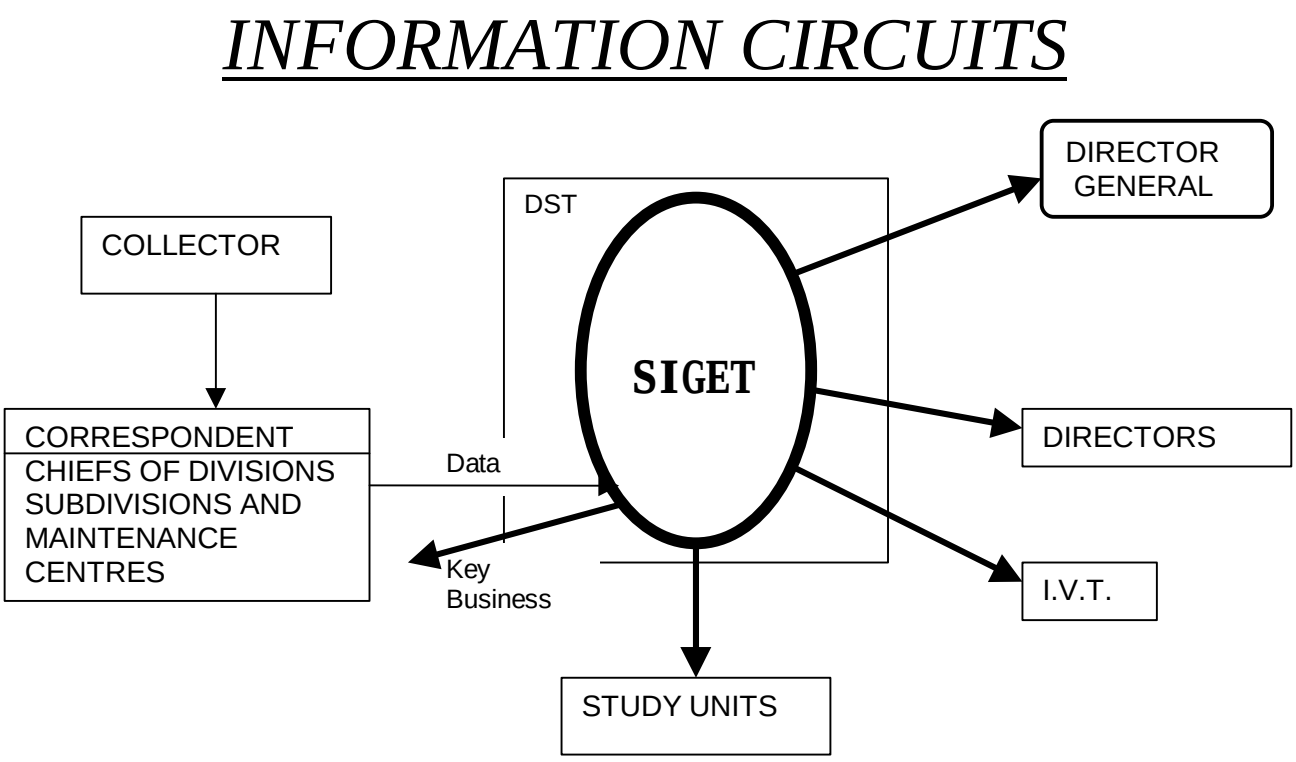
This circuit runs from the indicator correspondent to the Information System Section.

c) A circuit for dissemination of the key business indicators

This runs from the Information System Section to the various recipients of the key business indicators, namely the Directorate General, directorates, divisions, subdivisions and operational centres.

The hierarchical structure adopted for the transmission of information from the point of elementary data capture to the Information System Section was deemed necessary for the purpose of making the various hierarchical levels responsible both for adhering to transmission timetables and for the reliability and consistency of the information provided. This method allows for the entire operating staff to be involved, in the interests of improved follow-up and corrective action even before the result appears in the key business indicators.

The following diagram below illustrates the above circuits:



THE TRANSMISSION TIMETABLE

The provisional key business indicators followed since August 1993 show much of the information to have transmitted by fax from remote centres both in the interior of the country and from around the capital.

This information enables us to suggest the following transmission timetable, D being the last working day of the period considered for the indicator (month, quarter or semester or billing day).

a) To the Management Information System for automatic collection

Data must reach the indicator correspondent by D + 2 at the latest.

b) From the indicator correspondent to the Information System Section

Data must reach the information system officer by D + 5:

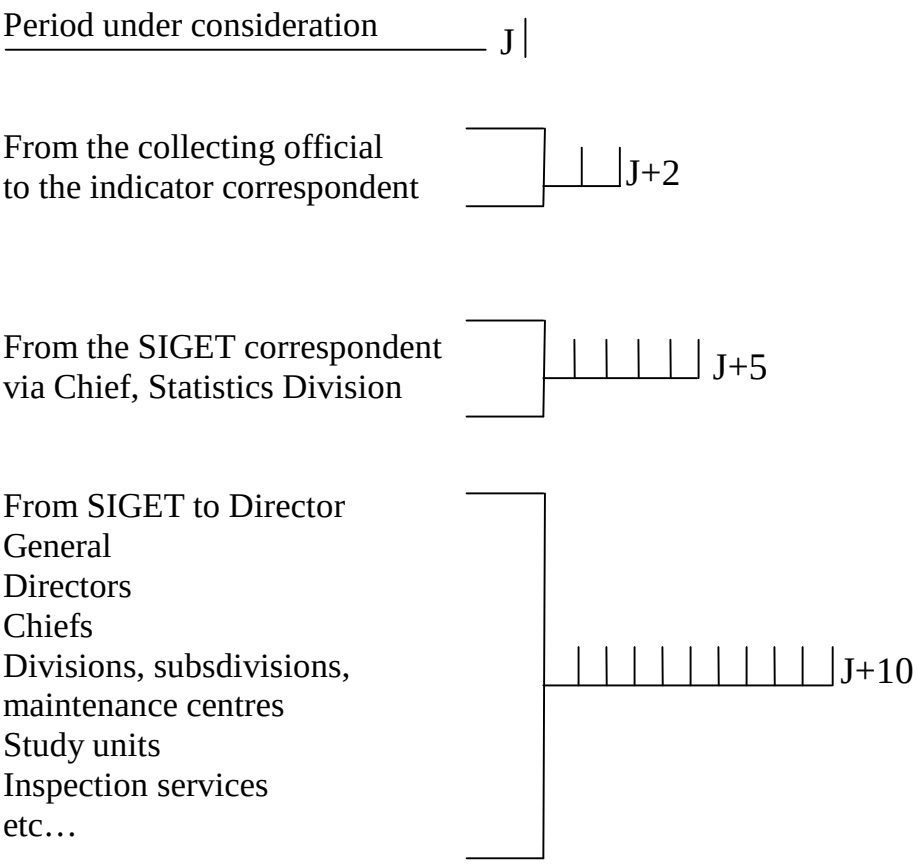
– To divisions, subdivisions and operational centres by D + 3 at the latest.

– To the Telecom Statistics Division by D + 4 at the latest.

c) From the Information System Section to the Director General, directors and chief of divisions, subdivisions and operational centres

The various key indictors must reach their recipients by D + 10 at the latest.

TRANSMISSION TIMETABLE



SYNTHESIS OF STATISTICAL DATA AT 31 DECEMBER 1998

	1994	1995	1996	1997	1998
A - PRODUCTION					
I. TELEPHONE					
Installed capacity (subscriber equipment)	23 614	23 614	26 112	26 112	47 104
Number of main lines (ML) in service	21 400	21 715	24 050	24 920	31 395
Telephone density (ML/100 inhab.)	0,52	0,53	0,55	0,60	0,71
Number of main lines in service in Lomé	16 315	16 432	18 545	19 481	24 705
Public telephones (Payphones + public booths)	145	152	168	191	321
Private booths declared	856	868	962	1 163	1 712
Fax terminals (estimated)	4 000	10 000	12 000	15 000	18 000
Telephone operation products (millions CFA)	12 020	13 800	17 400	18 120	21 067
Telephone products collected (millions CFA)	10 210	11 730	13 920	11 500	11 793
Staff (employees)	893	888	860	850	841
Productivity (employees/1000 ML)	42	41	36	33	26
GSM cellular telephony (installed capacity)				10 000	10 000
Number of subscribers (GSM)				3 5000	7 500
II. TELEX					
Capacity installed and equipped (circuits and subscribers)	1 497	1 497	1 497	1 497	1 497
Number of telex lines in service (LPX)	317	301	286	230	200
Telex products in MFCFA	220	214	120	65	160
Telex products collected in MFCFA	190	182	102	45	68
II. OTHER NETWORKS					
DATA TRANSMISSION					
Number of videotex subscribers	85	85	85	85	85
Information providersations	3	3	3	3	3

	1994	1995	1996	1997	1998
Subscribers to X.25 service	4	8	8	8	8
Leased circuits	162	164	165	165	165
Products in MFCFA	210	415	165	675	540
Products collected in MFCFA	179	353	372	230	210
INTERNET ACCESS NODE					
CISCO routers				3	3
ISP (Internet service providers)				6	8
Users contracts				247	615
B. SERVICE QUALITY					
I. SWITCHING					
EFFICIENCY RATE (%)					
Local efficiency	70	70	70	70	70
Long-distance efficiency	60	60	60	60	60
International efficiency	45	45	45	45	45
II. TRANSMISSION					
AVAILABILITY (%)					
Urban connections	100	100	100	100	100
Long-distance connections	99,90	99,90	99,90	99,90	99,90
International connections	98	99	99	99	99
III. LOCAL NETWORKS					
Clearance speed in 24 hours %	85	90	95	95	95
Clearance speed in 48 hours %	95	97	99	99	97
Clearance speed in the month	99	100	100	100	99

	1994	1995	1996	1997	1998
IV. COMMERCIAL					
Collection rate (%) (private subscriber)	85	85	80	62	75
Global collection rate (%)	75	75	70	55	60
V. FINANCIAL					
Turnover (MFCFA)	14 061	15 868	19 703	20 192	20 213
VI. INTERNATIONAL TRAFFIC (minutes charged)					
Outgoing	9 003 464	8 487 447	8 637 183	7 935 890	
Incoming	10 573 029	11 787 229	16 737 925	19 892 590	
International circuits (Number)	296	275	225	225	314
Including digital (IDR)			161	161	222
C. ENVIRONMENT (MACRO-ECONOMIC DATA					
Population (10 X 3) inhabitants	4 010	4 138	4 201	4 264	4 406
GDP (10 X 9) FCFA	534.8	605.6	704.7		
GNP (10 X 9) FCFA	497.6	607.9			

TOGO TELECOM

THE TELECOMMUNICATION LEADER IN TOGO

WITH TOGO TELECOM, LIFE IS EASIER

INTRODUCTION TO TOGO

Togo covers an area of 56 600 km^2 and is bounded to the north by Burkina Faso, to the east by Benin, to the west by Ghana and to the south by the Atlantic Ocean. The population is estimated to be 4 500 000, with a growth rate of 2% per annum. The urbanization rate was 33% in 1997 and about 70% of the population live in rural areas. The telephone density is 0.6 main lines per 100 inhabitants.

Togo is a member of various telecommunication organizations, including:

– ITU: International Telecommunication Union;
– PATU: Pan-African Telecommunications Union;
– INTELSAT: International Telecommunications Satellite Organization;
– RASCOM: Regional African Satellite Communications Organization.
- etc

SECTORAL POLICY

In order adapt the regulatory and institutional framework of the telecommunication sector to customer requirements and the world context of globalization and general liberalization of commerce, in February 1996 the Togolese Government issued a sectoral policy declaration in which it reaffirmed its will to promote an appropriate policy with a view to encouraging global growth in the sector through market mechanisms. This will allow private operators to participate in sector development and to satisfy the increasingly diverse and pressing customer requirements. The principles of this policy are based on separation of the regulatory and operating functions and the introduction of an objective and independent regulator. A law has just been passed by the National Assembly providing for the establishment of a regulatory body which will be in charge of applying this new sectoral policy of the government.

TOGO TELECOM

TOGO TELECOM is a state-owned company created by the division of OPTT into two such companies. It is governed by Act No. 90-26 of 4 December 1990 reforming the institutional and legal framework of state enterprises. It is a legal entity and enjoys financial autonomy, with a capital of 4 billion CFA francs. TOGO TELECOM is responsible for equipping and operating the public telecommunication service and is under the technical auspices of the Ministry of Posts and Telecommunications. It is planned to open TOGO TELECOM to private investment during 1999.

TOGO TELECOM INFRASTRUCTURES

1- Switched telephone network

TOGO TELECOM has a totally digital automatic telephone network with a capacity of around 26 000 main lines, of which 19 500 serving Lomé. A project nearing completion will increase this capacity to over 46 000 main lines.

The network is piloted by three central switches: two at Lomé and one at Kara. The customer junction units and the central switches are interconnected by radio or optical fibre links. Interconnection at the international level is via a type A earth station. A project is under way to install a second earth station at Kara.

2- Rural telephony network

TOGO TELECOM has a rural telephony network serving over thirty municipalities, essentially prefecture and sub-prefecture administrative centres, through rural service radio equipment. The second phase of this project which began in 1997, will also serve around 30 municipalities, continuing the policy of linking up all the regions of Togo, with a target of one telephone in a radius of 5 km by the year 2000.

3- Telex network

TOGO TELECOM has in service a telex network with a 1 500 line capacity and around 250 subscribers. The network is declining in keeping with world trends and is increasingly being replaced by fax and more sophisticated forms of data transmission.

4- Réseau de transmission de donnéss par Paquets (TOGOPAC)

TOGO TELECOM has a data transmission network using the X.25 connection. The network was brought into service in 1988 and its present capacity is 88 ports. It is built around two exchanges, situated at Lomé and Kara. The Lomé exchange is linked to the Paris international transit node for international access.

5- GSM Network

TOGO TELECOM has a GSM cellular telephony network with a capacity of 10 000 subscribers, expandable to 150 000 subscribers. It was brought into service in September 1997. The network covers all the large towns in Togo and their suburbs , making all subscribers potentially reachable. It is planned to establish a subsidiary in which TOGO TELECOM will have a holding of 40% and will be in charge of technical and commercial operations.

6- Internet access node

TOGO TELECOM has an Internet access node, operational since October 1997. This node provides to the international system at 256 kbits/s, extendable to 2 Mbits/s, enabling worldwide connectivity.

TOGO TELECOM PRODUCTS AND SERVICES

TOGO TELECOM markets a large number of products and services, including:

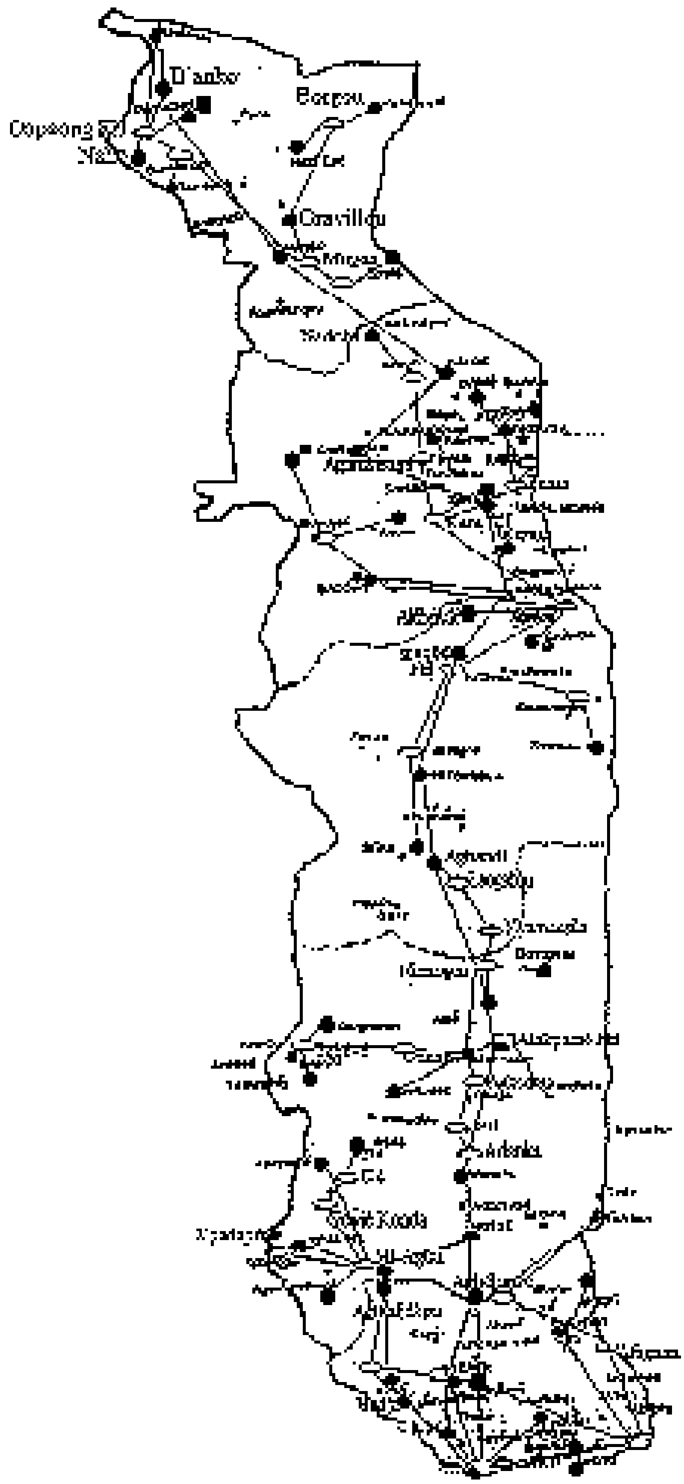
- ✓ telephony;
- ✓ fax;
- ✓ telegraphy;
- ✓ mobile telephony (GSM standard);
- ✓ Internet
- ✓ data transmission
- ✓ dedicated links;
- ✓ community telephony;
- ✓ payphone service;
- ✓ videotex;
- ✓ file transfer;
- ✓ value added services (call transfer, call waiting, voice messaging, itemized billing, reminder services, personal code, etc.)

COMMUNITY TELEPHONY

Community telephony is a new product which TOGO TELECOM has made available to rural and urban communities. It allows people in these communities virtually to have a telephone line. They can be called on the telephone number of their locality.

DIRECTION GENERALE / DIRECTION COMMERCIALE
Avenue Nicolas GRUNITZKY BP 333 Lomé - TOGO
Tel: 21 44 01 Fax: 21 03 73 Telex: 5245 L
E-mail: Togo.télécom@togotel.net.tg

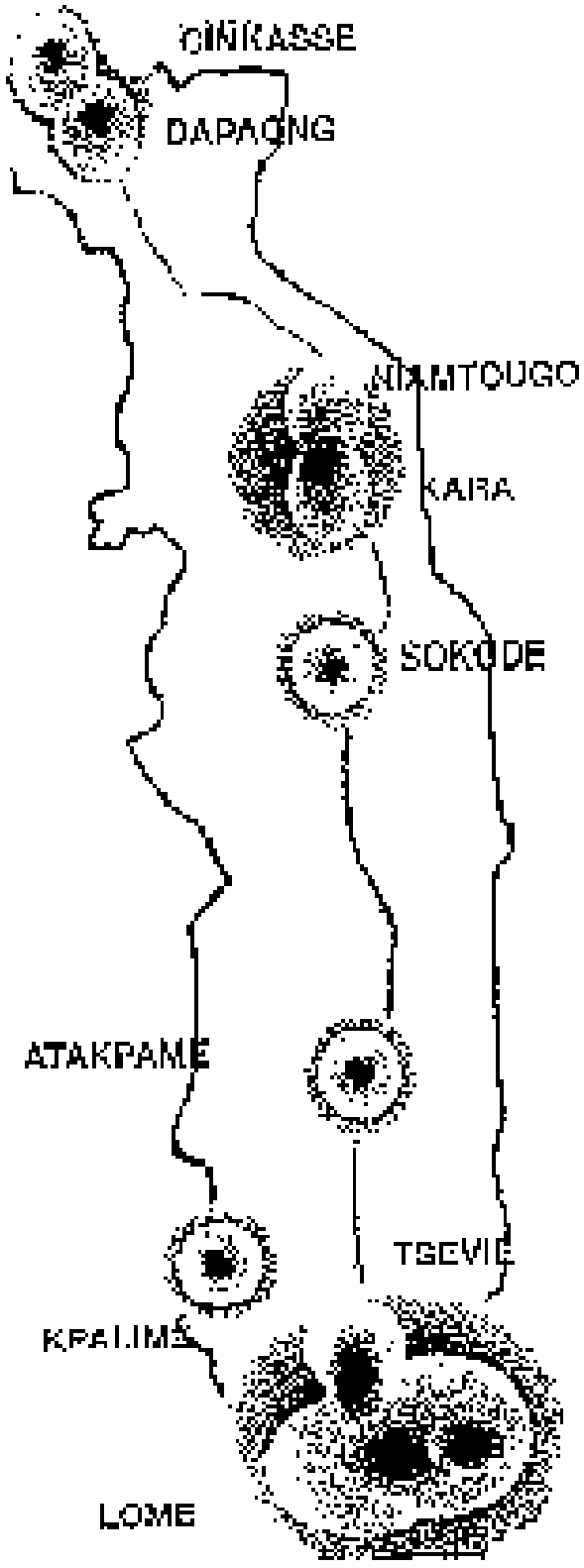
TELECOMMUNICATIONS NETWORK



- ● Administrative centre with automatic exchange
- —— Digital radio-relay artery
- —— Planned links
- —— Existing links
- ■ Central stations
- ● Terminals
- ● Planned terminals
- ⬭ Relay stations
- ⬭ Planned relay stations

MAP SHOWING AREAS COVERED BY CELLULAR NETWORK

BURKINA FASO



GHANA *BENIN*

GULF OF BENIN

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

Document WTIM99/34-E
26 March 1999
Original: English

2nd World Telecommunication Indicators Meeting
(Geneva, 29 - 31 March 1999)

SOURCE: ITU, SWITZERLAND

TITLE: DATA DEFINITION, DATA COLLECTED BY DIFFERENT ENTITIES (REGULATORS, OPERATORS, STATISTICAL AGENCIES, INDUSTRY ASSOCIATIONS), DATA ON INTERNET

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Telecom statistics: Definitions, sources & the Internet

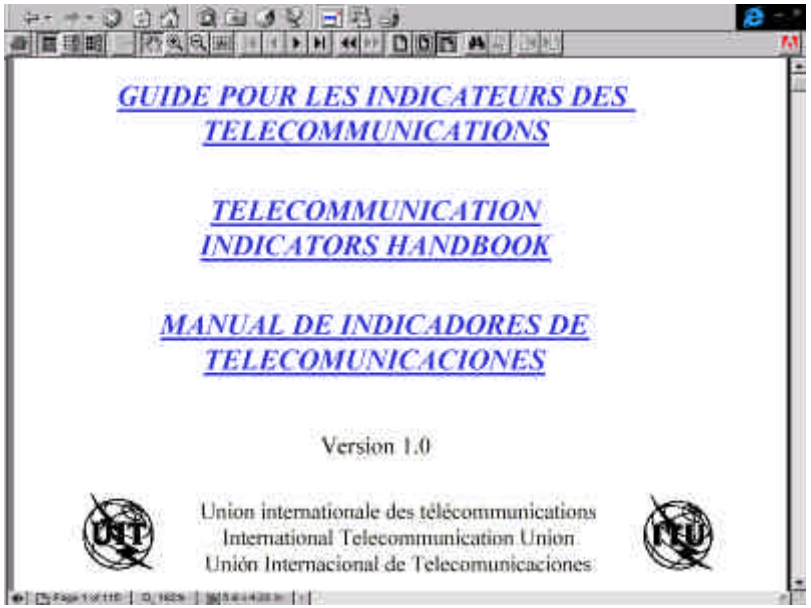
Michael Minges

Telecom statistics definitions

- Definition describing the data
- What data to collect
- Problems

Telecom statistics definitions

- ITU *Telecommunication Indicator Handbook*
  - Lists most important indicators and provides definitions
  - Issued in 1994
- National telecommunication statistic publications



http://www.itu.int/ti/papers/handbook/handbook.pdf

Telecom indicators: What to collect?

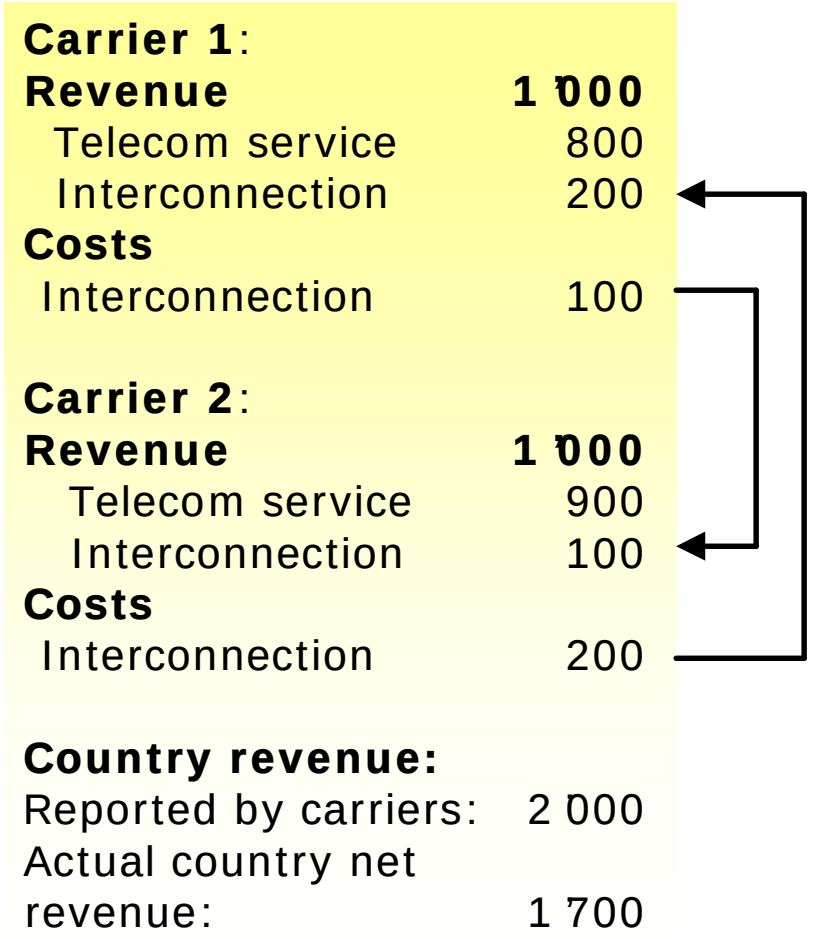
- ITU *Telecommunication Indicator Handbook* identifies 50 key indicators
- Also determined by national policies, goals and monitoring needs
- General consensus by seeing what regulators, operators and statistical agencies around the world collect

Definition issues

- Few problems for network and subscriber data
- Financial data more problematic
  - Double counting problem
  - Scope of telecommunication industry

Double counting

- Preferable to cover network operators and not resellers
- Interconnection can lead to double counting



Scope of telecom service market

- Telephone service
- Mobile service
- Data communications including Internet
- Broadcasting (cable and premium television)

Sources of telecom statistics

- Telecom regulators / ministries
- National statistical agencies
- Operators
- Industry associations
- Consultants, market researchers
- International, regional & bi-lateral government agencies

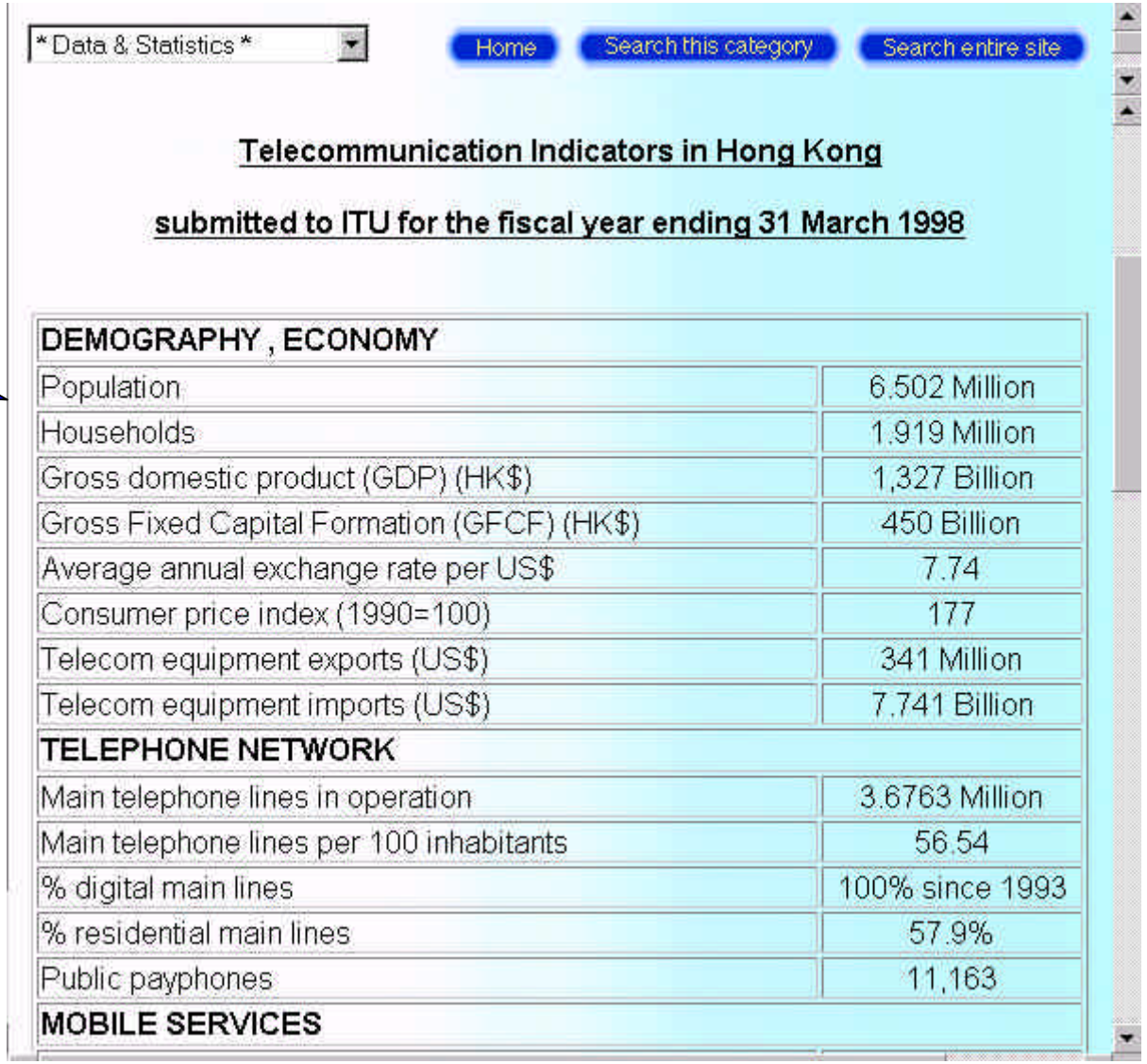
Telecom regulators & ministries: Statistics on the Web

- **Asia**
  - MPT (Japan)
    - http://www.mpt.go.jp/data/index-e.html
  - Ofta (Hongkong SAR)
    - http://www.ofta.gov.hk/index_eng1.html
  - TAS (Singapore)
    - http://www.tas.gov.sg/website/home.nsf/html/indexOnlineServices
  - MIC (Korea (Rep.))
    - http://www.kisdi.re.kr/kisdi/event/mwp9815.gif
- **Europe**
  - NTA (Denmark)
    - http://www.tst.dk/uk/html/statistics.htm
  - OPTA (Norway)
    - http://www.npt.no/publikasjoner/statistikk/eng_index.htm
  - ART (France) (mobile)
    - http://www.telecom.gouv.fr/english/activ/telecom/mobidec.htm
- **Americas**
  - CFT (Mexico)
    - http://www.cft.gob.mx/html/5_est/indest.html
  - MC (Columbia) (Mobile)
    - http://www.mincomunicaciones.gov.co/estadisticas/index.htm
  - FCC (USA)
    - http://www.fcc.gov/indstats.html

T-Reg for regulatory links: http://www7.itu.int/treg/queries/z_url.idc

OFTA - Hong Kong SAR

See Document 29



* Data & Statistics *

Home | Search this category | Search entire site

Telecommunication Indicators in Hong Kong

submitted to ITU for the fiscal year ending 31 March 1998

DEMOGRAPHY , ECONOMY	
Population	6.502 Million
Households	1.919 Million
Gross domestic product (GDP) (HK$)	1,327 Billion
Gross Fixed Capital Formation (GFCF) (HK$)	450 Billion
Average annual exchange rate per US$	7.74
Consumer price index (1990=100)	177
Telecom equipment exports (US$)	341 Million
Telecom equipment imports (US$)	7.741 Billion
TELEPHONE NETWORK	
Main telephone lines in operation	3.6763 Million
Main telephone lines per 100 inhabitants	56.54
% digital main lines	100% since 1993
% residential main lines	57.9%
Public payphones	11,163
MOBILE SERVICES	

Oftel - UK

Market Information

OFTEL collects and publishes facts and figures on the UK telecommunications market directly from the operators and service providers. Currently over 30 fixed link operators and the four cellular network operators are taking part. A full summary of the information is published at the end of each year and four quarterly updates contain figures for the latest quarter available.

See Document 21

National statistical agencies

- Very few collect telecom statistics
- Those that do often have out-of-date or irrelevant data
- Generally categorized under "Transport and communications"
- Source for household telephone penetration

- Good examples:
  - Statistics Canada
  - Statistics South Africa (for household penetration)
- Good pointer to worldwide statistical agencies:
  - Statistics Sweden http://www.scb.se/scbeng/statbuen.htm

Statistics Canada

Catalogue No. 56-002-XIB

N° 56-002-XIB au catalogue

TELEPHONE STATISTICS

DECEMBER 1998

Science and Technology Redesign Project

STATISTIQUE DU TÉLÉPHONE

DÉCEMBRE 1998

Projet de remaniement des sciences et de la technologie

Vol. 22, No. 12

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SPECIAL NOTICE TO USERS: This is the last issue of this catalogue in its current form. The monthly survey is being replaced by an expanded quarterly survey. The results for the first two quarters of 1999 will be available in August 1999, and the publication of the first quarterly issue will be announced in the Daily.

AVIS AUX LECTEURS: Ceci est le dernier numéro de ce bulletin dans son format actuel. L'enquête mensuelle fait place à une nouvelle enquête trimestrielle visant un plus grand nombre d'entreprises du secteur des télécommunications. Les résultats pour les deux premiers trimestres de 1999 seront disponibles en août 1999, et la publication du premier numéro fera l'objet d'une annonce dans le Quotidien.

Statistical Highlights (Figures for December 1997 are shown in parentheses).

Operating revenue for the 14 telephone companies participating in this survey for December 1998 was $1,523.9

Faits saillants (Les chiffres du mois de décembre 1997 figurent entre parenthèses.)

Les recettes d'exploitation pour les 14 compagnies de téléphone participant à cette enquête pour le mois de décembre 1998 se sont

Telephone statistics

Status: Ongoing

Frequency: Monthly
Medium: Internet
First Issue: April 1998
Latest Issue: December 1998; released March 19 1999
Available in: Bilingual (English/French) edition
International Standard Serial Number: ISSN 1480-8242

Abstract:

This on-line publication presents monthly and year-to-date data as aggregated from reports for the major wireline telephone systems in Canada along with comparisons to data from the previous year. Information is provided on operating revenue and expenses, salaries and wage payments, number of employees, construction expenditures, telephone toll messages and network access lines in service.

This publication Telephone statistics is the release of current monthly telephone statistics. The data is presented on a current month and year-to-date basis. This year, the monthly report will be replaced by a quarterly report with expanded coverage to include major alternative and wireless telephone service providers.

Continues the print publication with the same title (first issue date: April 1977) commencing with the January 1998 issue.

http://www.statcan.ca/english/IPS/Data/56-002-XIB.htm

NSO ъs relevancy?

Statistiska centralbyrån
Statistics Sweden

Data from NSOs not always relevant or up-to-date

Telephone, broadcasting, etc.

	1985	1990	1995
Telephone,automatic			
Pulses, Mill.	30 194	44 640	..
Mobile calls *1)*, thousands	39	257	..
Telex service			
Connections	19 361	14 222	4 650
Minutes for outgoing international, thousands	32 770	13 657	3 322
Data communication			
Datex, connections	16 426	41 976	31 768
Radio och TV			
Number of licences, thousands	3 257	3 309	3 368
Per 1 000 inhabitants	390	385	381

1) Including toll-free calls.

http://www.scb.se/scbeng/svsiffror/svsiffrortrafikeng.htm

Operators

- Many telecom operators have annual reports and a growing number publish them on the Internet
- In some cases single PTO reflects situation in country (at least for fixed)
- Some PTOs also publish additional useful information

Operator data

Operating Data (Unaudited)

AirTouch Communications, Inc. and Subsidiaries

TOTAL ENTERPRISE DATA

(In thousands)	12/31/98 Total System POPs	12/31/98 Total System Subscribers*
U.S. CELLULAR (1)	86,627	9,006
INTERNATIONAL CELLULAR		
Belgium - 25.0%	10,130	1,238
Egypt - 30.0%	54,500	38
Germany** - 34.8%	81,300	~ 6,000
India - 20.0% & 49.0%	79,357	34
Italy - 15.5%	57,500	6,190
Japan - Digital Phone Group - 13.0 % - 15.0%	77,215	3,475
Japan - Digital TU-KA Companies *** - 4.5%	48,902	2,140
Poland - 19.3%	38,500	~ 800
Portugal - 50.9%	9,920	1,370
Romania - 10.0%	23,200	325
South Korea - 10.7%	45,600	2,142
Spain - 21.7%	39,400	2,157
Sweden - 51.1%	8,830	624
TOTAL INTERNATIONAL	574,354	26,533

TELKOM

Operator	Dec 31, 1997	Dec 31, 1998	Growth (%)
TELKOMSEL	335,962	424,525	26
SATELINDO	303,724	346,926	14
KOMSELINDO	65,000	77,030	19
EXCELCOMINDO	133,296	169,857	27
MOBISEL	30,309	11,873	(61)
METROSEL	41,178	29,060	(29)
TELESERA	6,704	6,549	(2)
TOTAL	916,173	**1,065,820**	**16**

International & bi-lateral agencies

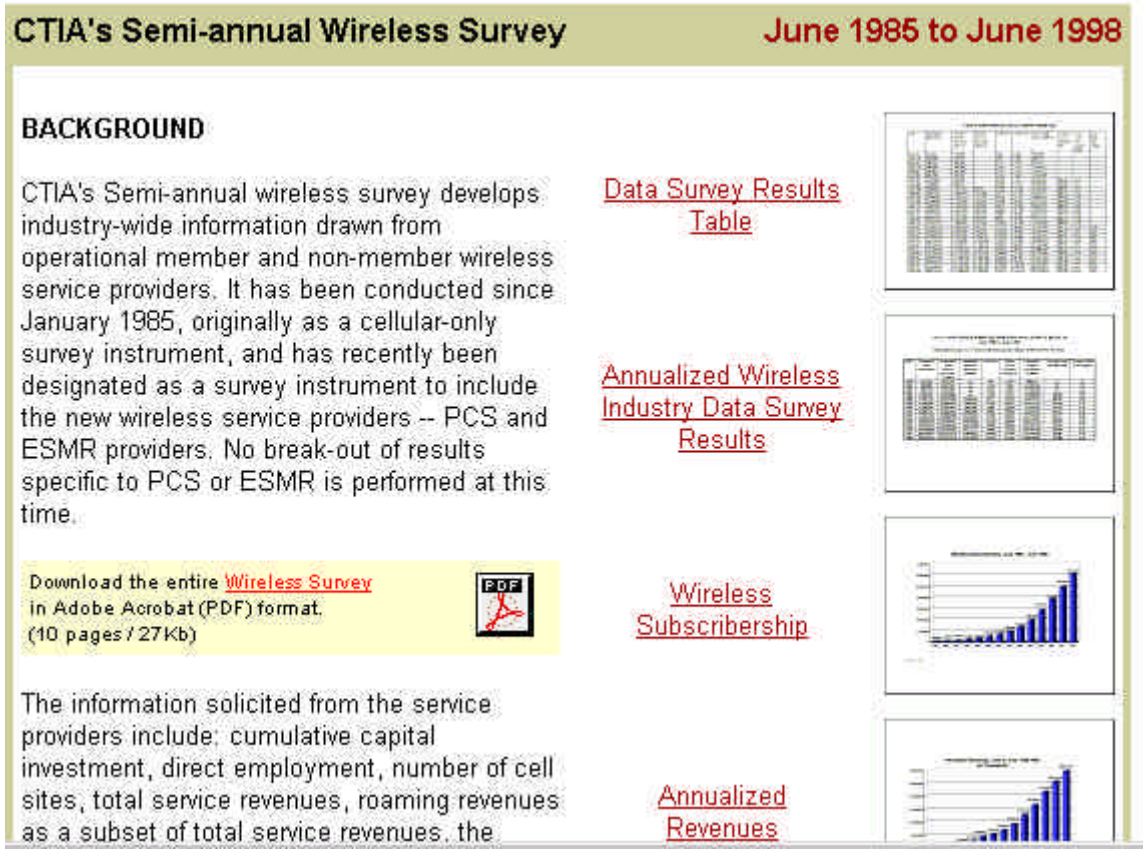
- International organizations: ITU, OECD, Eurostat
- Regional telecom organizations: RCC, Comtelca
- Bi-lateral

RTR

http://rtr.worldweb.net

Industry associations

- Telephone and mobile cellular industry have associations in some countries that compile statistics

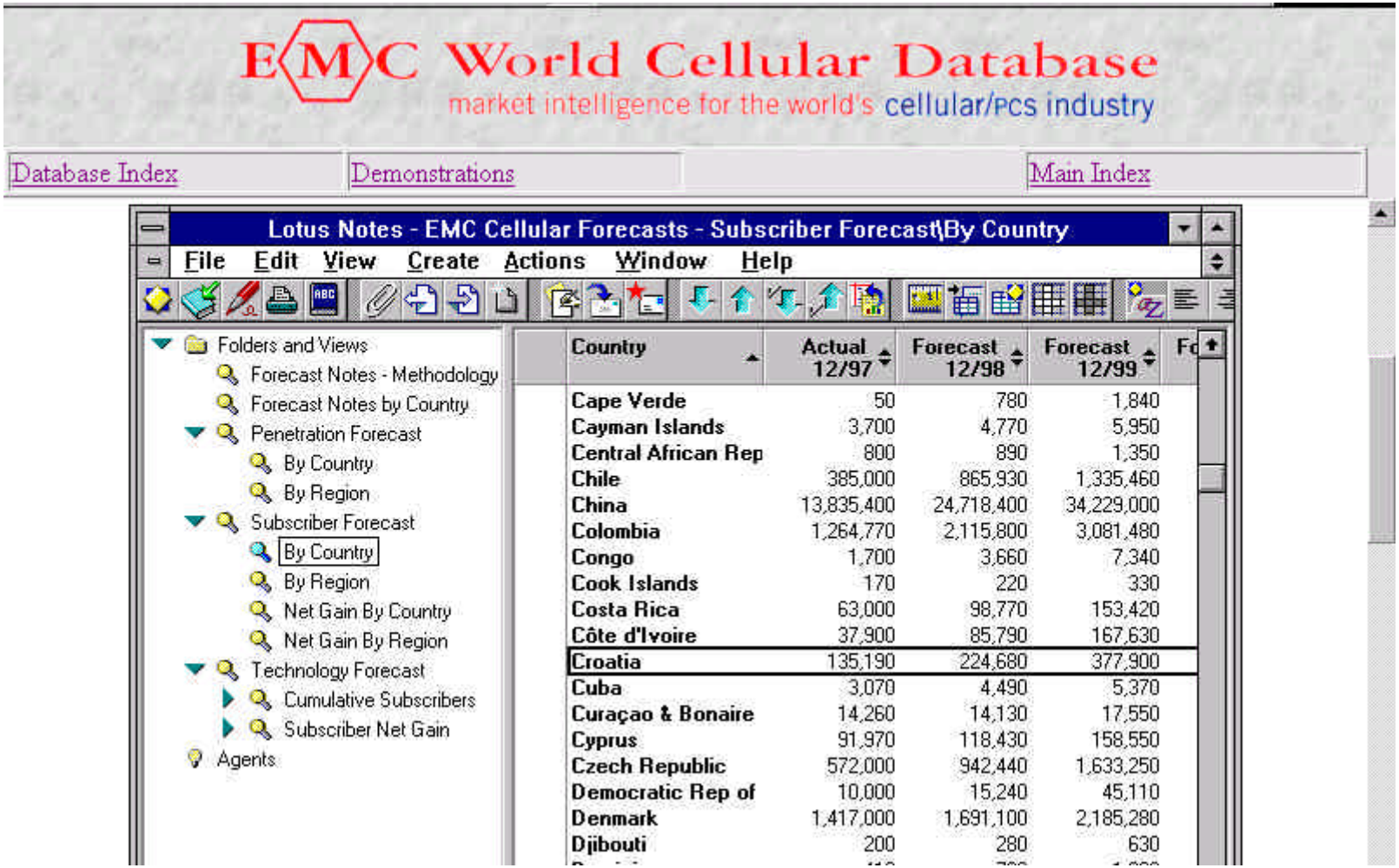


Cellular Telecommunication Industry Association (USA)
http://www.wow-com.com/statsurv/survey/datasurvey_index.cfm

Consultants

- Consultants and market research organizations also "collect" telecom data
- Methodology often unclear
- Reports often very expensive
- Exception: When consultants are hired by regulators to prepare market reports (Sweden)

EMC



Country	Actual 12/97	Forecast 12/98	Forecast 12/99
Cape Verde	50	780	1,840
Cayman Islands	3,700	4,770	5,950
Central African Rep	800	890	1,350
Chile	385,000	865,930	1,335,460
China	13,835,400	24,718,400	34,229,000
Colombia	1,264,770	2,115,800	3,081,480
Congo	1,700	3,660	7,340
Cook Islands	170	220	330
Costa Rica	63,000	98,770	153,420
Côte d'Ivoire	37,900	85,790	167,630
Croatia	135,190	224,680	377,900
Cuba	3,070	4,490	5,370
Curaçao & Bonaire	14,260	14,130	17,550
Cyprus	91,970	118,430	158,550
Czech Republic	572,000	942,440	1,633,250
Democratic Rep of	10,000	15,240	45,110
Denmark	1,417,000	1,691,100	2,185,280
Djibouti	200	280	630

Sweden

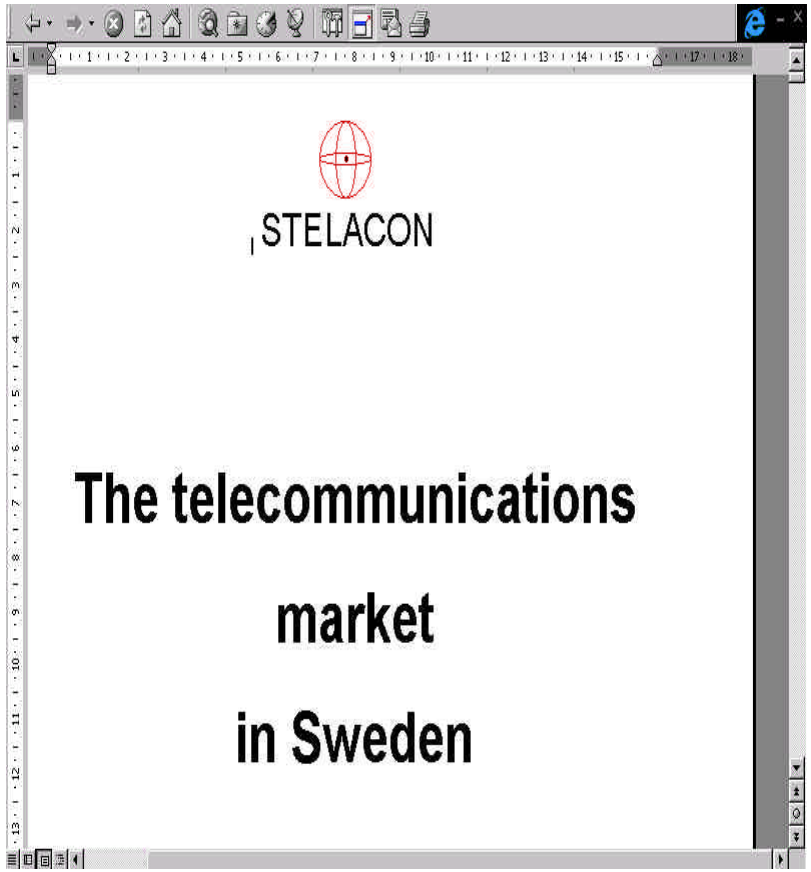


Table : Number of subscriptions for mobile telephony in Sweden for the period 1994-12-31 – 1997-12-31, NMT and GSM, broken down by mobile operator

Share of subscriptions	1994-12-31	1995-12-31	1996-12-31	Including prepaid cards 1997-12-31	Excluding prepaid cards 1997-12-31
Total subscriptions	1 381 000	2 009 000	2 492 000	3 169 000	2 934 000
Telia AB (NMT)	59%	48%	37%	24%	26%
Telia AB (GSM)	18%	23%	33%	37%	40%
Comviq GSM AB	10%	21%	19%	26%	20%
Europolitan	5%	7%	11%	13%	14%

Table: Number of GSM subscriptions for mobile telephony in Sweden for the period 1994-12-31 – 1997-12-31, broken down by mobile operator

Share of GSM subscriptions	1994-12-31	1995-12-31	1996-12-31	Including prepaid cards 1997-12-31	Excluding prepaid cards 1997-12-31
Total subscriptions	422 000	1 033 000	1 571 000	2 414 000	2 179 000
Telia AB	51%	45%	52%	48%	54%
Comviq GSM AB	32%	41%	30%	34%	27%
Europolitan	17%	14%	18%	18%	19%

Table : Value of mobile telephony broken down into NMT and GSM, for the period 1994 - 1997. The operators' revenue from interconnection traffic is not included.

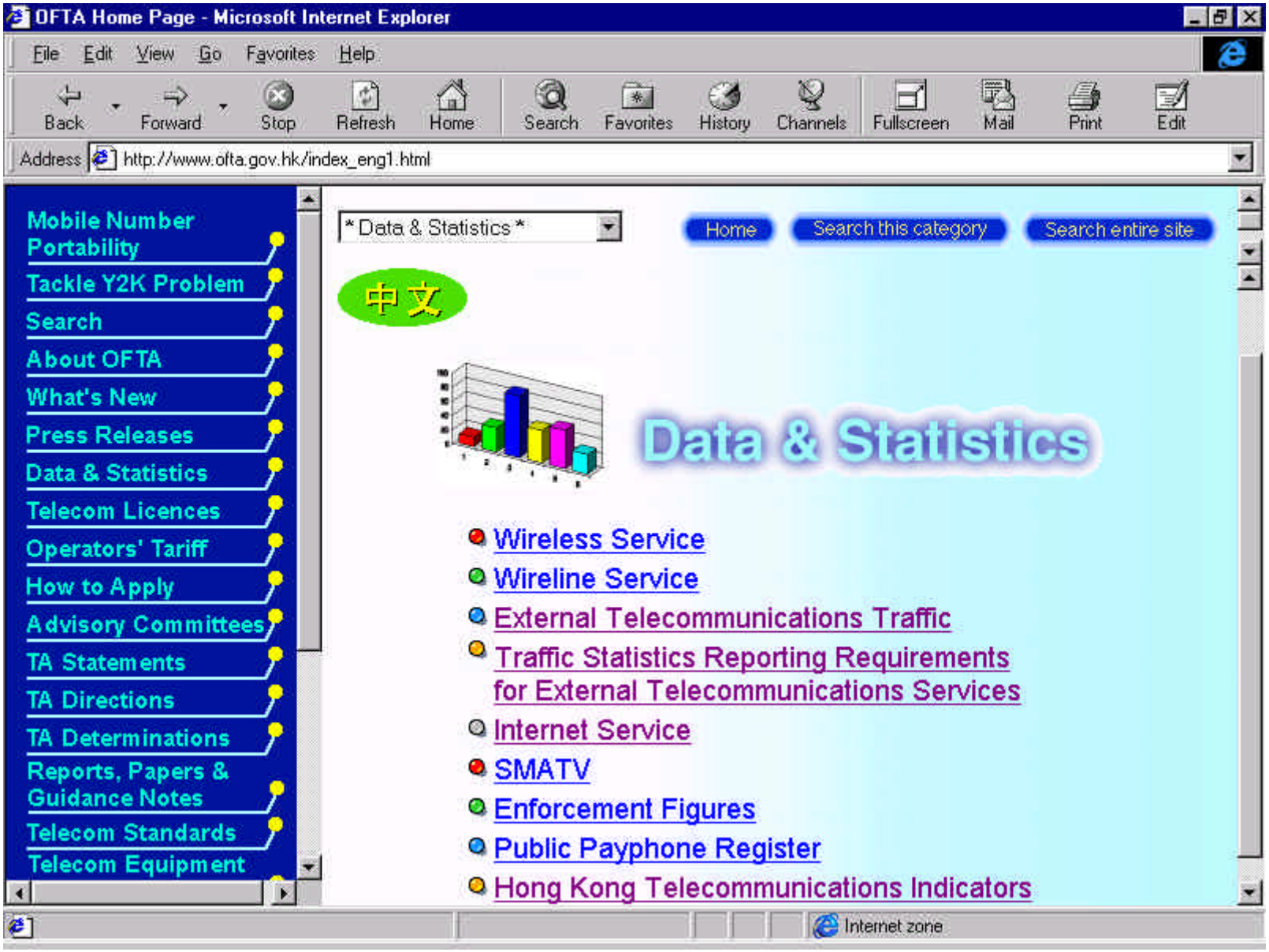
The mobile telephony market (SEK billion)	1994	1995	1996	1997
Total	4.34	6.05	7.42	8.42
The GSM market	1.07	2.31	4.46	6.19
The NMT market	3.27	3.74	2.96	2.23

http://www.pts.se/DWNLOAD/stel97-e.doc

Conclusions

- Start now on small scale and refine...
- Learn from others...

OFTA - Hong Kong SAR



Israel

NATIONAL POSTAL SERVICES AND COMMUNICATION

	1997	1996	1995	1990	1980	1970	1960	1950
COMMUNICATION								
Telephone Net								
Exchanges	..	260	284	260	143	89	78	52
Thereof: digital	..	255	258	156	-	-	-	-
Capacity of	..	2,932	2,579	1,975	979	441	80	..
exchange								
Thereof: digital capacity	..	98	92	43	-	-	-	-
Length of optical	..	9,081	6,581	1,100	-	-	-	-
fibre cables								
Lines and telephones								
Direct subscribers'	2,656	2,539	2,343	1,626	860	369	68	17
lines								
Thereof: digital	100	100	92	44	-	-	-	-
Lines per 100	45	44	42	34	22	12	3	1
residents								
Public telephones	23,751	27,041	24,709	14,730	7,540	3,740	540	..
Applications								
outstanding(3)								
For new lines	9	22	17	31	208	70	20	13

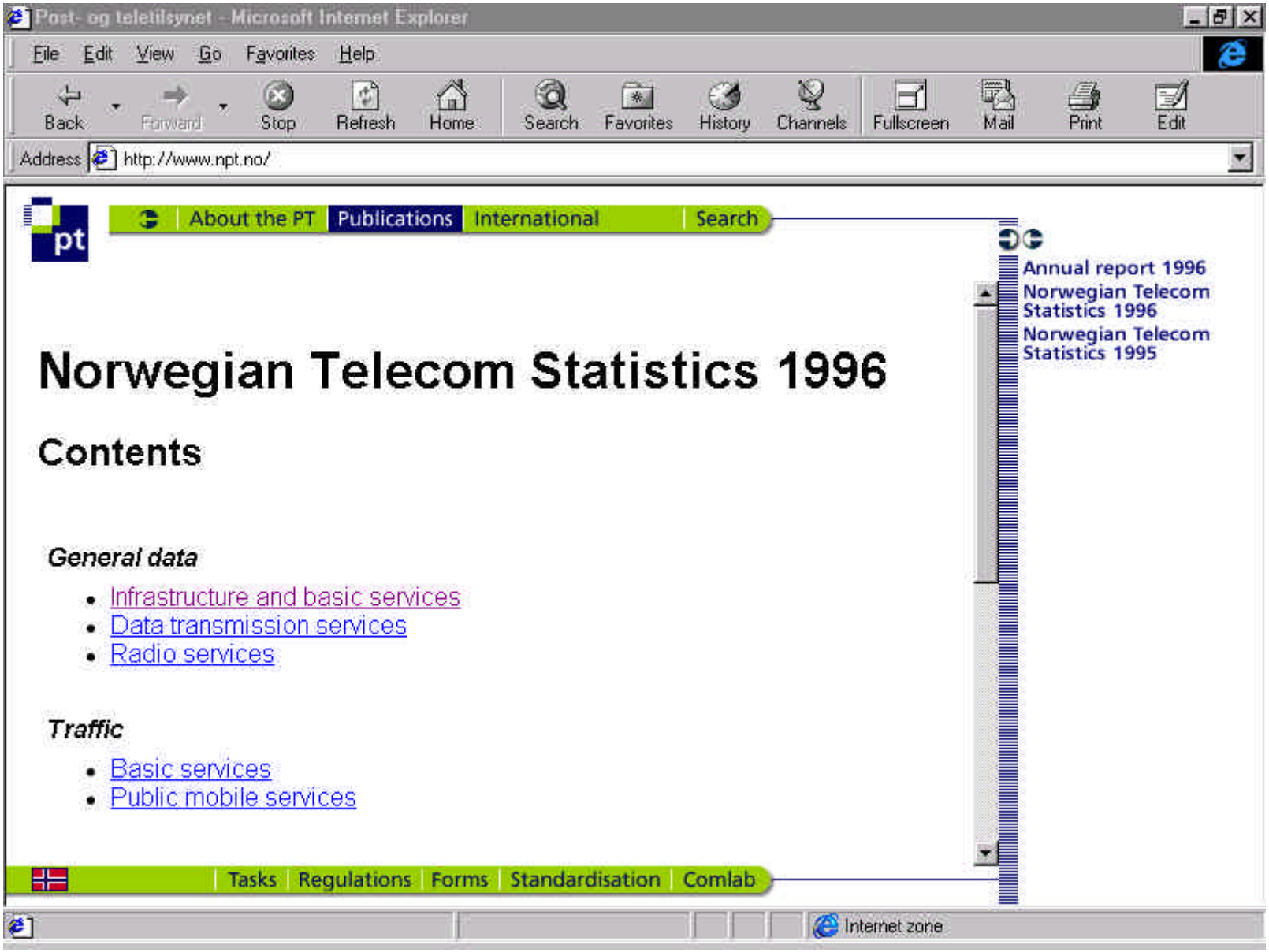
הלשכה המרכזית לסטטיסטיקה
CENTRAL BUREAU OF STATISTICS

http://www.cbs.gov.il/shnaton/shnatone.htm

Denmark


Telestyrelsen
National Telecom Agency
search
e-mail
home
help
links
What's New
Legislation
Telecommunication Sector
Organisation
Frequencies
Numbering Issues
Standardisations
Licenses
Interference
International Relations
Publications
Statistics
Indhold • Forrige • Næste
Teleårbog / Tele Yearbook
Danmark / Denmark
Teleårbog
Telestyrelsen, November 1998
Oprettet den 12.11.1998
Resumé
Teleårbogen omfatter statistiske meddelelser vedrørende televirksomheden i Danmark. Teleårbogen er udarbejdet af Telestyrelsen.
Teleårbog 1997 indeholder oplysninger fra: debitel, Global One, IBM, Image Scandinavia, Mobilix, Powercom, RSL Com, Sonofon, Tele Danmark, Tele 2, Tele 1020/Interroute Danmark A/S, TelePartner og Telia.
Teleårbog 1997 indeholder oplysninger om fastnettelefoni, mobiltelefoni, faste kredsløb, Kabel-TV, pakkekoblet datakomunikation, takster, anlægsforhold, økonomiske forhold, regnskabestatistik samt oplysninger vedrørende
TELE 97

Norway


Post- og teletilsynet - Microsoft Internet Explorer
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Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit
Address http://www.npt.no/
pt
About the PT Publications International Search
Annual report 1996
Norwegian Telecom Statistics 1996
Norwegian Telecom Statistics 1995
Norwegian Telecom Statistics 1996
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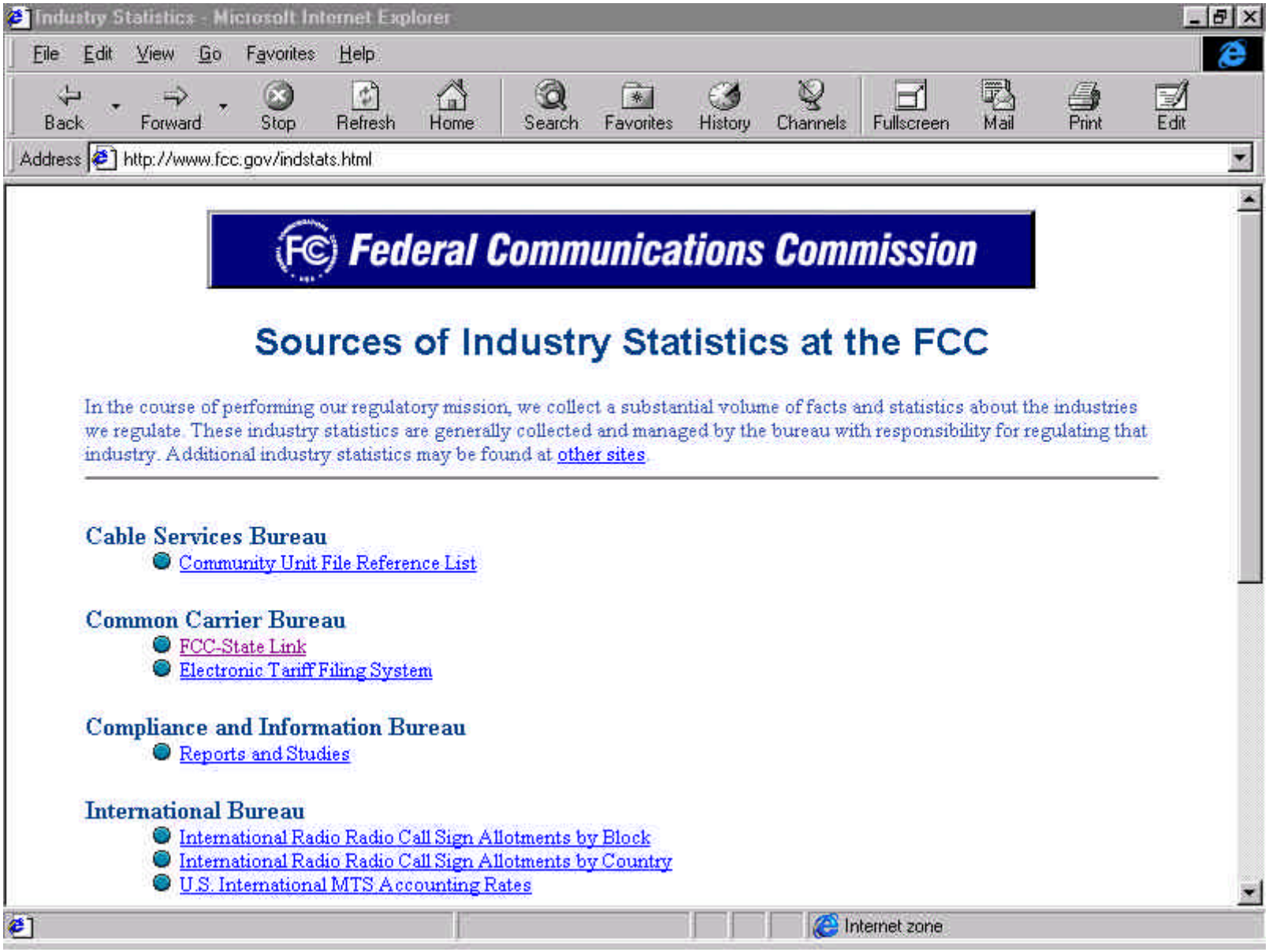
General data
Infrastructure and basic services
Data transmission services
Radio services
Traffic
Basic services
Public mobile services
Tasks Regulations Forms Standardisation Comlab
Internet zone

FCC


Industry Statistics - Microsoft Internet Explorer
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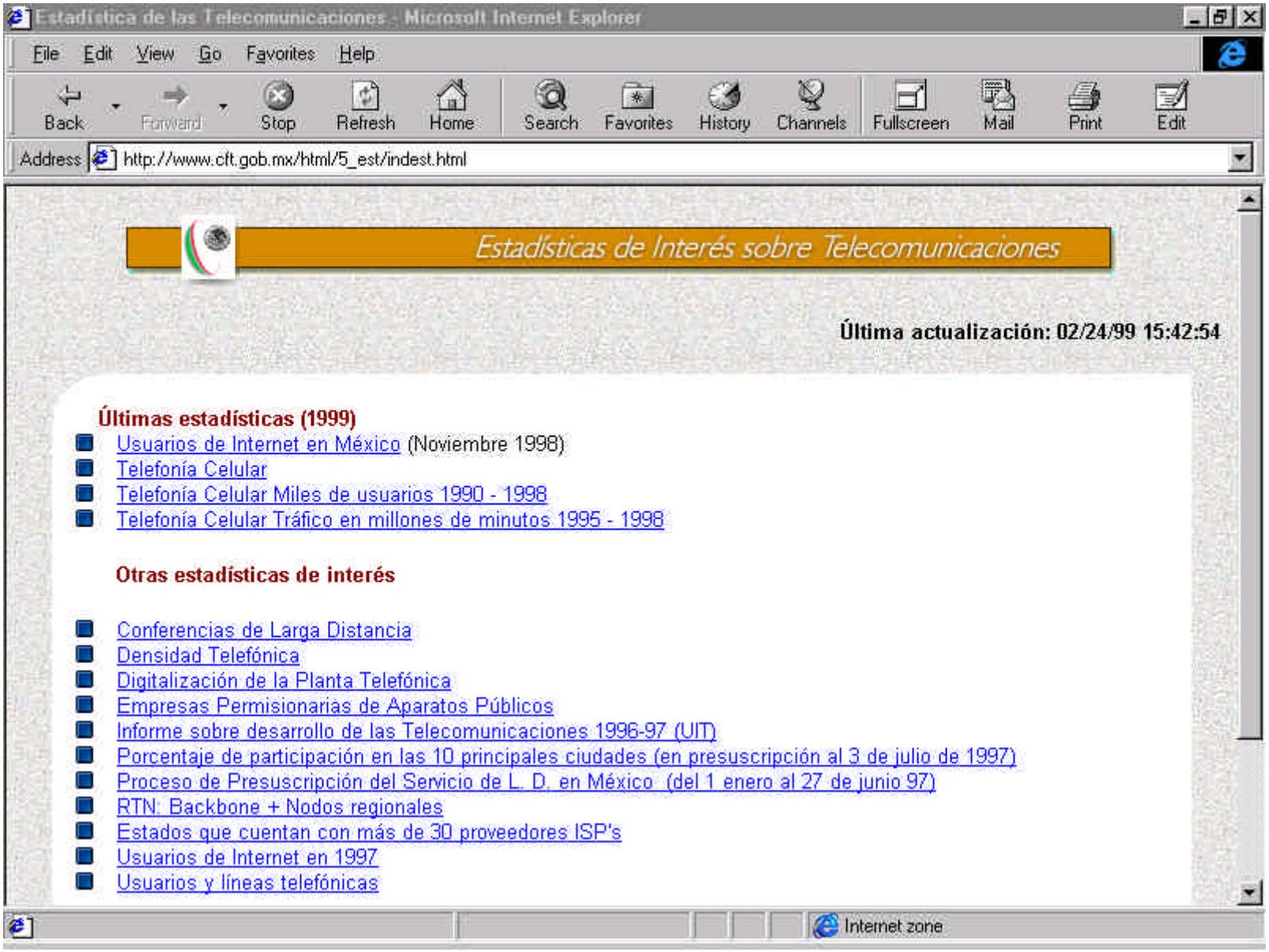
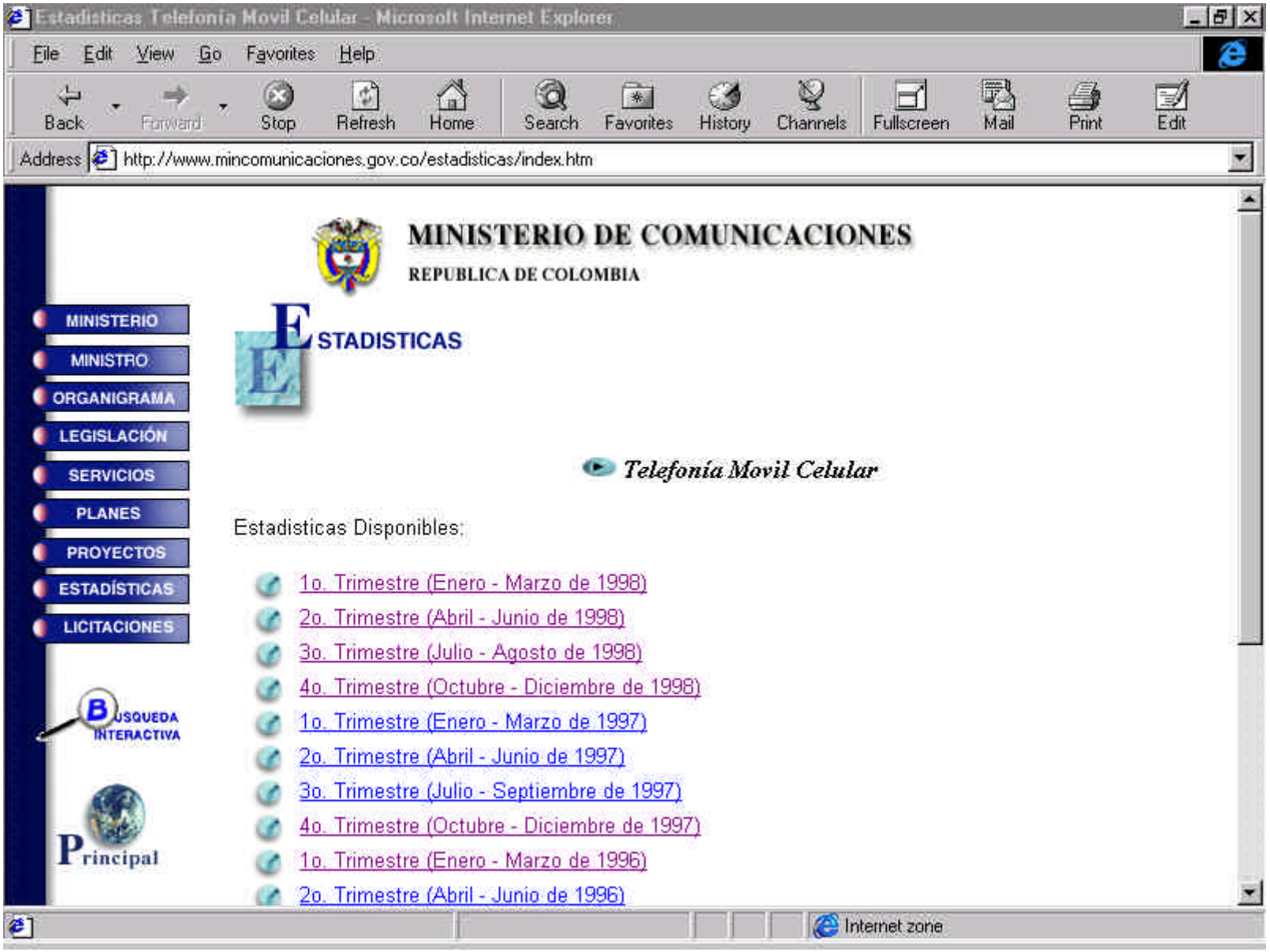
Address http://www.fcc.gov/indstats.html
Federal Communications Commission
Sources of Industry Statistics at the FCC
In the course of performing our regulatory mission, we collect a substantial volume of facts and statistics about the industries we regulate. These industry statistics are generally collected and managed by the bureau with responsibility for regulating that industry. Additional industry statistics may be found at other sites.
Cable Services Bureau
Community Unit File Reference List
Common Carrier Bureau
FCC-State Link
Electronic Tariff Filing System
Compliance and Information Bureau
Reports and Studies
International Bureau
International Radio Radio Call Sign Allotments by Block
International Radio Radio Call Sign Allotments by Country
U.S. International MTS Accounting Rates
Internet zone

Mexico


Estadística de las Telecomunicaciones - Microsoft Internet Explorer
File Edit View Go Favorites Help
Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit
Address http://www.cft.gob.mx/html/5_est/indest.html
Estadísticas de Interés sobre Telecomunicaciones
Última actualización: 02/24/99 15:42:54
Últimas estadísticas (1999)
Usuarios de Internet en México (Noviembre 1998)
Telefonía Celular
Telefonía Celular Miles de usuarios 1990 - 1998
Telefonía Celular Tráfico en millones de minutos 1995 - 1998
Otras estadísticas de interés
Conferencias de Larga Distancia
Densidad Telefónica
Digitalización de la Planta Telefónica
Empresas Permisionarias de Aparatos Públicos
Informe sobre desarrollo de las Telecomunicaciones 1996-97 (UIT)
Porcentaje de participación en las 10 principales ciudades (en presuscripción al 3 de julio de 1997)
Proceso de Presuscripción del Servicio de L. D. en México (del 1 enero al 27 de junio 97)
RTN: Backbone + Nodos regionales
Estados que cuentan con más de 30 proveedores ISP's
Usuarios de Internet en 1997
Usuarios y líneas telefónicas
Internet zone

Colombia


Estadisticas Telefonia Movil Celular - Microsoft Internet Explorer
File Edit View Go Favorites Help
Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit
Address http://www.mincomunicaciones.gov.co/estadisticas/index.htm
MINISTERIO DE COMUNICACIONES
REPUBLICA DE COLOMBIA
ESTADISTICAS
MINISTERIO
MINISTRO
ORGANIGRAMA
LEGISLACIÓN
SERVICIOS
PLANES
PROYECTOS
ESTADÍSTICAS
LICITACIONES
BUSQUEDA INTERACTIVA
Principal
Telefonía Movil Celular
Estadisticas Disponibles:
1o. Trimestre (Enero - Marzo de 1998)
2o. Trimestre (Abril - Junio de 1998)
3o. Trimestre (Julio - Agosto de 1998)
4o. Trimestre (Octubre - Diciembre de 1998)
1o. Trimestre (Enero - Marzo de 1997)
2o. Trimestre (Abril - Junio de 1997)
3o. Trimestre (Julio - Septiembre de 1997)
4o. Trimestre (Octubre - Diciembre de 1997)
1o. Trimestre (Enero - Marzo de 1996)
2o. Trimestre (Abril - Junio de 1996)
Internet zone

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

Document WTIM99/36-E
14 May 1999
Original: English

2nd World Telecommunication Indicators Meeting
(Geneva, 29 - 31 March 1999)

SOURCE: MS. LAURA MÄNNISTÖ & MR. BEN PETRAZZINI, STRATEGIC PLANNING UNIT, ITU

TITLE: CHALLENGES TO THE NETWORK 1999

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Challenges to the Network:

Internet for Development

Edition 1999
ITU

FORUM

The views expressed in this paper are those of the author and do not necessarily reflect the opinions of the ITU or its membership.

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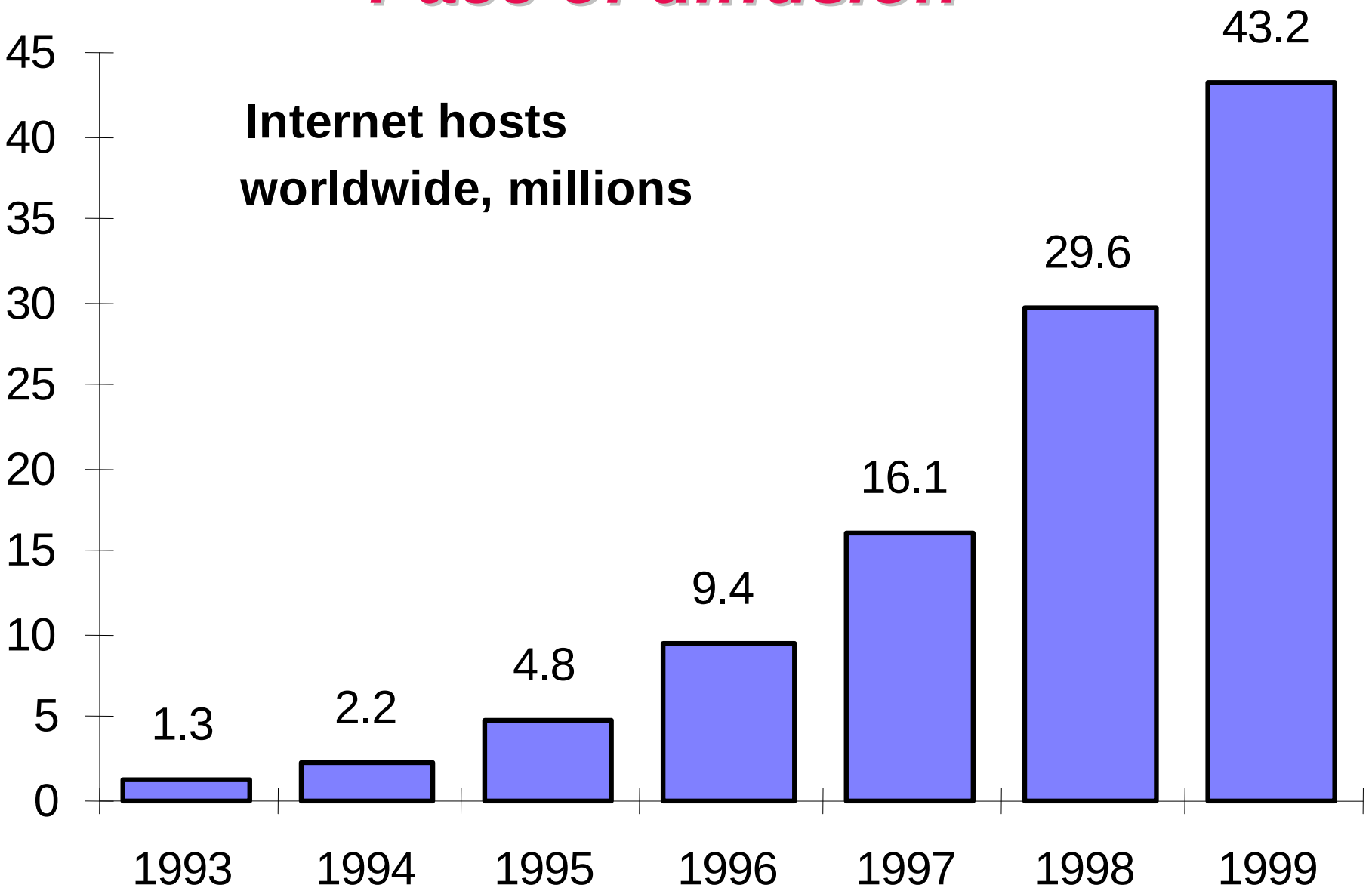
What is so special about the Internet (Chap 1)

- **Underlying technology**
- **Pricing**
- **Traffic flows and value flows**
- **US-centric**
- **Pace of diffusion**

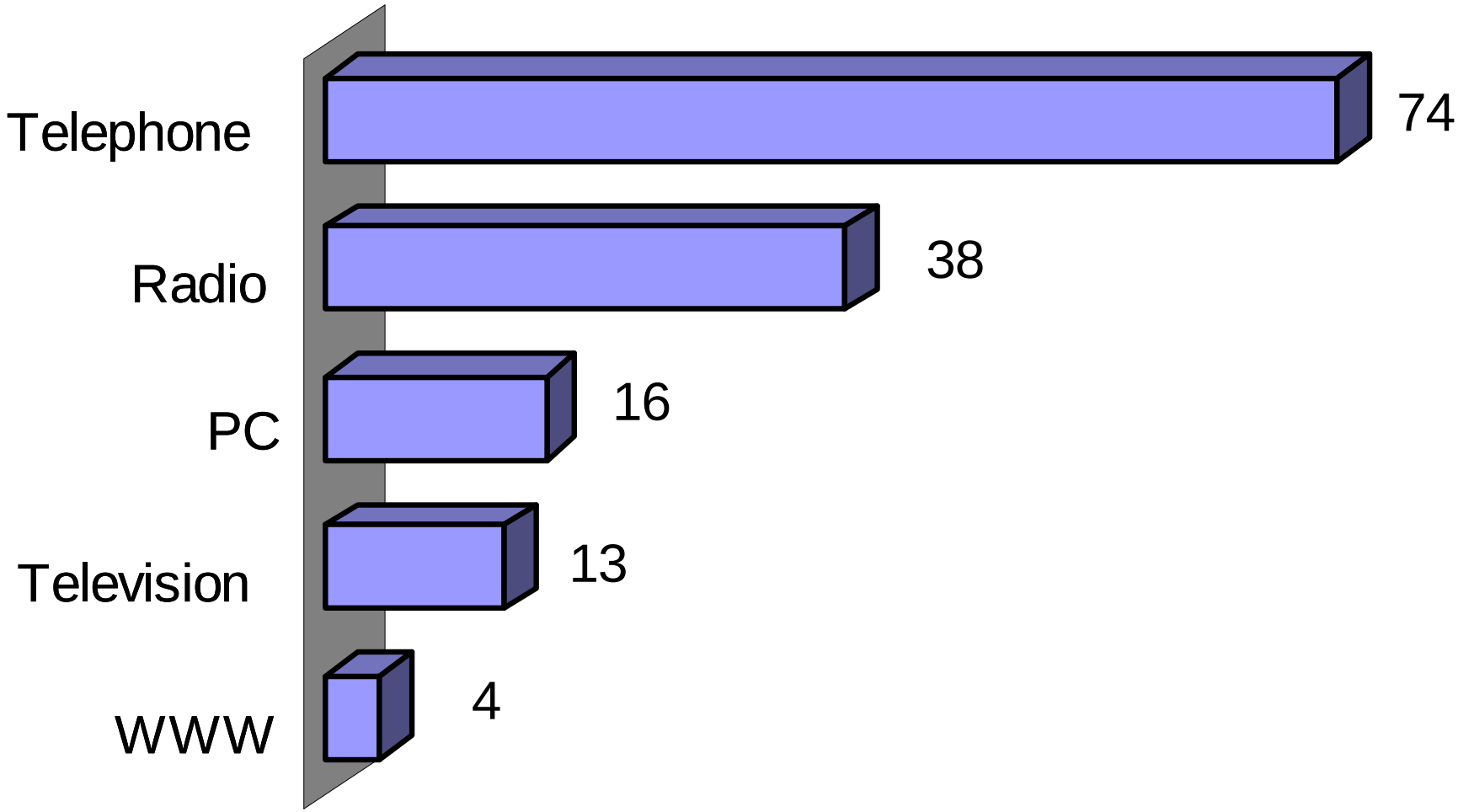
Pace of diffusion



Source: ITU 1999 "Challenges to the Network: Internet for Development"

Pace of diffusion

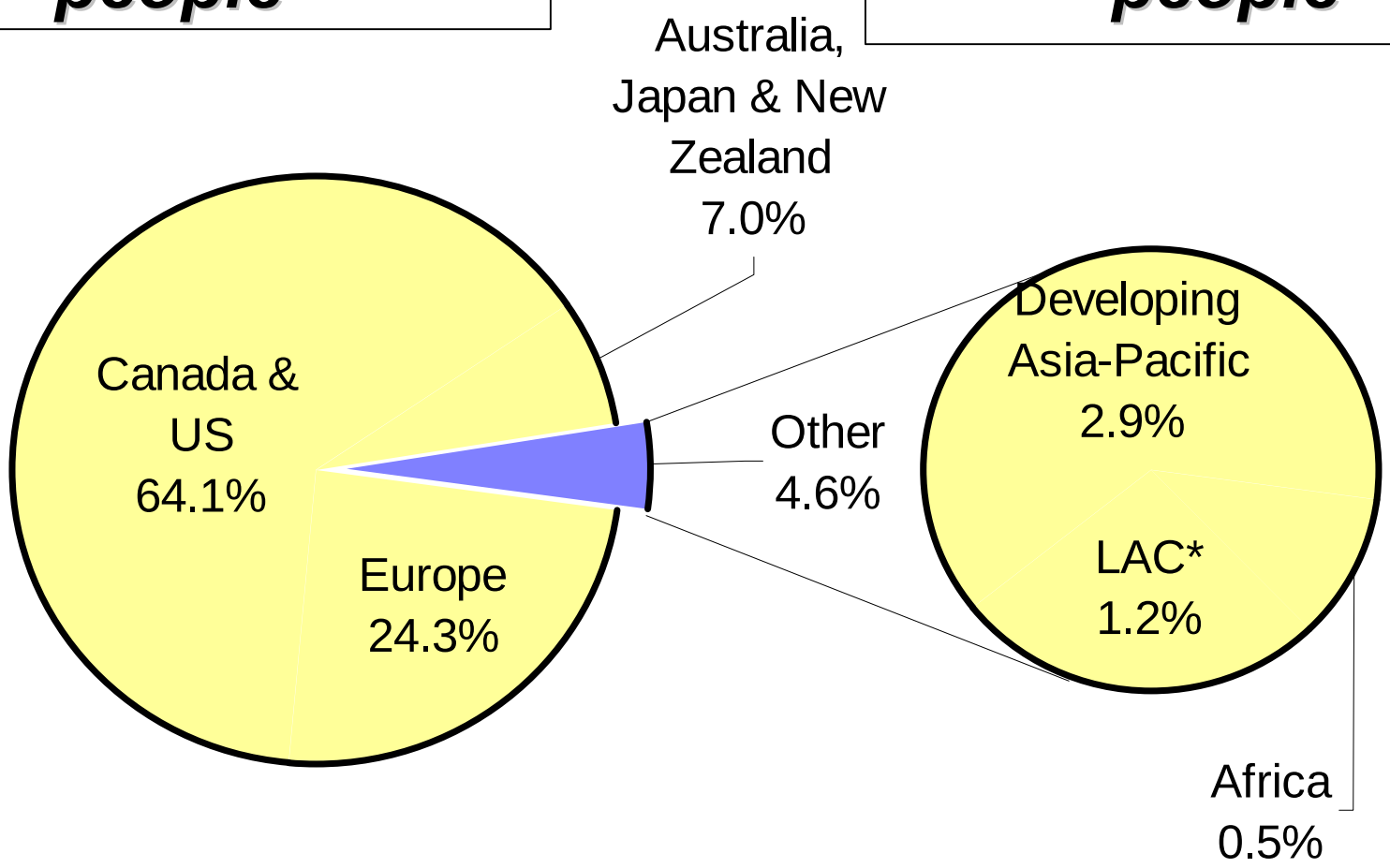
Years it took to reach 50 million users



… but quite uneven

Developing:
6 host per 10'000 people

Developed:
312 host per 10'000 people



Source: ITU 1999 "Challenges to the Network: Internet for Development"

Global Internet distribution

- **96% of Internet host computers are in high income countries which have only 16% of population**
- **There are more Internet hosts in Finland that in the whole of Latin America and the Caribbean**
- **The city of New York has more Internet hosts than the whole of Africa**

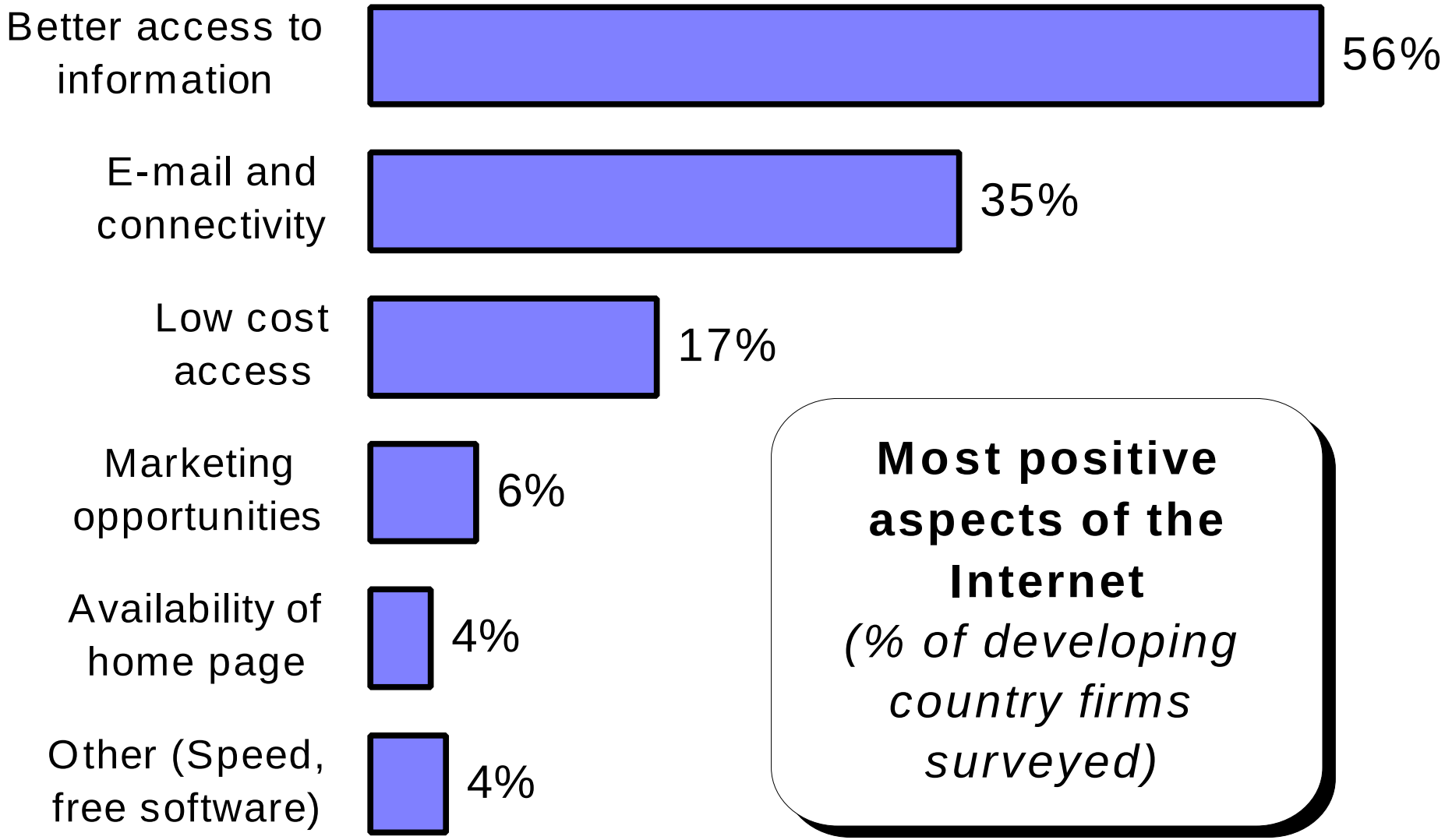
Internet in Developing Countries (Chap 2)

- **Status of Internet in developing countries**
- **Who is connected**
  - ⇨ **wealth - education - gender - location - age**
- **Problems connecting**
  - ⇨ **prices of net access - market structure - infrastructure - content and language**
- **Geography of Cyberspace**

Commerce on the Internet (Chap 3)

- **Global trends**
- **Trends in developing countries**
- **Recent developments by region**
- **Industry analysis**
- **Cost and benefits of e-commerce for developing countries**

Why e-commerce?



Most positive aspects of the Internet
(% of developing country firms surveyed)

Internet for Health (Chap 4)

- **Poor information, poor health**
- **Consultation over the Net**
- **Medical publications and databases**
- **Medical records online**
- **Epidemics and natural disasters**
- **Regulating and financing online health**
- **Telemedicine and the ITU**

Internet for Education (Chap 5)

- **Primary and secondary education**
- **Tertiary education and research**
- **Training and continuing education**
- **Financing**
- **Complementarity & substitution**
- **Education in the 21st century**

Internet for Education (Chap 5)

Country	Institution	Established	Students	Budget (US$ m.)	Faculty
Turkey	Anadolu University	1982	577'804 [95]	30	1'260
China	China TV University System	1979	530'000 [94]	1.2	31'000
Indonesia	Universitas Terbuka	1984	353'000 [95]	21	5'791
India	Indira Gandhi National Open Univ.	1985	242'000 [95]	10	13'652
Thailand	Sukhothai Thammathirat Open Univ.	1978	216'800 [95]	46	3'536
Korea	Korea National Open University	1982	210'578 [96]	79	2'840
France	Centre Nat. d'Enseignement à Dist.	1939	184'614 [94]	56	4'800
UK	The Open University	1969	157'450 [95]	300	8'191
South Africa	University of South Africa	1873	130'000 [95]	128	3'311
Iran	Payame Noor University	1987	117'000 [95]	13.3	3'665
Spain	Univ. Nac. de Educación a Distancia	1972	110'000 [95]	129	4'600

Internet for PTOs (Chap 6)

- **A new form of competition**
- **Price and service trends**
- **Internet telephony**
- **New markets, new applications**
- **Cost and benefits of e-commerce for developing countries**

To regulate or not to regulate? (Chap 7)

- **Content**
- **Copyright**
- **Privacy**
- **Domain names**
- **Jurisdiction**
- **Competition policy**