FINAL REPORT

2ND WORLD TELECOMMUNICATION INDICATORS MEETING

GENEVA, 29 - 31 MARCH 1999

INTERNATIONAL TELECOMMUNICATION UNION

ENGLISH

2nd World Telecommunication Indicators Meeting

(WTIM99)

Geneva, 29-31 March 1999

WORKING DOCUMENTS

INTERNATIONAL TELECOMMUNICATION UNION

Contents

Other documents

Distributed for information

- Telecommunication statistics collection and dissemination in Taiwan
The Directorate General of Telecommunications, Taiwan-China
- Telecommunications data gathering in Germany
Regulatory Authority for Telecommunications & Posts, Germany
- Background Paper for Official Statistics on Telecommunications in Sweden
Swedish Institute for Transport and Communications Analysis (SIKA), Sweden
- State of telecommunications data collection and dissemination in Liberia
Ministry of Posts and Telecommunications, Liberia

Special ITU distribution

- World Telecommunication Indicators database on STARS (diskette)
- Telecommunication Indicators Handbook (included in diskette package)
- Yearbook of Statistics (1988-1997)

Documents used as reference material

- Market information update - August 1998
- Traffic statistics reporting requirements for external telecommunication services
- International telecommunications data
- Collection and publication of international call information
- Telephone subscribership in the United States
- Basic indicators and cellular subscribers - 1998
- Telecommunication indicators in Hongkong submitted to ITU
for the fiscal year ending 31 March 1998

Foreword

World Telecommunication Indicators Meeting 1999

Introduction

The 2nd World Telecommunication Indicators Meeting, organized by the Telecommunication Development Bureau (BDT) of the International Telecommunication Union (ITU) was held at the ITU headquarters in Geneva from 29-31 March 1999. There were 82 participants from 55 countries and four international organizations (see List of Participants, Document 2).

The Chairperson of the meeting was William D. Kishanda, Tanzania while the Vice-Chairpersons were William Alberto Poveda Garzon, Colombia and Xavier Delache, France.

The agenda of the meeting is attached (Document 3). There were a number of presentations in addition to discussions about the indicators used in the telecommunication sector (See List of Documents, Document 1 for background papers issued at the meeting[1]).

Country presentations of telecom statistics collection and dissemination

- *Telecommunications in Finland - A Statistical Overview*. M. Åkermarck, Ministry of Transport and Communications, Finland
- *Overview of Norway Telecommunication Statistics.* O. Hoel, Norwegian Posts and Telecom Authority
- *Telecom Statistics in a Competitive Environment*. D. Mozes, Industry Canada and Mr. H. McCarrel, Statistics Canada
- *State of Telecommunications Statistics Collection and Dissemination in BTC.* S. Mokomane, Botswana Telecommunications Corporation (BTC)
- *Socatel - Basic data.* A. Yangana, Socatel, Central African Republic
- *Statistics in Sri Lanka & Future Developments in Telecommunications.* A.S.W Bandusiri Silva, Telecom Regulatory Authority of Sri Lanka
- *Telecommunication statistics in Togo*. Séwa Mensah, Togo Telecom

This session dealt with country experiences in collecting, compiling and disseminating telecommunication statistics. The trend in developed countries is for telecommunication regulatory agencies to collect statistics while in developing countries, the main operators still carry out that function. In the case of Canada, the national statistical agency collects the statistics with input from the ministry responsible for telecommunications. The difficulty of collecting telecommunication statistics in an increasingly liberalized industry was raised. Regarding confidentiality, it was felt that the type of statistics being solicited are general enough so this is not really an issue. Furthermore it is hard to argue that some statistics are confidential in one country when they are readily available in other more competitive markets. The problems faced by many developing countries in terms of non-automated reporting systems, varying definitions and a lack of appreciation by management of the importance of the statistics was identified.

Regional and international overviews of telecom statistics

- *OECD Work on Communications Indicators*. S. Paltridge, OECD, France.
- *Eurostat's prospects on telecommunications statistics*. M. Lumio, EUROSTAT, Luxembourg
- *Telecommunication Statistics.* M.C. Gasbarro, ITU
- *Of Data Gathering and Data Storage*. O. Beauvais, ITU
- *Challenges to the Network 1999.* B. Petrazzini & L. Männistö, ITU

This session dealt with international organization involvement with telecommunication statistics. The Organization for Economic Co-operation and Development (OECD) presented its latest telecommunication statistics and analysis report, *Communication Outlook 1999*. There was emphasis on Internet statistics since this is of growing importance in OECD member countries. Eurostat, the European Community Statistical Office, spoke about its involvement in telecommunication statistics. The difficulty of collecting statistics in the liberalized European telecommunication sector was identified. One problem is that as former monopoly telecommunication operators—which had previously been the main source of statistics—became transformed into enterprises, responsibility for data collection has shifted. On the one hand many regulators have not fully assumed this task while national statistical offices do not have the experience. The ITU presented its routine for collecting and disseminating statistics as well as some pointers for how the telecommunication statistics can be stored, maintained and disseminated in a database system. The latest ITU indicator report dealing with the Internet, *Challenges to the Network 1999*, was presented.

[1] The documents are available on-line on the ITU's World Wide Web site (http://www.itu.int/ti/WTIM99/Documents.html).

World Telecommunication Indicators Meeting 1999

Telecom traffic, mobile communication and universal service/access statistics

- *International traffic & tariff indicators*. T. Kelly, ITU
- *Mobile communication indicators*. M. Minges, ITU
- *Measuring access to telecommunications: Universal service and access indicators*. M. Minges, ITU

This session dealt with identifying and defining specific groups of telecommunication statistics. In the area of international telephone traffic statistics it was mentioned that as the Internet grows in importance, new types of international telecommunication traffic statistics would be needed. Regarding mobile communication statistics, it was pointed out that mobile is one of the fastest growing telecommunication market segments and therefore statistics in this area are essential. The *next World Telecommunication Development Report* would have mobile communications as its theme. A set of indicators for measuring universal service and universal access was presented.

Other

- *Data definition, data collected by different entities, data on the Internet.* M. Minges, ITU.
- *Telecom statistics from a user's perspective.* Mr. Paolo Labombarda, Consiel Management Consulting, Italy

Other issues

A representative of the TDAG Subgroup dealing with private-sector issues emphasized the importance of statistical information. He noted that he would inform the private-sector group about this meeting and hoped for closer collaboration in the future. It was also noted that the Telecommunication Development Advisory Group (TDAG) might be consulted for comments and advice regarding the telecommunication indicators.

Gender issues have become an important issue at the ITU with recommendations on that subject emanating from the second World Telecommunication Development Conference and the Plenipotentiary Conference. Telecommunication statistics should reflect gender as far as possible.

The representative from Colombia stated that the ITU statistics should be considered official statistics obtained from governmental sources. It was also mentioned that ITU Member States and Sector Members should be the main data suppliers.

Recommendations

The meeting made a number of recommendations:

- The formation of an Expert Group on Telecommunication Indicator Definitions. The goal of this group is to update the ITU's *Telecommunication Indicator Handbook* to reflect new indicators and definitions used in the telecommunication sector. The Group would be coordinated by Mr. Minges, ITU/BDT and initially be composed of the participants from Australia, Canada, Colombia, Portugal, Senegal, Syria, Eurostat, and OECD. The output of the group would be posted on the web for comments by all and any person wishing to participate in the group would be welcome. The group would work as far as possible by electronic means (e-mail, fax, etc.) although it could be envisaged that a meeting would be held to present the output of the group (providing sufficient resources are available). It is expected that the group would produce a draft version within one year.

- It was recommended that the next World Telecommunication Indicator Meeting be held again in 2001 in order to report to the next World Telecommunication Development Conference (2002). In the interim, holding regional meetings on the subject of telecommunication indicators is encouraged.

- The Meeting also urged the ITU/BDT to provide hyperlinks to telecommunication statistics available on the web from telecommunication ministries, regulators, operators and national statistical offices through the ITU Telecommunication Indicator web page.

Opening Remarks

Opening Remarks

H. Touré, Director, BDT

World Telecommunication Indicators Meeting

Monday March 29 1999, 9:15 am, ITU Salle B

It is with great pleasure that I welcome you to the second World Telecommunication Indicators meeting. This reunion arises from resolutions of different regional telecommunication development conferences—endorsed by the 1998 World Telecommunication Development Conference —to convene a global meeting dealing with the main indicators used to analyze worldwide telecommunication development.

We are all aware of the growing importance of telecommunications and the need for relevant, up-to-date and comparable statistics for analyzing the industry. This includes measurements for comparing universal service, network progress and performance as well as macro-economic measurements to gauge the impact of telecommunications on social and economic development.

There is also an urgent need to gauge the benefits and costs of liberalization, privatization, competition and globalization taking place in the sector in order to inform policy makers and others about the effects of the growing number of options. Ironically, these same trends are complicating the availability and comparability of the statistics. This meeting might want to consider how to improve the coverage of the statistics in an era of growing liberalization.

Convergence is blurring the boundaries of the telecommunications, broadcasting and computing industries, making it difficult to determine exactly what it is to be measured. Perhaps telecommunication indicators should be expanded to cover information-communication indicators. Here too, this meeting might want to provide some guidelines.

The ITU's involvement with telecommunication statistics goes back a long way. The exchange of statistics goes back through the ITU 's preceding organizations to the beginning of international telegraph networks in 1848. The ITU 's mandate for disseminating telecommunication information is outlined in the International Telecommunication Convention as well as the ITU 's agreement with the United Nations. However it is really since the establishment of the Telecommunication Development Bureau (BDT) that the ITU has begun to regularly use statistics in an analytical way in order to gauge network developments worldwide.

The BDT is intimately involved in telecommunication indicators. It launched the telecommunication indicator series in 1990. These publications, including the *World Telecommunication Development Report*, as well as regional and topical studies, have become the global source for comparable telecommunication indicators. The BDT also works closely with national, regional and international organizations on the definition, exchange and collaboration of telecommunication indicators. Finally, the BDT has initiated several projects for assisting developing countries to improve the collection, dissemination and presentation of telecommunication indicators.

I am particularly impressed by the interest in this subject as manifested by the number of participants to the meeting. I would also like to thank those regulators, national statistical offices, operators and international agencies that have agreed to make presentations about the collection and use of telecommunication statistics in their organizations and countries. This is the true spirit of collaboration where others can learn about problems and success in order to enhance their own national telecommunication statistics.

I wish you utmost success in this second World Telecommunication Indicators meeting. Furthermore, I can assure you that the BDT remains firmly committed to this area and will endeavor to assist implement whatever recommendations arise from your deliberations over the next few days.

List of documents

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

Document WTIM99/1-E rev. 3
9 November, 1999
Original: English

2ND WORLD TELECOMMUNICATION INDICATORS MEETING:
GENEVA, 29 - 31 MARCH 1999

2nd World Telecommunication Indicators Meeting

Final list of documents

Doc. No.	Source	Title	Language
1 rev. 3	ITU, Switzerland	Final List of Documents	E/F/S
2 rev. 2	ITU, Switzerland	Final List of Participants	E/F/S
3 rev.2	ITU, Switzerland	Final Meeting Schedule	E/F/S
4	Mr. M. Minges ITU/BDT	Measuring Access to the Telecommunications: Universal service and Access Indicarors (available on Wednesday)	E/F/S
5	ITU, Switzerland	World Telecommunication Indicators database on ☆STARS☆ (diskette)	E
6	ITU, Switzerland	Telecommunication Indicators Handbook (included in diskette package)	E/F/S
7	Ms. M.C. Gasbarro ITU/BDT	Telecommunication Statistics	E/F/S
8	Mr. O. Beauvais ITU/BDT	Of Gathering and Data Storage	E/F/S
8 rev. 1	Mr. O. Beauvais ITU/BDT	Of Gathering and Data Storage	E
9	Mr. M. Äkermarck Ministry of Transp. & Comm., Finland	Telecommunications in Finland - A Statistical Overview	E
10	Mr. M. Lumio Eurostat, Luxembourg	Eurostat's Prospects on Telecommunication Statistics	E/F/S
11	Ms. D. Mozes / Mr. H. McCarrel, Statistics Canada	Telecommunication Statistics in a Competitive Environment	E
12	Mr. M. Minges ITU/BDT	Mobile Communication Statistics	E/F/S
13	Mr. T. Kelly ITU/BDT	International Traffic & Tariff Statistics	E/F/S
14	ITU, Switzerland	Yearbook of Statistics (1988-1997)	E/F/S
15	Mr. O. Hoel Norwegian Posts and Telecom. Authority	Overview of Norway Telecommunication Statistics	E

Doc. No.	Source	Titre	Language
16	Mr. S. Mokomane BTC, Botswana	State of Telecommunication Statistics Collection and Dissemination in Botswana Telecommunications Corporation (BTC)	E
17	Mr. S. Paltridge OECD, France	OECD Work on Communication Indicators	E
18	Mr. A.S.W Bandusiri Silva, TRC, Sri Lanka	Statistics in Sri Lanka & Future Developments in Telecommunications	E
19	The Directorate General of Telecom, Taiwan-China	Telecommunication Statistics Collection and Dissemination in Taiwan	E
20	Regulatory Authority for Telecom & Posts, Germany	Telecommunications data gathering in Germany	E
21	OFTEL, United Kingdom	Market Information Update – August 1998	E
22	OFTA, Hongkong Sar	Traffic Statistics Reporting Requirements for External Telecommunication Services	E
23	FCC, United States	International telecommunications data	E
24	OFTEL, United Kingdom	Collection and Publication of International Call Information	E
25	FCC, United States	Telephone subscribers Ship in the United States	E
26	Mr. A. Yangana SOCATEL, Central African Republic	SOCATEL – Données de base	F
27	Helen Asp SIKA, Sweden	Background paper for official statistics on telecommunications in Sweden	E
28	ITU, Switzerland	Basic Indicators & Cellular Subscribers – 1998 Updated on 27 March 1999	E
29	OFTA, Hongkong Sar	Telecommunication Indicators in Hongkong submitted to ITU for the fiscal year ending 31 March 1998	E
30	ITU, Switzerland	World Telecommunication Development Report 1999 Mobile Communications Questionnaire	E/F/S
31	Togo Telecom, Togo	Statistics collection and dissemination	F
32	Ministry of Posts and Telecom, Liberia	State of Telecommuniations Data Collection and Dissemination in Liberia	E
33	Mr. Paolo Labombarda, Consiel Management Consulting, Italy	Telecom statistics from a user's perspective	E
34	Mr. M. Minges, BDT/ITU	Data definition, data collected by different entities (regulators, operators, statistical agencies, industry associations), data on Internet (number of this document is 34-E instead of 37-E)	E
35	Study Groups/ BDT	Definition of Questions	E/F/S
36	Ms. L. Männitö & Mr. B. Petrazzini, SPU/ITU	Challenges to the Network 1999	E

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List of participants

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

Document WTIM99/2-E/final
12 March 1999
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2nd World Telecommunication Indicators Meeting
(Geneva, 29 - 31 March 1999)

2ème Réunion sur les indicateurs des télécommunications mondiales
(Genève, 29 – 31 mars 1999)

2a. Reunión sobre indicadores de telecomunicaciones mundiales
(Ginebra, 29 – 31 de marzo de 1999)

SOURCE: ITU, SWITZERLAND
SOURCE: UIT, SUISSE
FUENTE: UIT, SUIZA

TITLE: FINAL LIST OF PARTICIPANTS
TITRE: LISTE FINALE DES PARTICIPANTS
TÍTULO: LISTA FINAL DE PARTICIPANTES

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Final agenda

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

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

SOURCE: ITU, SWITZERLAND

TITLE: MEETING SCHEDULE (FINAL)

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World Telecommunication Indicator Meeting, 29-31 March 1999, Timetable

Monday, 29 March 1999	**Time**
Registration	8:00
Opening Remarks. Mr. H. Toure, Director, BDT	9:15
Election of chairperson, approval of agenda, etc	9:30
Country overviews of telecom statistics collection and disseminatior	9:45
Telecommunications in Finland - A Statistical Overview . Mr. M. Åkermarck, Ministry of Transport and Communications, Finland	10:00
Coffee Break	*10:30*
Overview of Norway Telecommunication Statistics. Mr. O. Hoel, Norwegian Posts and Telecom Authority	11:00
Telecom Statistics in a Competitive Environment . Ms.D. Mozes, Industry Canada and Mr. H. McCarrel, Statistics Canada	11:30
Lunch	*12:30*
Country overviews of telecom statistics collection, continuec	
Discussion	14:30
State of Telecommunications Statistics Collection and Dissemination in BTC. Mr. S. Mokomane, Botswana Telecommunications Corporation (BTC)	15:00
Coffee Break	*15:30*
Socatel - Basic data. Mr. A. Yangana, Socatel, Centr. African Rep.	16:00
Discussion	16:30
Tuesday, 30 March 1999	
Regional and international overviews of telecom statistics	
OECD Work on Communications Indicators . Mr. S. Paltridge, OECD, France.	9:00
Coffee Break	*10:00*
Statistics in Sri Lanka & Future Developments in Telecommunications. Mr. A.S.W Bandusiri Silva, Telecom Regulatory Authority of Sri Lanka	10:35
Eurostat's prospects on telecommunications statistics . Mr. M. Lumio, EUROSTAT, Luxembourg	11:15
Discussion	12:00
Lunch	*12:30*
ITU data collection and dissemination activities	14:00
Telecommunication Statistics. Ms. M.C. Gasbarro, ITU	14:15
Of Data Gathering and Data Storage . Mr. O. Beauvais, ITU	14:45
Telecom statistics from a user's perspective. Mr. Paolo Labombarda, Consiel Management Consulting, Italy	15:15
Coffee Break	*15:45*
Telecom traffic & mobile communication statistics	
International traffic & tariff indicators . Mr. T. Kelly, ITU	16:15
Mobile communication indicators . Mr. M. Minges, ITU	16:45
Discussion	17:00
Wednesday, 31 March 1999	
Telecommunication statistics in Togo . Mr. Séwa Mensah, Togo Telecom.	9:00
Universal service/access indicators	
Measuring access to telecommunications: Universal service and access indicators . Mr. M. Minges, ITU.	10:00
Challenges to the Network 1999. B. Petrazzini & L. Männistö, ITU	10:45
Coffee Break	*11:00*
Comments on measuring access to telecommunications. Mr. M. Fazio, Ministry of Communications, Italy.	11:30
Lunch	*12:30*
Data definition, data collected by different entities, data on the Internet. Mr. M. Minges, ITU.	14:15
Discussion	14:40
Conclusions, approval of final report, any other business	15:00
Close of meeting	16:10

Presentations

Country overviews of telecommunication statistics collection and dissemination

- Telecommunications in Finland - A statistical overview
  Mr. M. Åkermarck, Ministry of Transport and Communications, Finland

- Overview of Norway telecommunication statistics
  Mr. O. Hoel, Norwegian Posts and Telecommunication Authority, Norway

- Telecommunication statistics in a competitive environment.
  Ms. D. Mozes, Industry Canada and Mr. H. McCarrel, Statistics Canada

- State of telecommunications statitiscs collection and dissemination in BTC
  Mr. S. Mokomane, Botswana Telecommunications Corporation

- Socatel - Basic data
  Mr. A. Yangana, Socatel, Central African Republic

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SOURCE: MR. MIKAEL ÄKERMARCK, MINISTRY OF TRANSPORT AND COMMUNICATIONS, FINLAND

TITLE: TELECOMMUNICATIONS IN FINLAND – A STATISTICAL OVERVIEW

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Helsinki, March 29, 1999

TELECOMMUNICATIONS IN FINLAND - A STATISTICAL OVERVIEW

Finland as a telecommunications country

There has always been a multioperator environment in Finland and the operators have been and still are private, communal and state-owned. This meant from the very beginning that every operator handled telephony in its own licenced concession area. Anyway, since 1985 telecommunications operations have been opened up gradually to competition. The competition began from infrastructure and it was later enlargened to services by freeing some parts totally from licenses. In 1994 the telecommunications market was fully liberalised and every segment of the telecommunications market has since been subject to competition.

The users of the telecommunications services have been the winners in the liberalisation prosess of the market; they are no longer dependent on monopoly supply, the number of services have been growing and the prices have gone down. Even operators have benefited of the situation because the volumes have increased.

The Finns are advanced users of telecommunications services. In international comparisons Finland is among the leading countries within the OECD, no matter which indicators are used for measuring the use of services. This is true especially as to the use of mobile communications and Internet services. The popularity of the mobile phones is clearly evidenced by the fact that the growth of the total subscription density is entirely a result of the increased demand for mobile phone subscriptions. Finland has the highest mobile phone density (mobile phones per capita) in the world. In the beginning of January 1999 there were 57 mobile phone subscriptions per 100 inhabitants. Finland is also ranked first as to the use of Internet. At the end of 1998, there were about 100 hosts connected to Internet per 1000 inhabitants.

One reason for the extensive use of telecommunications services might be low rates. In international comparisons Finland is one among the five cheapest countries as regards to the rates of telecommunications services. Especially the rates of the mobile phones and the data transmission services are among the lowest in the world. Local call prices are the cheapest in the EU countries. The rates of data transmission are 49 % and the rates of mobile communications are about 72 % of the average level of the OECD countries. Long-distance and international call prices are below the average level of the OECD countries.

Finnish telecommunications services are not only cheap, but also of high quality. Delivery time for a subscription is short and telecommunications networks are reliable. According to the studies of the Ministry of Transport and Communications the customers are satisfied with the service level.

Advanced state of development in telecommunications is also evidenced by adoption of new technology. For example, Finland was among the first countries to introduce GSM and ATM networks. And at the end of March 1999 Finland was the world's number one by granting four competing licences to UMTS operations.

Main operators

According to the Telecommunications Market Act, telecommunications operators are divided into network operators and service providers. Network operators provide network services by constructing and/or maintaining either fixed or mobile communications networks. Only those operators that provide mobile communications network need a licence for their activities. The licences are granted by the Ministry of Transport and Communications. As a general rule, the provision of telecommunications is subject to a telecommunications notif ication to the Ministry.

Finnish telecommunications markets are dominated by the following three consortiums: state-owned Sonera Ltd (former Telecom Finland Ltd), Finnet Group, which consists of regional telephone companies with several subsidiaries and affiliated companies and T elia Finland Ltd which is owned by Swedish telecommunications operator Telia Ltd. Other network operators in Finnish markets are e.g. Global One Communications Ltd, Facilicom Finland Ltd and RSL COM Finland Ltd which provide network and other services to their contracting customers. In addition there are telecommunications operators which provide telecommunications networks and services to limited user groups. One such operator is Railtelia Ltd.

Telecommunications service operators provide telecommunications services (like teleph one and value added services) in telecommunications networks. Network operators provide networks to be used for providing telecommunications services. These companies also provide serv ices.

Statistical activities in Finland

The Ministry of Transport and Communications is the central authority in the sector of providing telecommunications statistics. As a supervisory and policy making body the Ministry have a wide experience and knowledge in the field of telecommunications. Since 1989 the Ministry of Transport and Communications has published a statistical yearbook which covers the situation of telecommunications in Finland. The yearbook called Telecommunic ations Statistics is prepared and devoleped by a working group which has members from the three main operator groups (Sonera, Finnet Group and Telia Finland). Statistics Finland is working together with the group as a consultant.

The book includes comprehensive statistical data of telecommunications in Finland. In the publication you can find statistical data of the whole telecommunications sector:

- telephone networks
- quality of services
- telecommunications operators
- Internet
- telecommunications charges
- financial figures
- impact of the telecommunications sector on the national economy
- production, import and export of telecommunications equipment
- international telecommunications comparisons

Besides the Telecommunications Statistics, the Ministry of Transport and Communications also produce other statistical information of telecommunications to fullfill its obligation as a

regulatory body. According to the Telecommunications Market Act the Ministry has the right to obtain necessary information from telecommunications operators for the performance of their duties pr ovided in the Act.

Once a year the Ministry publishes a publication called *Price level of the Telecommunications Charges in Finland.* The subject of the research is the charges of telecommunications op erations in the general telecommunications and mobile communications networks. Time series of the prices are also shown in the publication.

Every second year the Ministry makes a comprehensive survey on *Quality of Teleservices.* The private and business customers have a possibility to give their opinions concerning the telecommunications services and operators.

Further information

http://www.vn.fi/lm/telecom.htm

and the websites of the operator groups

The writer of the review, researcher Mikael Åkermarck, is working in the Telecommunications Unit in the Communications Administration Department of the Ministry of Transport and Communications.

The Telecommunications liberalisation process in Finland since 1987

1987

- Telecommunications Act
- Administration of telecommunications was transferred to the Ministry of Transport and Communications

1988

- competition in corporate networks and data transmission was partially liberalised
- the new Radio Act

1990

- the special rights of the National Board of Post and Telecommunications were abolished
- free competition in data networks and GSM-networks

1990-1991

- licences were granted to regional radio telecommunications networks
- corporate networks became subject to free competition

1992

- switched data transmission was exempted from licences
- competitive licences to long-distance and local telecommunications

1993

- restricted competition in long-distance and international telecommunications

1994

- local, long-distance and international telecommunications became subject to free competition
- the first licences to service operators

1995

- competing licences to DCS-networks

1996

- the amendment to the Telecommunications Act

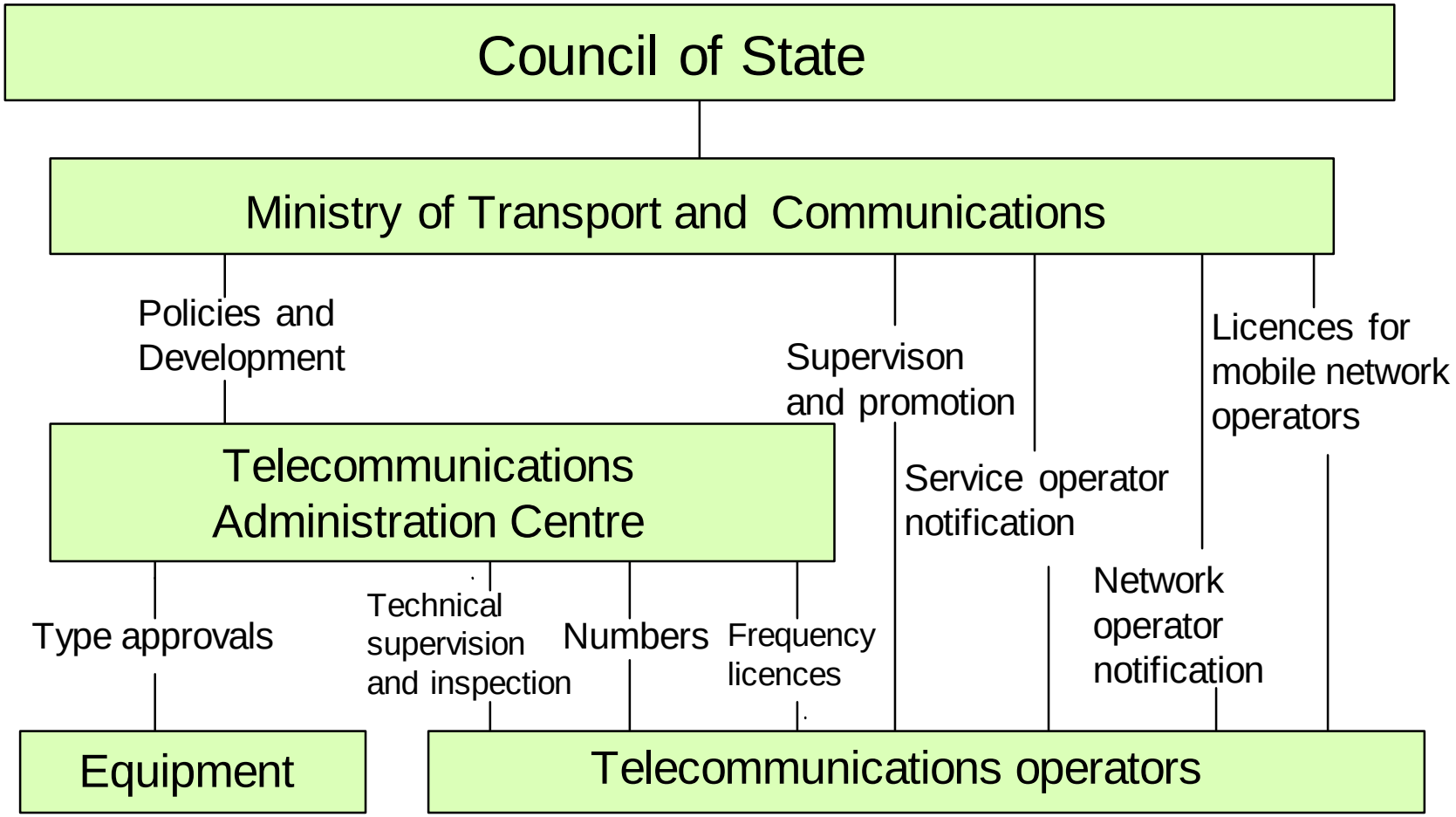
1997

- the Telecommunications Act was repealed by the Telecommunications Market Act
- The Telecommunications Market Act designated some operators as companies with significant market power

1998

- minor forms of mobile telecommunications were exempted from licence
- transmission of international telecommunications to Finland was mainly exempted from notification duty

Structure of the telecommunications administration in Finland



TELECOMMUNICATIONS OPERATORS

NETWORK OPERATORS

- Provide network for telecommunications services
- Need a licence for mobile communications networks, but are required only to notify the authorities of other network operations
- The most significant operators:
  - Sonera Ltd
  - Finnet Group
  - Telia Finland Ltd

SERVICE OPERATORS

- Provide telecommunications services in telecommunications networks
- Operation is subject to a notification
- Most important operators in addition to Sonera, Finnet Group and Telia:
  - Global One Communications Ltd
  - Teleykkönen Ltd
  - RSL COM Finland Ltd

Content of the publication Telecommunications Statistics 1998:

Statistical data collected by the Ministry of Transport and Communications

(To fullfill the duties as a regulatory body)

- Telephone charges in Finland
- Quality of services
- Financial data
- Others

Co-operation with international organisations

ITU: - World Telecommunications Development report
- others

OECD: - Communications Outlook
- others

EUROSTAT: - Communications Services
- others

EU: - many questionnaires

(And many other organisations all over the world.)

Number of telephone subscriber lines and personnel of TCs 31.12.1997

Telecommunications area	Telephone company	Subscriber lines	Personnel [1]
Uusimaa	Helsingin Puhelin Oyj	750 343	3 814
	Karis Telefon Ab	6 111	26
	Lohjan Puhelin Oy	22 185	58
	Loviisan Puhelinosuuskunta	6 033	22
	Riihimäen Puhelin Oy	19 783	53
Turku and Pori	Eurajoen Teleosuuskunta	2 652	8
	Huittisten Puhelin Oy	4 736	22
	Härkätien Puhelin Oy	3 531	11
	Kankaanpään Puhelin Oy	6 079	21
	Kemiön Puhelinosakeyhtiö	3 653	11
	Laitilan Puhelinosuuskunta	4 497	17
	Loimaan Seudun Puhelin Oy	18 700	66
	Lännen Puhelin Oy	74 859	248
	Pargas Telefon Ab	6 753	7
	Porin Puhelin Oy	38 264	137
	Salon Seudun Puhelin Oy	30 832	107
	Turun Puhelin Oy	118 082	530
	Turun Seudun Puhelin Oy	13 840	42
	Vakka-Suomen Puhelin Oy	9 953	46
Häme	Etelä-Satakunnan Puhelin Oy	10 986	44
	Forssan Seudun Puhelin Oy	16 182	67
	Hämeen Puhelin Oy	42 542	127
	Ikaalisten-Parkanon Puhelin Oy	8 929	31
	Keikyän Puhelinosuuskunta	1 422	5
	Pohjois-Hämeen Puhelin Oy	14 642	56
	Päijät-Hämeen Puhelinyhdistys	104 136	371
	Tampereen Puhelin Oyj	168 707	789
Kymi	Kymen Puhelin Oy	33 095	154
Vaasa	Alajärven Puhelinosuuskunta	3 786	14
	Jakobstadsnejdens Telefon Ab	16 787	108
	Kokkolan Puhelin Oy	18 743	83
	Vaasan Läänin Puhelin Oy	100 027	424
Oulu	Kajaanin Puhelinosuuskunta	16 130	65
	Oulun Puhelin Oy	83 776	330
	Pohjanmaan Puhelinosuuskunta	46 719	171
North Karelia	Joensuun Puhelin Oy	27 099	114
	Outokummun Puhelin Oy	4 267	10
	Puhelin Oy Telekarelia	9 836	24
Central Finland	Keski-Suomen Puhelin Oy	62 597	241
Mikkeli	Mikkelin Puhelinyhdistys	22 422	114
	Savonlinnan Puhelinyhdistys	18 136	78
Lapland	Telepohja Oy	264	4
Kuopio	Puhelinosuuskunta IPY	8 990	34
	Kuopion Puhelin Oyj	62 596	251
Åland	Mariehamns Telefon Ab	9 975	29
	Ålands Telefonandelslag	7 378	21
Total		2 061 055	9 005

1) Personnel in TCs and their subsidiaries.

Source: Telecommunications Statistics, page 22

Total profit and loss accounts of the telecommunications operators 1980-1997, FIM million

Year	Finnet/TC[1]			Sonera			Telia		
	Income	Expen.	Surplus/ deficit	Income	Expen.	Surplus/ deficit	Income	Expen.	Surplus/ deficit
1980	1 026	1 018	8	1 809	1 448	361			
1981	1 194	1 192	2	1 944	1 664	280			
1982	1 353	1 352	1	2 264	1 854	410			
1983	1 577	1 563	14	2 518	2 036	483			
1984	1 768	1 740	28	2 790	2 167	623			
1985	1 988	1 969	19	3 072	2 319	753			
1986	2 274	2 279	-5	3 215	2 442	773			
1987	2 593	2 590	3	3 528	2 744	784	14	17	-3
1988	2 938	2 935	3	3 966	3 117	849	22	23	-3
1989	3 229	3 235	-6	4 251	3 396	855	37	38	-1
1990[2]	3 465	3 458	7	4 982	4 589	393	49	49	0
1991	3 686	3 692	-6	4 958	4 650	308	71	70	1
1992	3 824	3 834	-10	5 006	4 699	307	102	122	-20
1993	3 962	3 942	20	5 188	4 629	559	141	175	-34
1994[3]	4 326	4 267	59	5 002	4 777	225	347	328	19

	Finnet Group total			Telephone companies [4]			Sonera Group			Sonera Parent Com.			Telia		
	Income	Expen.	Surplus/ deficit	Income	Expen.	Surplus/ deficit	Income	Expen.	Surplus/ deficit	Income	Expen.	Surplus/ deficit	Income	Expen.	Surplus/ deficit
1994	4 874	4 783	91	4 467	4 403	64									
1995	5 346	5 253	93	4 690	4 636	54	5 735	5 411	324	5 490	5 183	307	110	103	7
1996	6 582	6 235	347	5 194	5 072	122	6 487	5 970	517	6 303	6 001	302	139	132	7
1997	8 082	7 669	413	5 702	5 473	229	7 722	7 209	513	7 202	6 817	385	165	200	-35

1) Parent companies' figures
2) The method of accounting was changed in Sonera in 1990.
3) The method of accounting was changed in 1994.
4) See page 21.
The net revenue of Finnet Group can not be compared to the net revenue of Sonera Group.

Source: Telecommunications Statistics, page 74

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

Document WTIM99/15-E
12 March 1999
Original: English

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

SOURCE: MR. ØYSTEIN HOEL, NORWEGIAN POSTS AND TELECOMMUNICATIONS AUTHORITY

TITLE: OVERVIEW OF NORWAY TELECOMMUNICATION STATISTICS

_____

POST- OG TELETILSYNET
Norwegian Post and
Telecommunications Authority

Memo

To: **2nd World Telcommunication Indicators Meeting** Date: **24.3.1999**

Copy to: Our Ref.:

From: **Norwegian Post and Telecommunications Authority**

TELECOM STATISTICS IN NORWAY

This background document is prepared for the 2nd World Telecommunication Indicators Meeting in Geneva, 29-31 March 1999, and aims at giving an introduction to the situation in Norway regarding Telecom Statistics.

Introduction

For the years 1995-1997, the Norwegian Post and Telecommunications Authority made a publication called *Norwegian Telecom Statistics*. This publication was published both in Norwegian and English and made available on our web-site www.npt.no (under the heading "publications"). The first version for 1997 was also printed.

The statistics have primarily been based on figures received from Telenor (the incumbent). The markets for value added services, private networks, data transmission and mobile communications have already been open to competition for some years, and from 1 January 1998 public voice telephony was also liberalised in Norway. During the first year of full competition about 30 operators registered with the Norwegian Post and Telecommunications Authority in order to offer public telecommunications network, public telephony services and/or transmission capacity[1].

This implies a need of data to follow the development of competition in the telecom market. In general the difficulties concerning collecting data are increasing, and the availability of data decreasing. In other words, there is a growing need for data on the telecommunications market while data availability seems to be decreasing. However, in order to fill this gap, the Regulatory Authorities are normally given a legal basis for the collection of data necessary in order to pursue their supervisory function, and this is the situation in Norway[2].

The legal basis

Pursuant to section 2-3 of *Regulations on public telecommunications networks and public telecommunications services*, providers of access to public telecommunications networks, of public

[1] "Transmission capacity" means the same as "leased lines".
[2] In addition Statistics Norway has a responsibility for collecting and making available data from the telecom sector.

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telephony services and transmission capacity shall each year inform the Norwegian Post and Telecommunications Authority of the following:

> "1. Changes in the information given upon registration in accordance with section 2-2,
> 2. the geographical market in which the provider operates and the product market in question, including:
> *For public telephony services:*
> a: the number of subscribers,
> b: the traffic volume and
> c: trading conditions.
> *For transmission capacity:*
> a: The number of lines per category of transmission capacity,
> b: capacity (bits/s) and
> c: trading conditions.
> *For interconnection:*
> a: Traffic volume and
> b: trading conditions.
>
> The Norwegian Post and Telecommunications Authority may further elaborate the scope of the information requirement and set a time-limit for annual reporting. If required by control considerations or important statistical purposes, the Norwegian Post and Telecommunications Authority may make changes in the information requirement."

In section 2-16 of the same regulations the legal basis of asking for information for statistical purposes is given:

> "Providers of access to public telecommunications networks and of public telecommunications services shall store and surrender information on public telecommunications networks and public telecommunications services for statistical purposes. The Norwegian Post and Telecommunications Authority shall further prescribe which information shall be provided, including requirements as to what definitions, calculation methods etc., shall be employed.
>
> The Norwegian Post and Telecommunications Authority may further prescribe the manner in which the information shall be provided, and may in this connection order market participants to prepare reports and statistics on the basis of the information in the first paragraph and to prepare such information in electronic form."

Consultative document

In regard to the changed conditions the existing system for collection of data on telecom services had to be revised. A Consultative document was prepared by the Norwegian Post and Telecommunications Authority describing a systematic approach to collecting and making available data from the telecom market in Norway (combining sections 2-3 and 2-16 in the regulations). By 11 February 1999 the document was distributed to about 40 organizations asking for comments before 8 March 1999.

The objective of the document is to propose:

- The scope of the information requirement
- What definitions shall be employed
- Time-limit for annual reporting
- How to handle the issue of confidentiality (which data cannot be published)

The data form proposed in the document covers the following areas:

1. Telephony (PSTN and ISDN)
2. Mobile communications
3. Transmission capacity
4. Interconnection
5. Public telecommunications networks
6. Data transmission services
7. Internet
8. Other services
9. Prices
10. Financial matters

Regarding definitions, the starting point has been the definitions used by ITU and OECD, but some changes have been made.

Concerning the issue of confidentiality, Telenor has taken a somewhat reluctant position towards publication of statistics. On the other hand, some of the new providers in the market have argued that, in general, all data should be published, except revenues from each service.

The Norwegian Post and Telecommunications Authority also proposes that, based on the reported prices, some benchmarking of prices between operators could be done. This is, however, a very challenging task. In a competitive telecom market the providers will try to differentiate the services offered. This makes it difficult to compare prices.

At the moment the Norwegian Post and Telecommunications Authority is summarising the responses on the consultative document, and a final questionnaire will be sent to all registered providers in some weeks' time asking for data for 1998. This is why we find the timing and purpose of this meeting very useful. Hopefully the experience from other countries can be taken into account for Norway, and vice versa, so that pit-falls can be avoided and the quality of the *Norwegian Telecom Statistics* improved.

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Document WTIM99/11-E
12 March 1999
Original: English

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

SOURCE: MS. DORA MOZES AND MR. HAIG MCCARRELL, STATISTICS CANADA

TITLE: TELECOMMUNICATION STATISTICS IN A COMPETITIVE ENVIRONMENT

_____

Telecommunications Statistics in a Competitive Environment

Presentation to ITU 2nd World Telecommunications Indicators Meeting
Geneva 29-31 March 1999

Presented by:
Dora Mozes, Industry Canada
Haig McCarrell, Statistics Canada

Objectives of Presentation

Part 1

1.1 Describe the changing environment in the Canadian Telecom Industry

1.2 Describe policy departments partnership with statistical agencies

Part 2

2.1 Describe statistical program in Canada to modernize existing statistics

2.2 Provide the lessons learned by:

- Central Statistical Agencies
- Policy Makers

1.1 Changing Environment in Telecom Service Industry

Pre-1992
Monopoly

- Few players
- Regulator involved in data collection

Post 1992
Competition

- Many new entrants
- Regulator less involved in data collection
- Role of statistical agencies increases

Post 1994
Convergence & Advances in Technology

- Focus of policy makers broadens to Information and Communication Technologies *(ICT)*
- Increased need for data on the demand of telecommunications and other ICT
- Statistical agencies data collection role increases

1.1 Changing Environment in Telecom Service Industry
Impact of Competition & Other Policy Objectives

Innovative Canadian policies have kept up with the pace of change and have resulted in one of the best telecommunications infrastructure.

Canada now has:

- Increased choice in number of telecommunications service providers
- Increased choice in innovative services
- Lower prices for end users
- Faster introduction of new services, goods, applications and technology
- End-to-end services are increasingly being offered

1.1 Changing Environment in Telecom Service Industry Impact on Information and Statistical Requirements

- De-regulation means regulators do not receive as much information directly from the telecommunications service providers as before

- Governments are taking a more “holistic” approach to telecommunications
  (e.g. move from focus on telecommunications suppliers to focus on Information Society)

- In Canada established:
  - Information Highway Advisory Council which results in two reports with several recommendations
  - Connectedness Agenda to make Canada the most connected nation in the world by the year 2000
  - Electronic Commerce Task Force to advance Canada’s role in electronic commerce

- Statistical agencies asked to provide supporting data and indicators to support policy development in all these areas

1.2 Policy Departments Partnership with Statistical Agencies

- **Building a bridge between users & suppliers of information**
- **Sharing expertise**
- **Sharing the cost of new initiatives**

1.2 Policy Departments Partnership with Statistical Agencies

Who? Industry Canada
Statistics Canada
The Canadian Radio-television and Telecommunications Commission *(CRTC)*
Telecommunication service providers *(supply side)*
Users of telecommunication services *(demand side)*

What? Survey on Telecommunication Service Providers & various "Demand-side" Surveys

When? On-going with annual & quarterly comprehensive reports

Why? Telecommunication Act, Radiocommunications Act, Broadcasting Act *(convergence)*, Statistics Act

1.2 Policy Departments Partnership with Statistical Agencies

Information Users → Advisory Group

- Policy Makers
- Regulators
- Industry Associations
- Service Providers
- Academia
- Media
- Advocacy Organizations
- Consultants/Analysts
- International Organizations

1.2 Policy Departments Partnership with Statistical Agencies Areas Requiring Re-design & Conceptual Framework

Survey Re-design

- Started in 1995 – results began to be released in Spring 1999

More Work

- Access
- Prices versus Charges *(i.e.demand and supply analysis)*
- Traffic *(Circuit-switched versus Packet-switched technology)*
- Individual contribution of telecommunications to the System of National Accounts *(SNA)*

Conceptual Framework for Indicators on:

- Information Economy
- Information Society
- Connectedness

Part 2 - Statistical Program & Lessons Learned

2.1 Statistical Program in Canada

- Drivers of the Re-design Process
- Industry Classification & Structure
- Operating Principles
- Contents of the Survey
- Benefits of the Survey Results
- Data Dissemination and Analysis

2.2 Lessons Learned

- Central Statistical Agencies
- Policy Makers

2.1 Statistical Program in Canada
Drivers of the Re-design Process

Industry Environment

- De-regulation
- Technological change
- Applications for new wireless services - e.g., Spectrum
- New entrants in response to the above changes

Statistical Environment

- Annual survey for Wireline carriers-PTOs since 1911
- Monthly survey since 1971 for Incumbent Telcos-PTOs
- Last major update - 1971, 1989
- Voorburg Model Surveys
- Commodity Classification work *(CPA, CPC)*
- New Industry Classification - NAICS

2.1 Statistical Program in Canada
Industry Classification

1980 **Standard Industrial Classification**
2 Industries

1997 **North American Industry Classification System *(NAICS)***
5 Industries:

51331 Wired Telecommunications Carriers

51332 Wireless Telecommunications Carriers
(except Satellite)

51333 Telecommunications Resellers

51334 Satellite Telecommunications

51339 Other Telecommunications

2.1 Statistical Program in Canada
Industry Structure

Wireline

- Incumbent - Large *(Stentor telcos -PTOs)*
- Incumbent - SME *(Independents - PTOs)*
- Alternatives

Wireless

- Cellular/PCS
- RCC *(including ESMR)*
- Paging
- Broadband *(LMCS)*
- Fixed

Resellers

- Wireline
- Wireless

Satellite

- Fixed
- Mobile
- Fixed reselling
- Mobile reselling

2.1 Statistical Program in Canada
Operating Principles

Five operating principles are key to gain co-operation from respondents:

1. Ensuring confidentiality
2. Limiting burden of respondents
3. Timeliness
4. Accuracy
5. Relevance

2.1 Statistical Program in Canada
Contents of the Survey

- The re-designed 1997 survey of telecom service providers will be one of the first surveys to provide data using the 1997 NAICS.

- Made up of ten modules & accompanied by a reporting guide:

1. Operating Revenues
2. Operating Expenses
3. Income Statement
4. Retained Earnings
5. Capital Expenditures
6. Balance Sheet
7. International Trade in Telecommunications Services
8. Employment
9. Network Statistics
10. Traffic Statistics

- Regional data *(provincial details)*

2.1 Statistical Program in Canada
Operating Statistics

- Frame Characteristics
- Activity - Commodity
- Financial Results
- Network Infrastructure

  (access lines, non-PSTN lines, % of digitalization, per capita measures, high speed services and lines, switches, cell sites, route kilometers copper, co-axial, fibre)

- Subscribers *(for major activities)*
- Traffic Data
- Employment *(full time/part time, FTE, by department)*
- International Trade in Services, Interconnection,Other

2.1 Statistical Program in Canada
Contents of the Survey

Commodity Classification ⟹ Operating Revenues Details

Telecom services

- Core services
  - Narrowband
  - Wideband
  - Broadband
  - Carrier services
  - Messaging *(Paging)*
  - Dispatch *(Radio Common Carriers)*
- Other
  - Calling Features, Connections

Non-Telecom services

- Sale of goods, terminal equipment rentals, directory advertising, retail internet, installation, repairs and maintenance

2.1 Statistical Program in Canada
Benefits of the Survey Results

- Unduplicated revenues - net of interconnection and contribution
- Market share analysis
  (flows between segments within each industry)
- Regional disaggregation will be affected by competitive environment and recent company consolidations

2.1 Statistical Program in Canada
Benefits of the Survey Results

Industry Development and Life Cycle of Wireline Resellers:

- Early growth - explosion of small providers
  (household and small business customers)
- Secondary growth phase coming from pre-paid card companies
  (retail marketing)
- Consolidation, buy-outs, mergers of small companies among resellers
- Acquisition of facilities *(trunks, inter-city lines, fibre)*
- Subsequent buy-out of these consolidated companies by large incumbents

2.1 Statistical Program in Canada
Data Dissemination by Statistics Canada
(On-line Internet- hardcopy on demand)

- CANSIM - historical time series at nominal cost
- Quarterly survey bulletins
- Annual survey bulletins reflecting re-designed survey modules
  (early release - provided to Advisory Group)
  - Connectedness
  - Financial results
- Annual compendium
- Analytical papers / special studies
- Special tabulations
- Summaries/brochures sent to respondents with following year's mailout *(hard copy - no charge)*

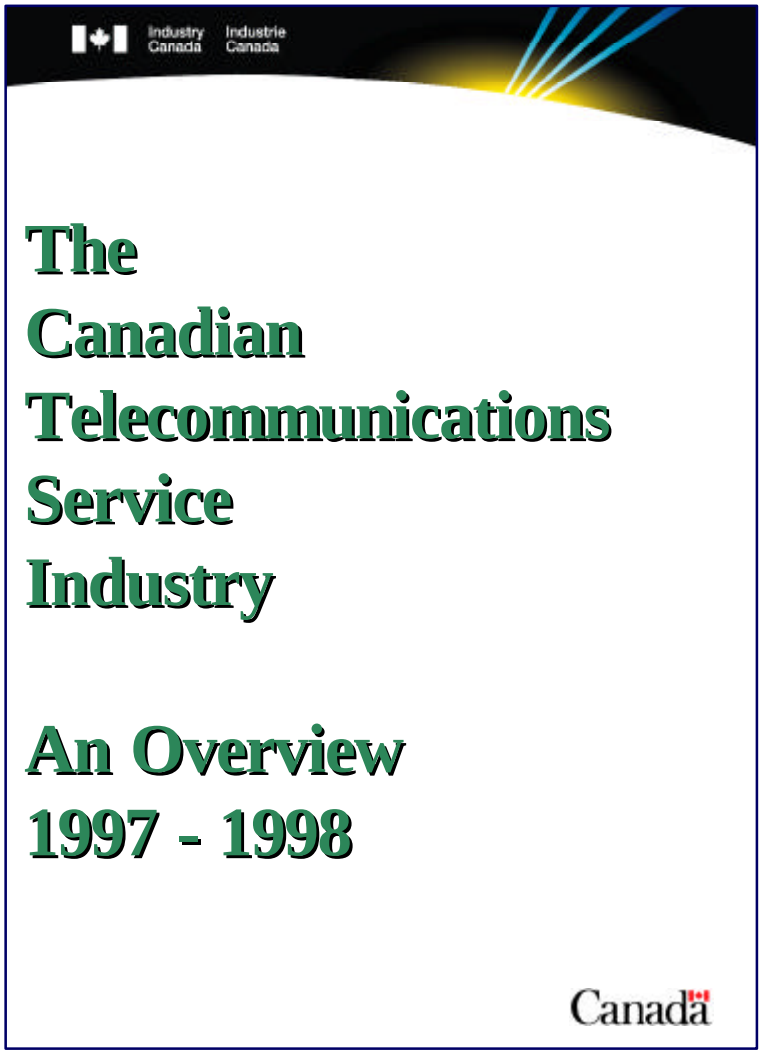
2.1 Statistical Program in Canada Analysis by Industry Canada

(On-line Internet- hardcopy on demand)

In Spring 1999, Industry Canada will release its publication.

It includes the following public and private sector information:

- Telecommunications Service Industry's contribution to the overall economy
- Description of the evolution of competition in the Canadian telecom service industry
- Financial and economic descriptions of the different segments of the telecom service industry
  - Local
  - Long distance
  - Overseas
  - Wireless



2.2 Lessons Learned
Central Statistical Agency

Establishing a good frame in a deregulated market is difficult

- License holders are not necessarily part of the frame especially for radio common carriers and pagers
- Births, deaths, mergers, consolidations, reorganizations are swift and frequent at various stages of market development
- All registered companies should indicate if they were operating or their projected operating date and whether the provision of telecom services constitute a majority of their revenues

2.2 Lessons Learned
Central Statistical Agency

An Advisory Group is important for ensuring industry buy-in for your statistical program

- include data providers in group as well as data users, or at least make the reporting departments aware of what's going on and help to get the two parties talking if possible

The inclusion of small companies is important

- their inclusion has allowed the publishing of 5 digit NAICS industry detail for the Resellers *(51333)* and "Other" *(51339)* industries
- allows better micro- analysis of SME's
- provide a simplified survey to ease response burden

Statistical agencies can benefit greatly from the participation of Policy Departments through their technical knowledge an their budgetary support

2.2 Lessons Learned
Policy Makers

Benchmarks on telecommunications is becoming increasingly important to policy makers.

Government departments responsible for telecommunications:

- must continue to monitor the telecommunications service industry on an on-going basis and disseminate aggregate non-commercially sensitive information
- should work closely with both the private and public statistical agencies to ensure
  - they are aware of current policy and regulatory developments
  - definitions are up to date
  - new market segments are identified early
  - differences between similar data are minimized
  - data gaps are identified and filled

2.2 Lessons Learned
Policy Makers

Government departments and other policy makers responsible for telecommunications should support statistical agencies so that the statistical agencies:

- collect and aggregate data, including commercially sensitive information, which are required by policy makers and all other users
- disseminate the data to all users in keeping with their obligations to respondents
- work with other statistical agencies to harmonize data collection and timing of data releases as much as possible.

2.2 Lessons Learned
Public Participation Tools

- Advisory Groups
- Public Proceedings *(written and/or oral)*
- Policy Reviews
- Workshops/Conferences
- International Organizations
- Internet *(Websites)*

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(Geneva, 29 - 31 March 1999)

SOURCE: MR. MOKOMANE SEJABAGALE MOKOMANE, BOTSWANA TELECOMMUNICATIONS CORPORATION (BTC), BOTSWANA

TITLE: STATE OF TELECOMMUNICATIONS STATISTICS COLLECTION AND DISSEMINATION IN BOTSWANA TELECOMMUNICATIONS CORPORATION (BTC)

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STATE OF TELECOMMUNICATIONS STATISTICS COLLECTION AND DISSEMINATION IN BOTSWANA TELECOMMUNICATIONS CORPORATION

BY

M.S MOKOMANE

Presented at World Telecommunication Indicator Meeting, 29-31 March 1999
Geneva - Switzerland

BACKGROUND

Botswana Telecommunications Corporation (BTC) is a state owned enterprise incorporated under the Botswana Telecommunications act of 1980 to provide all public telecommunications services in Botswana. As at end of February 1999, BTC had over 99,000-customer access lines in service, with a workforce of about 1700.

The corporation is divided into eight divisions, Corporate Business and Regulatory Affairs, Finance, Information Technology, Corporate Services, Commercial, North Region and South Region.

Botswana is a country in Southern Africa lying between latitude 18 and 27 degrees south and longitude 20 and 29 degrees east. The country covers an area of approximately 582,000 square kilometres, with a population of about 1.5 million.

Current services provided include national and international telephony, managed and data networks, very small aperture terminal (VSAT), private wires/leased circuits, toll free service, internet, paging, public telephones, voice messaging, telex, packet switching, telegraph, national and global prepaid telephone cards and customer premises equipment. International access is provided from Botswana to almost every country in the world.

In the December 1995, in recognition of the need to prepare the telecommunications industry for the irresistible developments, Botswana government formulated a "Telecommunications Policy of Botswana" The BTC amendment act of 1996. Following closely on the new policy, exclusive rights of BTC over the provision of telecommunications services in Botswana were removed. As a consequence a new Regulatory Authority was set up to issue regulations and licenses. This resulted in the establishment of two cell phone operators in 1998, who will also provide public payphones

Collection of statistics in Botswana Telecommunications Corporation

Use of statistics to measure performance has been recognized as the main driver of performance improvement in the organization. It was against that background that an integrated measurement system was developed and implemented across the organization.

Collection of statistics is based on main processes and key activities performed within the functional area. This covers statistics on provision of telecommunication services, waiting list, customer complaints, network reliability, human resources, finance etc.

For operational purposes the corporation is divided into two regions, North and South, each division in turn subdivided into Districts.

Collection of operational statistics is done at three levels, district, region, and corporate. Each district compiles statistics on a weekly basis, this is then consolidated into regional statistics, and statistics from the two regions merged to yield corporate statistics.

Apart from data compiled by districts, the other data comes from the telephone exchange system in the form of total exchange capacity, capacity in use, and spare capacity.

Managing and dissemination of statistics

Under the present set up, each division maintains their own Microsoft excel spreadsheets, but for operational statistics, files are linked at the headquarters to produce corporate totals. This is a network system where internal users are given read rights only.

At the end of the each month, hard copies of reports are produced and distributed to management. In addition to the monthly report, another report on principal statistics is produced after every quarter. This publication covers statistics on products and services offered by BTC, and includes general system size, main network, major outages,status of exchanges, manpower and traffic.

Problems experienced with collection of data

Variation

Because data is manually collected, a lot of inconsistencies are often detected, and verification consumes a lot of time.

Definitions

Since statistics are primarily generated for managing performance, the tendency is to define the indicator in a manner that meets your need as the user. This creates problems when aggregates for the corporation have to be compiled; though standard definitions have been published and disseminated to data collection agents.

For example there are two definitions of the waiting list.

1. "Total number of applications to a main telephone line that have had to be held over owing to lack of technical ability"

2. "Total number of applications to a main telephone line that have had to be held over for whatever reason."

The second definition includes applications that have had to be held over because there is a backlog, accessories not available, or for any other reason. The argument is that from the customer's point of view all reasons for waiting are valid.

Terminology

One problem is the use of different terminology to mean the same thing.
For example: Main telephone lines, access lines, working lines, direct exchange lines.
These could mean the same thing, or a different thing altogether

Summary and Conclusions

There is a big potential to improve collection and dissemination of statistics in the organisation, by having computer based information system that could provide statistics instantly. This will control the problems of non-standard definitions, and human errors. The new billing system that will be implemented during the year is expected to enhance collection of telecommunications statistics, as a lot of data collection will be automated.

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INFORMATION SYSTEMS UNIT

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(Geneva, 29 - 31 March 1999)

SOURCE: M. ADRAMAN YANGANA, SOCATEL, CENTRAL AFRICAN REPUBLIC

TITLE: SOCATEL – BASIC DATA

_____

SOCATEL
(Société centrafricaine des télécommunications

Capital → 1 120 000 000 CFA francs

Shareholders → Central African State 60%
→ France (FCR) 40%

Current situation → in process of privatization

Turnover: 1996 → 7 380 000 000 CFA francs
1997 → 7 220 000 000 CFA francs
1998 → 7 174 000 000 CFA francs

Evolution of staff numbers

1990	354
1991	362
1992	367
1993	381
1994	379
1995	393
1996	409
1997	401
1998	388

Switching network

8 local telephone exchanges → Bangui 1
8 local telephone exchanges → Provinces 7

8 exchanges → 4 digital
8 exchanges → 4 electromechanical and semi-eletronic

Total capacity → 11.162 (1998)
Connected capacity → 9.563 (1998)
Occupancy rate → 85,67 (1998)

Switching network (cont.)

1 telex exchange	ELTEX V ALPHA
Equipped capacity	256 (1992)
Occupancy rate	34.76 (1996)

N.B.: installed at Bangui

Evolution in number of subscribers (1992 - 1998)

1992	6092
1993	9757
1994	7373
1995	7705
1996	9704
1997	9814
1998	9563

Evolution in number of subscribers at Bangui (1992 - 1998)

1992	5672	1996	8950
1993	6260	1997	9072
1994	6742	1998	8894
1995	7069		

Evolution in number of subscribers in the provinces (1992 - 1998)

1992	413	1996	760
1993	497	1997	742
1994	628	1998	669
1995	686		

Domestic satellite network (TELCASAT)

1990 → 4 stations → 1 master station
3 outstations

1993 → 9 stations → 1 master station
8 outstations

Plus 5 VSAT

Extension → In the short term, to 13 other provincial towns

International transmission by satellite

1983 - 1992 → scpc/FM

1993 → Mode IDR mode (2Mbits)

1995 → 2 links
- United States (52kbits)
- Cameroon (512kbits)

Cellular network (1995)

AMPS exchange

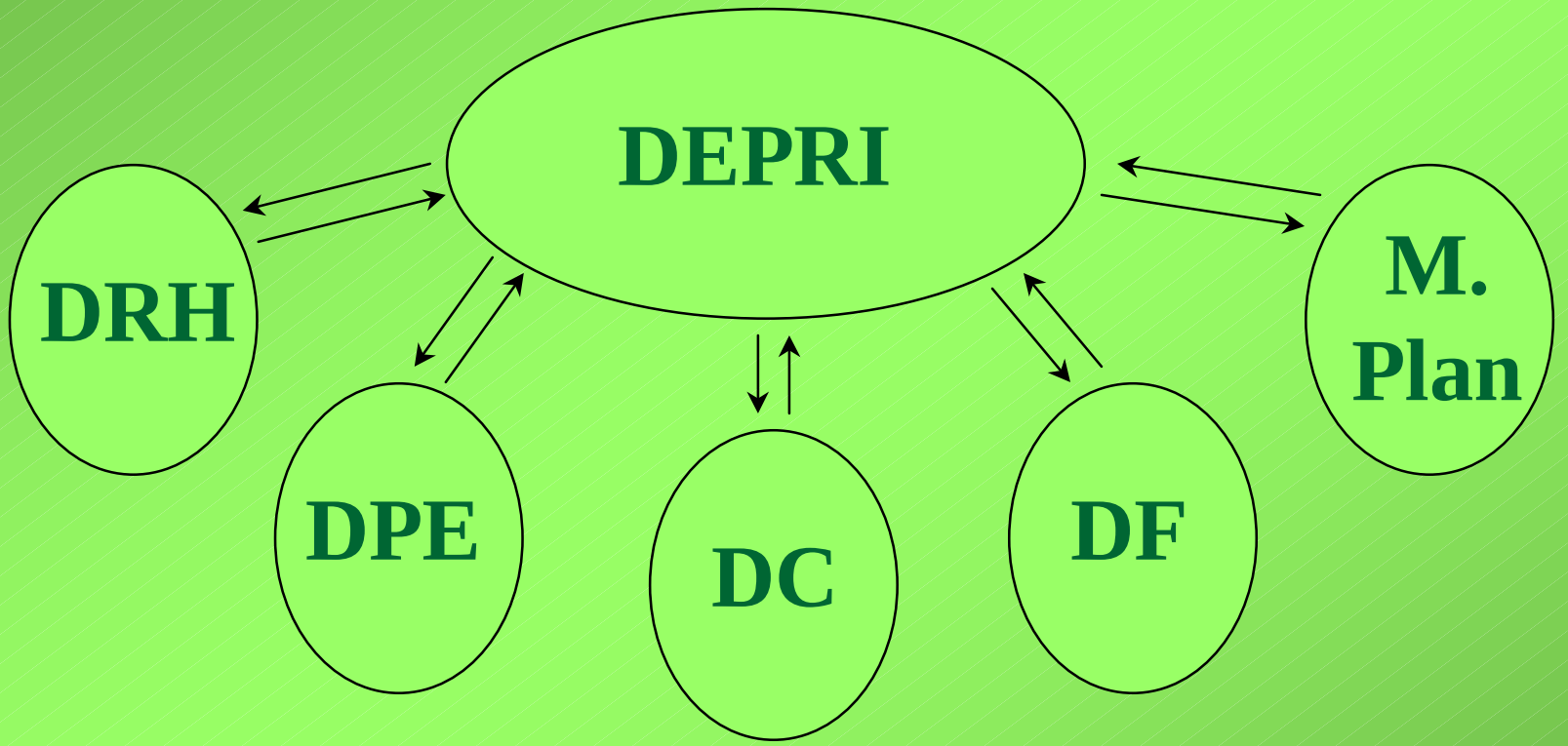
Number of subscribers ⟶ 710 (1998)

N.B.: GSM is currently being tested

Services provided

- Tg (telegraphy)
- Tx (telex)
- Tph (telephony)
- Fax (facsimile)
- Td (data transmission)
- Internet (1995)
- Videotex (being tested)

Data collection system



DEPRI: Directeur des Etudes, de la Planification et des Relations Internationales
DRH: Directeur des Ressources Humaines
DPE: Directeur de Production et Exploitation
DC: Directeur Commercial
DF: Directeur Financier Comptable et Informatique
M. Plan: Master Plan

1. Resources used

- Telephone
- Telex
- Fax
- Microcomputer

2. Difficulties encountered

- Transmission delays
- Incomplete data
- Inconsistent data
- Statistics not kept in certain services
- Unawareness of the importance of statistics

Short-term solutions proposed

- Alert service directors to the importance of statistics
- Provide service heads with printouts
- Designate persons to serve as liaison officers
- Hole information meeting with the liaison officers
- Provide information, explanations and training to liaison officers on how to compile data and fill in the forms, etc.

Regional and international overviews of telecommunication statistics

- OECD work on communications indicators
  Mr. S. Paltridge, OECD, France

- Statistics in Sri Lanka & future developments in telecommunications
  Mr. A.S.W. Bandusiri Silva, Telecommunication Regulatory Authority, Sri Lanka

- Eurostat ŝ prospects on telecommunications statistics
  Mr. M. Lumio, Eurostat, Luxembourg

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

Document WTIM99/17-E
12 March 1999
Original: English

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

SOURCE: MR. SAM PALTRIDGE, OECD, FRANCE

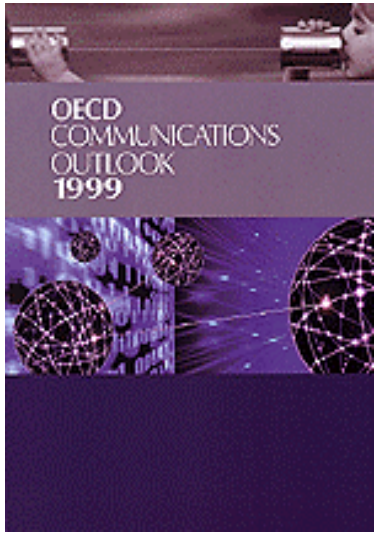
TITLE: OECD WORK ON COMMUNICATION INDICATORS

_____

OECD Work on Communication Indicators

Sam Paltridge and Mary Thomson,
OECD

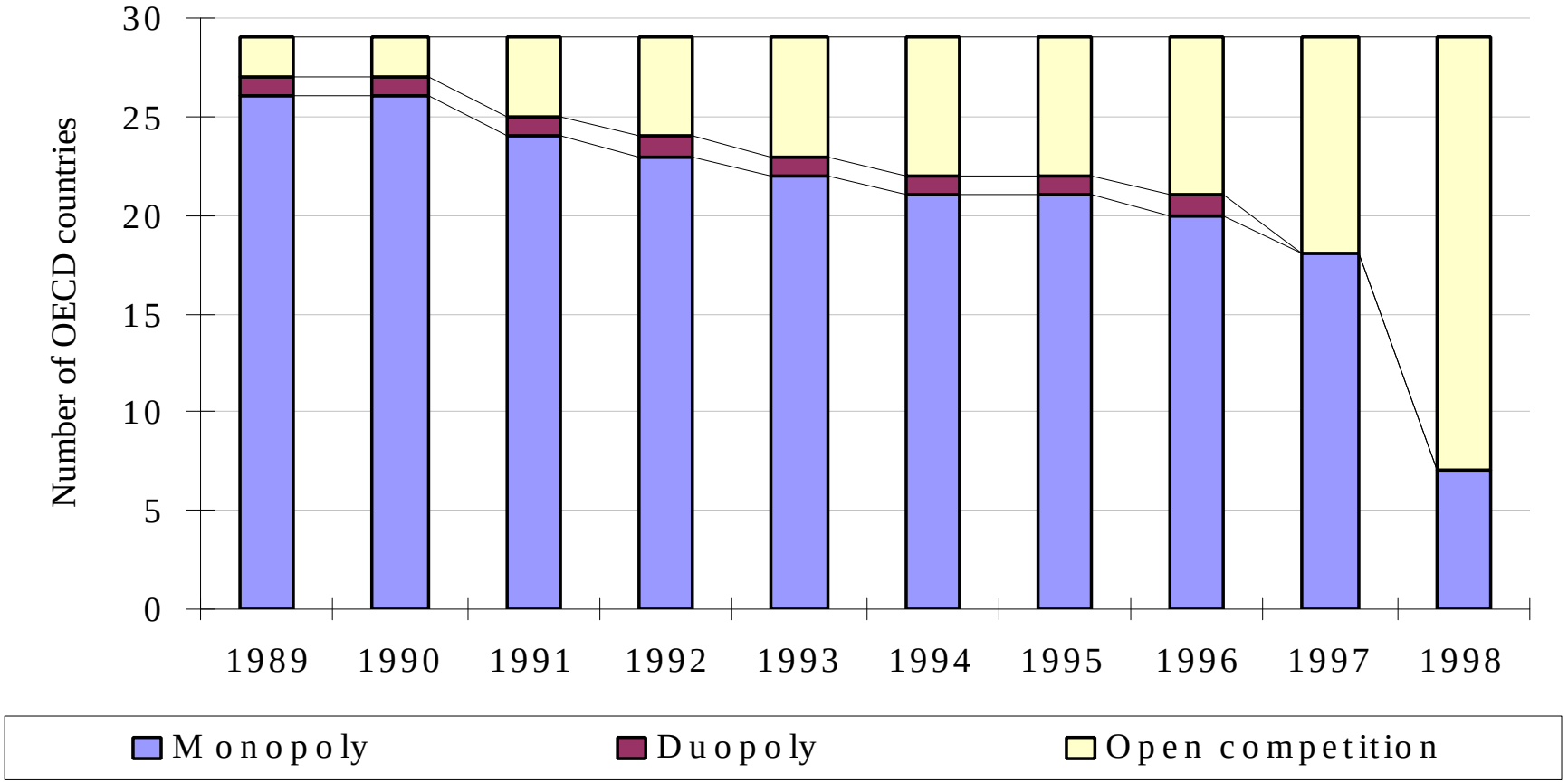
Presentation to ITU “2nd World Telecommunication Indicators Meeting”, Geneva, 29-31 March



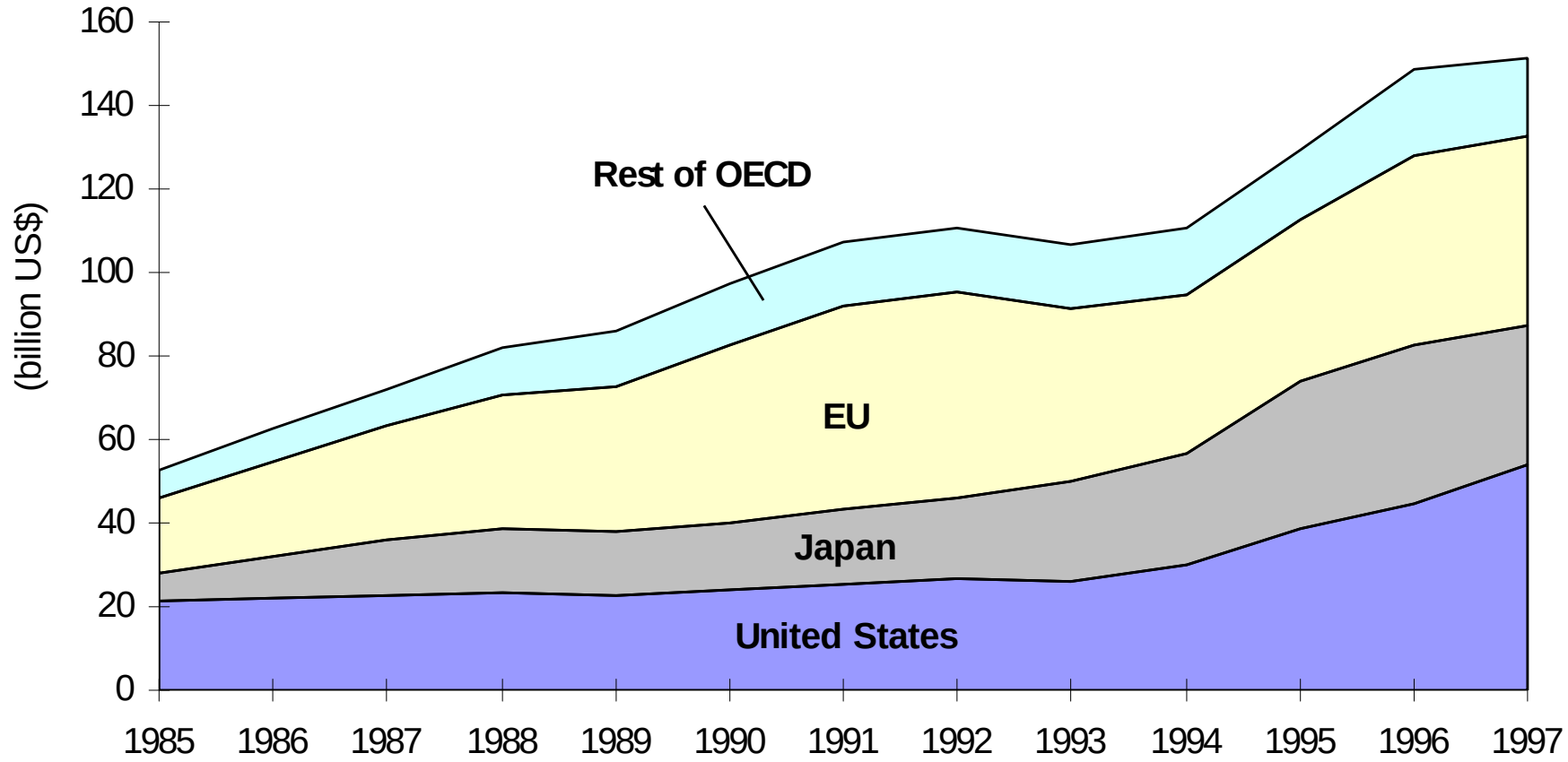
Introducing OECD work

- Why does the OECD measure communication markets?
- How is work on telecommunication structured at the OECD?
- What is measured?
- New Indicators

Market structures and their impacts

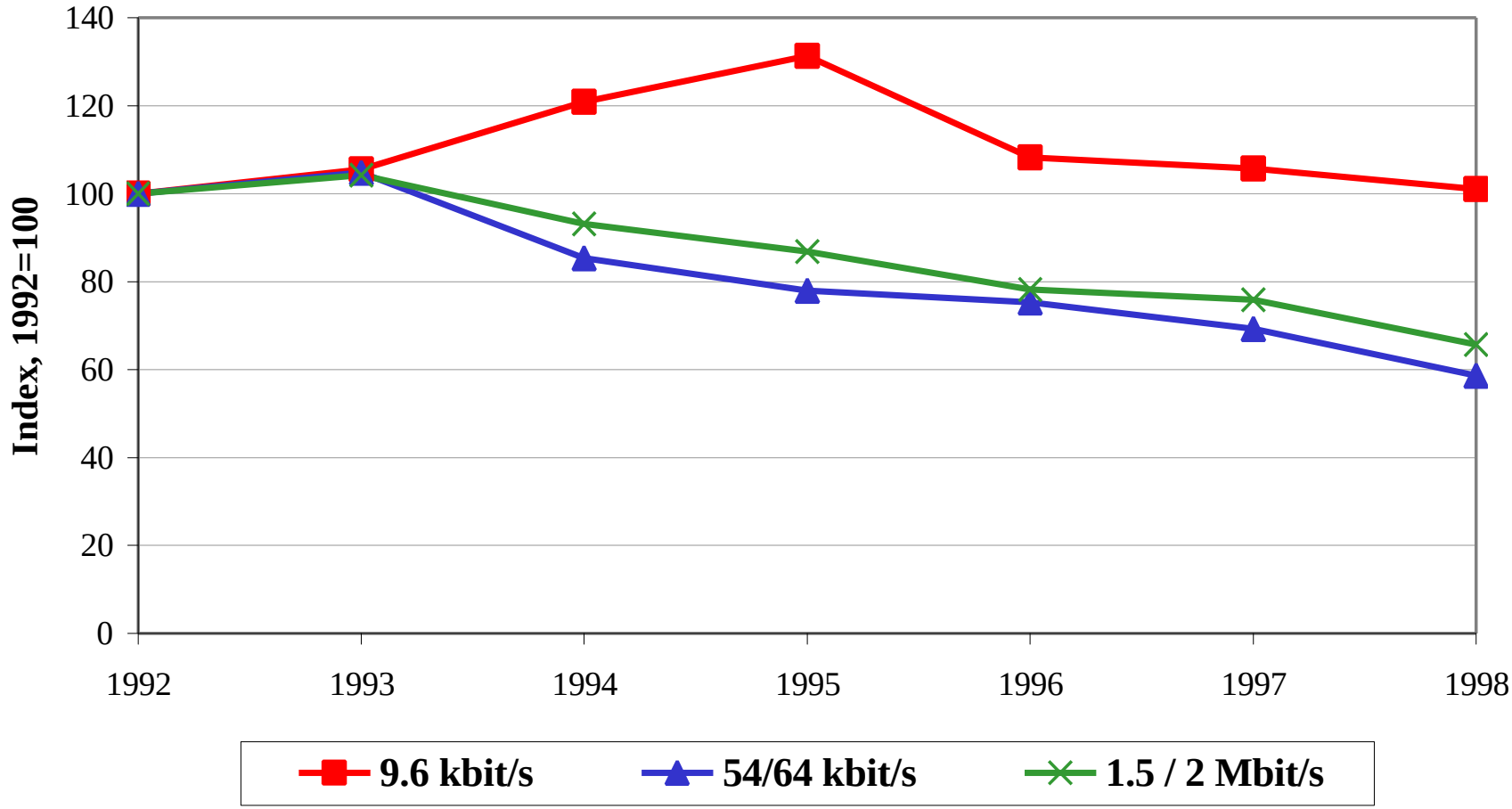


Comparative analysis of policy



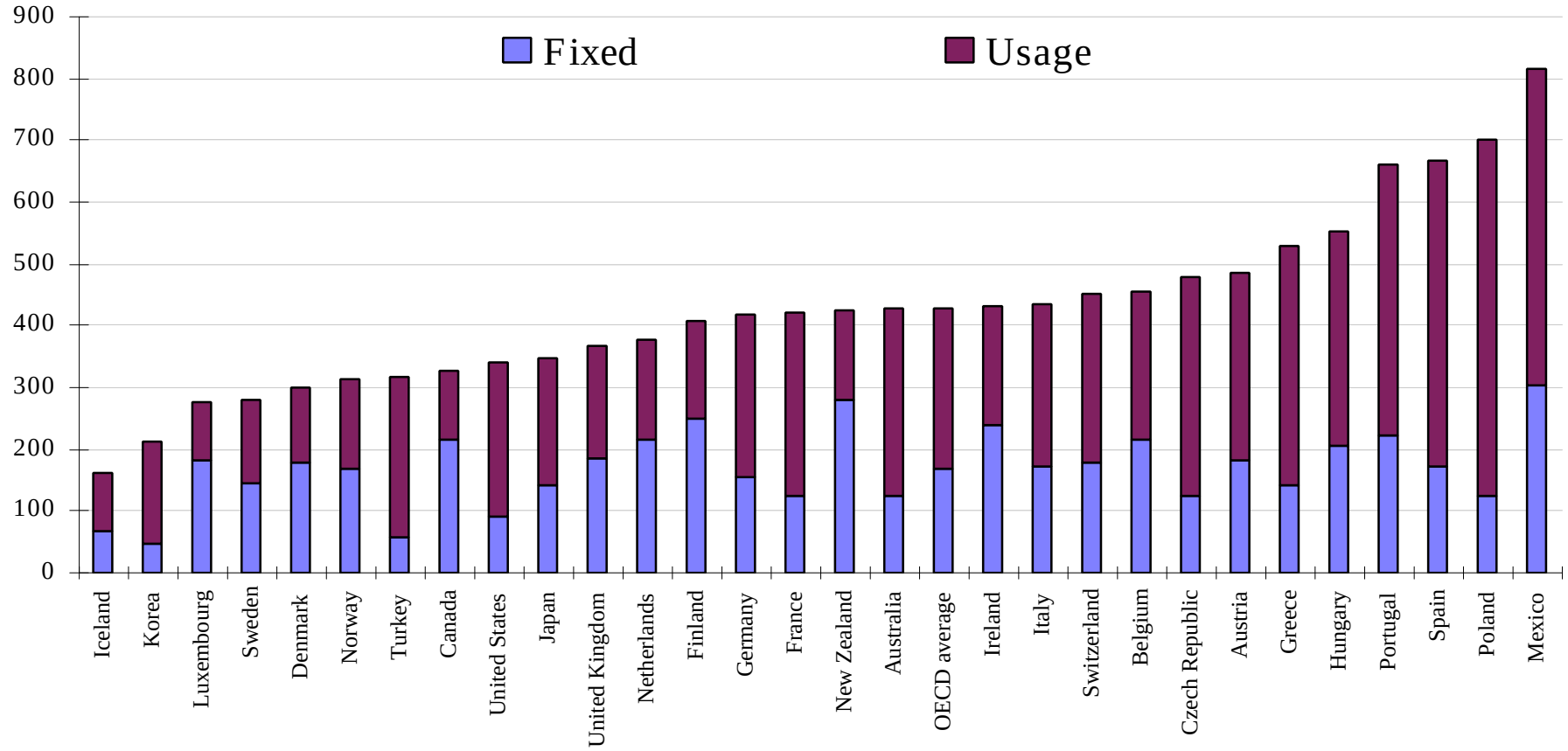
OECD

Time series of leased line tariffs for OECD countries



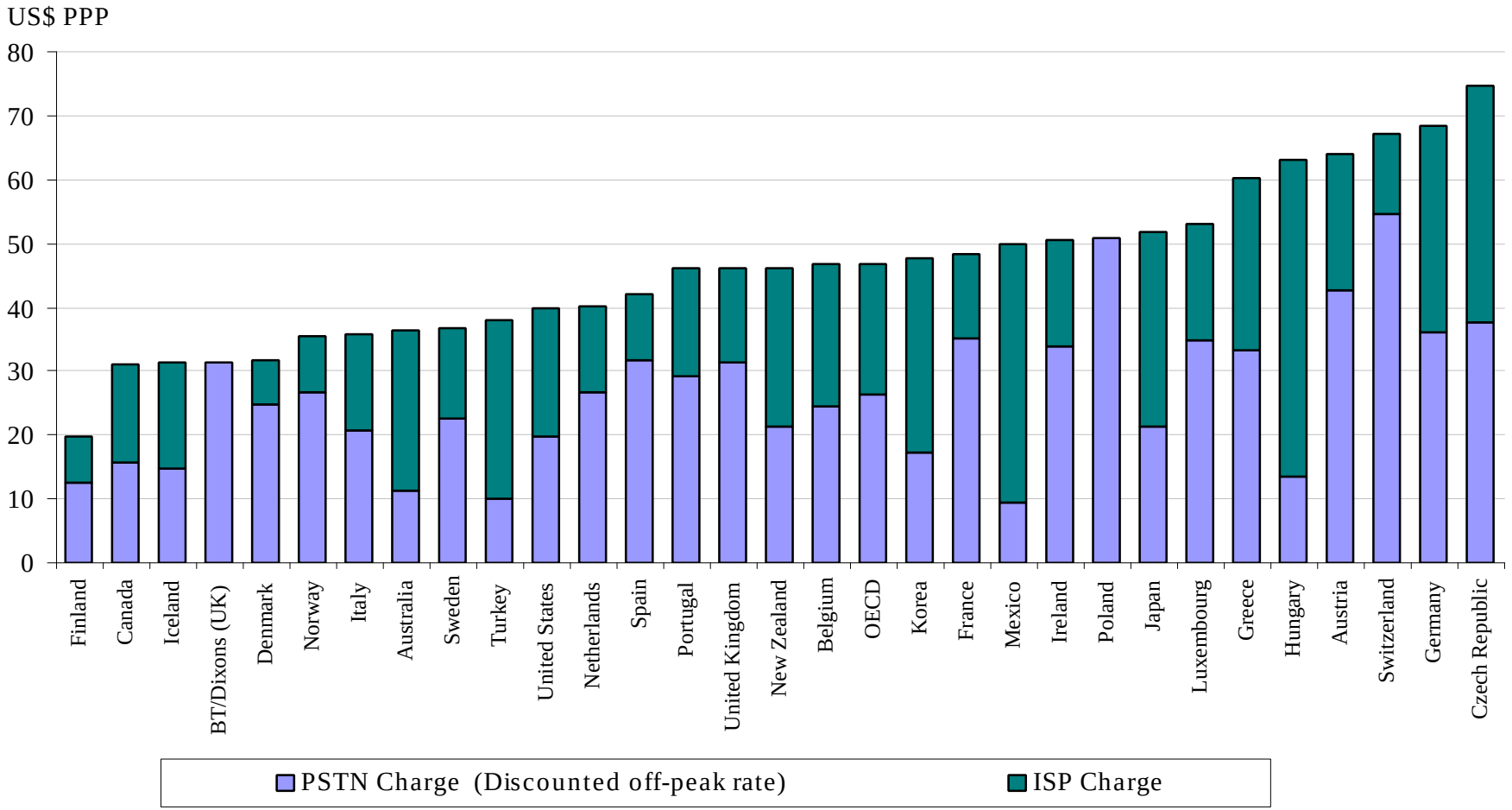
OECD

OECD residential tariff basket
August 1998



Note: Including tax. Calculation is based on PPP expressed in US$.

Off-peak rate Internet access basket, 1998, 20 hours per month



OECD

How is the work structured?

- Biennial work program
- Past telecommunication projects
  - » Universal Service, Satellite Communication Spectrum Allocation, Price Caps, Infrastructure Competition, Employment, Convergence, Accounting Rates, Numbering, Mobile Communication, Internet Pricing, Domain Names, Webcasting, Internet Traffic Exchange.
- Projects in 1999
  - » Infrastructure for Electronic Commerce, Convergence
  - » Biennial "Communications Outlook"
  - » 1999 Communications Outlook (Published March 16th and available on-line).
- Ongoing Tasks
  - » Telecommunication performance indicators
  - » Tariff comparisons

What information is collected?

- How does the OECD define the Communication Market?
  - » Public telecommunication networks and services
  - » Broadcasting and Cable Television
  - » Internet (Prices and available infrastructure measures)

- Regulation
- Services market
- Network dimensions & development
- Broadcasting
- Internet
- Communication tariffs
- Quality of service
- Employment and productivity
- Trade in communication equipment
- Communication Aid

Data collection and sources of information

- Biennial "Outlook" questionnaire
  - » Delegations
- Tariff Data
  - » Operators via the Eurodata Foundation
- Ad-hoc project driven questionnaires
- Data exchange (accounting rates)
- Internet Home Pages
- Annual reports, company fact books & statistical supplements
- Company filings
  - » Financial Regulators (SEC - EDGAR)
  - » Regulators (e.g. FCC, OFTEL)
  - » Company Internet Home Pages
- Official publications (e.g. Canada, Finland)
- Industry associations (e.g. CTIA)
- International Organisations (ITU, Eurostat)
- Internet surveys such as Network Wizards, RIPE, Netcraft)
- Online tools for data collection

If the ‘public Internet’ provided the “Hot Line”!

1 **www1.whitehouse.gov** (198.137.240.91)
2 198.137.240.65 (198.137.240.65)
3 198.137.240.34 (198.137.240.34)
4 **ip1.ci3.herndon.va.us.psi.net** (38.25.11.1)
5 **sc.southeast.us.psi.net** (38.1.25.1)
6 38.1.4.6 (38.1.4.6)
7 **tip1-mae-east.cwix.net** (192.41.177.182)
8 **tip-7513-2-f11-0.cwix.net** (207.124.104.98)
9 **blb-7513-1-h3-0.cwix.net** (207.124.105.78)
10 **phy-7513-1-h9-0.cwix.net** (207.124.117.5)
11 **nyd-7513-2-h4-0.cwix.net** (207.124.108.41)
12 **lon-7513-2-a10-0-1.cwix.net** (207.124.108.62)
13 207.124.116.70 (207.124.116.70)
14 194.186.157.69 (194.186.157.69)
15 194.186.157.73 (194.186.157.73)
16 **cisco1.Moscow.ST.NET** (194.67.0.246)
17 **MSK-M9-1-S1-0-1.iip.net** (195.178.192.65)
18 **kremlin.fr.iip.net** (195.178.192.73)
19 195.178.196.70 (195.178.196.70)

(**Kremlin Museumwebsite picture via www.kremlinkam.com/**)

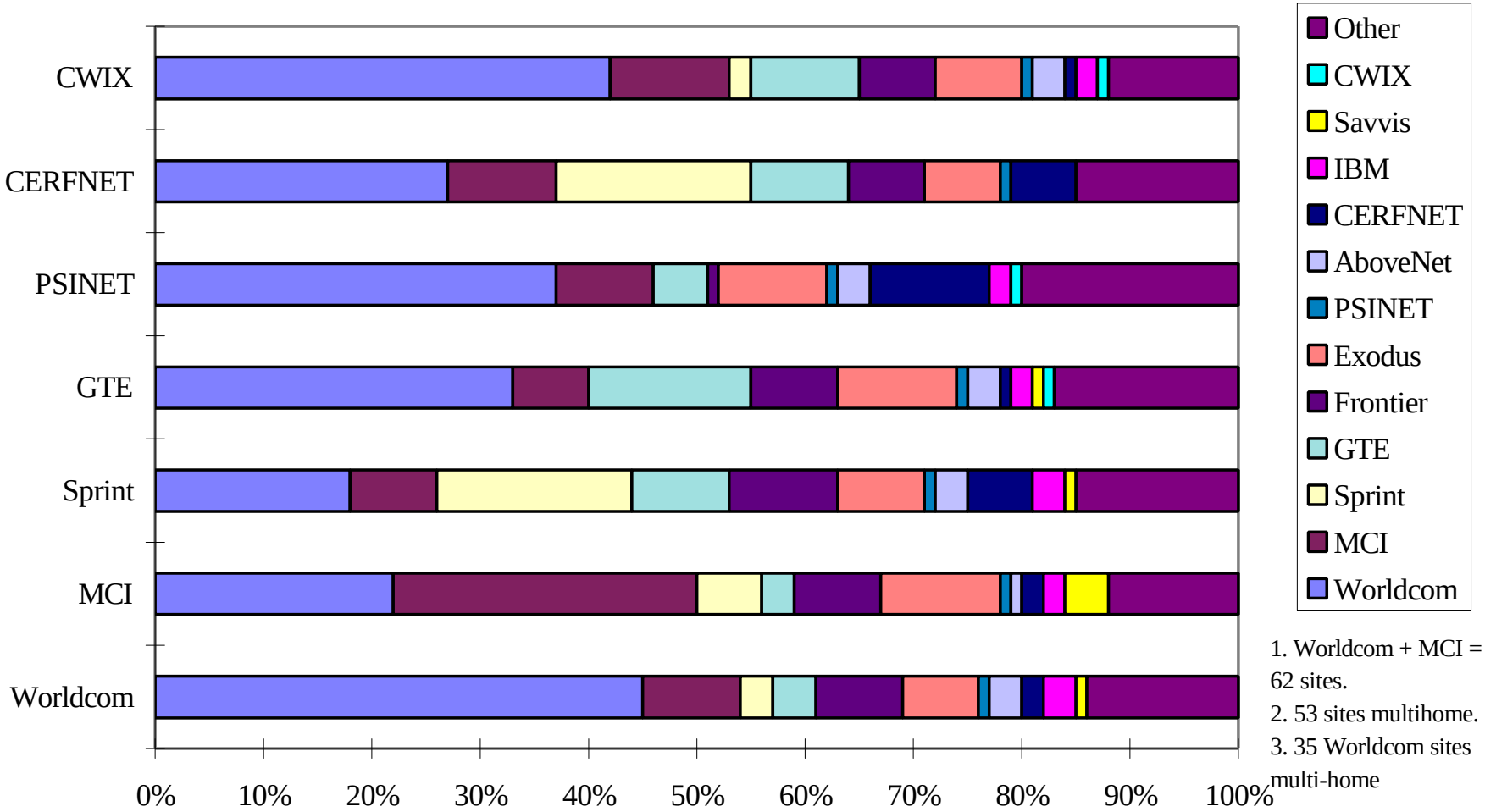
PSINet

WORLDCOM SM

CABLE & WIRELESS
USA

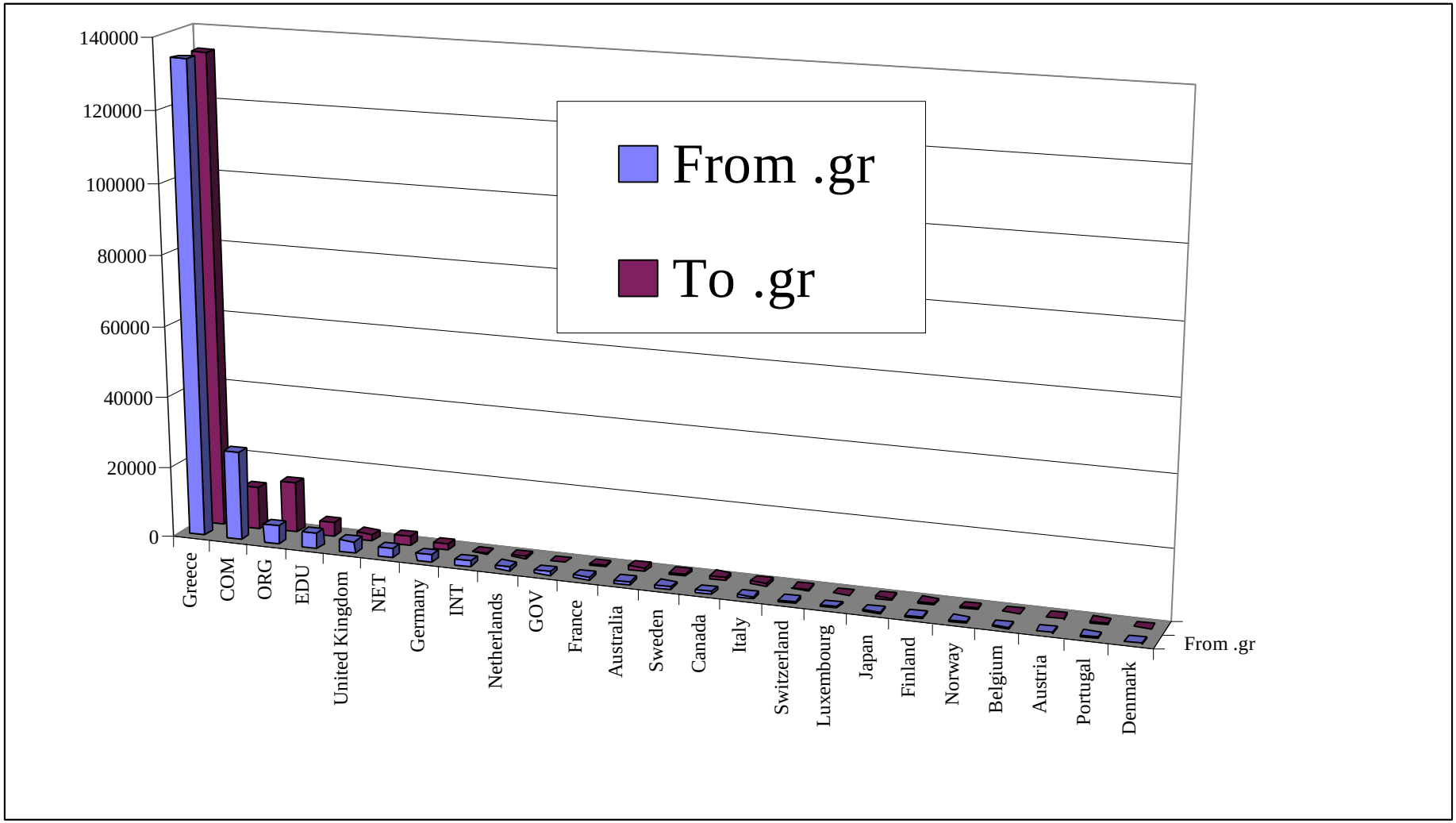
SOVAM
TELEPORT

Traceroutes to Top 100 websites across US backbones, 1998



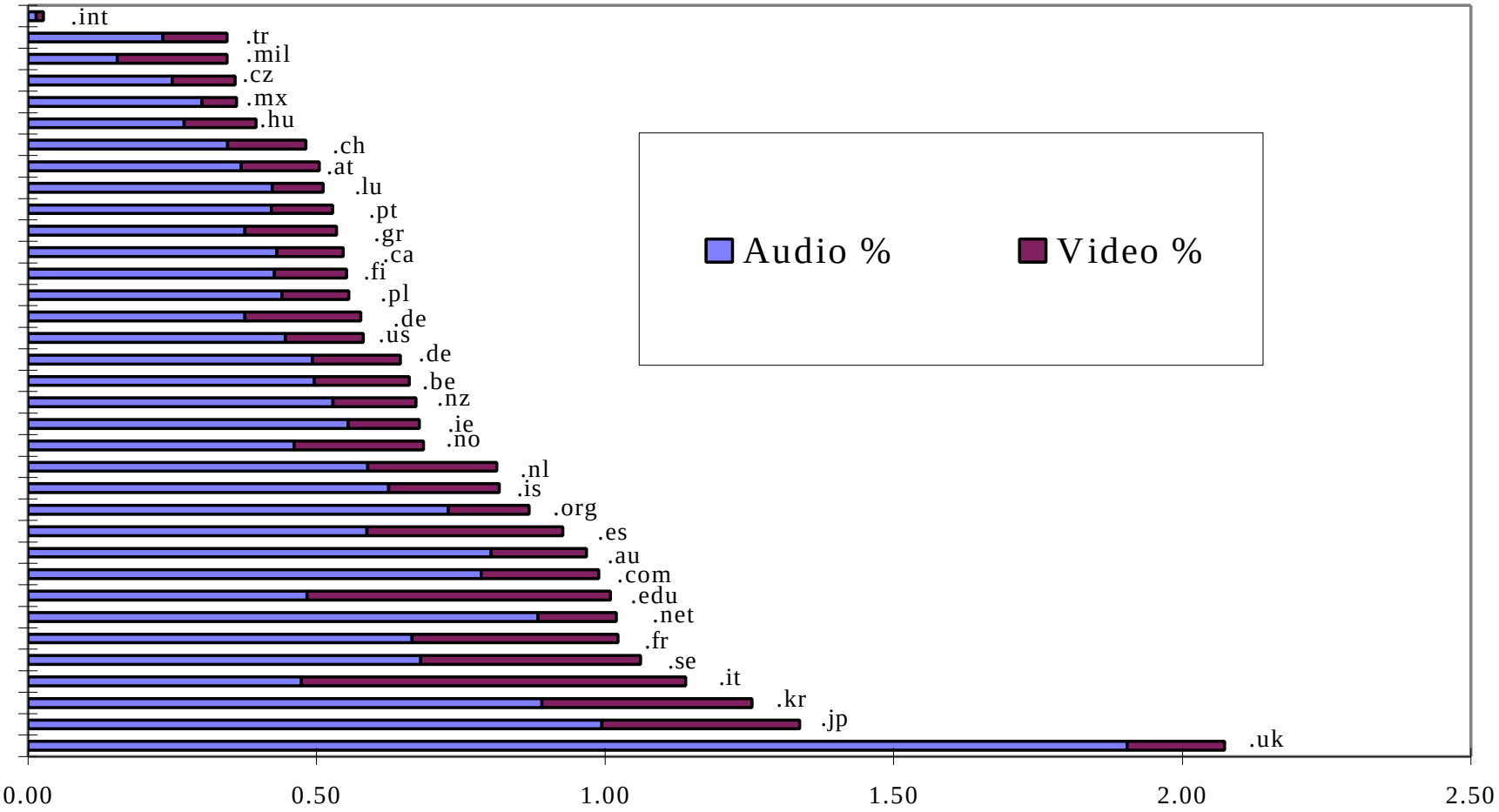
1. Worldcom + MCI = 62 sites.
2. 53 sites multihome.
3. 35 Worldcom sites multi-home

WWW Links to and from .gr



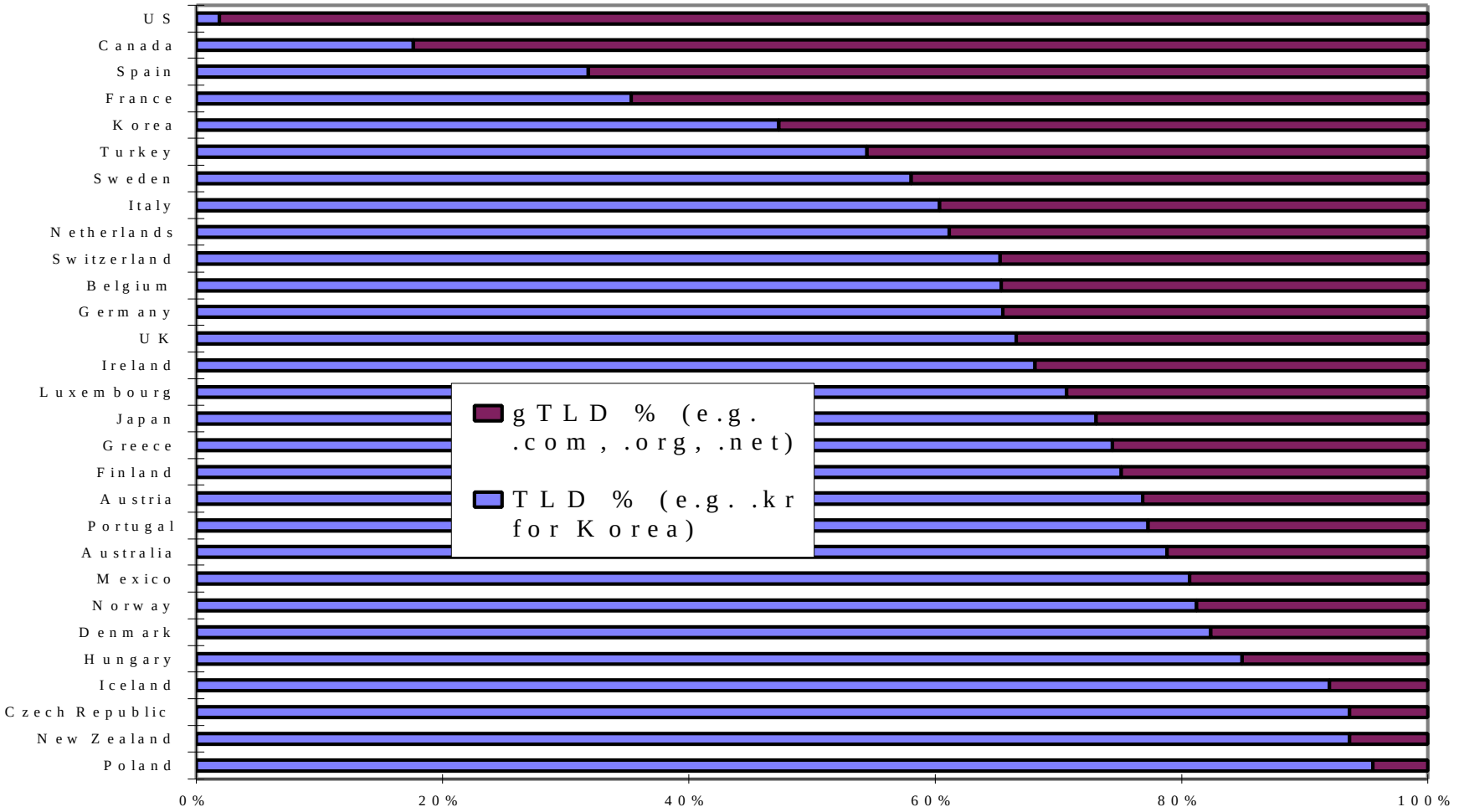
OECD

Convergence and the Internet
Audio and Video applications on WWW under gTLDs and TLDs

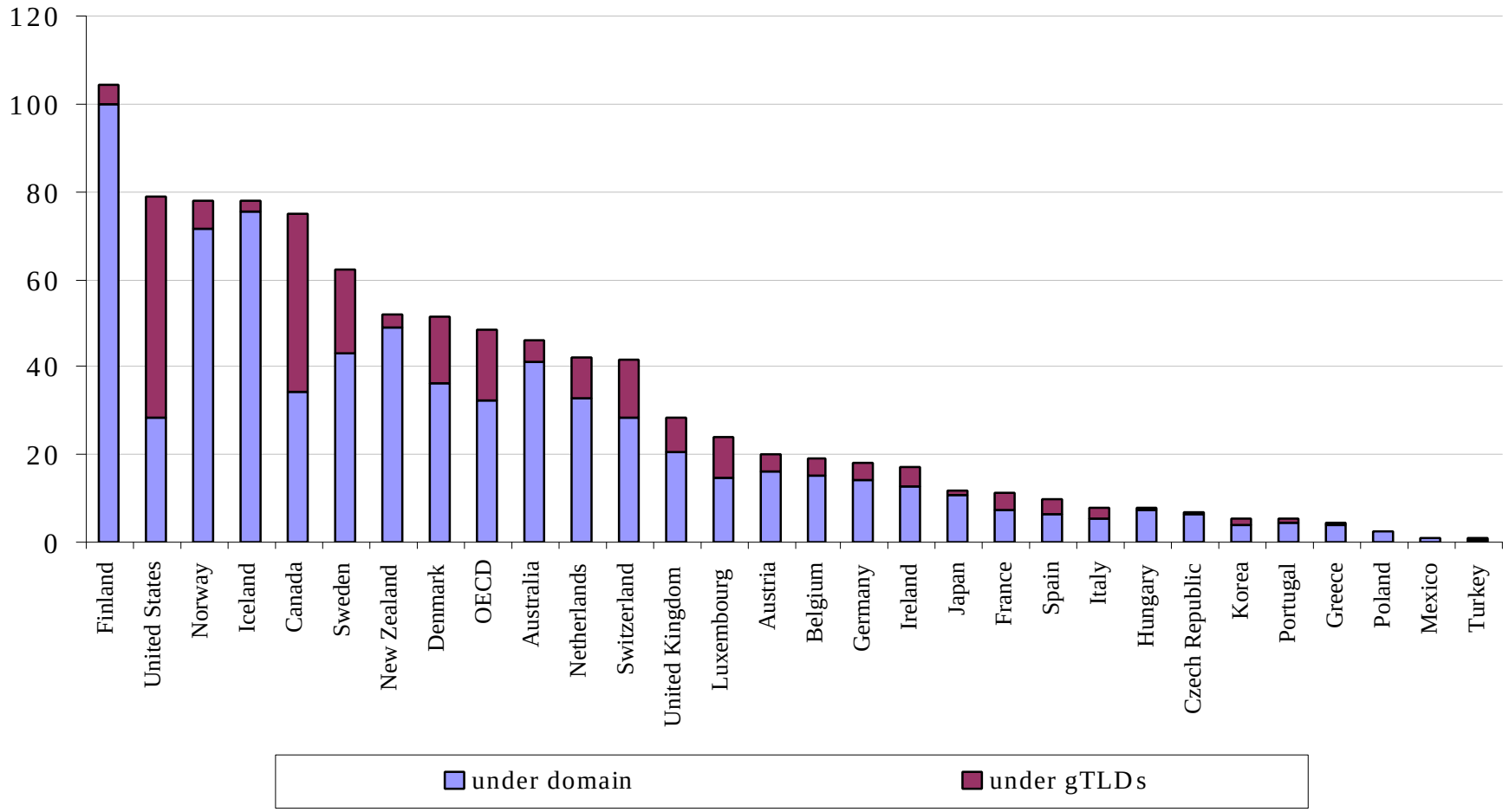


OECD

Balance of gTLDs and TLDs



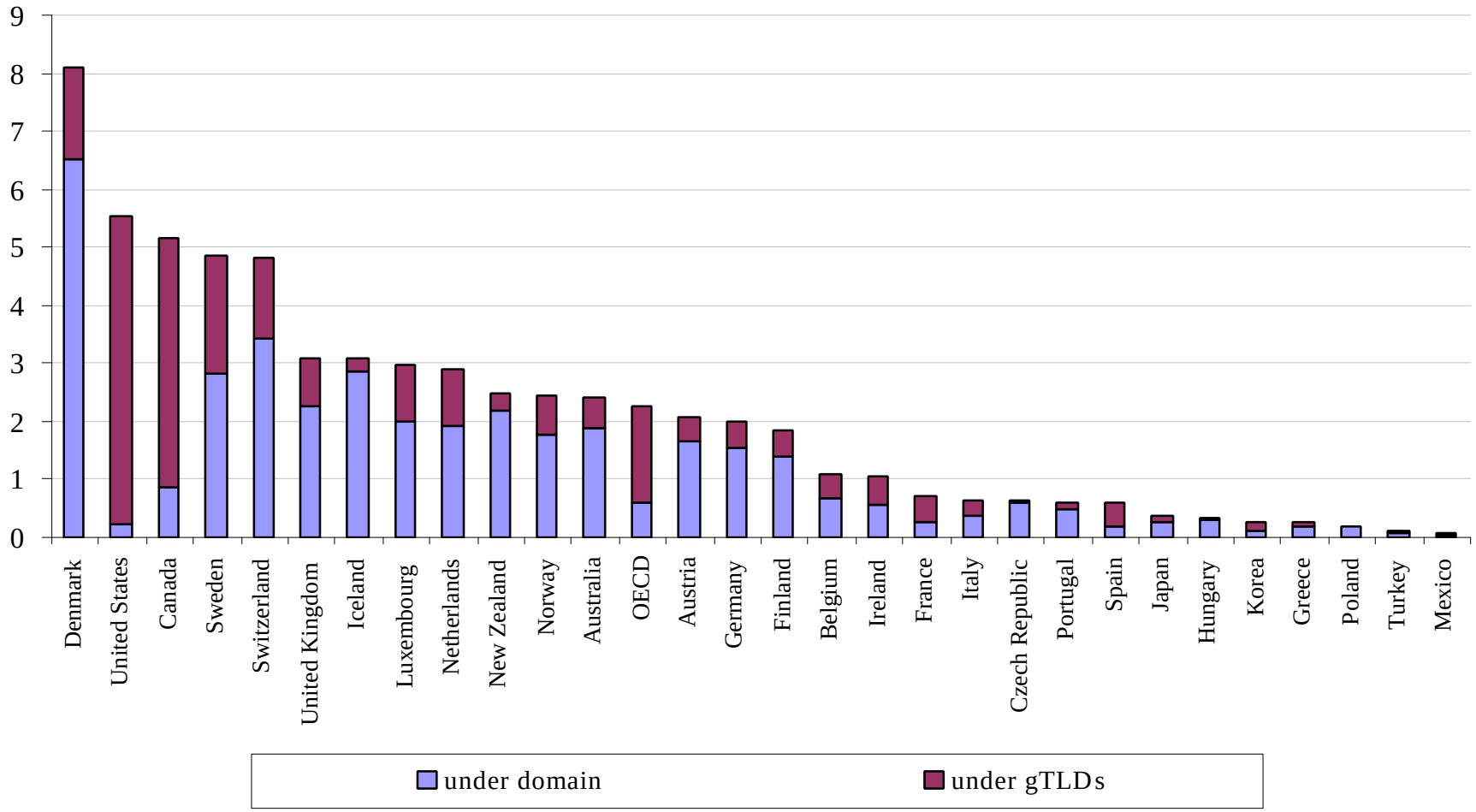
Internet hosts per 1000 inhabitants July 1998 (including: .com, .net, .org), Source: Network Wizards, Imperative.



OECD

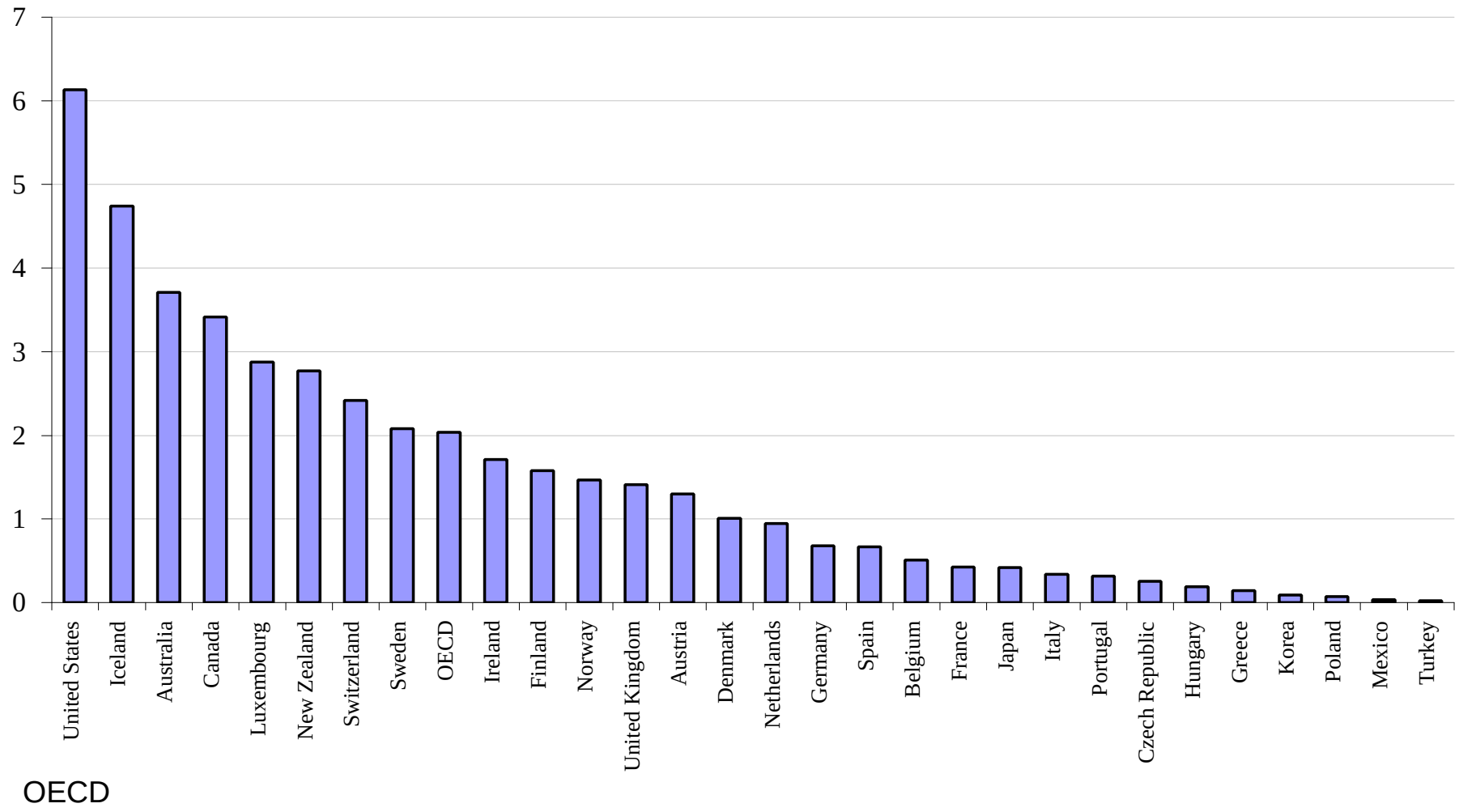
Web Server Sites per 1000 inhabitants July 1998.(incl. .com, .net, .org),

Source: Netcraft (www.netcraft.co.uk)

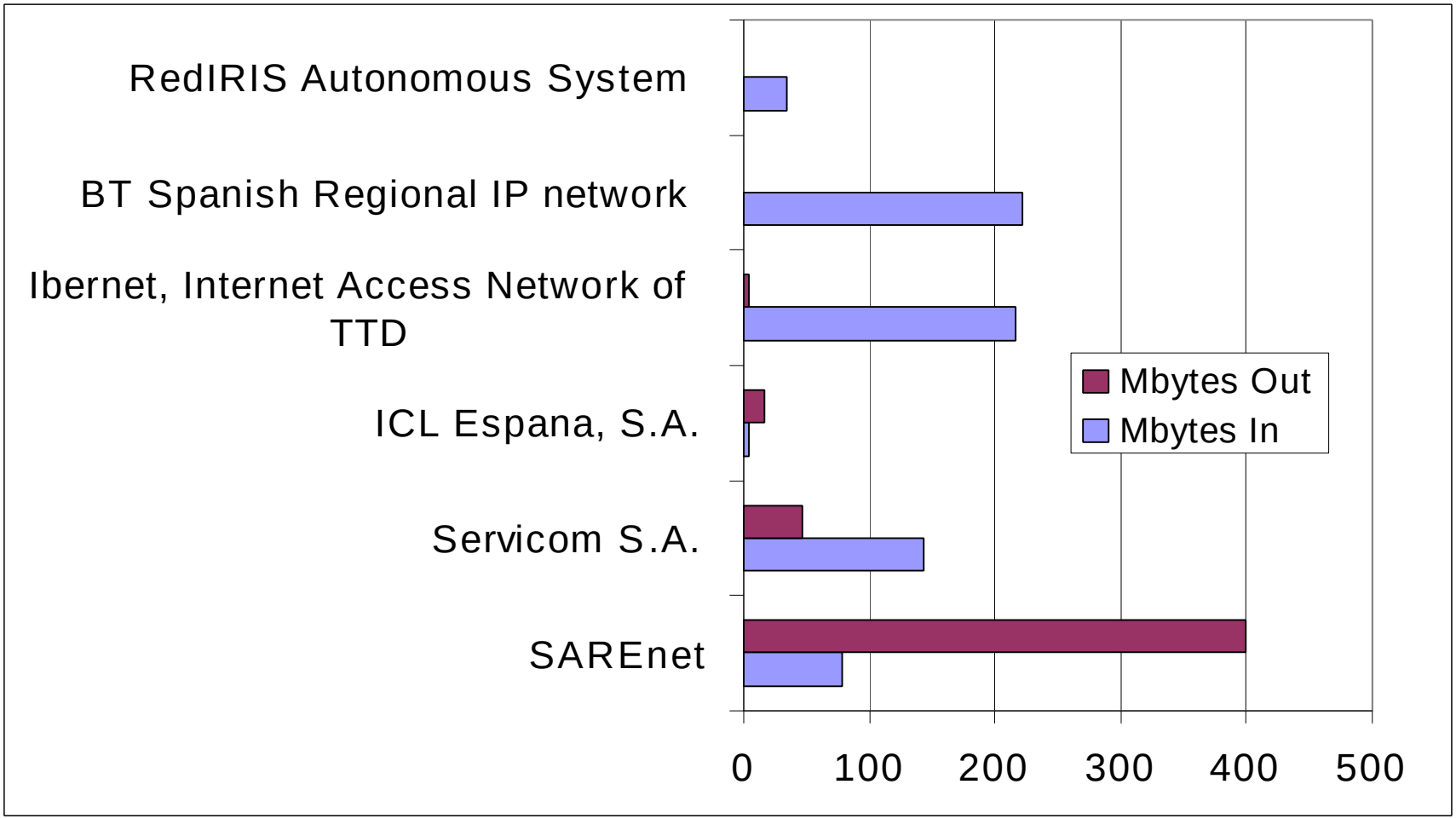


OECD

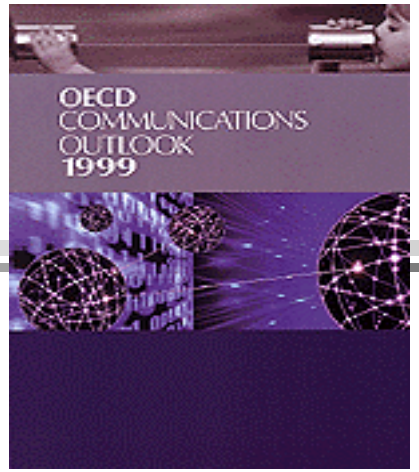
Secure web servers for electronic commerce per 100 000 inhabitants, August 1998 (Source: Netcraft)



Traffic Measures:Telstra traffic with Spanish ISPs (one day sample Feb'99)



Some reference material



- "Communications Outlook 1999"
- Telecommunication Database
- "Performance Indicators for Public Telecommunications Operators", ICCP #22, Paris 1990.
- "Internet Infrastructure Indicators"
- "Internet Traffic Exchange: Developments and Policy"
- http://www.oecd.org/dsti/sti/it/index.htm

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

Document WTIM99/18-E
26 March 1999
Original: English

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

SOURCE: MR. A.S.W BANDUSIRI SILVA, TRC, SRI LANKA

TITLE: STATISTICS IN SRI LANKA & FUTURE DEVELOPMENTS IN TELECOMMUNICATIONS

_____

TELECOMMUNICATIONS REGULATORY COMMISSION OF SRI LANKA

For presentation at ITU World Telecommunication Indicators meeting

29 March - 31 March 1999, Geneva, Switzerland

Mr. A. S. W. Bandusiri Silva

Statistical Officer

Telecommunications Regulatory Commission of Sri Lanka
276 Elvitigala Mawatha
Colombo 08, Sri Lanka

E-mail dgtsl@slt.lk ; bandusiri@hotmail.com

Fax: 94 1 689341

Voice: 94 1 689345

Introduction

Sri Lanka's National economic policy gives priority to infrastructure development. It recognizes telecommunications as a vital infrastructure element. Sri Lanka's National Telecommunications policy envisages further development of the telecommunications sector through private and public sector participation and competition.

The Sri Lanka Telecommunications Act, 25 of 1991, introduced regulation to the Sri Lanka telecommunications in 1991. The Office of the Director General of Telecommunications, the predecessor of the Telecommunications Regulatory Commission, was mandated with the following broad responsibilities:

1. Provide Policy advice and license recommendations to the Minister.
2. Maintain the spectrum resource in optimal condition as its sole manager.
3. Provide fair, transparent, prompt and effective decision processes to operators.
4. Ensure that the different parts of Sri Lanka's network work properly by assuring standardization.
5. Create safeguards to protect consumers from the exercise of market power and information asymmetries.

In order to achieve these objects the Commission has been given various powers including those to obtain information, approve and modify technical plans, and direct operators to give redress to customers. The Act gives the Commission power to make rules and regulations that can spell out in greater detail the regulatory regime.

The Sri Lanka Telecommunications Amendment Act of 1996 converted the Office of Director General of Telecommunications to the Telecommunications Regulatory Commission. The Commission comprises of three private sector members with security of tenure, representing the fields of Business, Finance and Law. The Secretary of the Ministry of Telecommunications serves as Chairman ex officio, and the Director General of Telecommunications who also serves as the Chief Executive Officer of the organization represent the public sector.

Statistics

Sri Lanka Telecom (SLT) is the major supplier of fixed telephony. Suntel and Lanka Bell were licensed in 1996 to compete with SLT through the provision of fixed wireless local loop (WLL) connections. The major supplier of fixed telephony also provides wireless local loop connections within the 800 MHz band. Figure 1 shows the rapid growth of fixed-access telephone connectivity in the past few years.
The country has four mobile telephony operators. Figure 2 shows the growth of mobile connectivity since 1991.
International data transmission is also a competitive sector with six providers (plus the specialized provider SITA). In addition there are six non

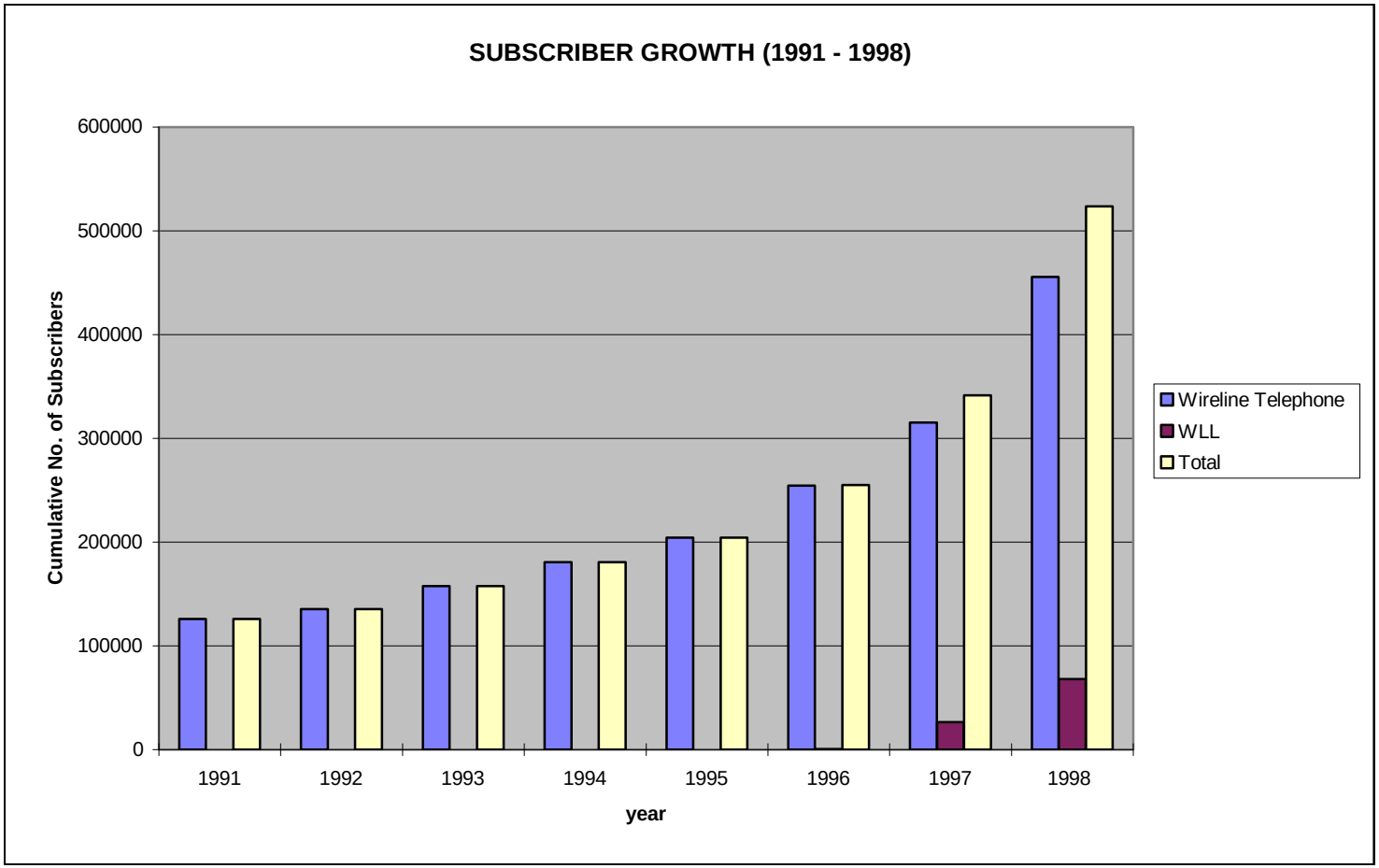
facilities based Internet services providers (ISPs) four of whom are not offering services.. Figure 3 shows the rapid growth of Data, Fax, Internet and E-mail subscribers in last three years.

There are five paging service operators. Figure 4 shows the growth of paging operators connectivity in the past few years.

There is one mobile trunk operator, a specialized infrastructure provider and the specialized private service provider (Air Lanka).

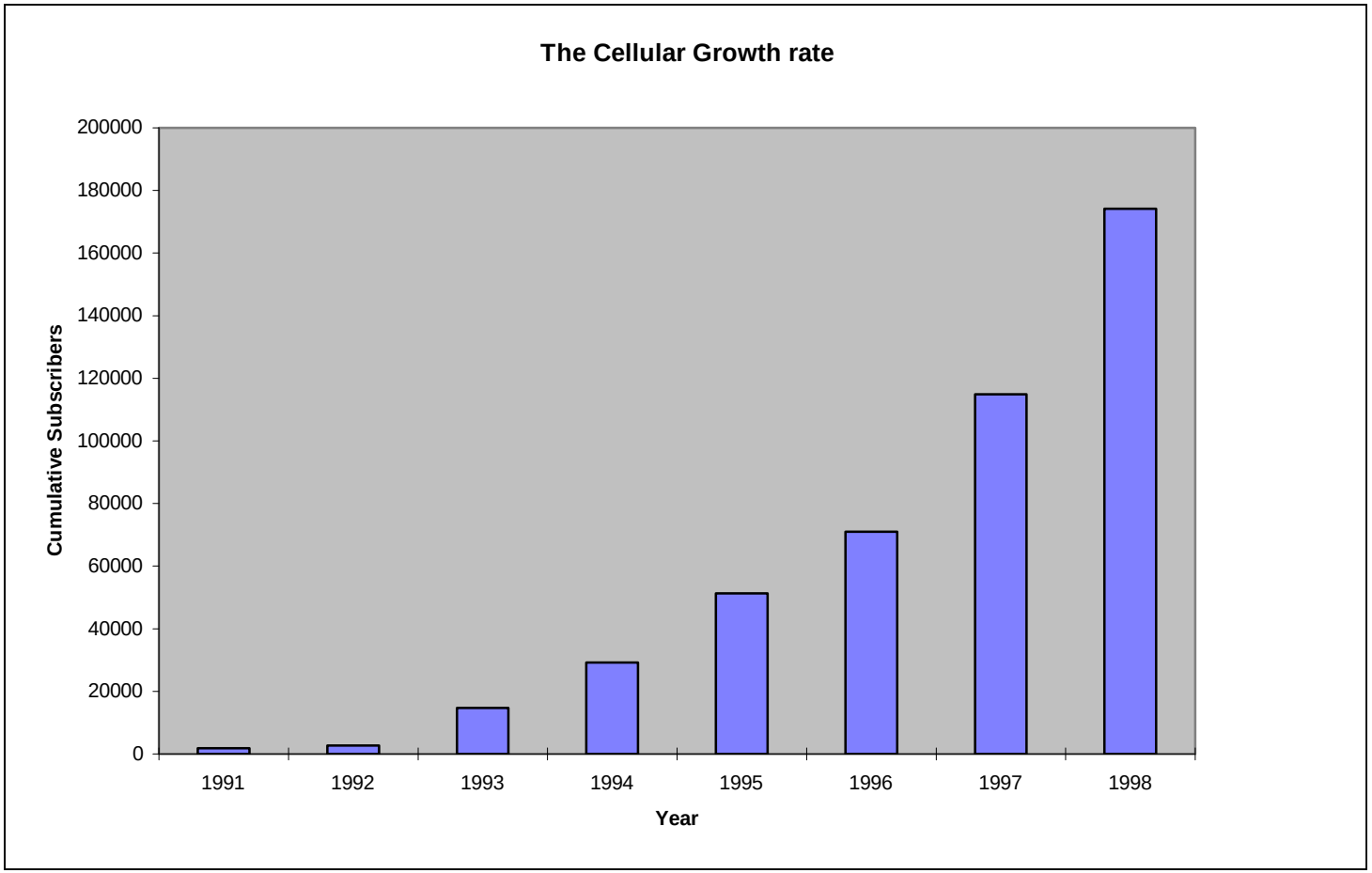
The Minister, on the recommendation of the Commission has licensed two payphone operators one of whom is not offering services. In addition to acting as a major player in this market with its network of coin telephones, SLT has authorized three payphone companies. Figure 5 shows the growth of the payphone sector.

Figure 1



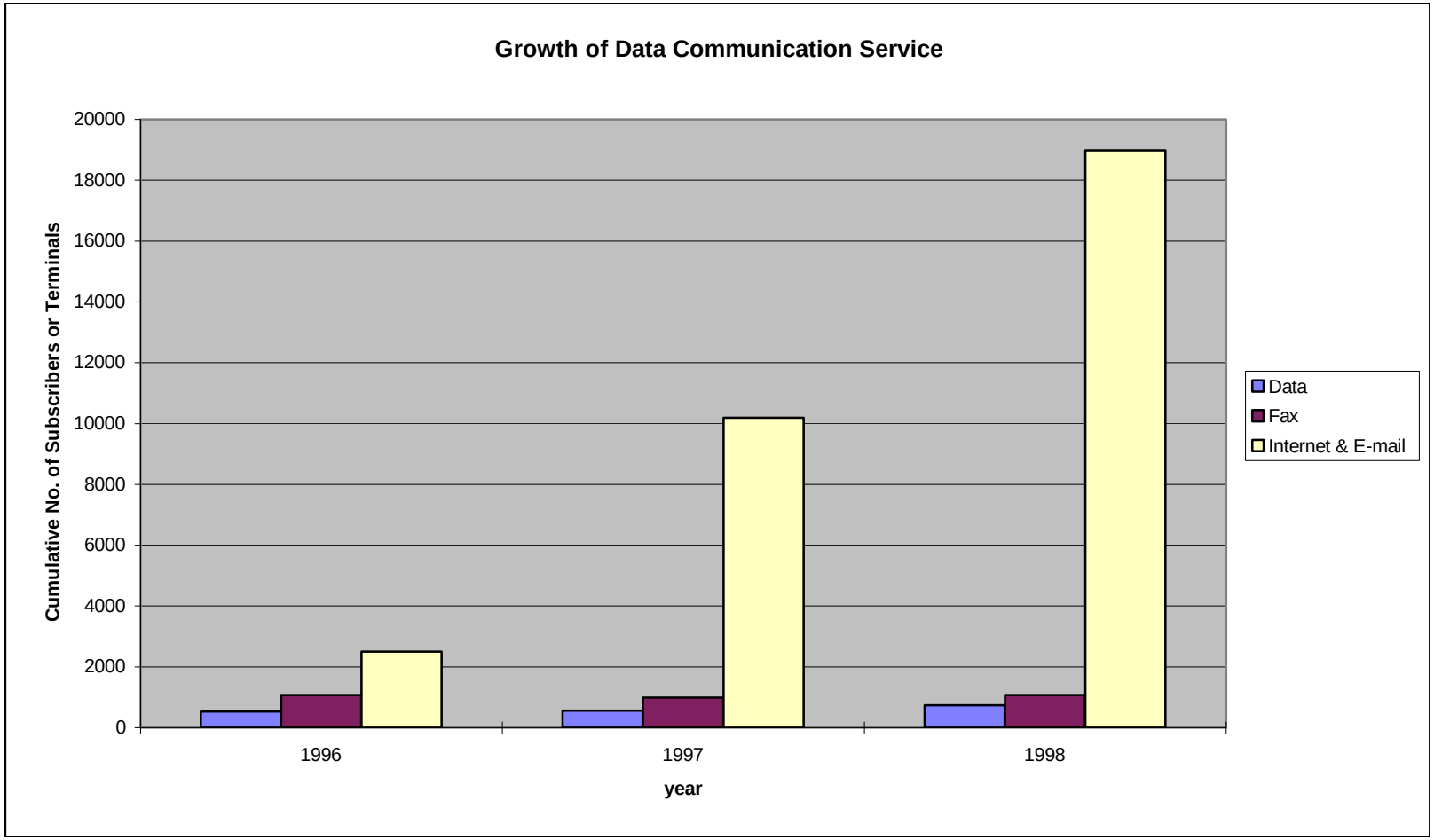
	1991	1992	1993	1994	1995	1996	1997	1998
Wireline Telephone	125834	135504	157774	180724	204350	254500	315241	455598
WLL						527	26381	67931
Total	125834	135504	157774	180724	204350	255027	341622	523529

Figure 2



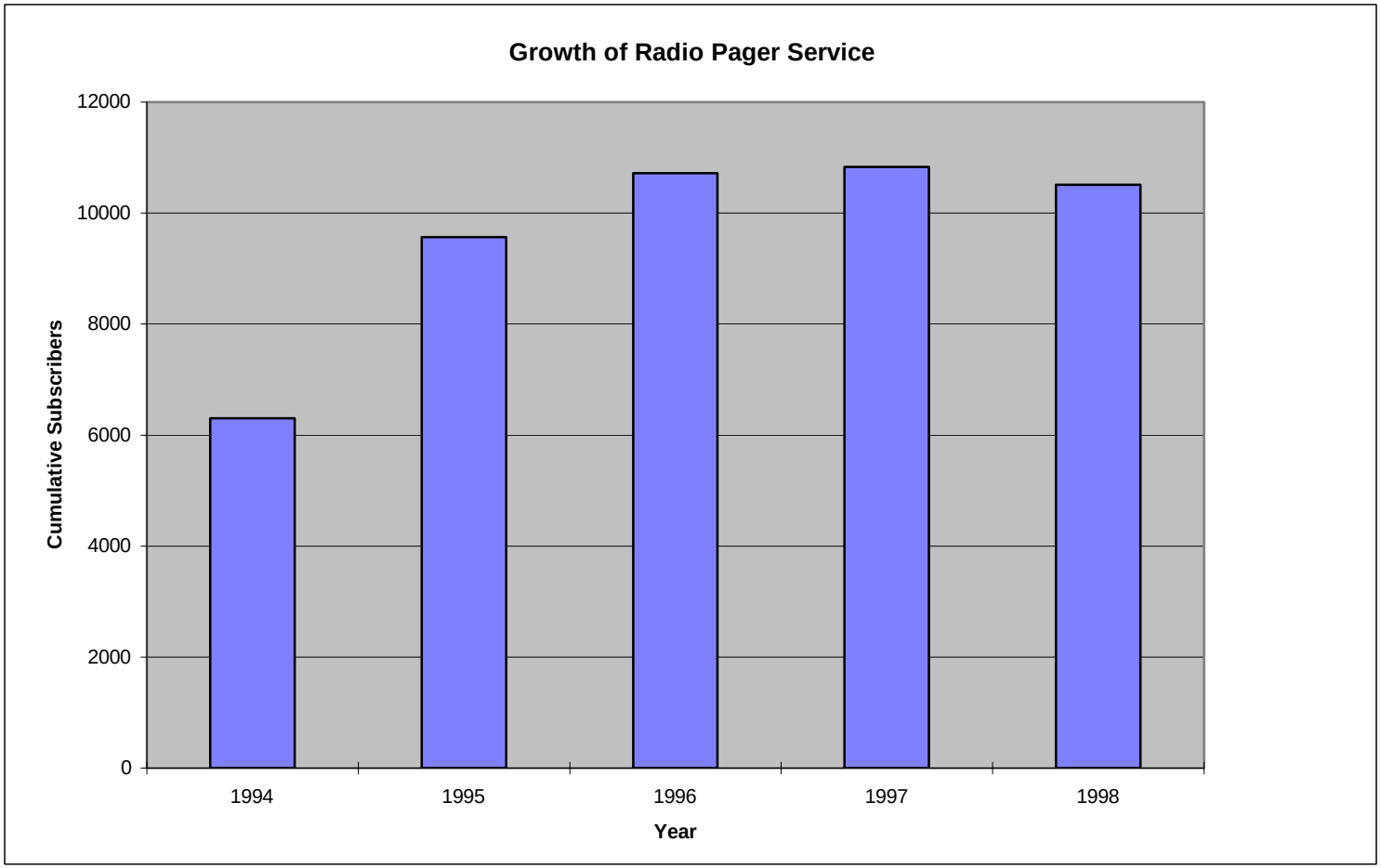
	1991	1992	1993	1994	1995	1996	1997	1998
Cellular	1800	2644	14687	29182	51316	71029	114888	174202

Figure 3



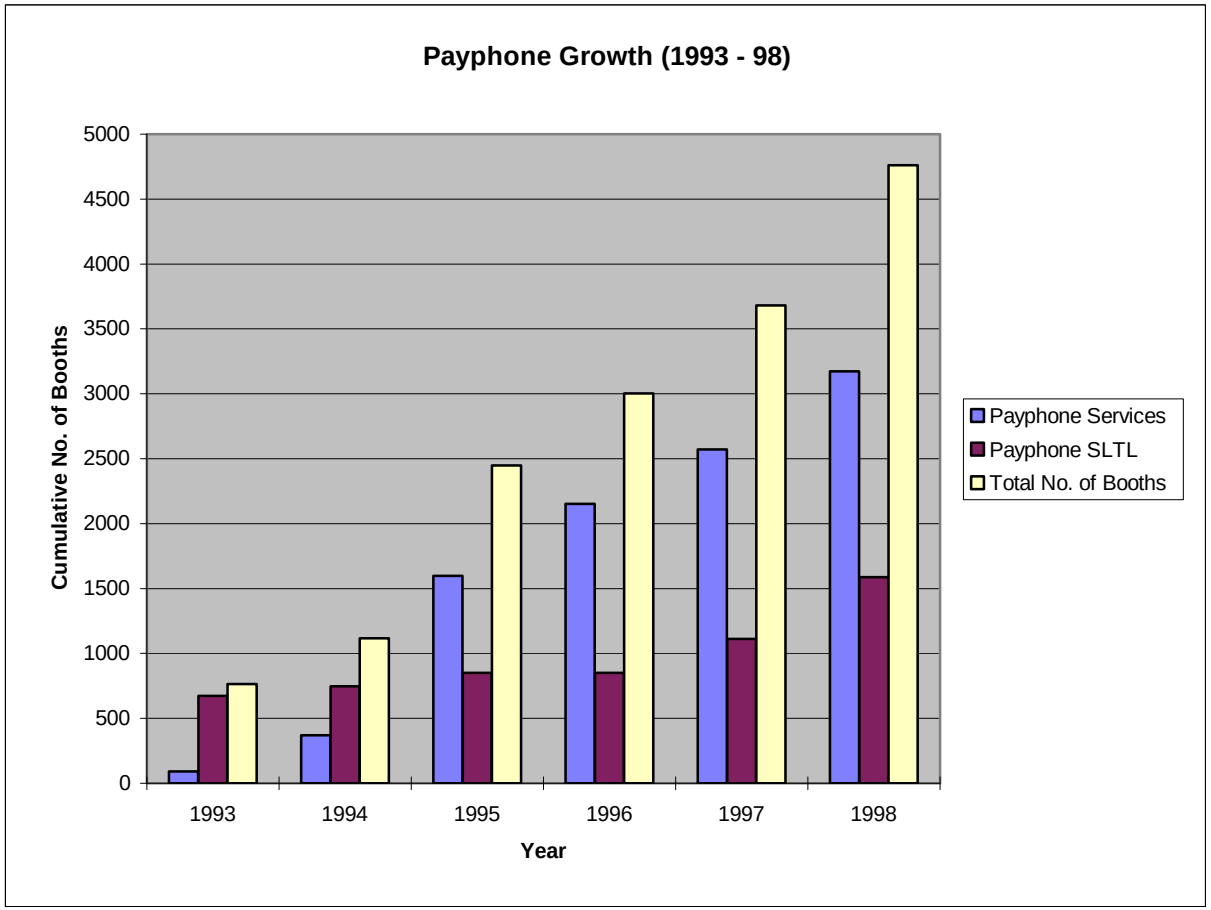
	1996	1997	1998
Data	534	561	736
Fax (Paid)	1072	989	1069
Internet & E-mail	2504	10195	18984

Figure 4



Year	1994	1995	1996	1997	1998
Pagers (Cumulative)	6302	9565	10721	10829	10511

Figure 5



	1993	1994	1995	1996	1997	1998
Payphone Services	91	371	1597	2152	2571	3174
Payphone SLTL	673	747	850	850	1111	1587
Total No. of Booths	764	1118	2447	3002	3682	4761

TELECOMMUNICATIONS REGULATORY COMMISSION OF SRI LANKA

Telecommunications System Operators Licences

N^{o}	Name of Licensee	Date of issue of licence	Period of licence	Address Telephone, Fax
	Fixed Operators			
1.	Sri Lanka Telecom.	08.08.1991	20 years	Sri Lanka Telecom Ltd., Lotus Road, Colombo 01. TP: 329711 Fax: 440000
2.	Telia Lanka (Private) Ltd.	22.02.1996	20 years	Suntel (Pvt.) Ltd., Colombo 02. TP: 074 - 747000 Fax: 074 - 748000
3.	Lanka Bell (Pvt) Ltd.	26.02.1996	20 years	Lanka Bell (Pvt.) Ltd., 68, Bauddhaloka Mawatha, Colombo 04. TP: 075 - 335000 Fax: 075 - 330140
	Mobile Operators			
4.	Celltel Lanka Limited	07.09.1995	13 years	Celltel Lanka Ltd., 163, Union place, Colombo 02. TP: 541541, 072 - 288888 Fax: 541145, 072 - 280565
5.	Lanka Cellular Services (Pvt) Ltd.	11.02.1992	20 years	Lanka Cellular Services (Pvt.) Ltd., 175, Bauddhaloka Mawatha, Colombo 04. TP: 597549 Fax: 501677, 592640
6.	OTC Australia (Pvt) Ltd.	11.02.1993	07 years	Mobitel (Pvt.) Ltd., 3rd Floor, 108, W A D Ramanayake Mw, Colombo 02. TP: 330550, 071 - 734422 Fax: 441904
7.	MTN Networks (Pvt) Ltd.	28.09.1993	20 years	MTN Networks (Pvt.) Ltd., 475, Union Place Colombo 02. TP: 678688, 077 - 330159 Fax: 678703

	Facilities Based Data Carriers			
8.	Lanka Communication Services (Pvt) Ltd.	04.07.1991	20 years	Lanka Communication Services (Pvt) Ltd., 65C, Dharmapala Mawattha, Colombo 07. TP: 437545-6 Fax: 437547
9.	Electroteks (Pvt) Ltd.	05.11.1991	20 years	Electroteks Ltd., 429D, Galle Road, Ratmalana. TP: 633312, 637430 Fax: 605104
10.	Societe International Telecommunications Aeronautiques.(SITA)	06.08.1992	20 years	SITA, 06- 02 East Tower, 6th floor, World Trade Centre, Echelon Square, Colombo 01. TP: 448578 Fax: 345471
11.	Lanka Internet Service Ltd.	06.12.1994	20 years	Lanka Internet Services Ltd., 156 1/1, Walukarama Road, Colombo 03. TP: 075 - 335994, 071 - 738935 Fax: 565080
12.	Ceycom Global Communications Ltd.	19.09.1995	20 years	Ceycom Global Communication Ltd., 347A, Galle Road, Colombo 03. TP: 573749 Fax: 573752
13.	Itmin Ltd.	06.06.1996	20 years	ITMIN Ltd., P. O. Box 2151 Colombo 07. TP: 683948 Fax: 683945
14.	Millenium Communications(Pvt) Ltd.,	11.08.1997	10 years	Milleneum Communication (Pvt.) Ltd., 146/2, Havelock Road, Colombo 05. TP: Fax:

	Non Facilities Based ISPs			
15.	Eureka Online (Pvt) Ltd.	16.08.1996	10 years	Eureka Online (Pvt.) Ltd., 1, Alfred House Gardens, Colombo 03. TP: 347455 - 9, Fax: 598705
16.	Pan Lanka Networking (Pvt) Ltd.	28.04.1997	10 years	Pan Lanka (Pvt.) Ltd., 26, Colling Wood Place, Colombo 06. TP: 596828, Fax: 074 - 514527
17.	Project Consultants International (Pvt) Ltd.,	28.04.1998	10 years	Project Consultants (Pvt.) Ltd., Colombo TP: 439216 Fax: 439205
18.	DPMC Electronics Ltd.,	04.12.1998	10 years	DPMC Electronics 75 Hide Park Corner Colombo 2. TP: Fax:
19.	MTT Network (Pvt.) Ltd.,	27.01.1999	10 years	MTT Network (Pvt.) Ltd., 5th Floor IBM Building No. 48 Nawam Mawatha Colombo 02. TP: 01 - 441020 Fax: 01 - 441025
20.	Celltel Lanka Limited.	23.03.1999	10 years	Celltel Lanka Ltd., 163, Union Place Colombo 02. TP: 541541, 072 - 288888 Fax: 541145, 072 - 280565
	Payphone Services			
21.	The Payphone Company (Pvt) Ltd.	09.12.1994	10 years	The Payphone Co. td ., 360, Union Place, Colombo 02. TP:341066 Fax:341068
22.	TSG Lanka Ltd.,	30.03.1998	10 years	TSG Lanka (Pvt.) Ltd., 451/A, Kandy Road, Kelaniya, Sri Lanka. TP: 910452 Fax: 910458

	Paging Services			
23.	Infocom Lanka Ltd.	07.09.1992	10 years	Infocom Lanka Ltd., 70, D S Senanayake Mw, Colombo 08. TP: 597774, Fax: 597773
24.	Bell Communication Lanka (Pvt) Ltd.	18.12.1992	10 years	Bell Comm. Lanka (Pvt.) Ltd., 26, Rotunda Gardens, Colombo 03. TP: 075 377779, Fax: 377778
25.	Fentons Ltd.	11.02.1993	10 years	Fentons Ltd., 350, Union Place, Colombo 02. TP: 448518, Fax: 448517
26.	Intercity Paging services (Pvt) Ltd.	01.04.1993	10 years	Intercity Paging Services (Pvt.) Ltd., 65, Walukarama Road, Colombo 03. TP: 574371, Fax: 575729
27.	Equipment Trades Ltd	10.09.1993	10 years	Equipment Traders Ltd., 294 1/1 Galle Road, Colombo 04. TP: 503606, Fax: 500613
	Trunking Operators			
28.	Dynacom Engineering (Pvt) Ltd.	25.02.1993	05 years	Dynacom Electronic (Pvt.) Ltd., 451/A , Kandy Road, Kelaniya, Sri Lanka. TP: 910703 Fax: 910469
	Other Types of Licences			
29.	Air Lanka Ltd.	06.12.1994	05 years	Air Lanka (Pvt.) Ltd., Colombo 01. TP: 073 - 5555 Fax: 073 - 5122
30.	MTT Network (Pvt) Ltd.	08.05.1995	20 years	MTT Network (Pvt.) Ltd., 5th Floor IBM Building No. 48 Nawam Mawatha Colombo 02. TP: 01 - 441020 Fax: 01 - 441025

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

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12 March 1999
Original: English

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

SOURCE: MR. MARTTI LUMIO, EUROSTAT, LUXEMBOURG

TITLE: EUROSTAT'S PROSPECTS ON TELECOMMUNICATION STATISTICS

_____

EUROPEAN COMMISSION

STATISTICAL OFFICE OF THE EUROPEAN COMMUNITIES

Business statistics

Unit: D-3, Special sectors/ Martti Lumio

Tel. (352) 4301-32234, Fax (352) 4301-34359

Eurostat's perspectives on telecommunications statistics

In the telecommunications field, the EU Commission has carried out policies aiming at liberalisation of the market opening it for competition and promoting new technologies i.a. To evaluate the results and efficiency of the measures taken, statistics are needed, and providing those statistics is the basic reason for Eurostat to be active in this domain.

The production of statistics on communications in the EU is taking place in an environment which is quickly changing in many respects. The degree of competition in the industry varies across countries. Confidentiality problems are arising because what were public monopolies are now private sector enterprises which are dominant in their market sector. Telecommunications services are under rapid development and so should be the concepts and classifications applied in the statistics as well as the contents of the whole statistical description.

In spite of the changes, the annual data collection, data processing, dissemination of and provision of information services goes on, whilst meeting growing difficulties. The Eurostat databases are updated as far as the circumstances allow.

Work under way

Eurostat receives statistics collected by Member States as part of the harmonised system of annual surveys on the structure of enterprises. In addition, there is a specific annual data collection and dissemination of information on telecommunications. The variables cover economy, infrastructure, employment and traffic. The data collected is registered in the COINS database, where it is used for production of publications, update of the New Cronos database and information services at request. This process, which used to be an annual routine, has become more time and resources consuming and it has produced less results year by year. Our present data collection concerns year 1997.

To establish working relationships with the 11 candidate countries and Mediterranean partner countries, a concise set of data was collected last year. The experience was very positive and we hope to engage those countries in permanent co-operation in the future.

A pilot survey of telecommunications services producers is under way in 7 Member States. The information collected covers the enterprise information specified by the Structural Business Statistics regulation, data on the telecommunications services defined according to the experimental Eurostat classification and some telecommunication specific variables. A comprehensive explanation of the methods used and problems encountered isexpected by the end of this year.

Information concerning telecommunications is also included in many statistical systems in Eurostat, which are not specialised in this industrial activity. There are for instance structural business data, national accounts etc., which are not covered by this presentation.

Central problems

Data availability

In time it has become more and more difficult to get data on communications. Statistics on communications used to be produced by national governmental bodies, which were in charge of post and telecommunication services as well as administration in the field. When those institutions were transformed into enterprises, their administrative function was transferred to a new regulatory body, which tended to have neither interest nor resources to produce *public* statistics. On the other hand, most of the National Statistical Institutes have neither traditions nor resources in the field of communications statistics.

Confidentiality

The situation is further complicated by the fact, that the previous monopoly operator holds a dominant position in the market even a long time after the liberalisation resulting in confidentiality problems. Confidentiality problems have a twofold effect. First they make it difficult to get data, as stated in the previous paragraph. Second, if data are supplied, they cannot be published on a level, which would reveal information on an individual company. Often this is the case already on the national level with one operator dominant in the market.

Possible improvements

Organisational aspects

For Eurostat, the national statistical institutes (NSI) are the usual partners in production of the statistics for needs of the Union. Together they form the European Statistical System (ESS), which generally works quite effectively, especially when the responsibilities are clearly defined. In the case of telecommunications statistics, however, the statistical authorities lack the experience in the branch and the data for the COINS database is collected on a voluntary a basis. The NSIs are also generally faced with resource cuts, which makes it very difficult to start new statistical systems. On the other hand, the earlier producer of telecommunications statistics has a good tradition and know-how, but not necessarily any will to make information public. The regulator also has some valuable numeric information. Eurostat would now like to engage the statistical institutes and regulators in discussion with each other to clarify responsibilities and find resources to have statistics on one of the most dynamic activities in the modern society. Some good examples can be shown to prove this is possible.

Confidentiality

The traditional way to deal with confidentiality problems is to disclose data only at summary levels high enough to prevent unit level sensitive information from being identified. At the EU level this could be solved by the EU receiving confidential data and publishing country aggregates where publication of individual country data was not possible. At the country level, one solution could be for authorisation to be given

by enterprises for publication of industry aggregates, perhaps linked to embargoes on the release of recent data.

Methodological development, manual

Many new materials have been or are about to be produced, giving the possibility to build up a common coherent framework for EU statistics on telecommunications. The SBS-regulation, the Short-Term Statistics regulation and the pilot study of telecommunications services in seven of the Member States were already mentioned. However, some essential parts of the framework are still missing or are out of date. The new products available in the market should be defined, assessing their groups in the standard CPA (Classification of Products by Activity) classification of commodities and eventually produce a suggestion for modifying the CPA for the telecommunications services. In the work, experience gained from the pilot survey should also be exploited. The system of data collection, the variables to be collected and the timing in the production process should be reviewed. To support those working in this field of statistics, it is necessary to collect together the various contributions to methodologies in telecommunications statistics into a methodological manual, which can serve as a coherent framework for the producers of the statistics. Our user need study will shed light on the preferences of users.

In a situation of scarce resources in the statistical services, we are hoping to raise the interest of experts in telecommunications enough to engage themselves in the conceptual work. It should be noted that the Fifth Framework programme on Research and Development is at its starting stage, and "Creating a user friendly Information Society" is a central theme. Thus this is an ideal moment for national authorities to launch projects with other European partners related to the subject.

ITU data collection and dissemination activities

- Telecommunication statistics
  Ms. M.C. Gasbarro, ITU, Switzerland

- Of data gathering and data storage
  Mr. O. Beauvais, ITU, Switzerland

- Telecommunication statistics from a user's perspective
  Mr. P. Labombarda, Consiel Management Consulting, Italy

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

Document WTIM99/7-E
12 March 1999
Original: English

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

SOURCE: MS. MARIA CONCETTA GASBARRO, ITU/BDT

TITLE: TELECOMMUNICATION STATISTICS

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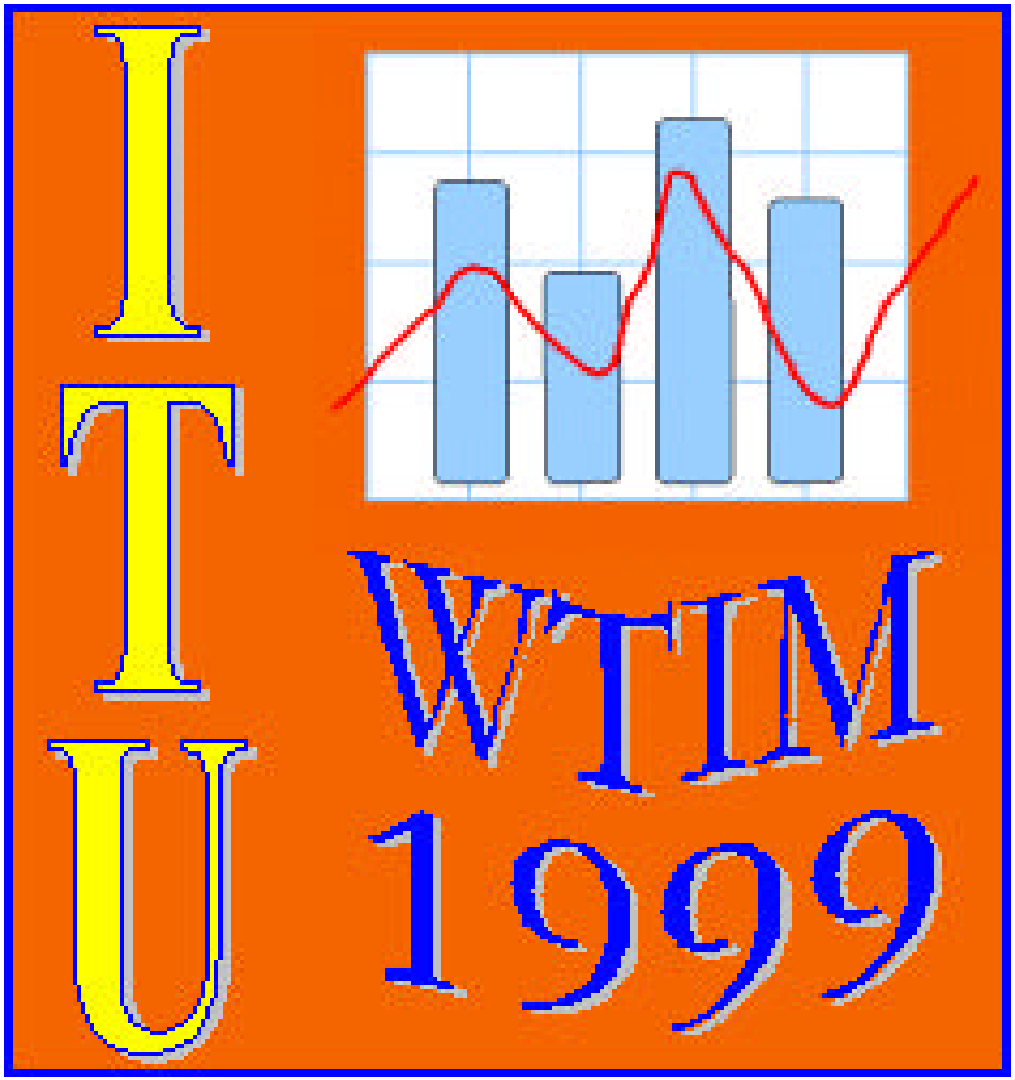
International Telecommunication Union



TELECOMMUNICATION STATISTICS

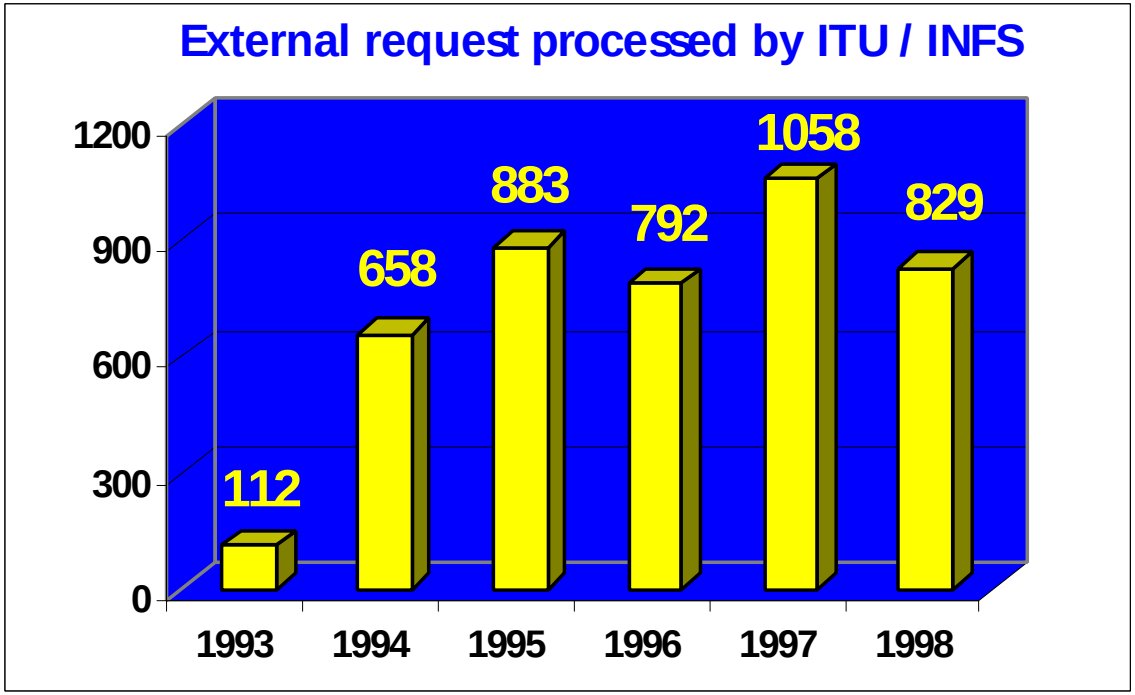
MARIA CONCETTA GASBARRO

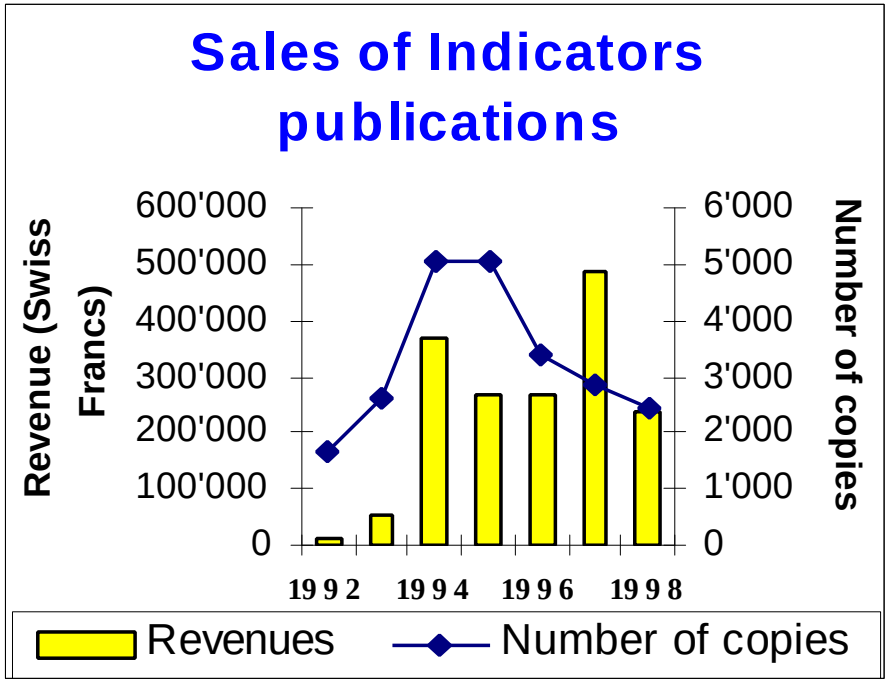
Telecommunication Development Bureau (BDT)

International Telecommunication Union

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

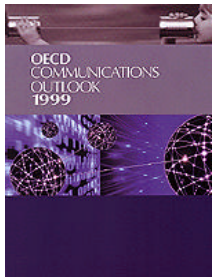
DEMAND FOR TELECOMMUNICATION STATISTICS





International Telecommunication Union

WHAT IS REALLY AVAILABLE ON TELECOMMUNICATION STATISTICS?

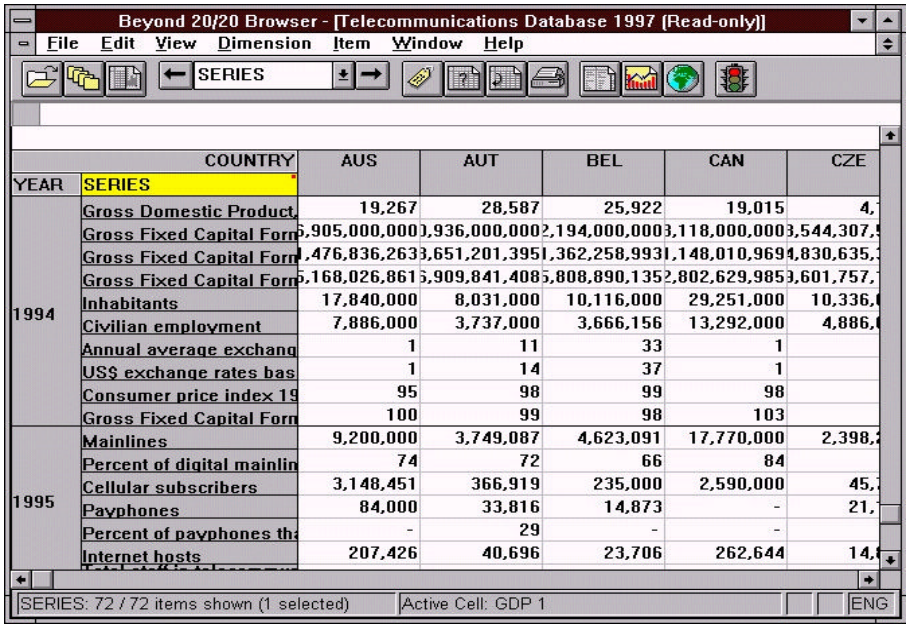


« It provides a range of performance indicators for public communication infrastructures and services in the 29 OECD countries. In addition to providing a comprehensive review of the telecommunication sector, the Communications Outlook, includes data and analysis of broadcasting, cable television and the Internet ».

Communications Outlook

Telecommunication Database 1980 - 1997

“ The Database provide time-series data covering 29 OECD Member countries. It contains both telecommunication and economic indicators”.



YEAR	SERIES	COUNTRY	AUS	AUT	BEL	CAN	CZE
1994	Gross Domestic Product		19,267	28,587	25,922	19,015	4,
	Gross Fixed Capital Form		5,905,000,000	3,936,000,000	2,194,000,000	3,118,000,000	3,544,307,
	Gross Fixed Capital Form		1,476,836,263	3,651,201,395	1,362,258,993	1,148,010,969	4,830,635,
	Gross Fixed Capital Form		5,168,026,861	5,909,841,408	5,808,890,135	2,802,629,985	3,601,757,
	Inhabitants		17,840,000	8,031,000	10,116,000	29,251,000	10,336,
	Civilian employment		7,886,000	3,737,000	3,666,156	13,292,000	4,886,
	Annual average exchang		1	11	33	1	
	US$ exchange rates bas		1	14	37	1	
	Consumer price index 19		95	98	99	98	
	Gross Fixed Capital Form		100	99	98	103	
1995	Mainlines		9,200,000	3,749,087	4,623,091	17,770,000	2,398,
	Percent of digital mainlin		74	72	66	84	
	Cellular subscribers		3,148,451	366,919	235,000	2,590,000	45,
	Payphones		84,000	33,816	14,873	-	21,
	Percent of payphones tha		-	29	-	-	
	Internet hosts		207,426	40,696	23,706	262,644	14,

International Telecommunication Union

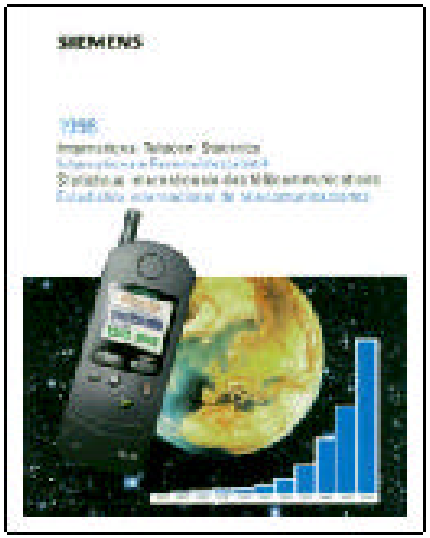
WHAT IS REALLY AVAILABLE ON TELECOMMUNICATION STATISTICS?

« The figures available on diskette in CUB.X format reflect the situation in the postal and telecommunication sectors of the member state of the European Union for each year since 1980. The data describe the sectors concerned in statistical terms, using institutional indicators together with more functional indicators on ifrastructure, traffic, demand and service quality. ».

Information and Communication Services (COINS)

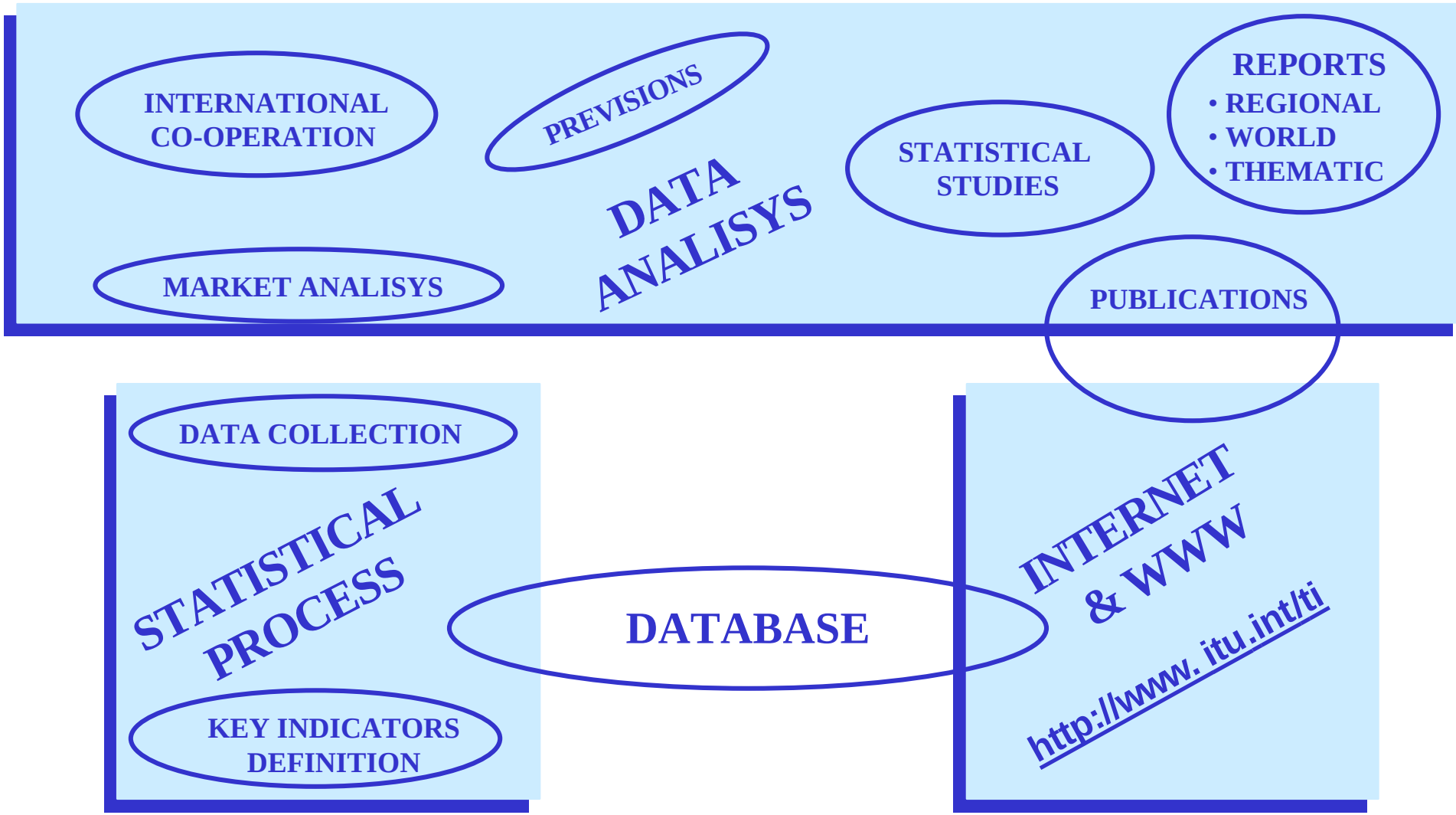
International Telecom Statistics

« The International Telecom Statistics 1998, conducted and published by the Siemens OEN Marketing Department, is a worldwide telecommunications study in graphical and tabular form. It is compiled of the latest developments in international telecommunications and brings you up to date with detailed and recent information on fixed and mobile networks, cable tv and Internet. The status of deregulation and telecommunication investments are also featured ».



International Telecommunication Union

ITU AND TELECOMMUNICATION STATISTICS



DATA COLLECTION

Long Questionnaire

October

Send questionnaire

May

Short Questionnaire

- ∇ **MINISTRY**
- ∇ **OPERATOR**
- ∇ **REGULATOR**

Enter data

DATABASE

Generate reports

- ∇ **STAT. REPORTS**
- ∇ **ANNUAL REPORTS**
- ∇ **OFF. PUBLICATIONS**

PERCENTAGE OF REPLIES TO ITU QUESTIONNAIRES - TOP COUNTRIES

Denmark

100%

Mauritius

Algeria
Germany
Malta

92%

Morocco
Venezuela

Estonia
Hong Kong
Lithuania
Macao
Malaysia

83%

Moldova
Norway
Slovak Rep.
Spain
Tunisia

Finland
Gibraltar
Guinea
Kuwait

75%

Mongolia
San Marino
Sri Lanka
USA

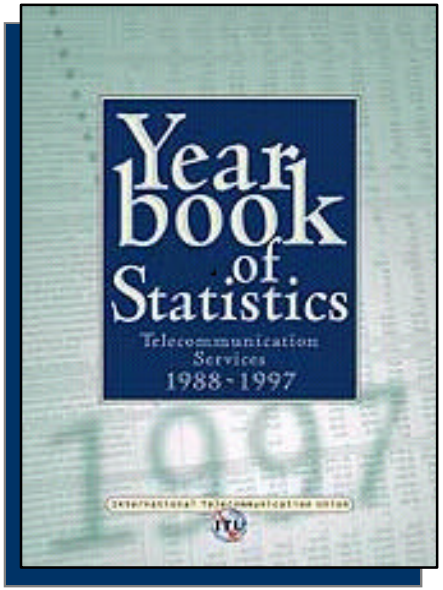
France
Latvia
Luxembourg
Micronesia
Portugal
Qatar

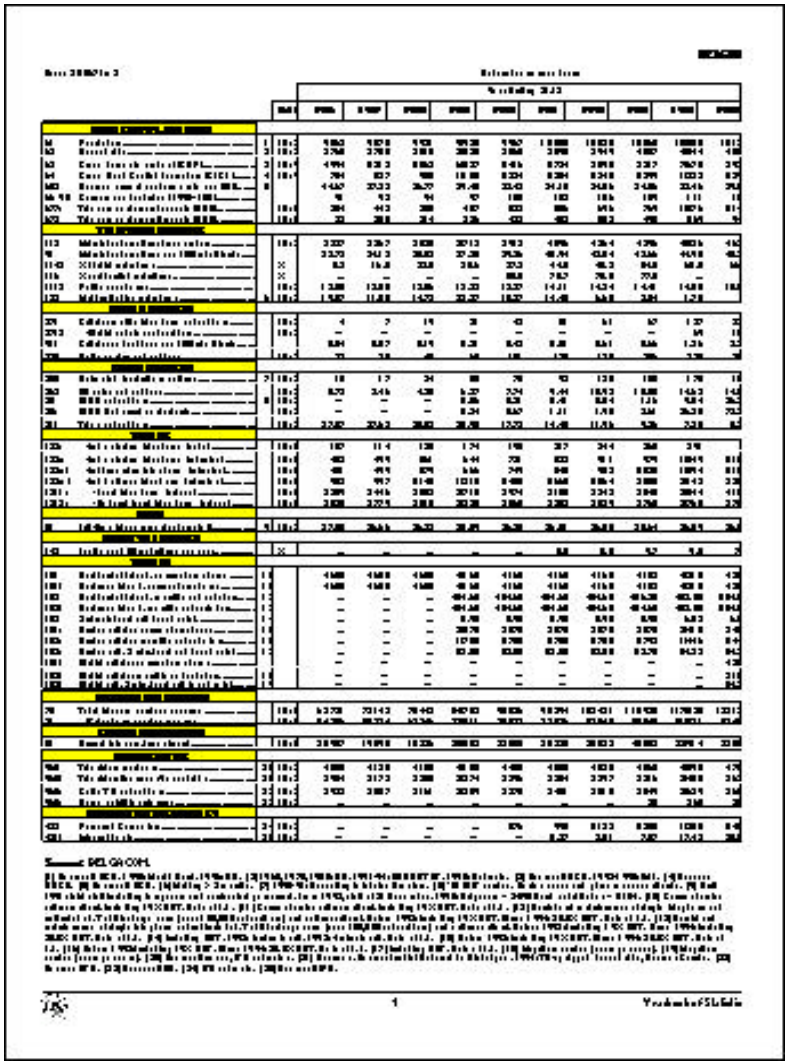
67%

Russia
Singapore
Sudan
Tanzania
Uruguay

Zambia

NEW



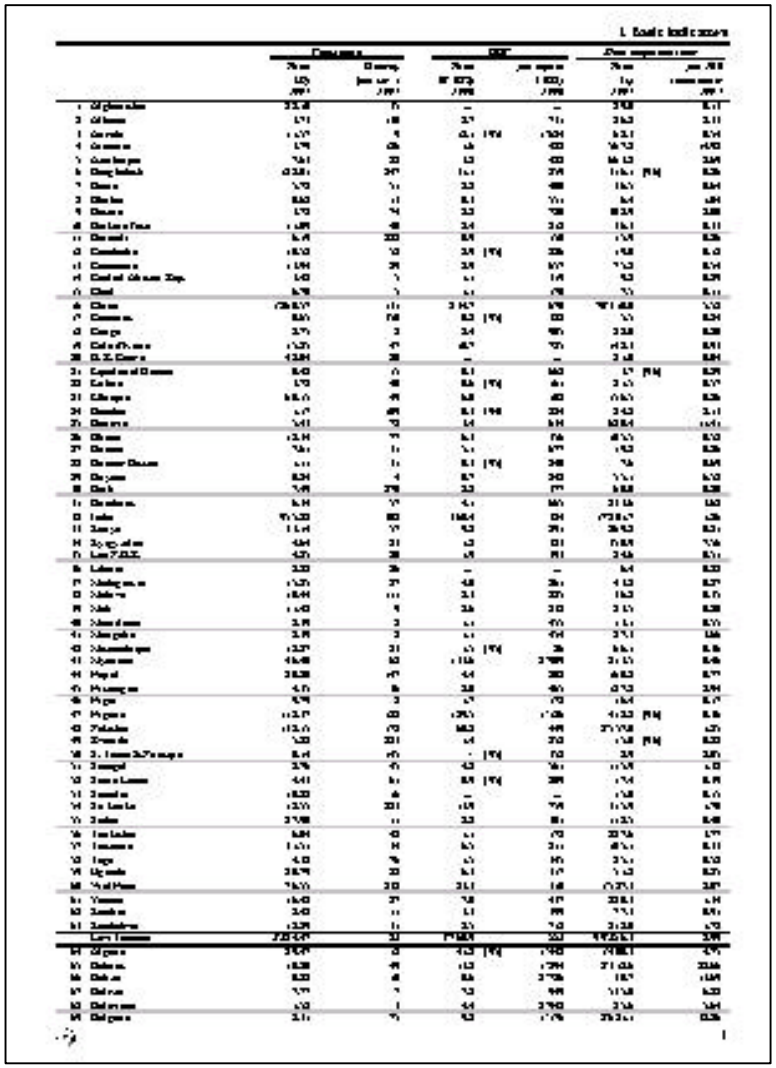


Yearbook of Statistics

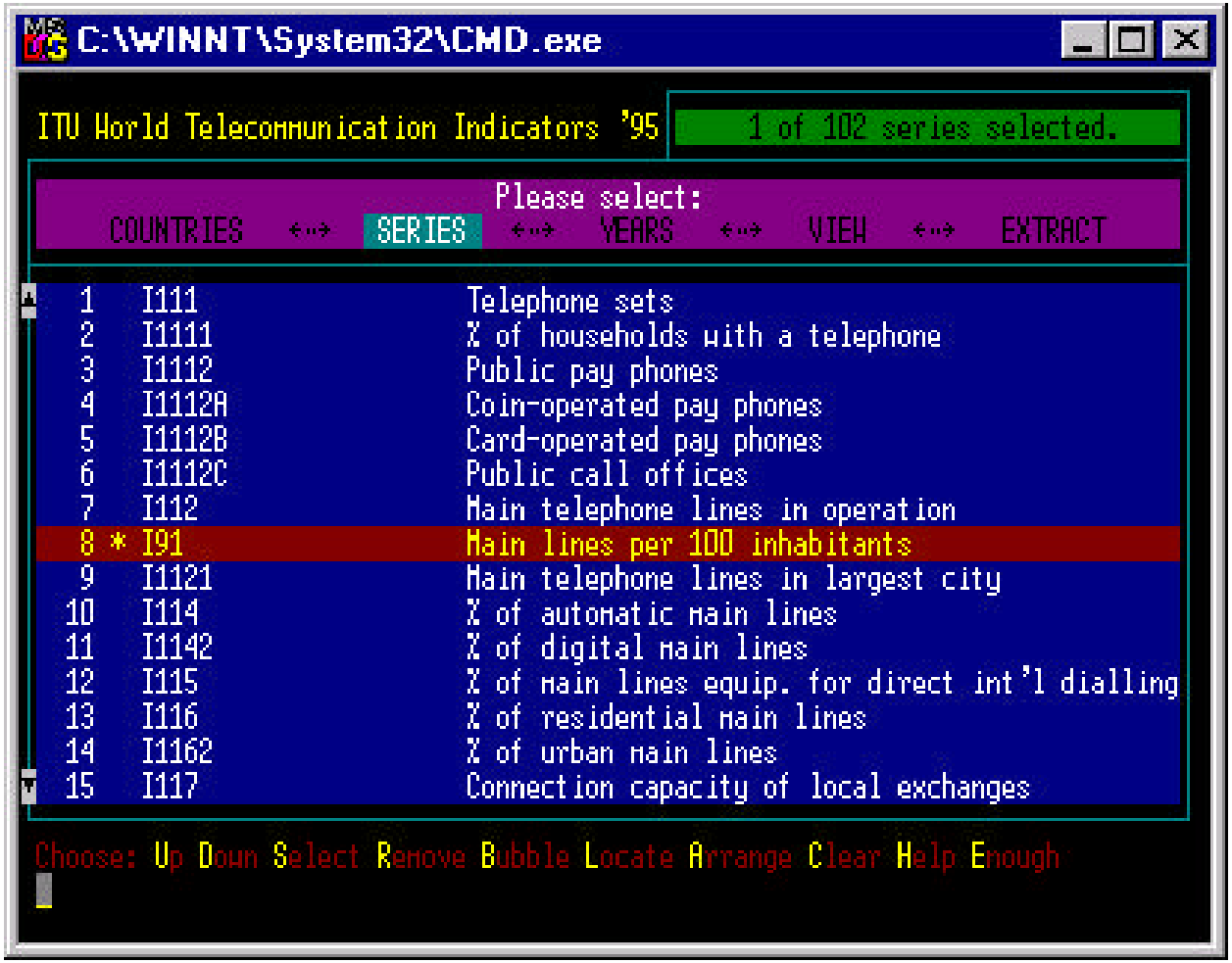
Telecommunication Services

1988-1997

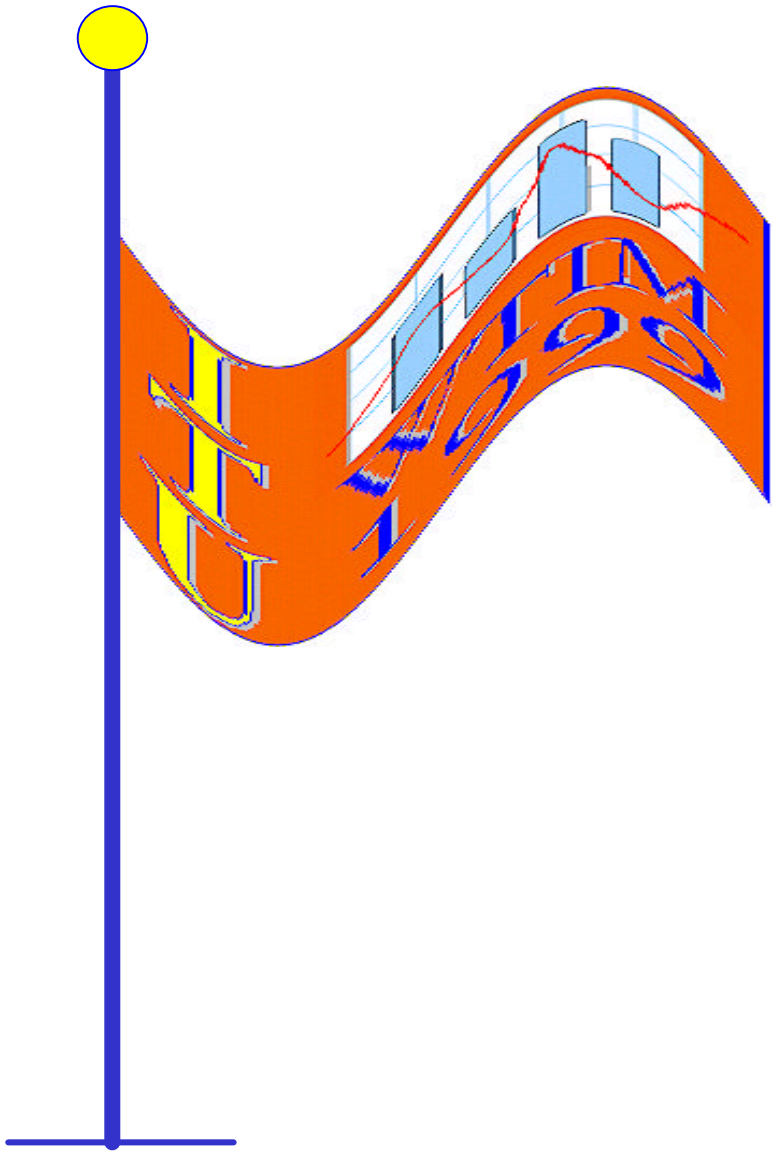
World Telecommunication Development Report 1998



World Telecommunication Indicators Database 1960-1998



International Telecommunication Union



~The End ~

INTERNATIONAL TELECOMMUNICATION UNION

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SOURCE: MR. OLIVIER BEAUVAIS, ITU/BDT

TITLE: OF DATA GATHERING AND DATA STORAGE

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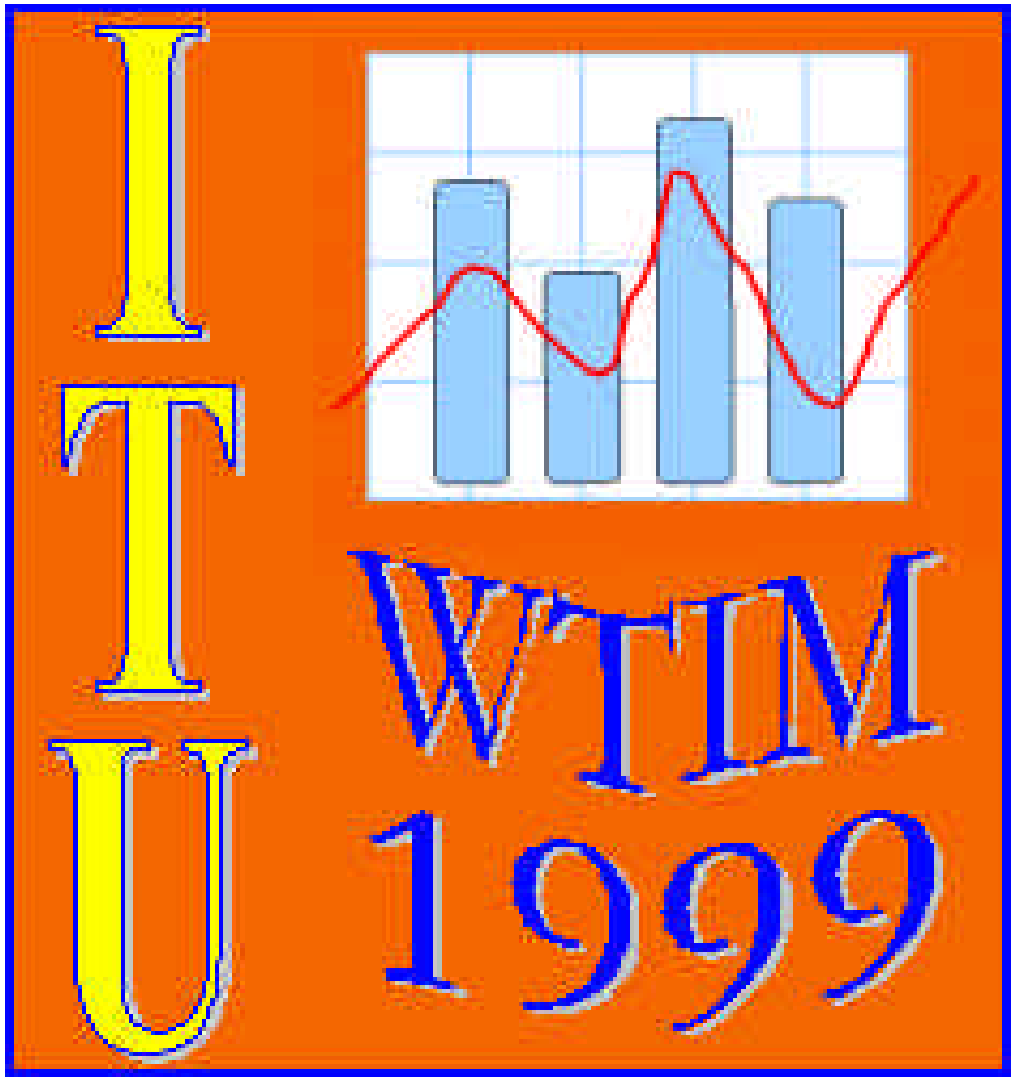

Of data gathering and data storage

Olivier Beauvais

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ITU
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Telecommunication data gathering

- Identify requirements
  - what goal: country / regional / operator
  - what type of data: annual / quarterly / monthly
  - what to get
  - what to report
- Development considerations

What is involved

Concept

- Data analysis
- Data gathering
- Data input (value & source)
- Data analysis again!
- Data output

Database

- Questions/Interviews
- Input forms (prototype) & / or review forms
- check routines
- Reports

Time Series Databases

- Time Series database: a succession of compromises.
- Normalization database model
- De-normalization database model (performance issues)

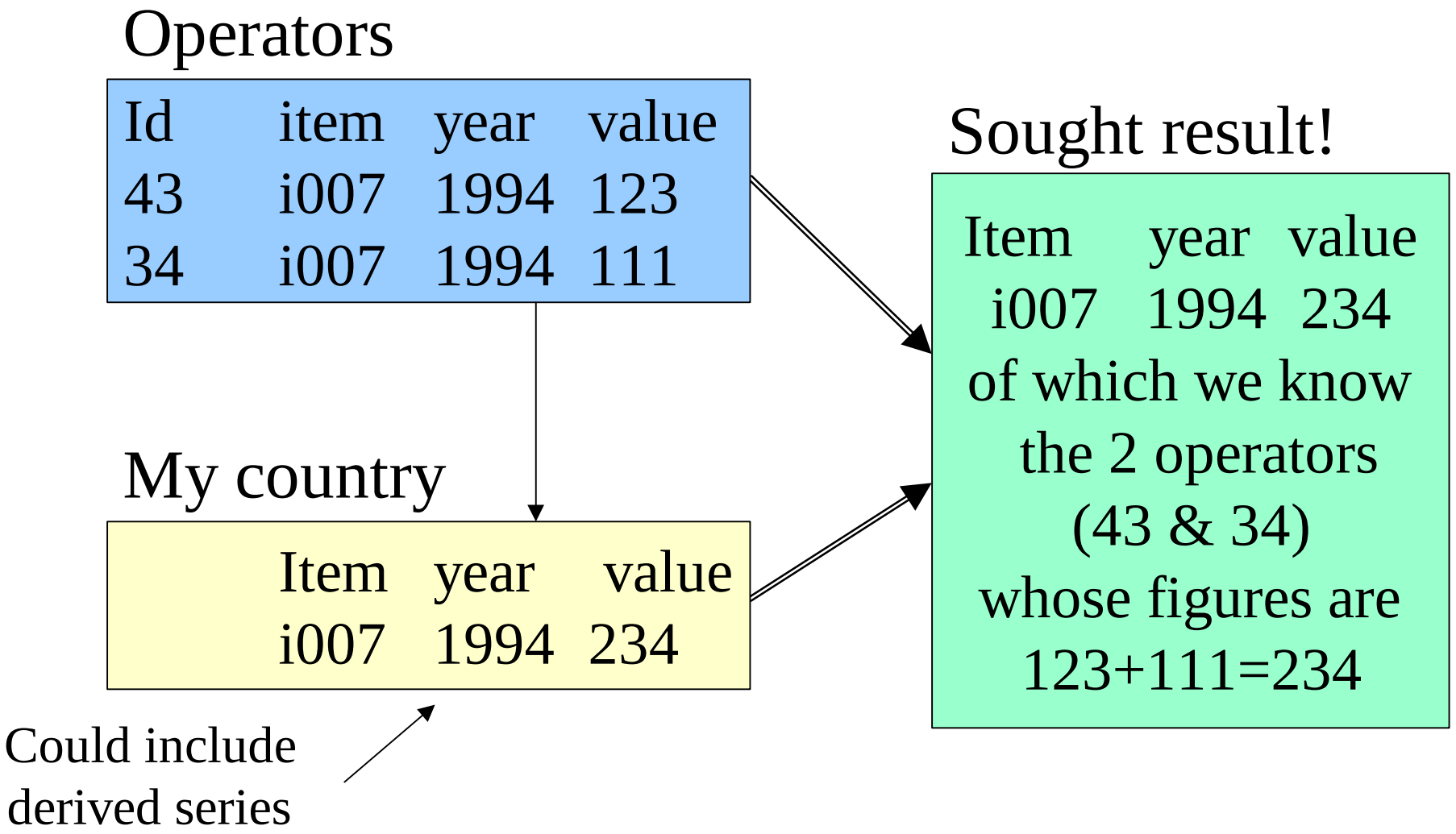
What does all this mean, and how does it relate to us?

Thought I'd never ask!

Our database schema

- An operator specific table
- My country specific table
- My country/operators reports

Complete data availability of operators



Incomplete or inconsistent data availability of operators

Operators

Id	item	year	value
43	i007	1994	123
34	i007	1994	111

My country

Item	year	value
i007	1994	6000

Could include derived series

Sought result!

Item	year	value
i007	1994	6000

of which we only know the figures of 2 operators (43 & 34 out of X number)

6000<>123+111

Data by regions

My country's regions
by operators
(cellular mobile)

Id	region	value
43	Geneva	10'000
43	Zurich	10'000
34	Geneva	20'000
34	Zurich	30'000

Sought result!

Region	value
Geneva	30'000
Zurich	40'000
Total:	70'000

Example of a report by operator

Telecom statistics	ZZZ				My country
	1993	1994	1995	1996	1997
i75-Total revenue from all telecom services:					
Enormous Telecom biz		15.4	16.5	19.3	25.2
Total		**15.4**	**16.5**	**19.3**	**25.2**
i75$-Telecommunication revenues (US$):					
Enormous Telecom biz		23.6	26.1	30.0	37.3
Total		**23.6**	**26.1**	**30.0**	**37.3**

Example of a report by series

Telecom statistics			ZZZ				My country
			1993	1994	1995	1996	1997
i271-Cellular mobile telephone subscribers:							
Enormous Telecom biz	513	10x3	1'275.4	1'595.7	2'130.0	2'688.0	3'752.0
LightFast Telecom	716	10x3	0.0	18.0	154.0	474.0	900.0
Telecommunication at its best	255	10x3	493.0	850.0	1'457.0	2'313.0	3'542.0
SupraPlus	3513	10x3	0.0	0.0	0.0	0.0	0.0
Total			**1'768.4**	**2'463.7**	**3'741.0**	**5'475.0**	**8'194.0**

Example of questionnaire

Telecommunication profile **ITA** **Italy**

Profil des télécommunications ***Italie***

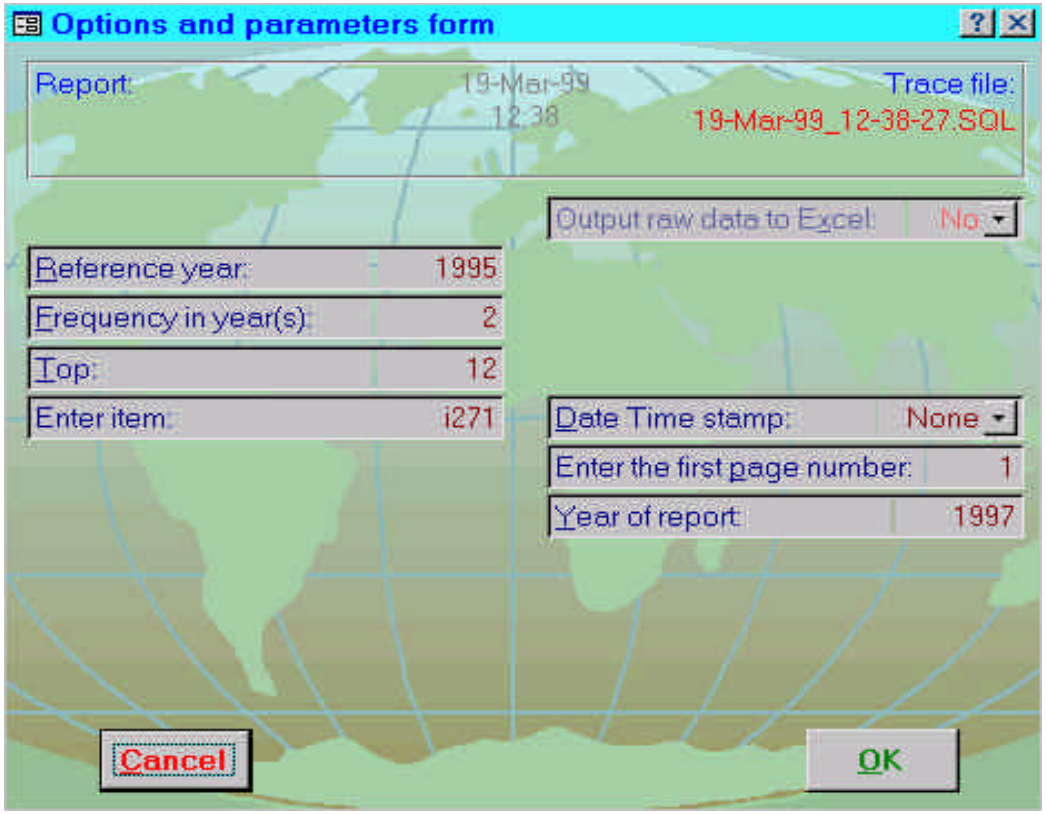
Perfil de telecomunicaciones **Italia**

Year Ending 31.12 / Année terminant le 31.12 / Año terminando 31.12	1997	1998	1999
1 TELEPHONE NETWORK / RÉSEAU TELEPHONIQUE / RED TELEFONICA			
i112 Main telephone lines in operation *Lignes principales en service* Líneas principales telefónicas en función	25'698'000	25'986'120	
i1142 Percent of main lines connected to digital exchanges *% de lignes principales raccordées à des centrales numériques* % de líneas principales conectadas a centrales digitales	94.00	97.90	
2 MOBILE SERVICES / SERVICES MOBILES / SERVICIOS MOVILES			
i271 Cellular mobile telephone subscribers *Abonnés au téléphone mobile cellulaire* Abonados a teléfonos móviles celulares	11'737'904	20'485'670	
2 OTHER SERVICES / AUTRES SERVICES / OTROS SERVICIOS			
i28 Total number of ISDN subscribers *Nombre total d'abonnés au RNIS* Número total de abonados RDSI	334'000	688'152	

Some truisms...

- Make input system easy for users
- Use validation rules for data entry
- Make output system generic: Do not create a new report for every scenario!

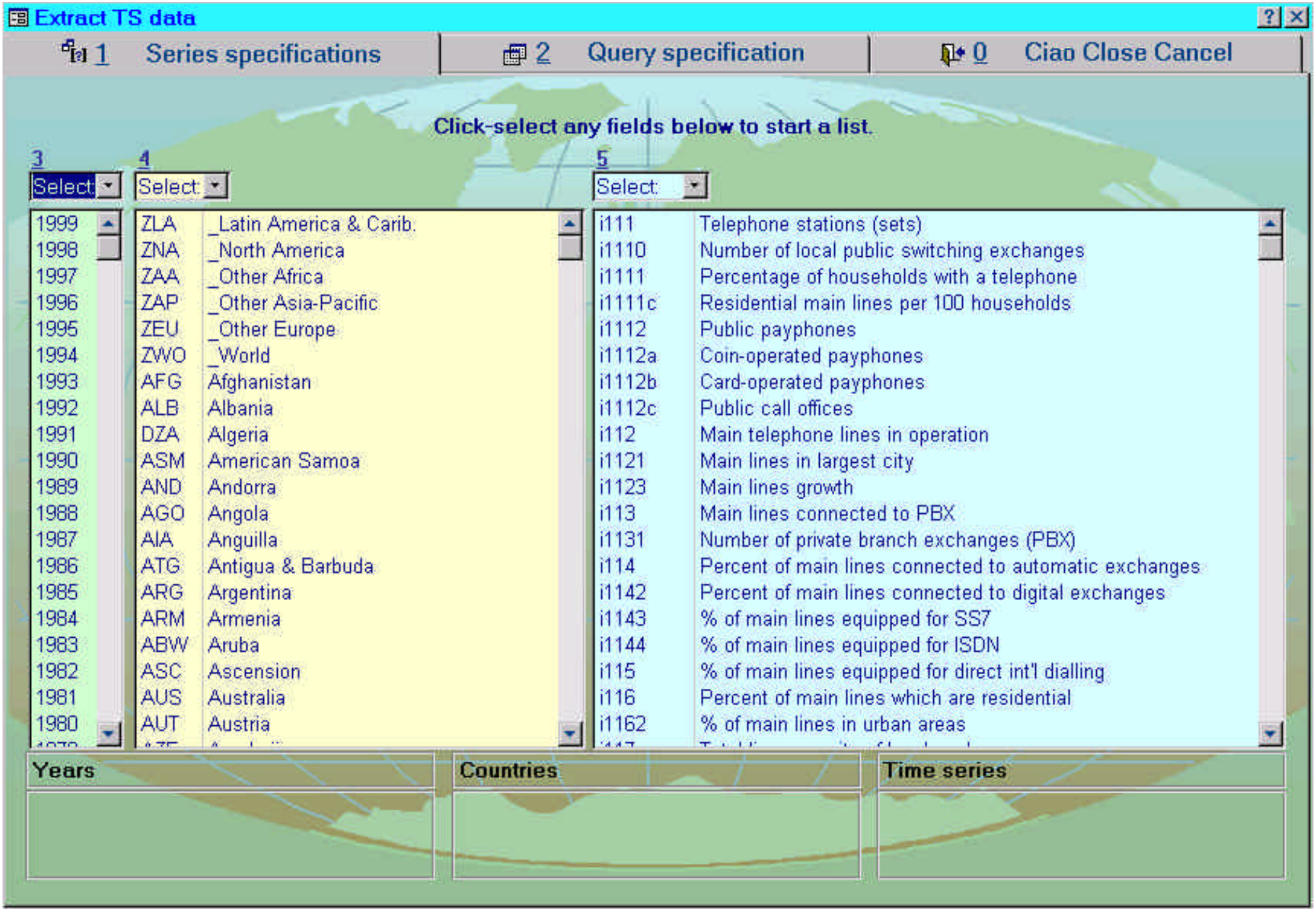
Generic report



Some truisms...

Some truisms...

- Provide import/export facility
- BACKUP / RESTORE facility


Extract TS data
1 Series specifications
2 Query specification
0 Ciao Close Cancel
Click-select any fields below to start a list.
3
Select:
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1999
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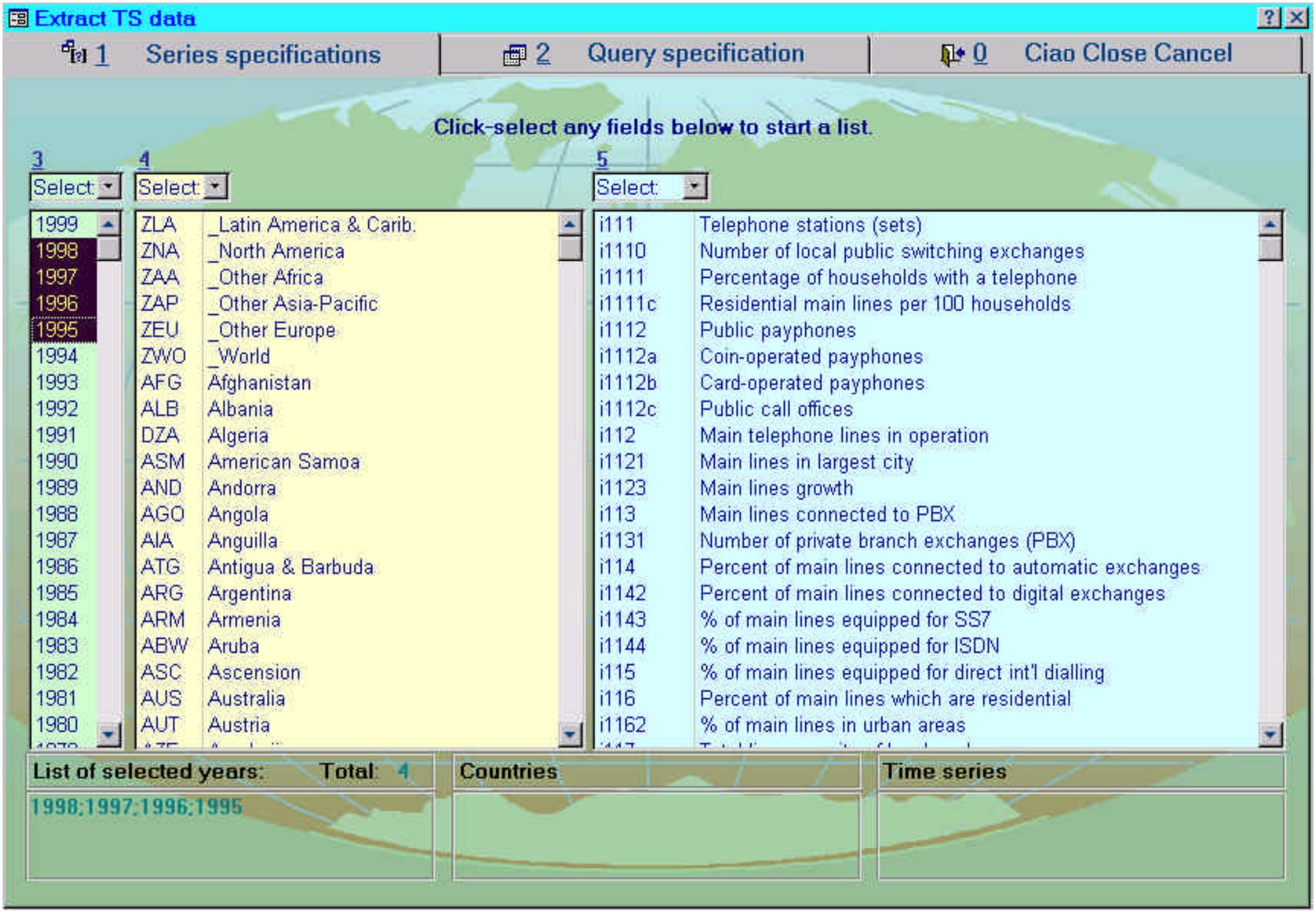
1982
1981
1980
ZLA _Latin America & Carib.
ZNA _North America
ZAA _Other Africa
ZAP _Other Asia-Pacific
ZEU _Other Europe
ZWO _World
AFG Afghanistan
ALB Albania
DZA Algeria
ASM American Samoa
AND Andorra
AGO Angola
AIA Anguilla
ATG Antigua & Barbuda
ARG Argentina
ARM Armenia
ABW Aruba
ASC Ascension
AUS Australia
AUT Austria
i111 Telephone stations (sets)
i1110 Number of local public switching exchanges
i1111 Percentage of households with a telephone
i1111c Residential main lines per 100 households
i1112 Public payphones
i1112a Coin-operated payphones
i1112b Card-operated payphones
i1112c Public call offices
i112 Main telephone lines in operation
i1121 Main lines in largest city
i1123 Main lines growth
i113 Main lines connected to PBX
i1131 Number of private branch exchanges (PBX)
i114 Percent of main lines connected to automatic exchanges
i1142 Percent of main lines connected to digital exchanges
i1143 % of main lines equipped for SS7
i1144 % of main lines equipped for ISDN
i115 % of main lines equipped for direct int'l dialling
i116 Percent of main lines which are residential
i1162 % of main lines in urban areas
Years
Countries
Time series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1983
1982
1981
1980
ZLA _Latin America & Carib.
ZNA _North America
ZAA _Other Africa
ZAP _Other Asia-Pacific
ZEU _Other Europe
ZWO _World
AFG Afghanistan
ALB Albania
DZA Algeria
ASM American Samoa
AND Andorra
AGO Angola
AIA Anguilla
ATG Antigua & Barbuda
ARG Argentina
ARM Armenia
ABW Aruba
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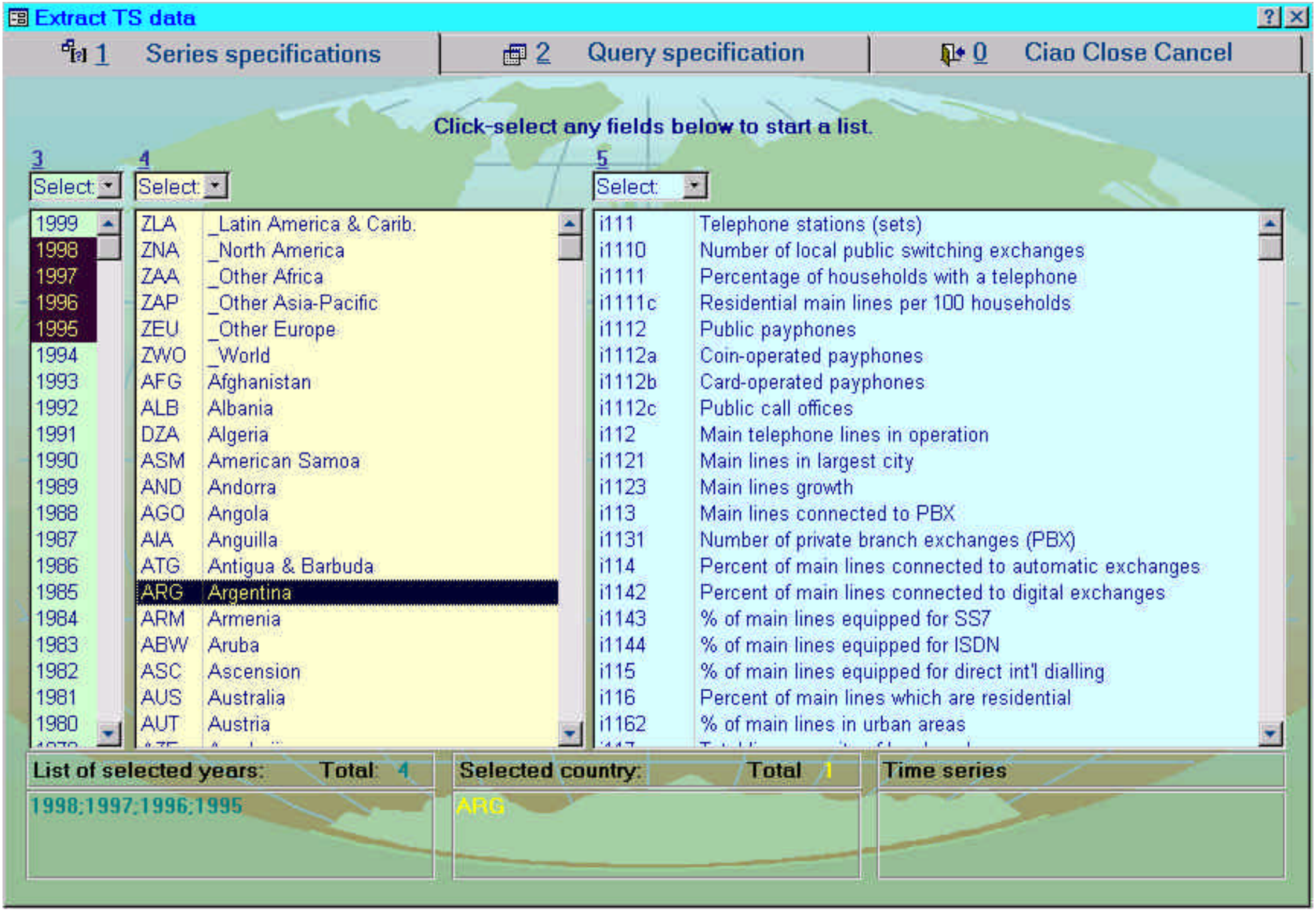
i115 % of main lines equipped for direct int'l dialling
i116 Percent of main lines which are residential
i1162 % of main lines in urban areas
List of selected years: Total: 4
1998;1997;1996;1995
Countries
Time series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ZLA _Latin America & Carib.
ZNA _North America
ZAA _Other Africa
ZAP _Other Asia-Pacific
ZEU _Other Europe
ZWO _World
AFG Afghanistan
ALB Albania
DZA Algeria
ASM American Samoa
AND Andorra
AGO Angola
AIA Anguilla
ATG Antigua & Barbuda
ARG Argentina
ARM Armenia
ABW Aruba
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AUT Austria
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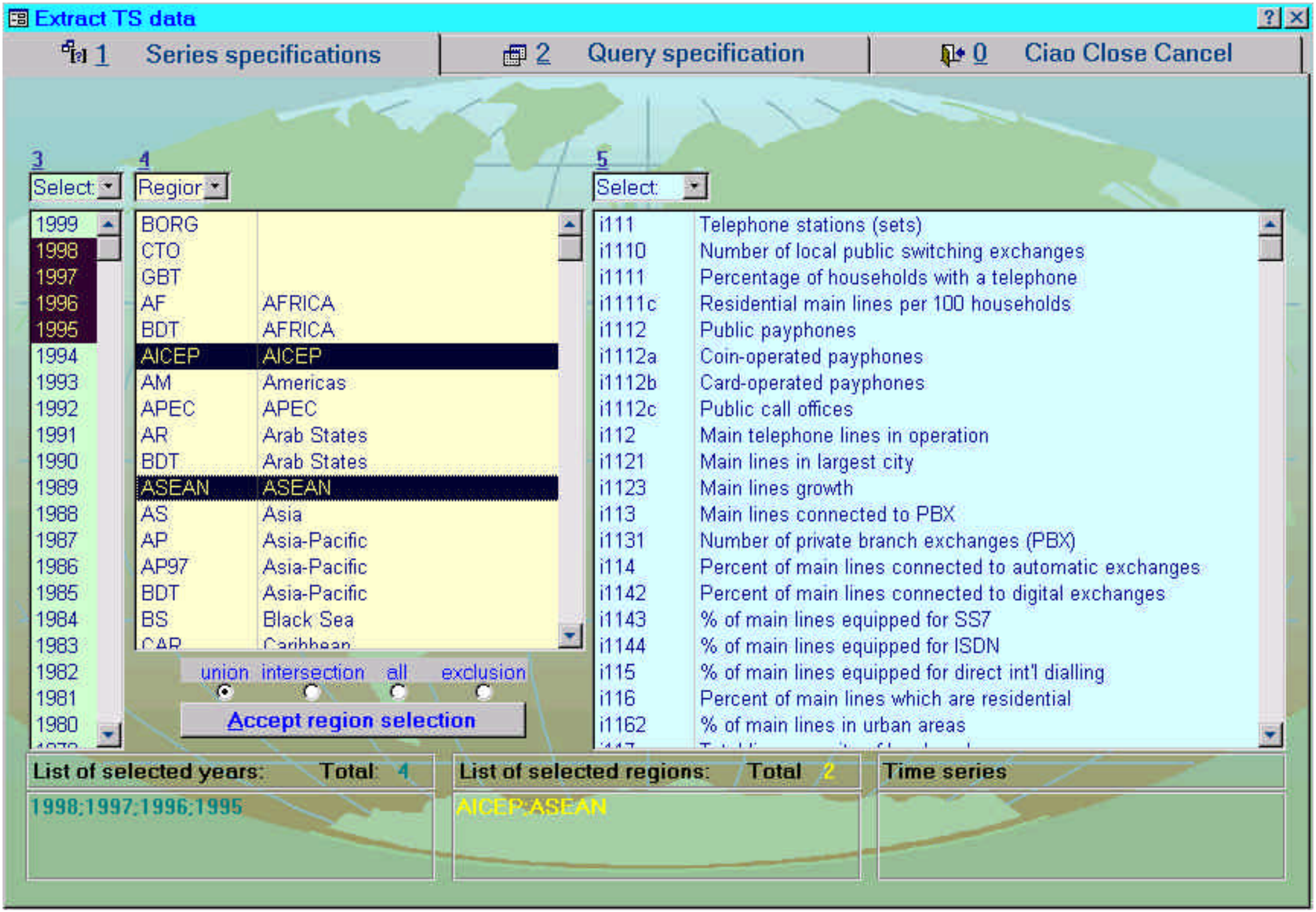
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AP97 Asia-Pacific
BDT Asia-Pacific
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i1110 Number of local public switching exchanges
i1111 Percentage of households with a telephone
i1111c Residential main lines per 100 households
i1112 Public payphones
i1112a Coin-operated payphones
i1112b Card-operated payphones
i1112c Public call offices
i112 Main telephone lines in operation
i1121 Main lines in largest city
i1123 Main lines growth
i113 Main lines connected to PBX
i1131 Number of private branch exchanges (PBX)
i114 Percent of main lines connected to automatic exchanges
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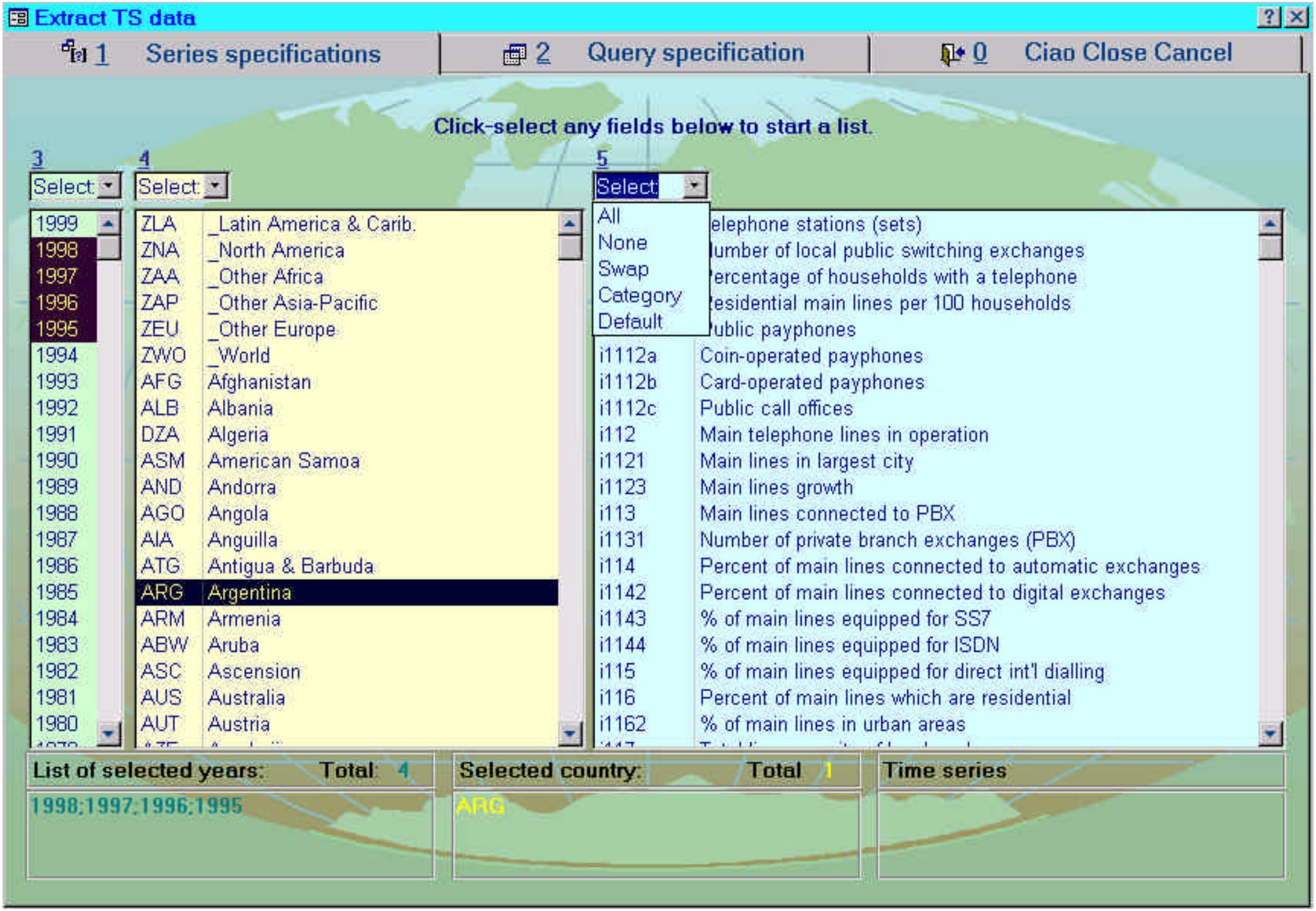
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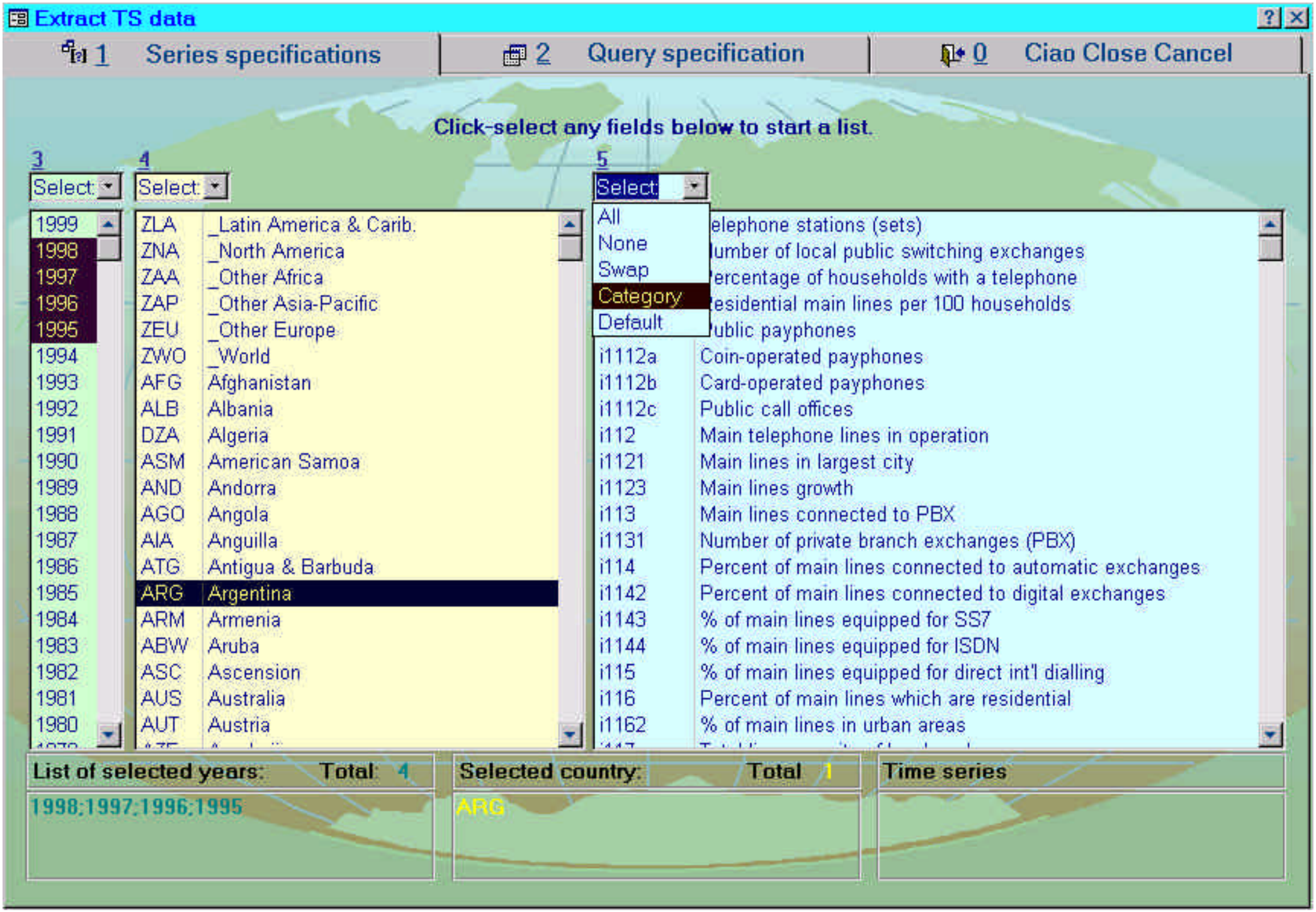
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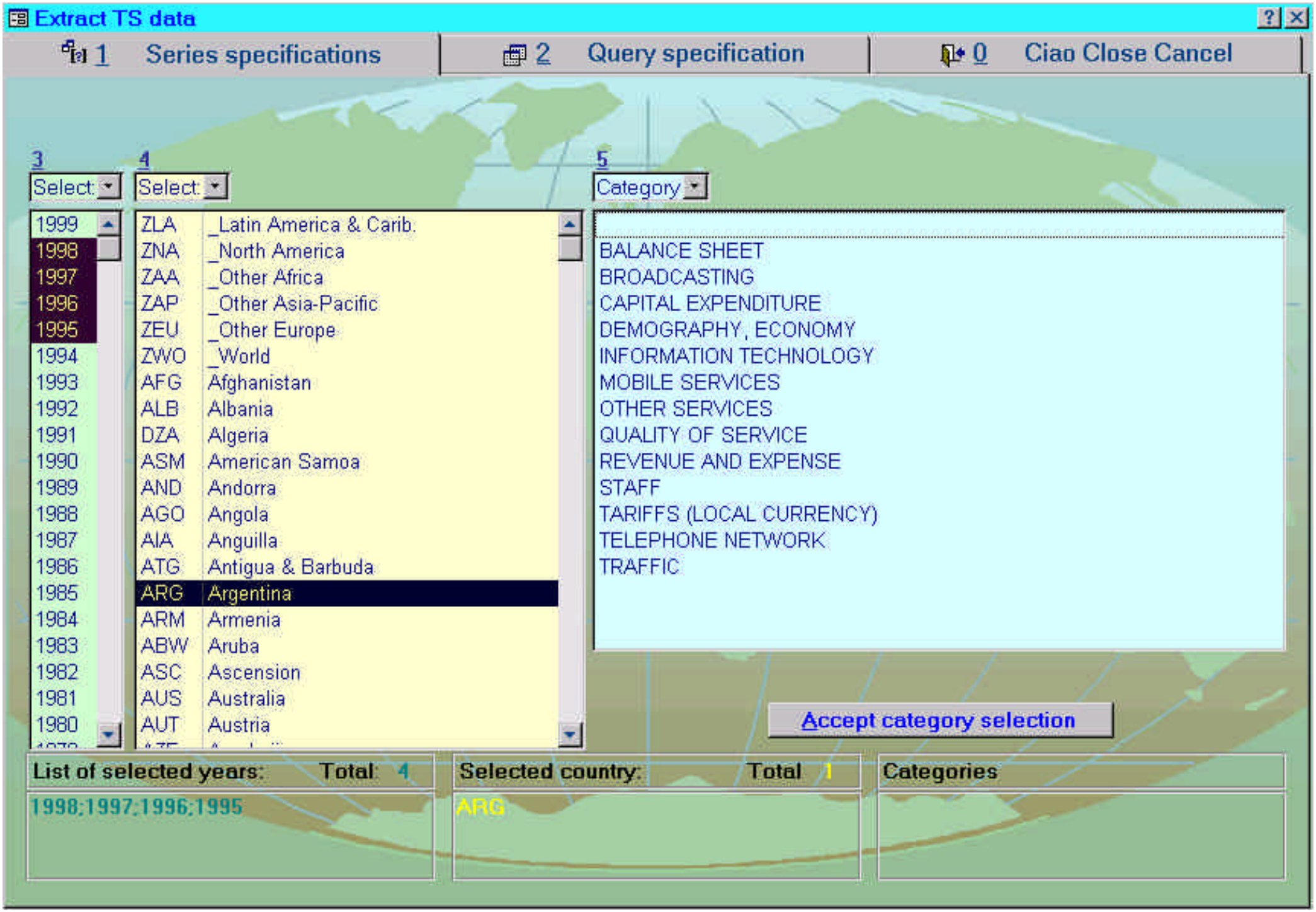
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BALANCE SHEET
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CAPITAL EXPENDITURE
DEMOGRAPHY, ECONOMY
INFORMATION TECHNOLOGY
MOBILE SERVICES
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REVENUE AND EXPENSE
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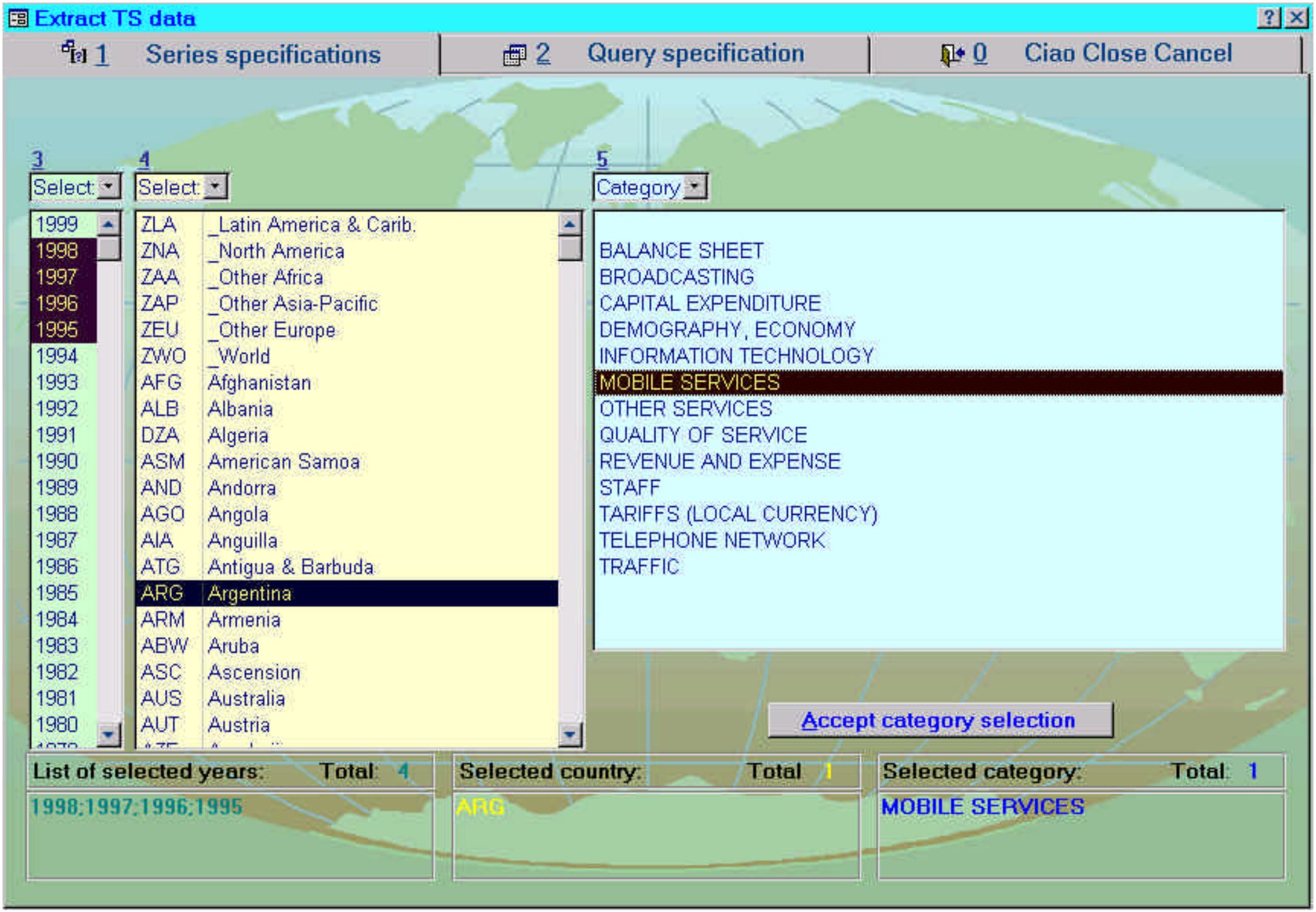
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List of selected years: Total: 4
1998;1997;1996;1995
Selected country: Total 1
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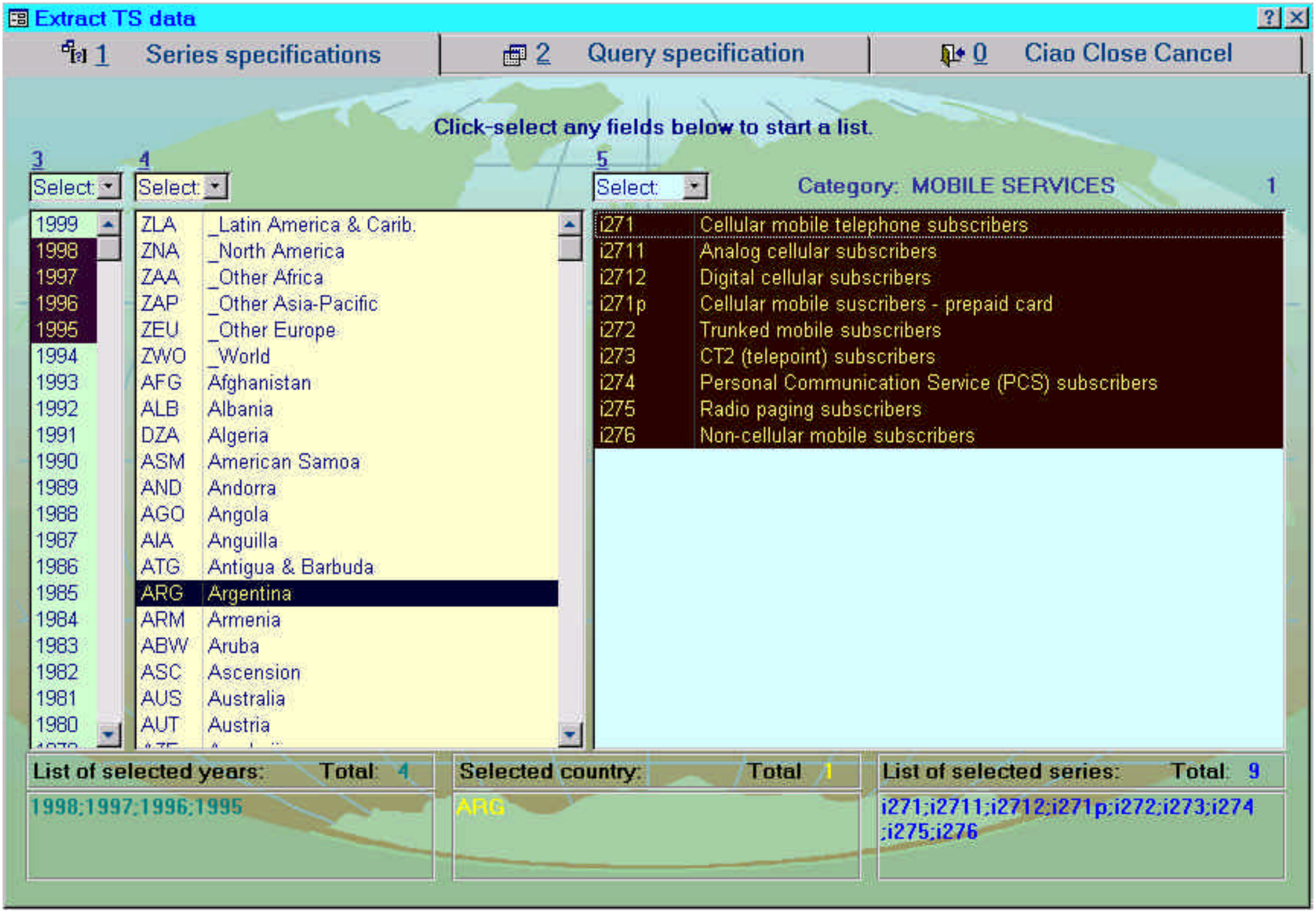
MOBILE SERVICES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ARG Argentina
ARM Armenia
ABW Aruba
ASC Ascension
AUS Australia
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i271 Cellular mobile telephone subscribers
i2711 Analog cellular subscribers
i2712 Digital cellular subscribers
i271p Cellular mobile suscribers - prepaid card
i272 Trunked mobile subscribers
i273 CT2 (telepoint) subscribers
i274 Personal Communication Service (PCS) subscribers
i275 Radio paging subscribers
i276 Non-cellular mobile subscribers
List of selected years: Total: 4
1998;1997;1996;1995
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ARG
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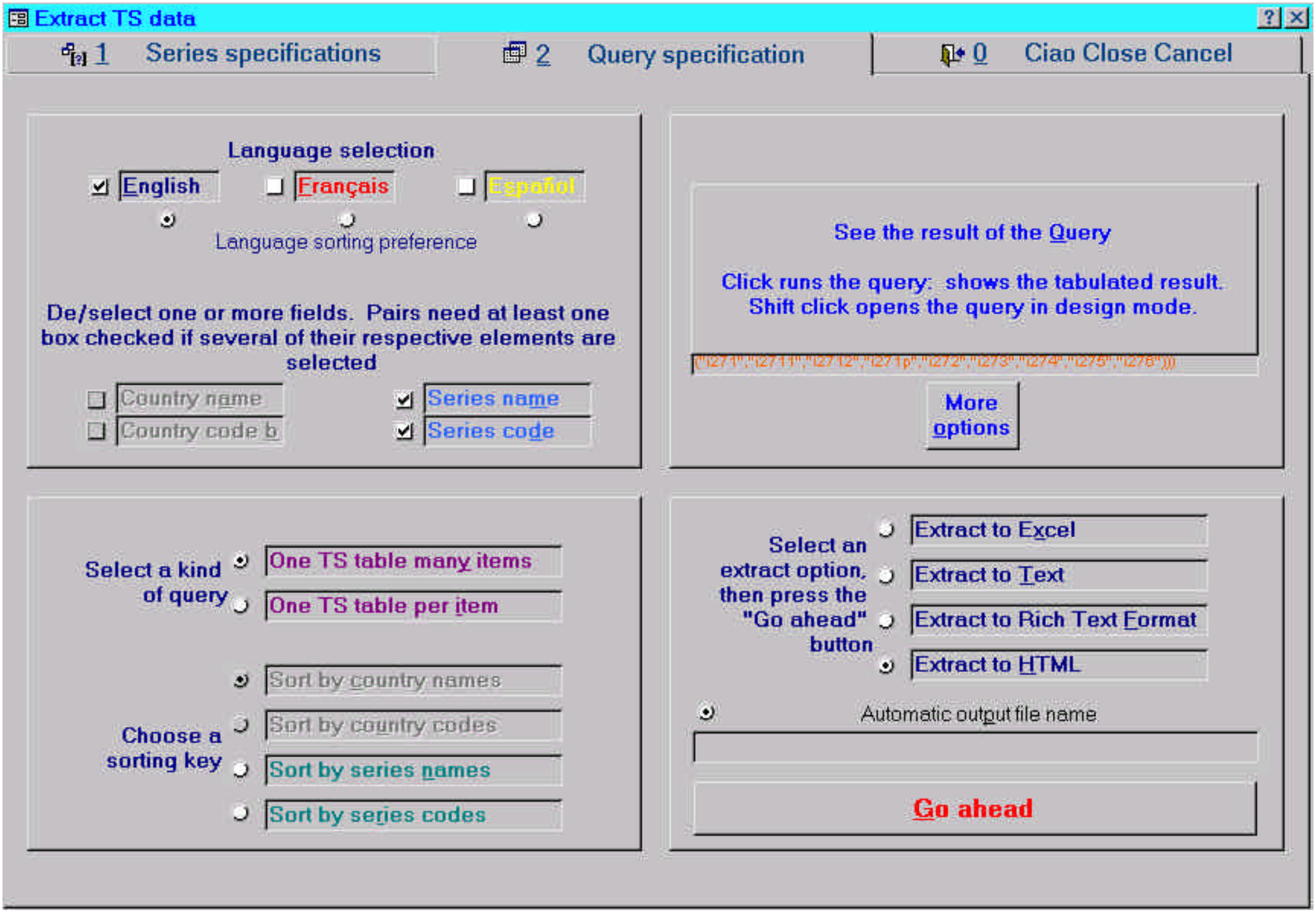
i271;i2711;i2712;i271p;i272;i273;i274;i275;i276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Series name
Series code
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Click runs the query: shows the tabulated result.
Shift click opens the query in design mode.
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One TS table per item
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Sort by country names
Sort by country codes
Sort by series names
Sort by series codes
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Extract to Rich Text Format
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Automatic output file name
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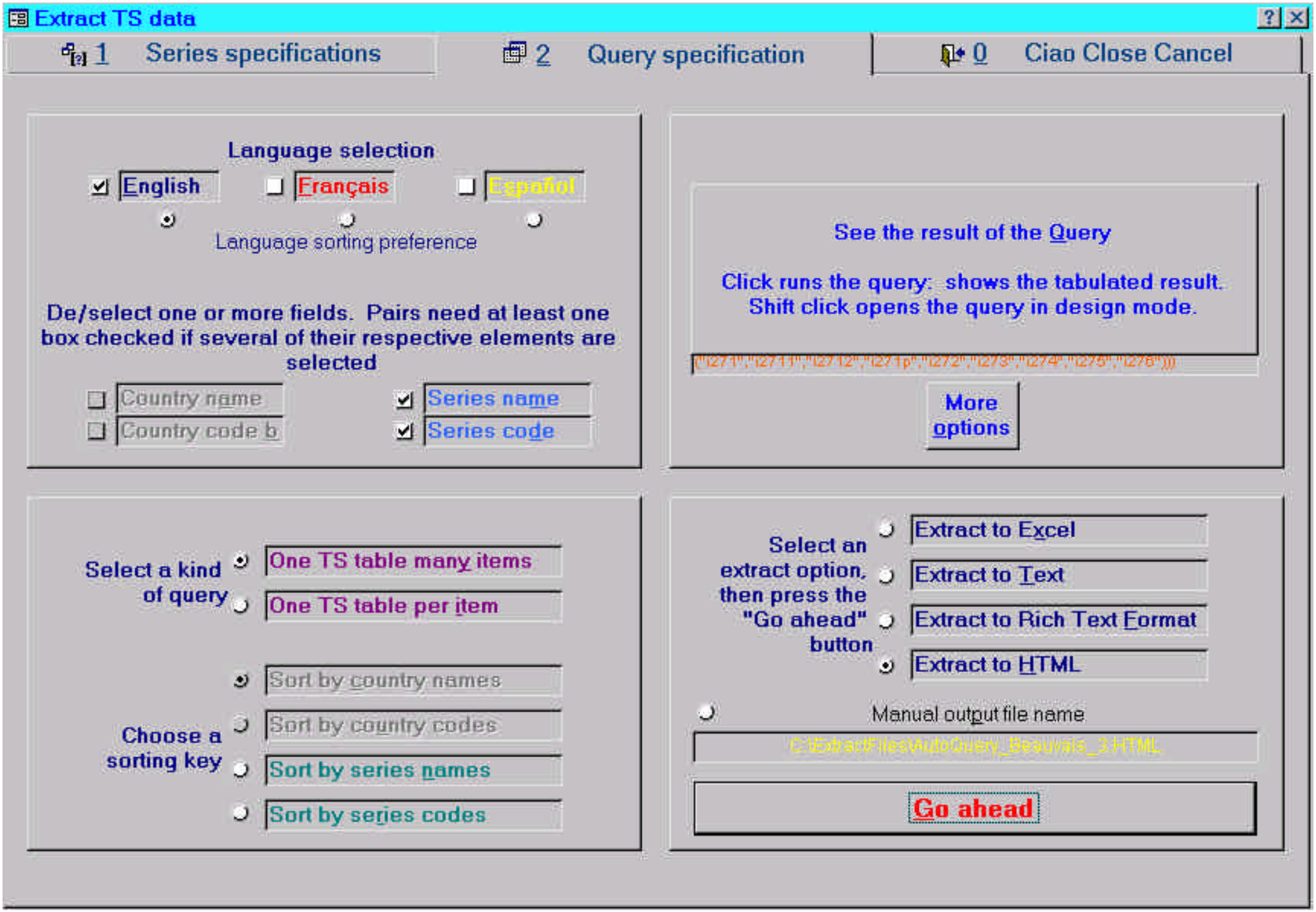
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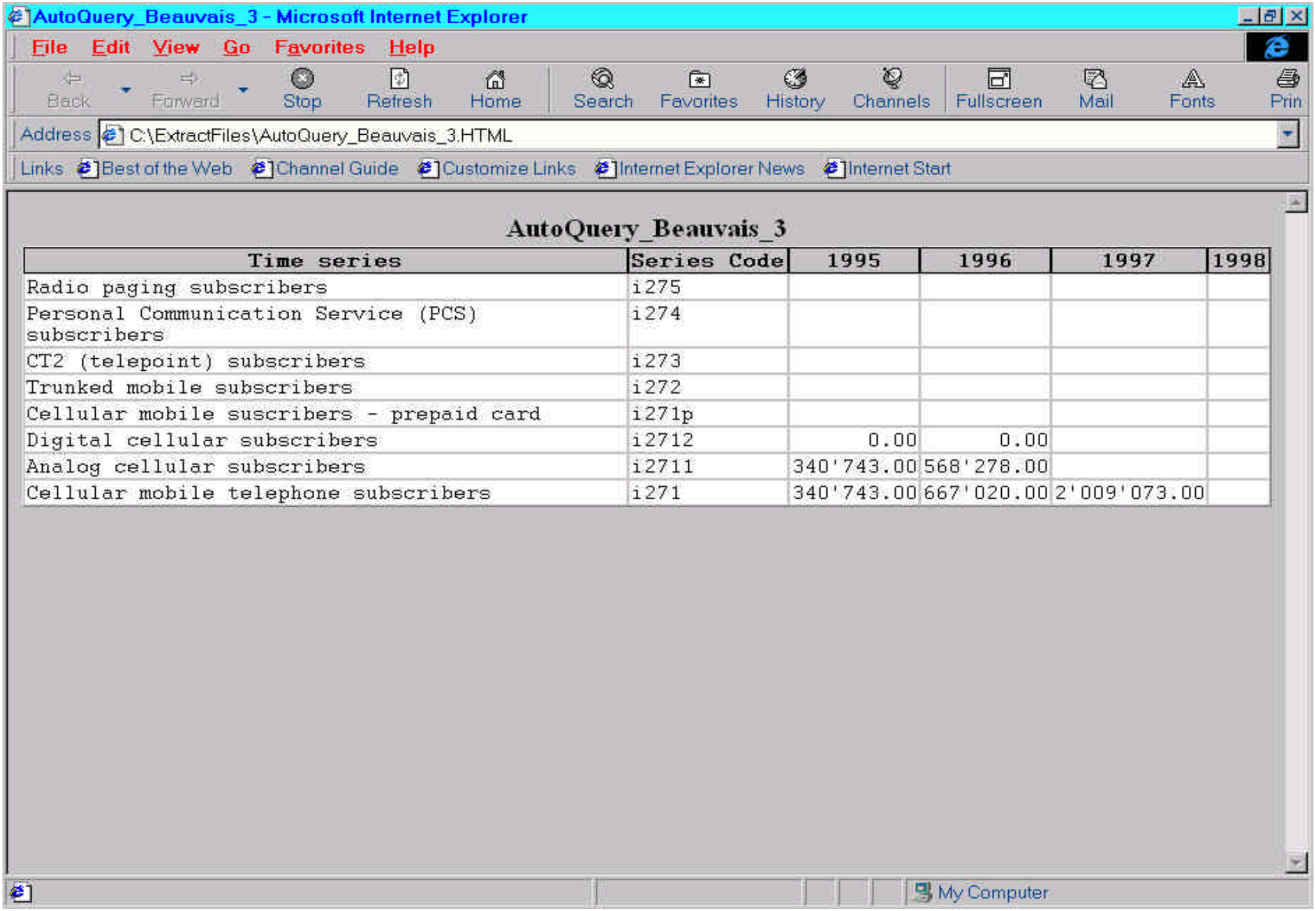
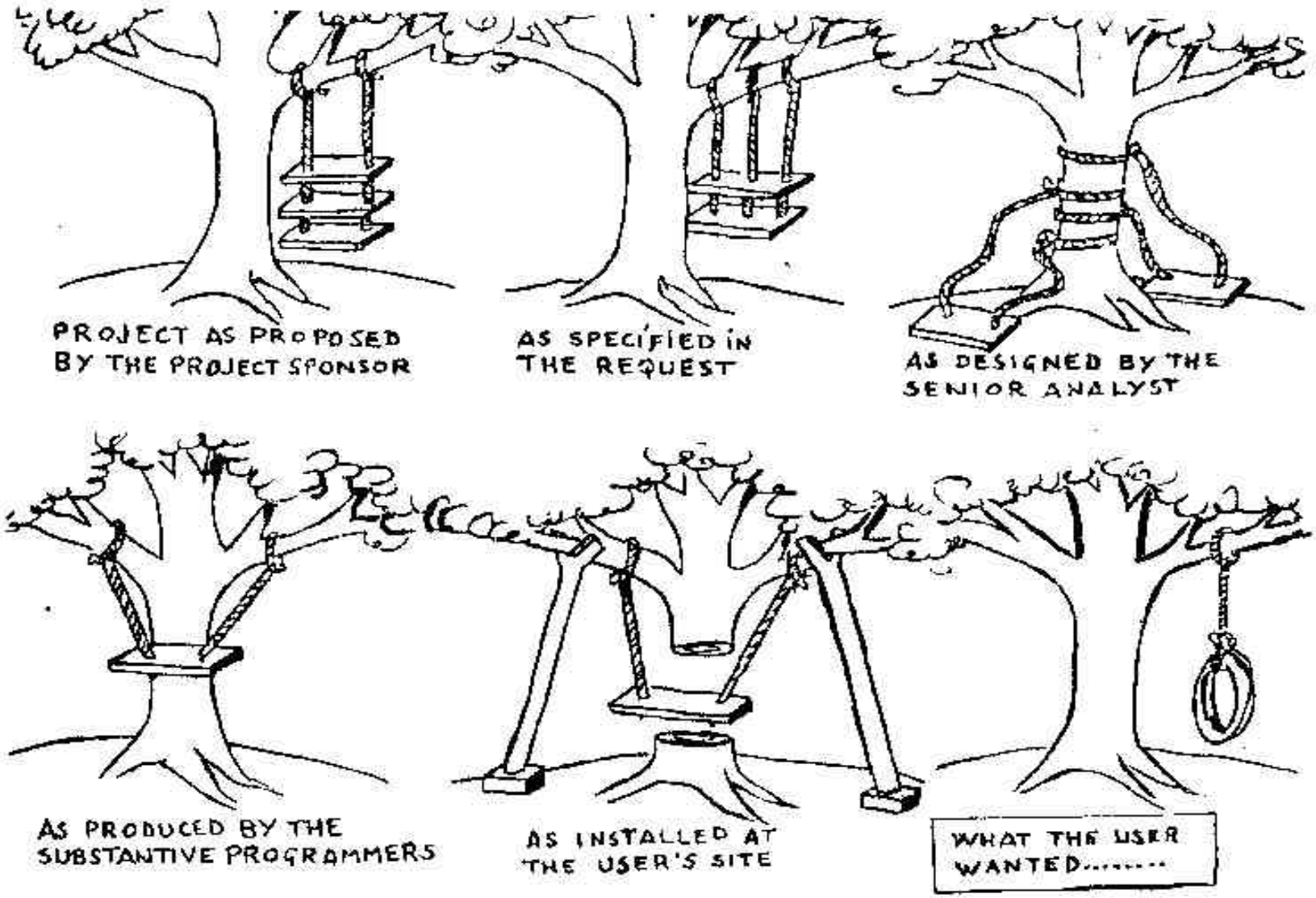


AutoQuery_Beauvais_3

Time series	Series Code	1995	1996	1997	1998
Radio paging subscribers	i275				
Personal Communication Service (PCS) subscribers	i274				
CT2 (telepoint) subscribers	i273				
Trunked mobile subscribers	i272				
Cellular mobile suscribers - prepaid card	i271p				
Digital cellular subscribers	i2712	0.00	0.00		
Analog cellular subscribers	i2711	340'743.00	568'278.00		
Cellular mobile telephone subscribers	i271	340'743.00	667'020.00	2'009'073.00	

Some truisms...

- Keep design team small
- Think user's requirements
- Think user's requirements
- Think user's requirements
- Think user's requirements



From Computer Weekly UK ca 1968

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

Document WTIM99/33-E
26 March 1999
Original: English

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

SOURCE: MR. PAOLO LABOMBARDA, CONSIEL MANAGEMENT CONSULTING, ITALY

TITLE: TELECOM STATISTICS FROM A USER'S PERSPECTIVE

_____

NEEDS for DATA and STATISTICS

CONSIEL - **Management Consulting & HHRR Development**

WTIM ‘99

A FEW NOTES on

1. CONSIEL
2. INTERNATIONAL DEVELOPMENT
3. INTERNATIONAL ICT EXPERIENCES
4. DATA VALUE CREATION
5. SOURCES OF INFORMATION
6. CONTACT

CONSIEL

- **MISSION:** MANAGEMENT CONSULTING AND HHRR DEVELOPMENT
- **OWNERS:** TELECOM ITALIA (70%) AND INDIVIDUAL PARTNERS (30%)
- **SIZE:** 300 CONSULTANTS / 60 MUS$ REVENUES (40% ICT SECTOR)
- **HEADQUARTES:** MILANO (ITALY)
- **RANK:** n. 3 IN ITALY / n. 1 ITALIAN

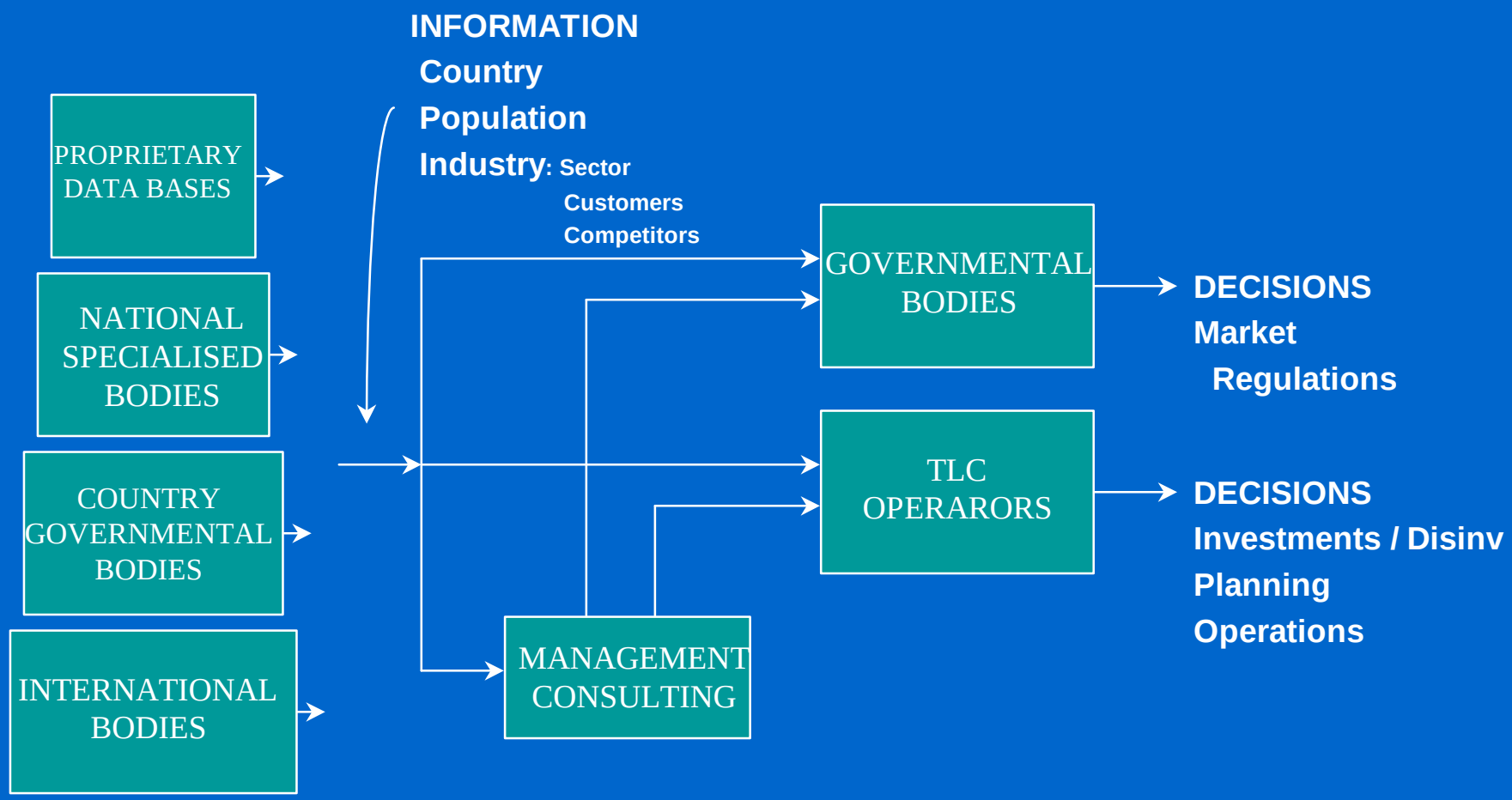
INTERNATIONAL DEVELOPMENT

- **STRATEGIC GEOGRAPHICAL AREAS**
  - EUROPE (FRANCE, ...)
  - LATIN AMERICA (ARGENTINA, BRASIL, ...)
  - ...
- **TACTICS:**
  - JOINT VENTURES WITH LOCAL COMPANIES

INTERNATIONAL ICT EXPERIENCES

- **CUSTOMERS:**
  - TLC (9TELECOM, TELECOM ARGENTINA, TELECOM PERSONAL, STARTEL, TELESP, TELECOM ITALIA do BRASIL, TELE CELULAR SUL, ENTEL CHILE, ETECSA, ENTEL BOLIVIA, ...)
  - IT (PRODESP, PROCERGS, ...)
- **MAIN BUSINESS AREAS:**
  - COST RATIONALISATION (PRIVATIZATION)
  - MARKET POSITIONING (LIBERALIZATION)
  - CHANGE MANAGEMENT

DATA VALUE CREATION



SOURCES OF INFORMATION

- **COUNTRY GOVERNMENTAL BODIES**

  GOVERNMENT, NATIONAL STATISTICS INSTITUTE, TLC AUTHORITY

- **PROPRIETARY DATA BASES**

  MARKETING INTELLIGENCE

- **NATIONAL SPECIALISED BODIES**

  FCC, OFTEL, ...

- **INTERNATIONAL BODIES**

  ITU, OECD, UE

CONTACT

- **Paolo Labombarda**

phone: **+ 39.335.6204026**
+ 39.06.84401621

e_mail: **p.labombarda@finsiel.it**

www.consiel.it

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

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

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

_____

International traffic and tariff statistics

Dr Tim Kelly *,

Strategic Planning Unit,

International Telecommunication Union,

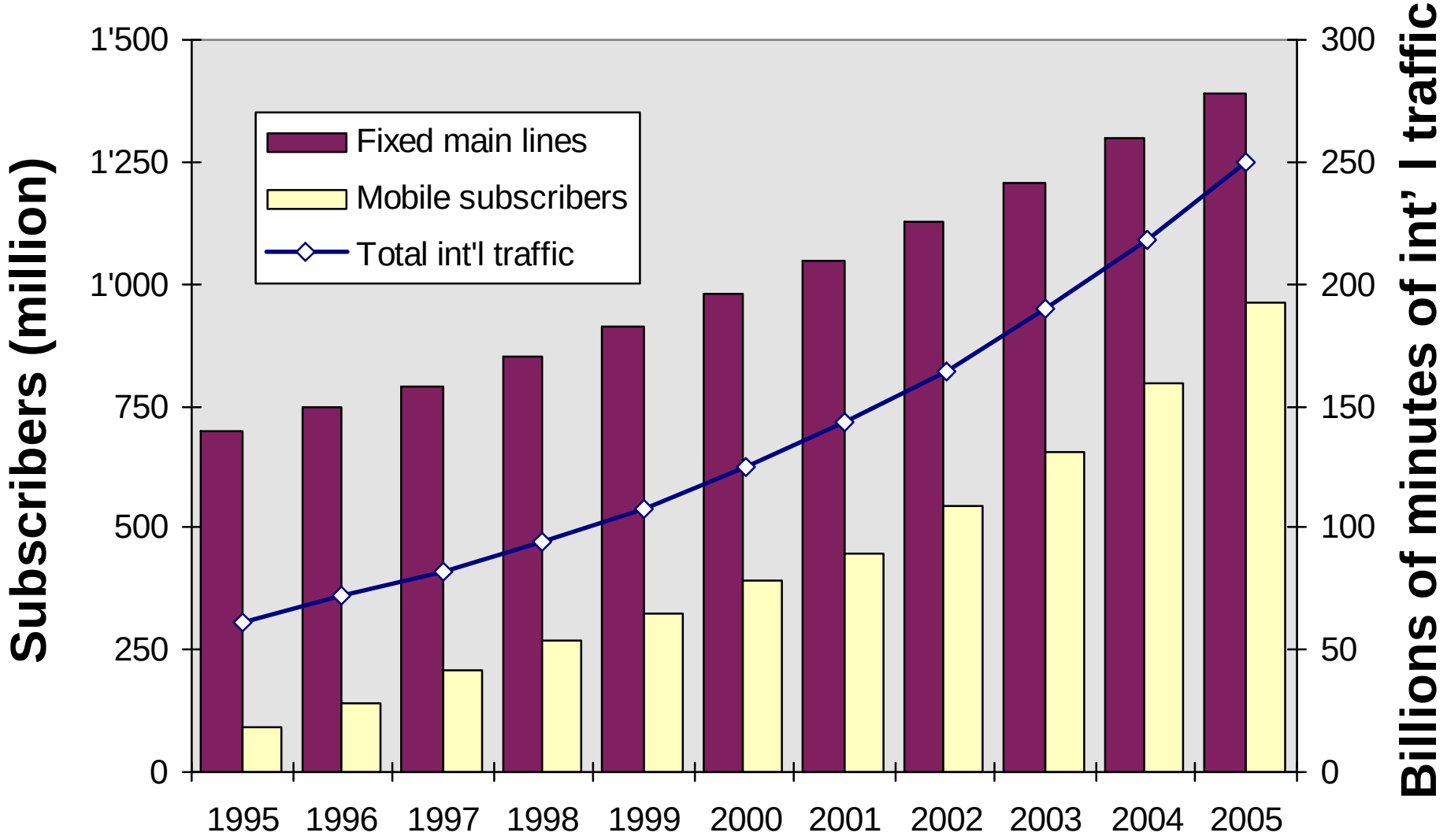
WTIM '99, March 30, 1999

* 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

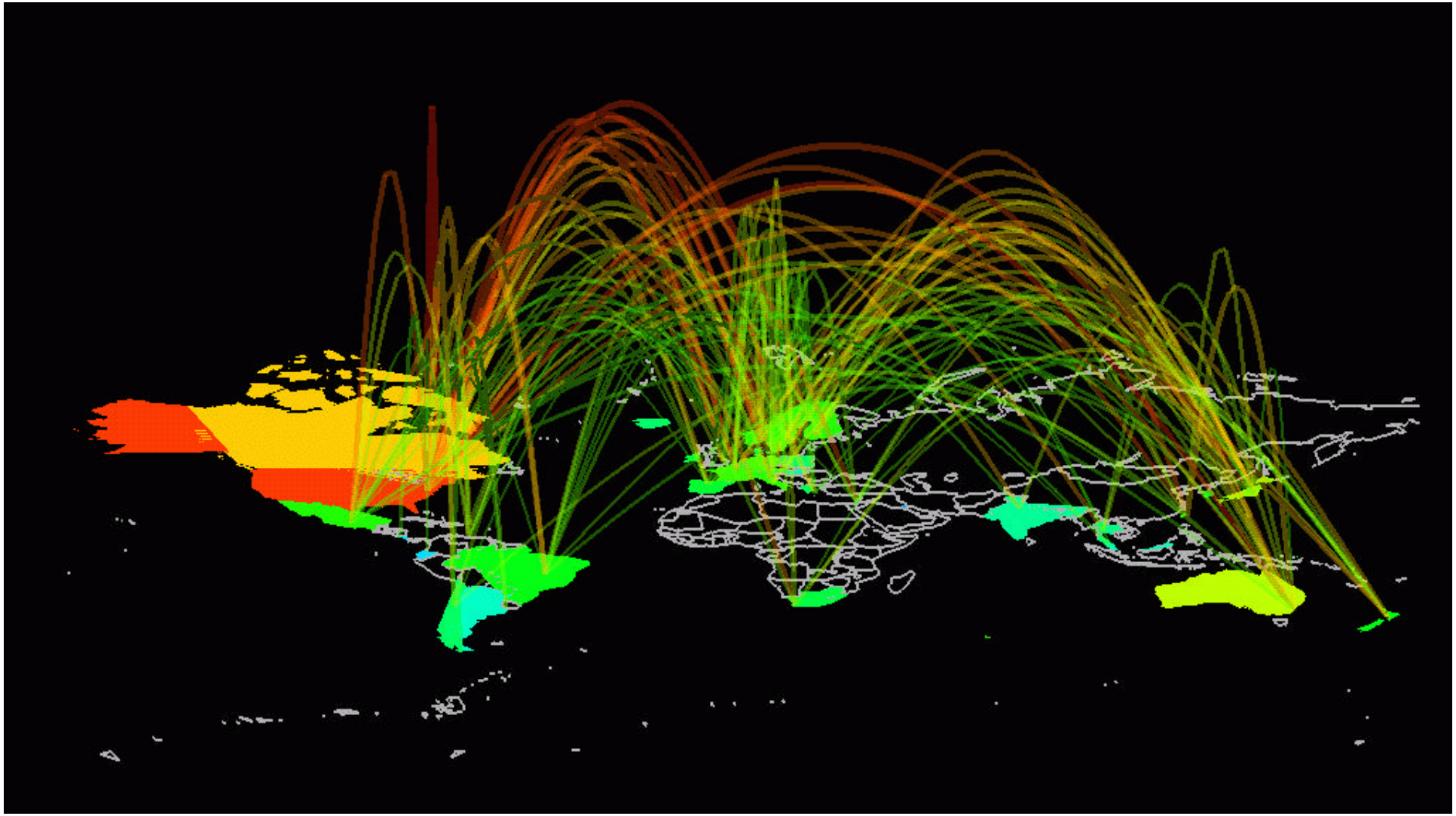


Source: ITU.

Why measure minutes of international traffic?

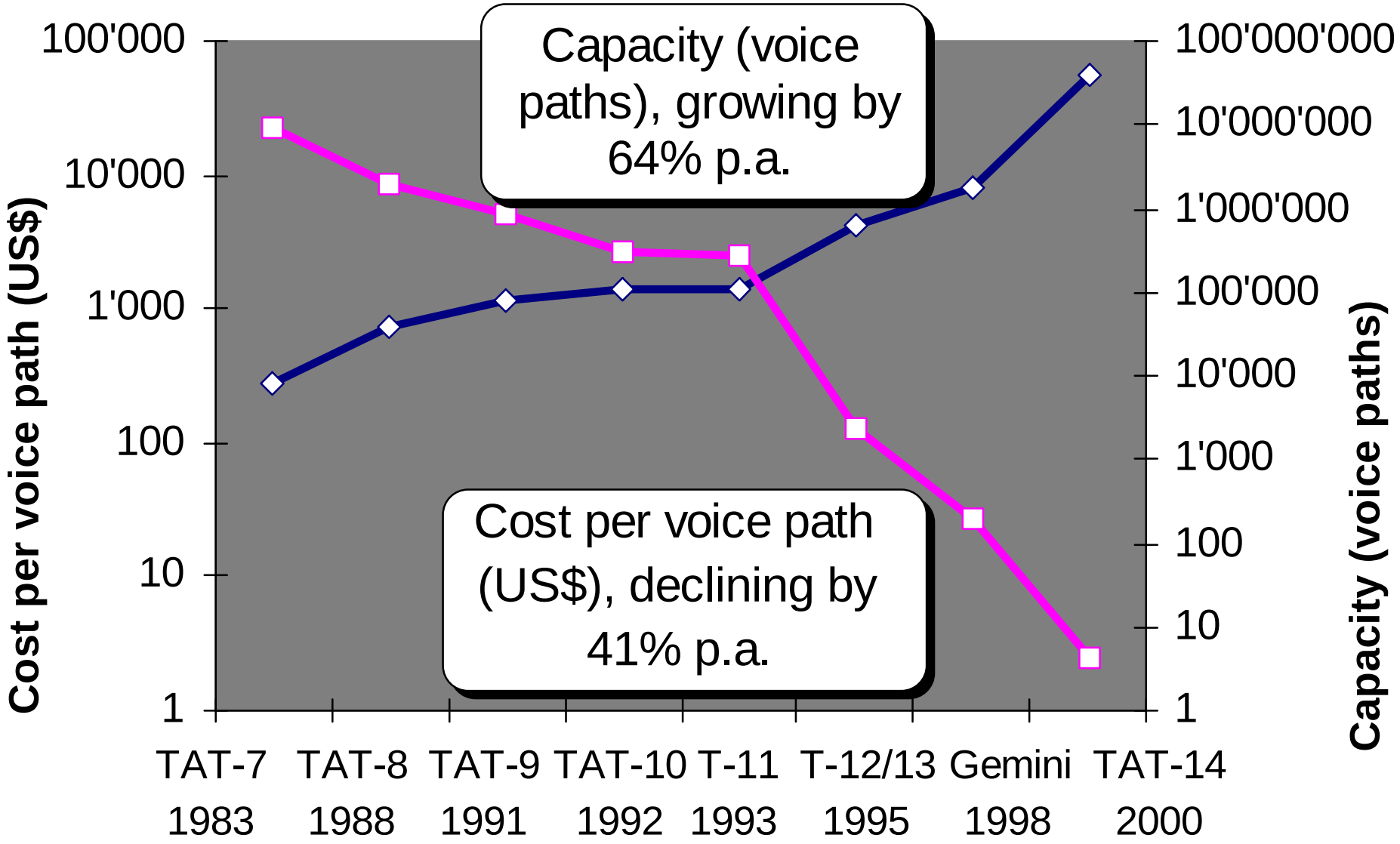
- **Traffic = Trade**
  - ⇨ **International telephone, telex, fax and e-mail traffic closely mirror international trade flows**
- **Minutes = Money**
  - ⇨ **Under the international accounting rate system, net balances of minutes of traffic translate into cash payments**
- **Phone calls = Families**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

Traffic flows show globalisation in action

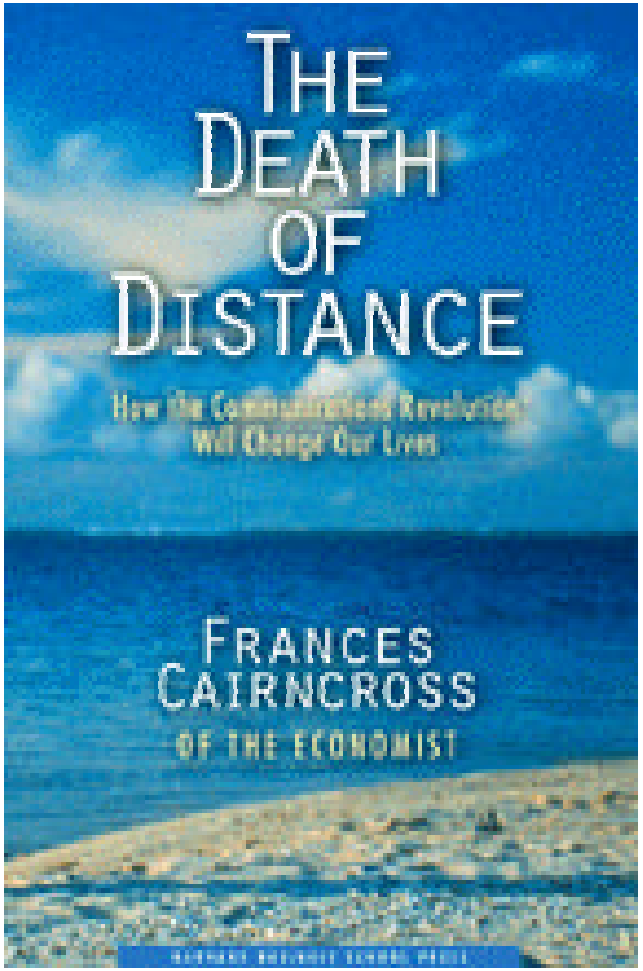


A visualisation of a sample of Internet Traffic Flows:
Source: Stephen Eick, Bell Labs.

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.



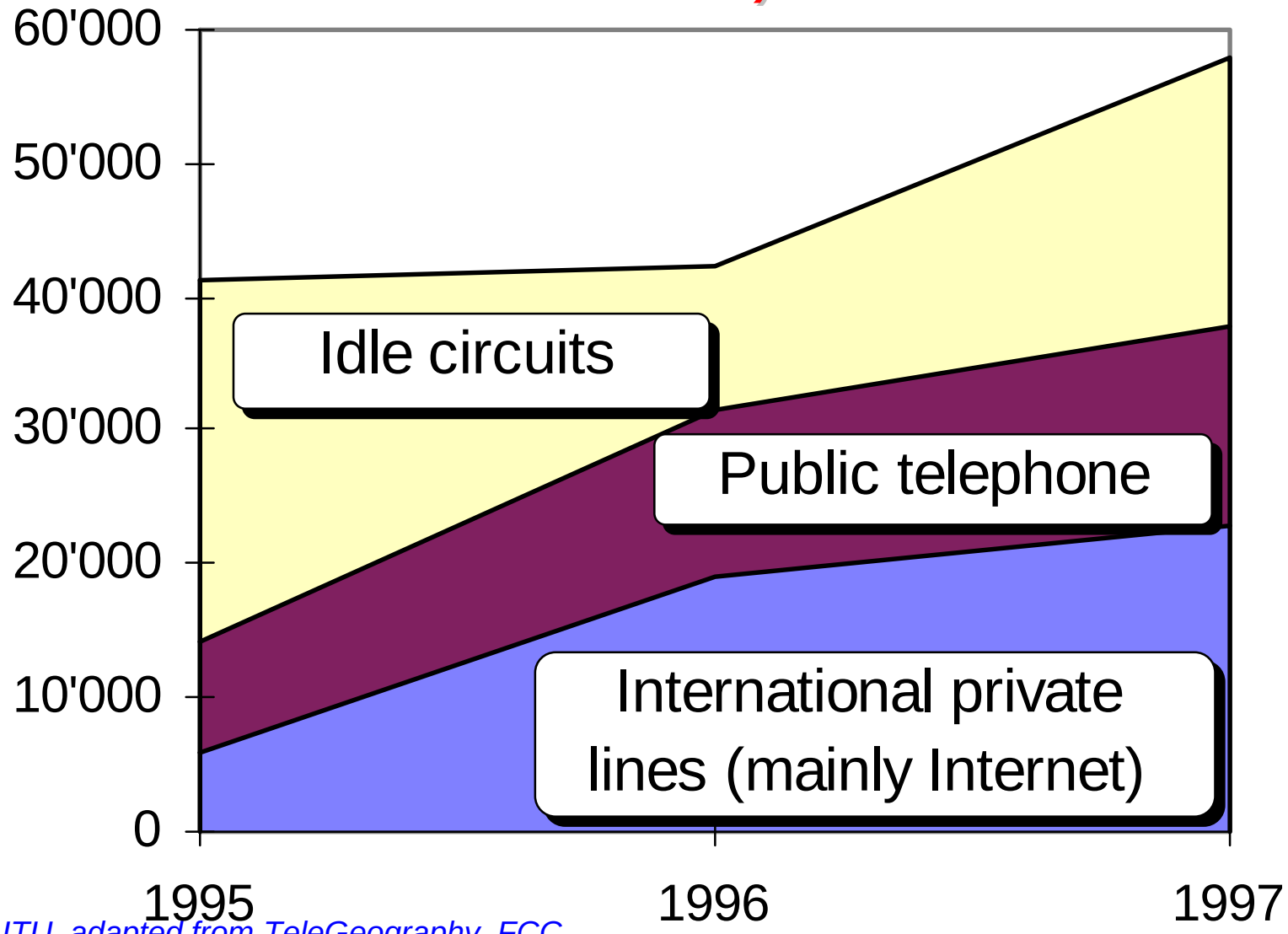
"The death of distance as a determinant of the cost of communicating will probably be the single most important factor shaping society in the first half of the next century."

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

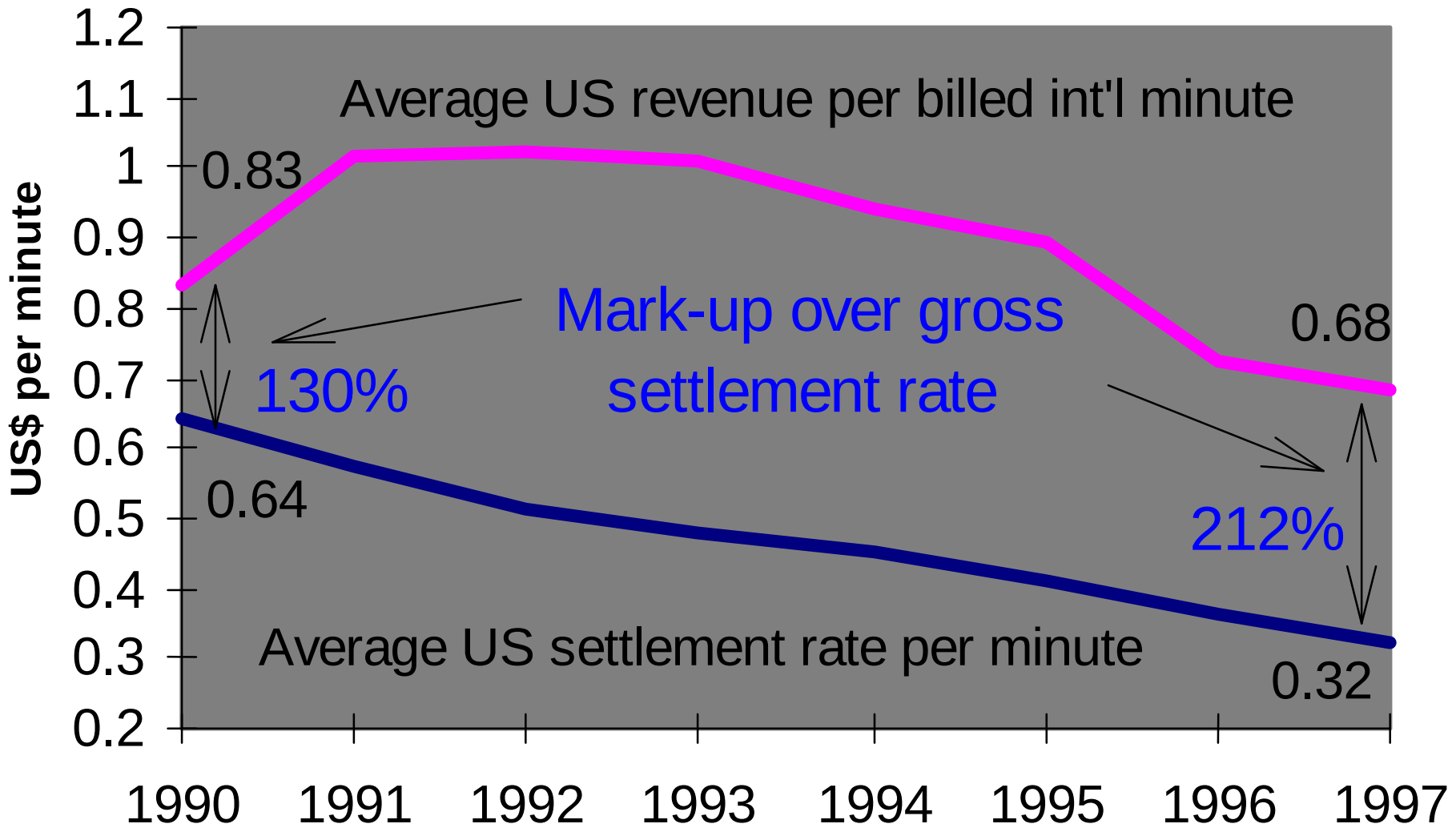


Source: ITU, adapted from TeleGeography, FCC.

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

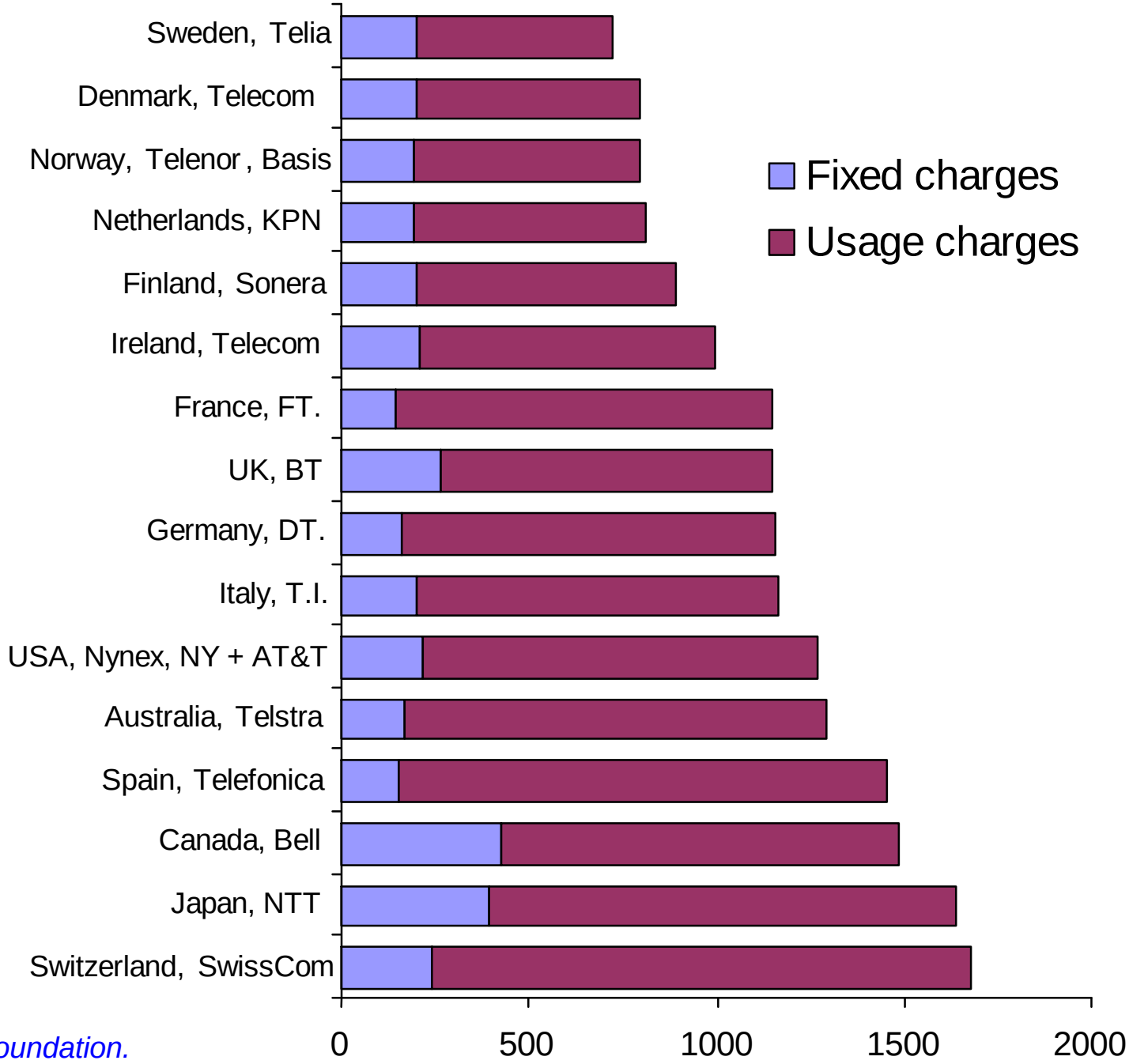


Source: ITU, adapted from FCC.

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

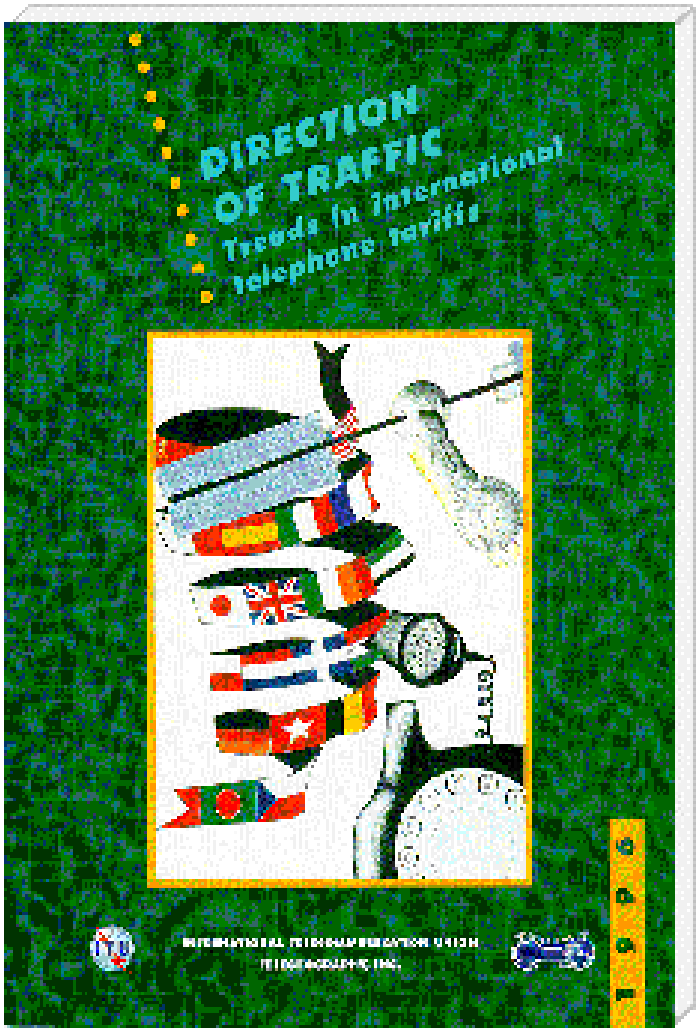
- **Incoming and outgoing traffic minutes to major (top 20) traffic destinations**
  - ⇨ **by country**
  - ⇨ **(where necessary, by carrier, if no aggregated statistics exist)**
  - ⇨ **by year**
- **Peak and off-peak cost of a 3 minute direct-dialled call to major destinations**
  - ⇨ **for major carriers**
  - ⇨ **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

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

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)

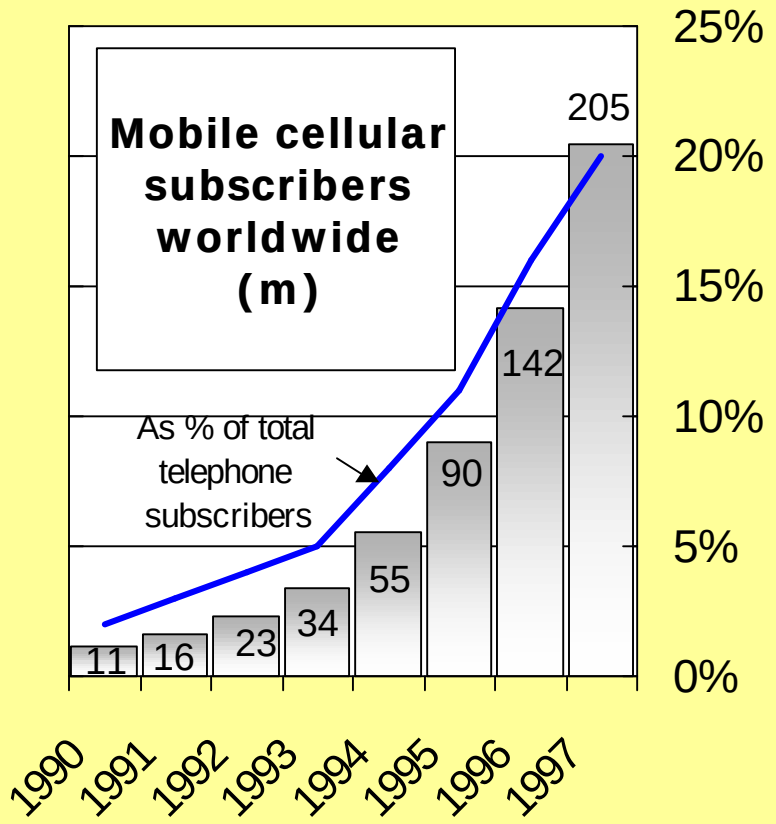
International Telecommunication Union (ITU)

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**			

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

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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.

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

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

_____

REPUBLIQUE TOGOLAISE
TRAVAIL - LIBERTE – PATRIE

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.

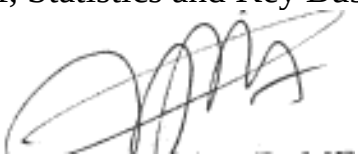
All these players follow a precise transmission schedule and precise information circuits which are installed in the the attached diagrams.

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.

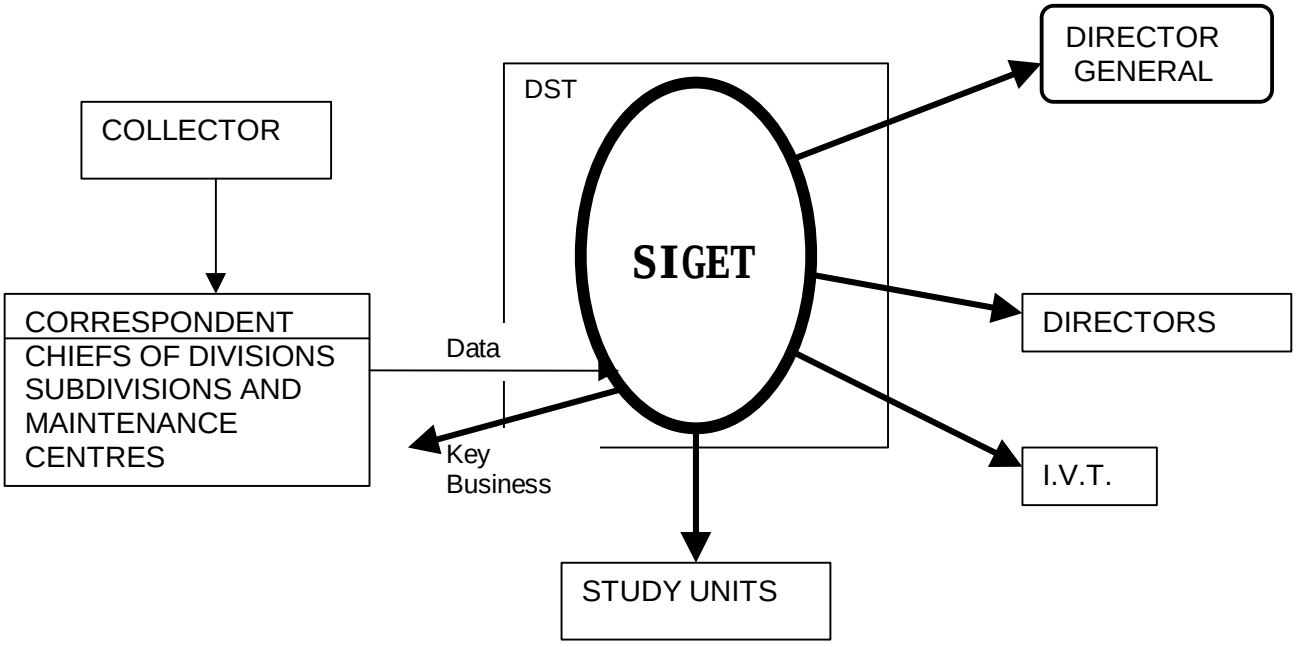
c) A circuit for dissemination of the key business indicators

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:

INFORMATION 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:

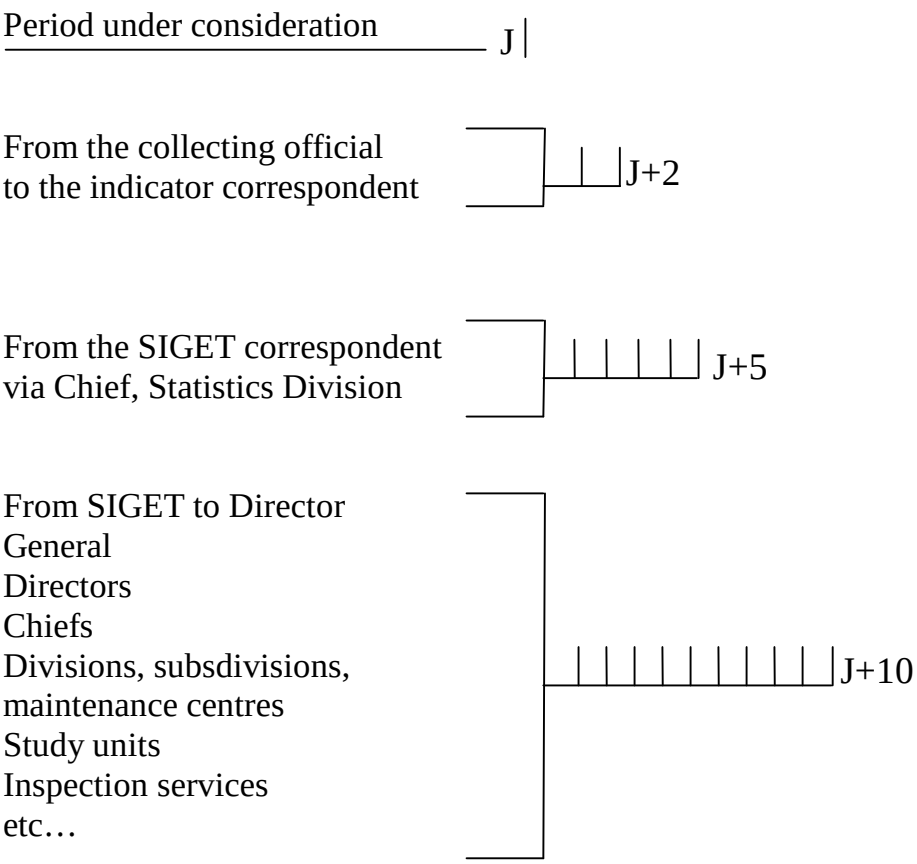
– To divisions, subdivisions and operational centres by D + 3 at the latest.

– 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.

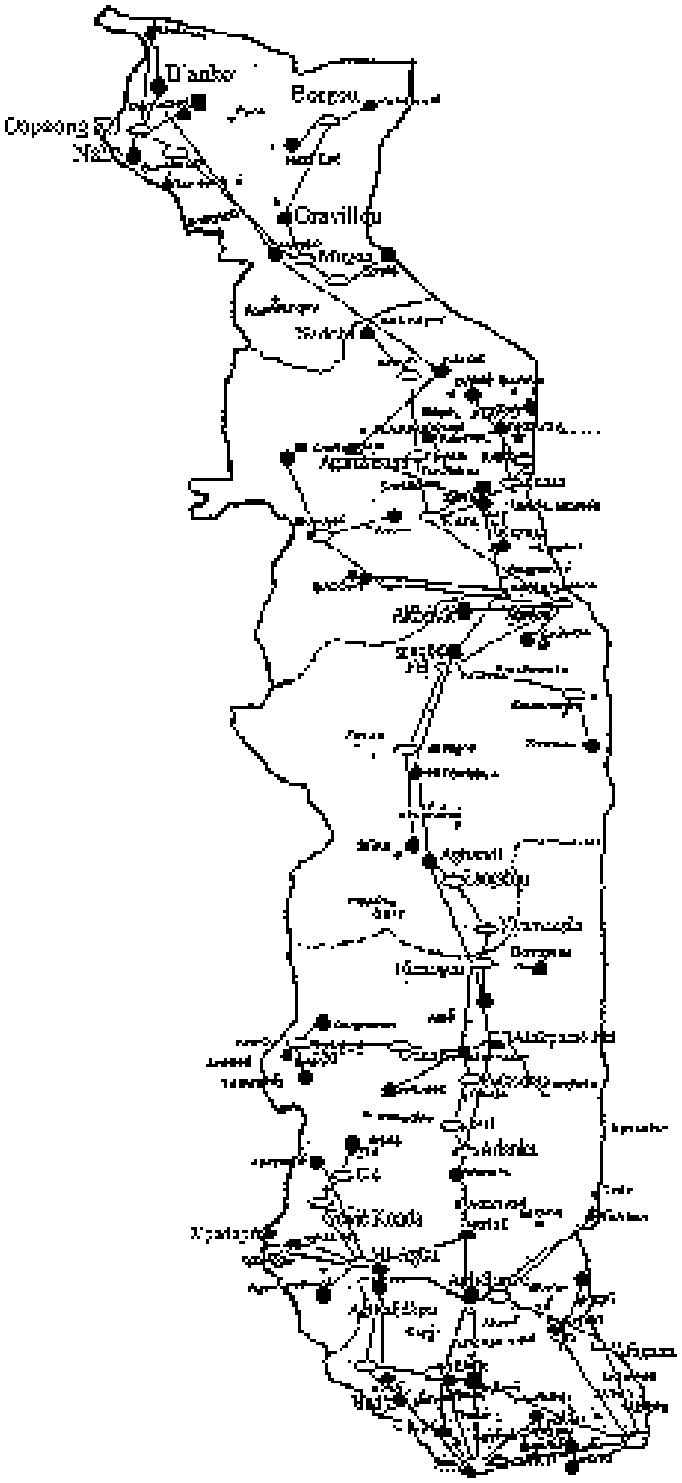
DIRECTION GENERALE / DIRECTION COMMERCIALE
Avenue Nicolas GRUNITZKY BP 333 Lomé - TOGO
Tel: 21 44 01 Fax: 21 03 73 Telex: 5245 L
E-mail: Togo.télécom@togotel.net.tg

TELECOMMUNICATIONS NETWORK

BURKINA FASO

GHANA

BENIN

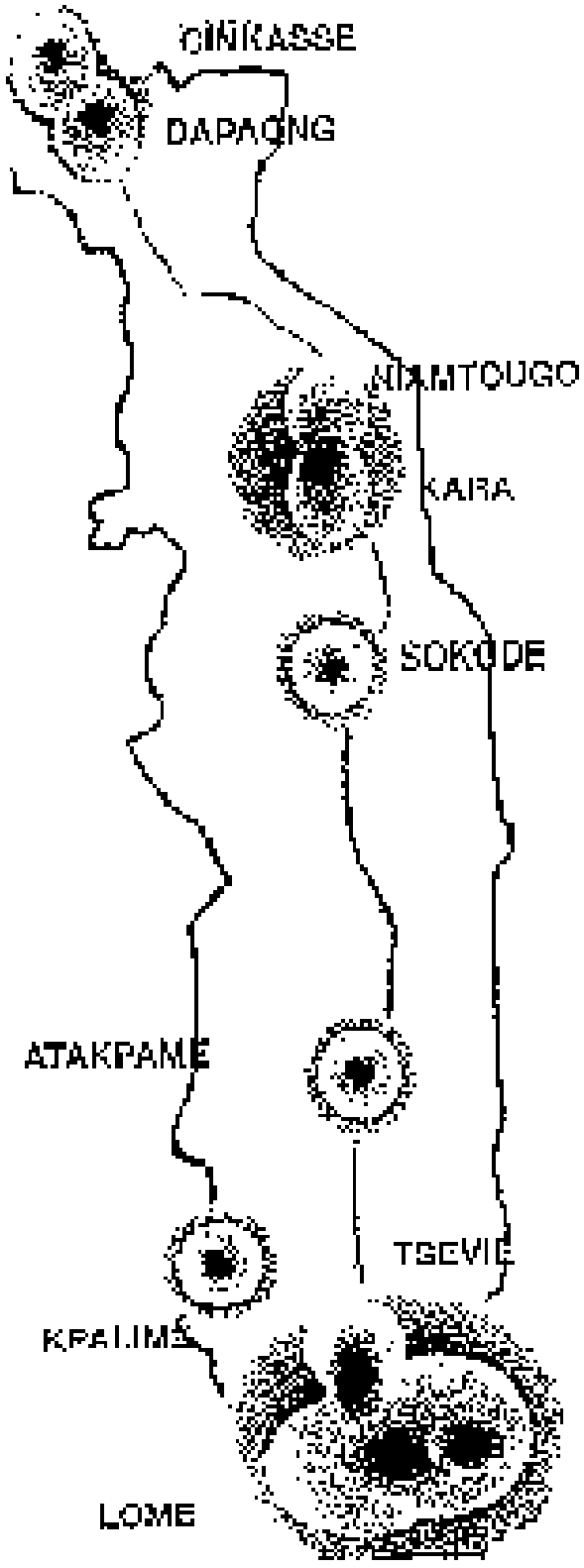


- ● Administrative centre with automatic exchange
- — Digital radio-relay artery
- — Planned links
- — Existing links
- ■ Central stations
- ● Terminals
- ● Planned terminals
- ⬭ Relay stations
- ⬭ Planned relay stations

GULF OF BENIN

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

_____

Telecom statistics: Definitions, sources & the Internet

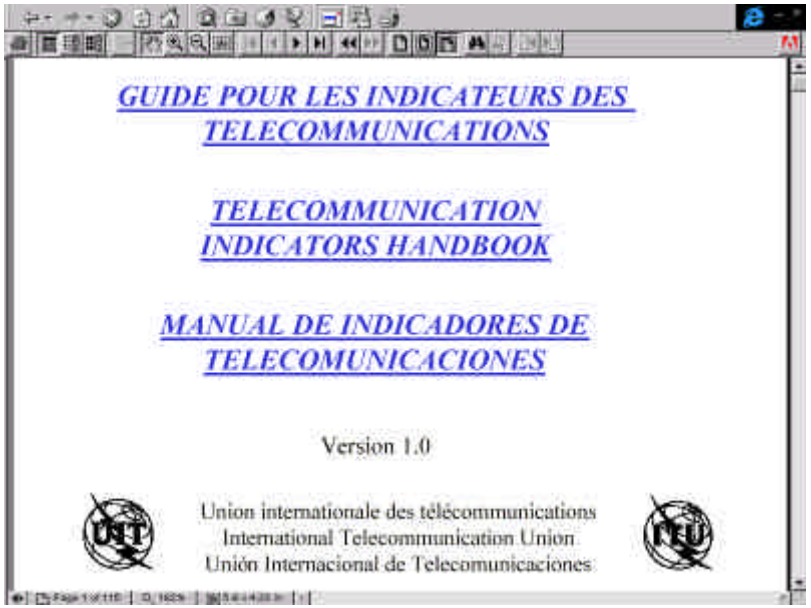
Michael Minges

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

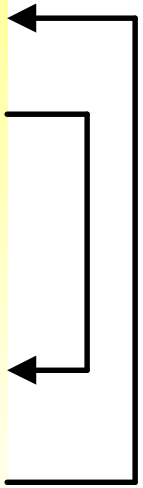
Definition issues

- 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

Carrier 1:	
Revenue	**1 000**
Telecom service	800
Interconnection	200
Costs	
Interconnection	100
Carrier 2:	
Revenue	**1 000**
Telecom service	900
Interconnection	100
Costs	
Interconnection	200
Country revenue:	
Reported by carriers:	2 000
Actual country net revenue:	1 700



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

* 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

All prices exclude sales tax

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Frequency: Monthly / ISSN 1480-8242

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Périodicité: Mensuel / ISSN 1480-8242

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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's 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

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

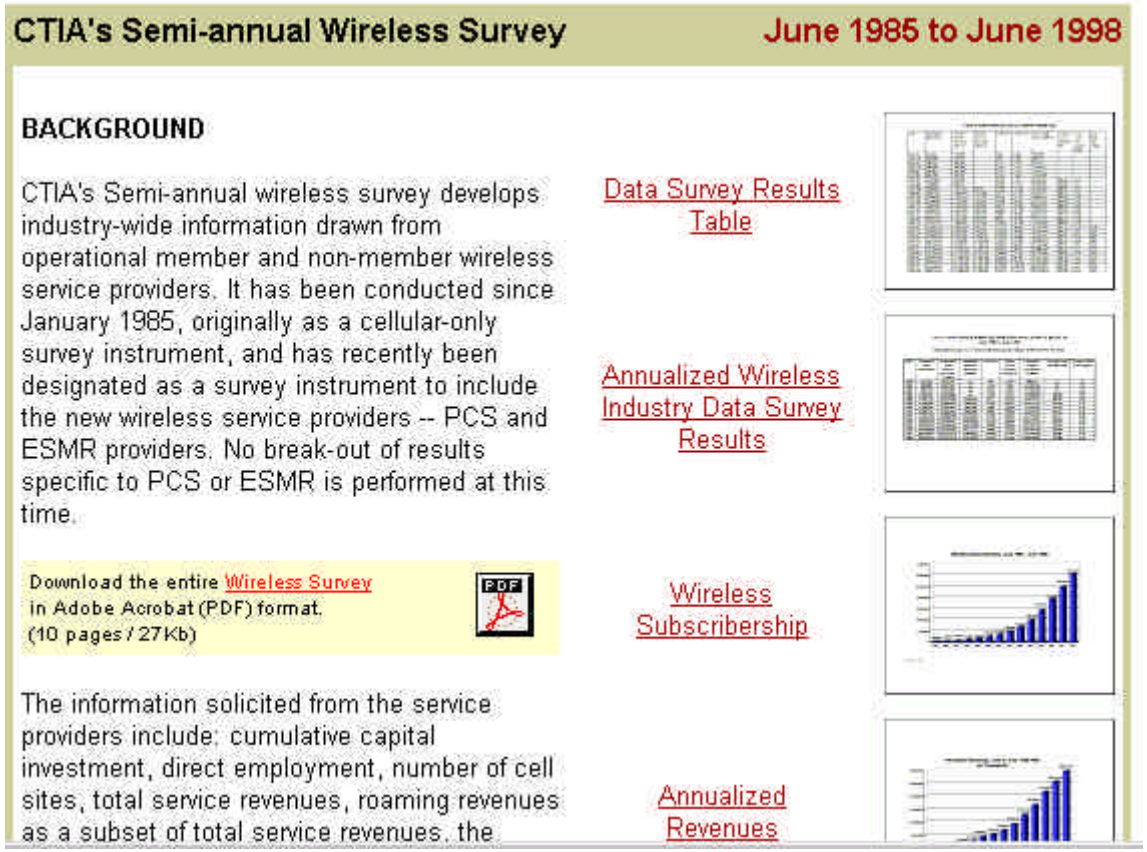
- International organizations: ITU, OECD, Eurostat
- Regional telecom organizations: RCC, Comtelca
- Bi-lateral

RTR

http://rtr.worldweb.net

Industry associations

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

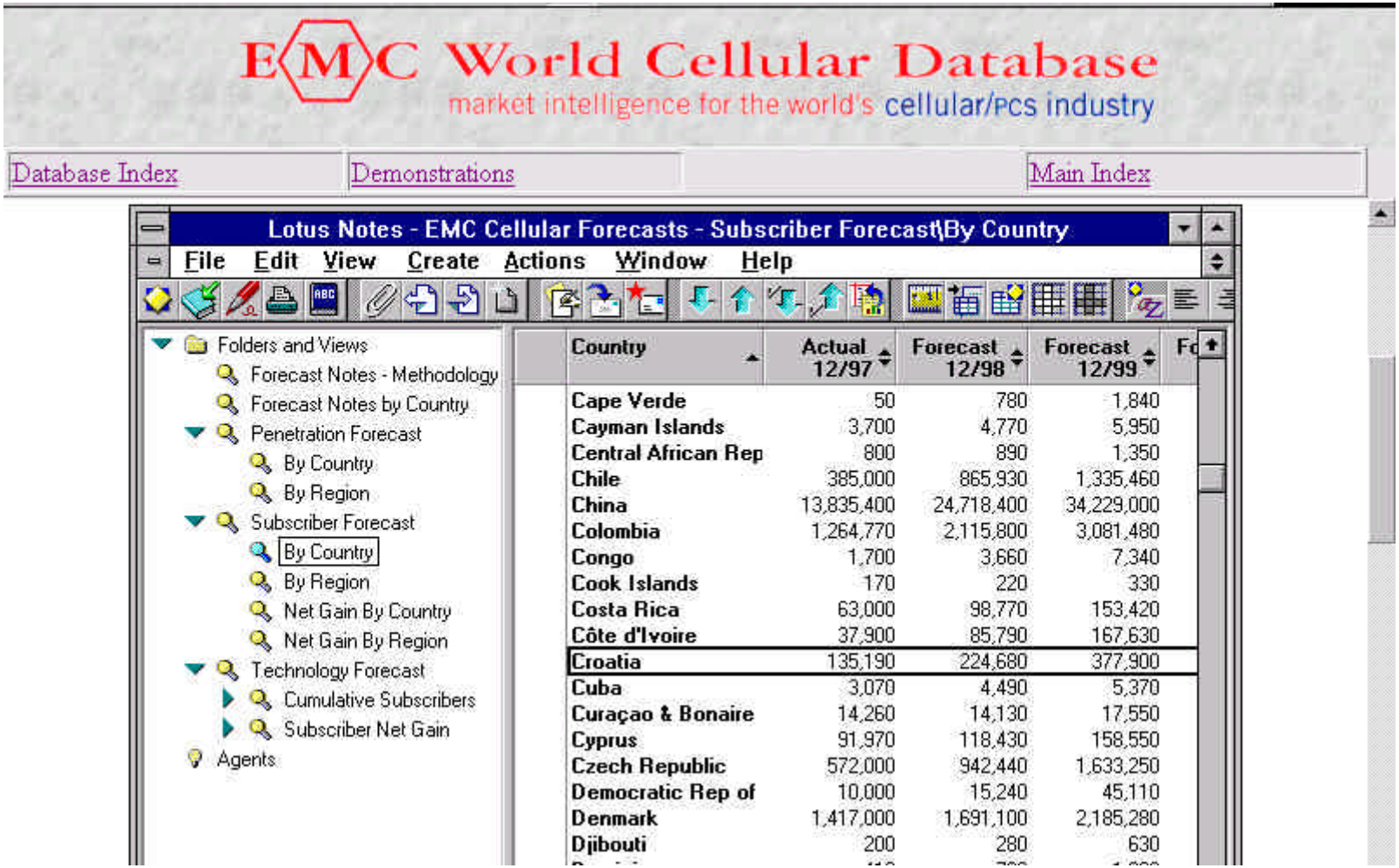


Cellular Telecommunication Industry Association (USA)
http://www.wow-com.com/statsurv/survey/datasurvey_index.cfm

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

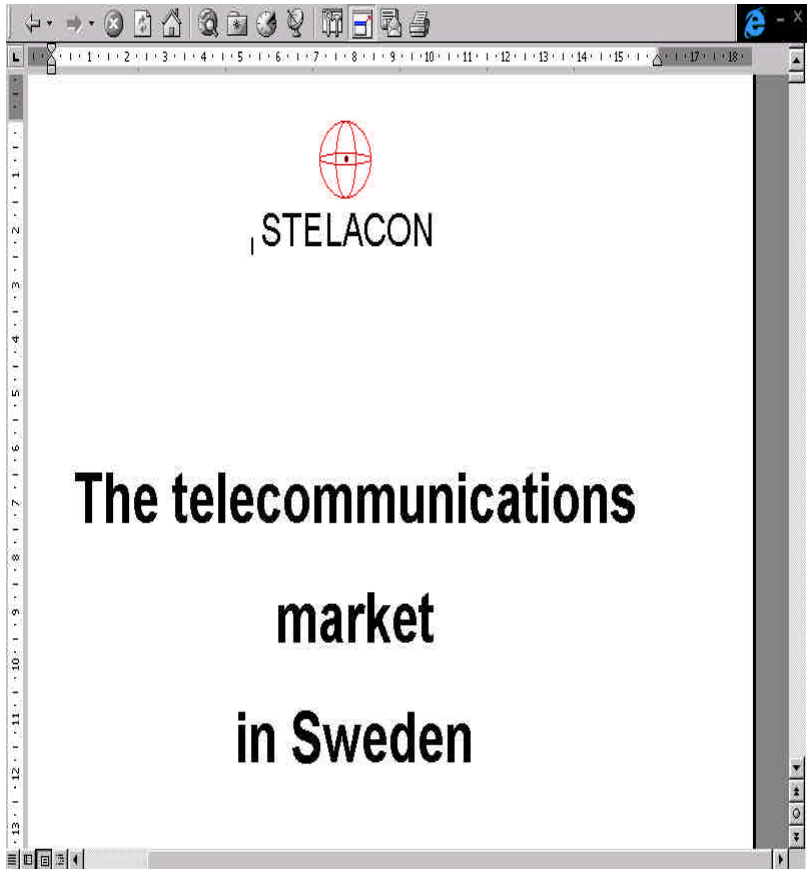


Table : Number of subscriptions for mobile telephony in Sweden for the period 1994-12-31 – 1997-12-31, NMT and GSM, broken down by mobile operator

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.

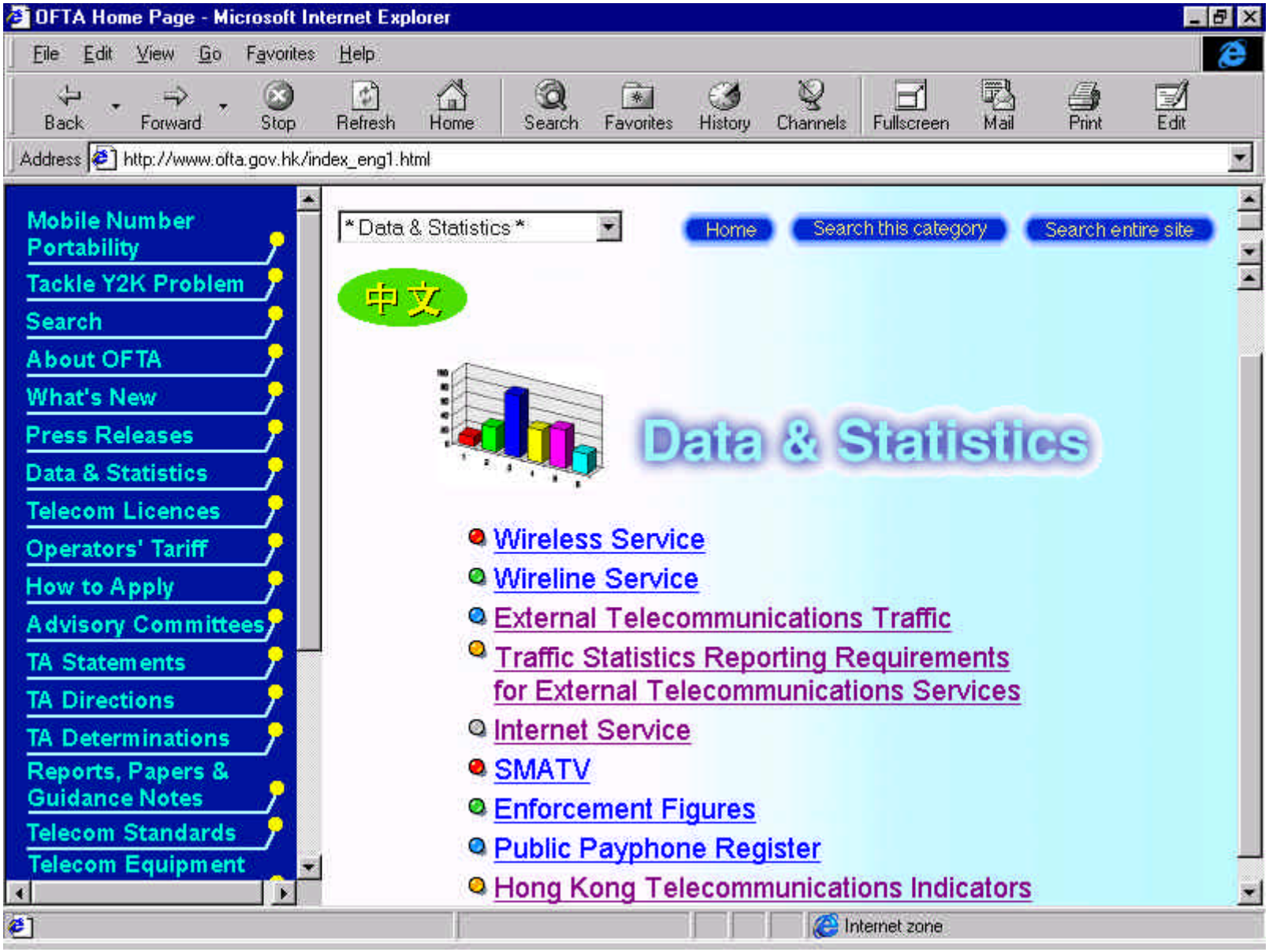
The mobile telephony market (SEK billion)	1994	1995	1996	1997
Total	4.34	6.05	7.42	8.42
The GSM market	1.07	2.31	4.46	6.19
The NMT market	3.27	3.74	2.96	2.23

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

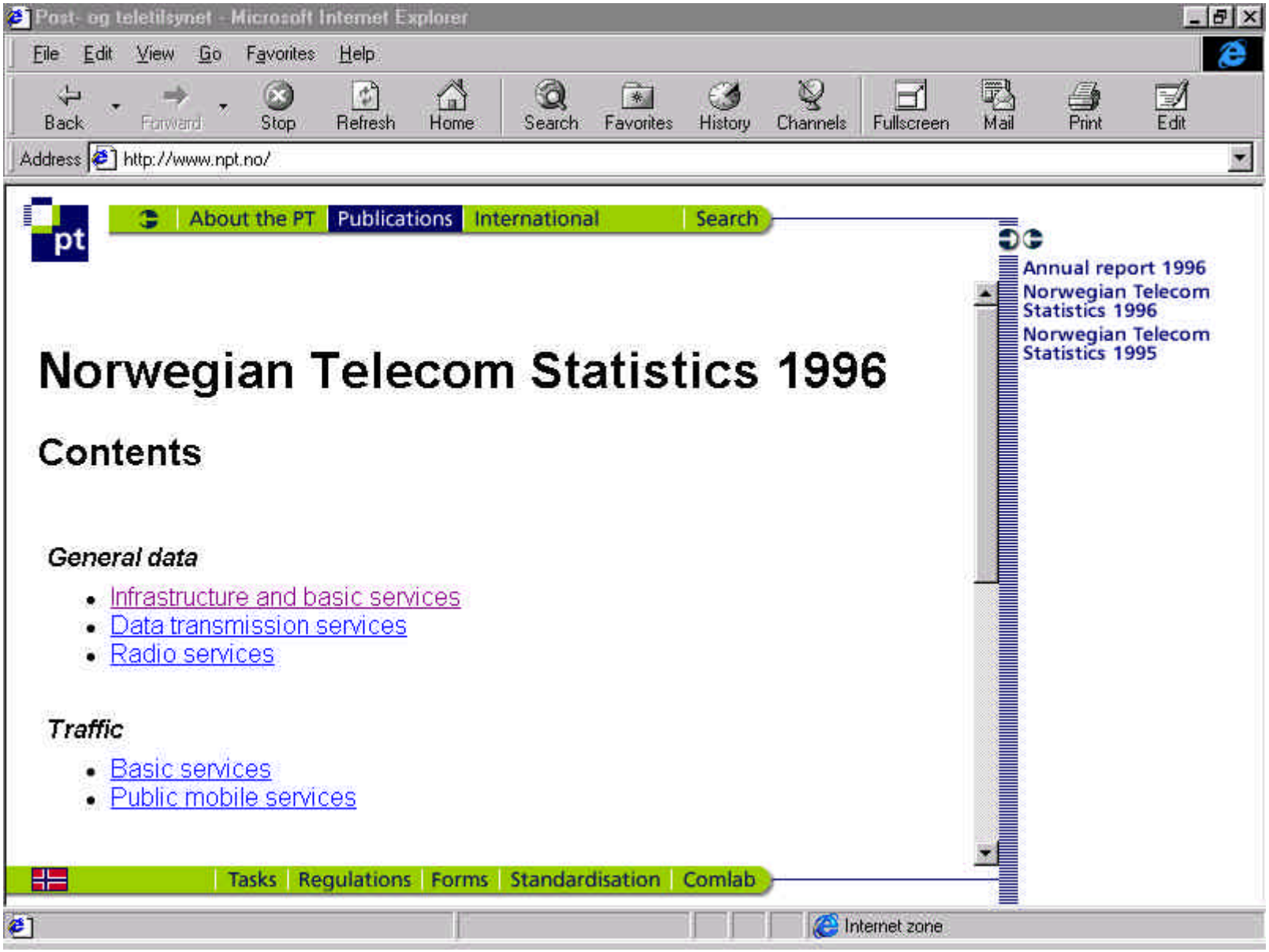
הלשכה המרכזית לסטטיסטיקה
CENTRAL BUREAU OF STATISTICS

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
Telestyrelsen
TELE 97

Norway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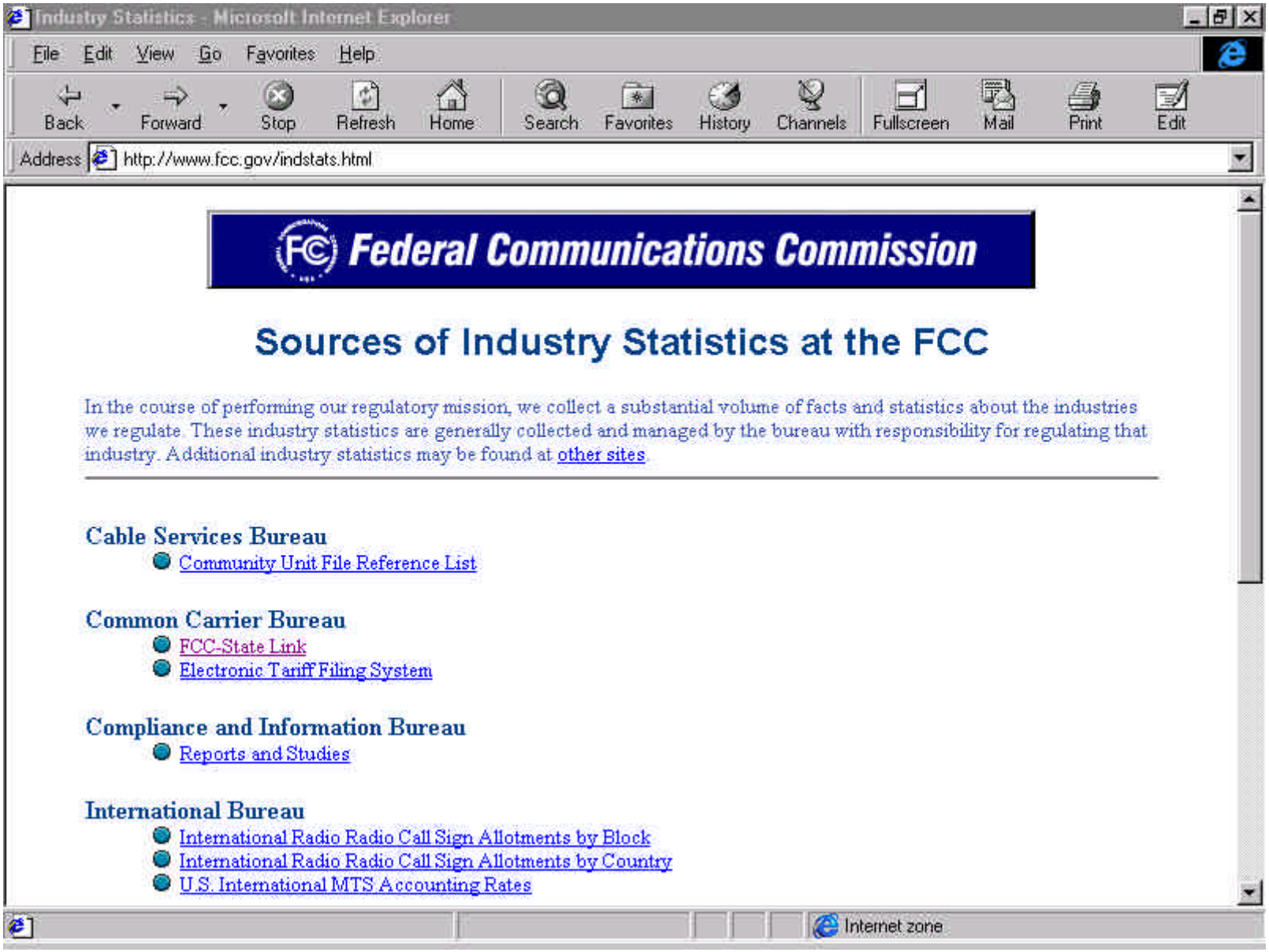
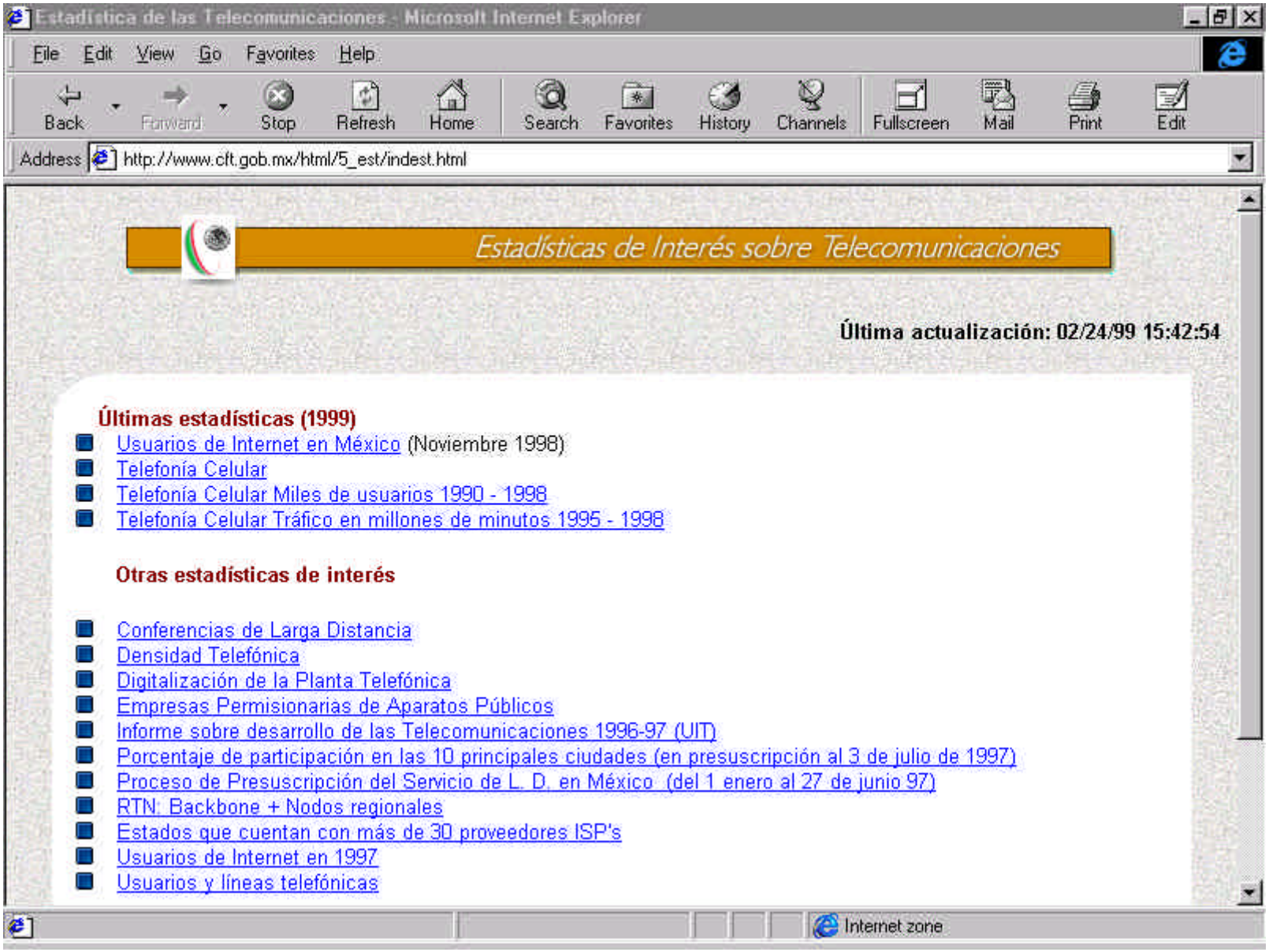
Annual report 1996
Norwegian Telecom Statistics 1996
Norwegian Telecom Statistics 1995
Norwegian Telecom Statistics 1996
Contents
General data
Infrastructure and basic services
Data transmission services
Radio services
Traffic
Basic services
Public mobile services
Tasks Regulations Forms Standardisation Comlab
Internet zone

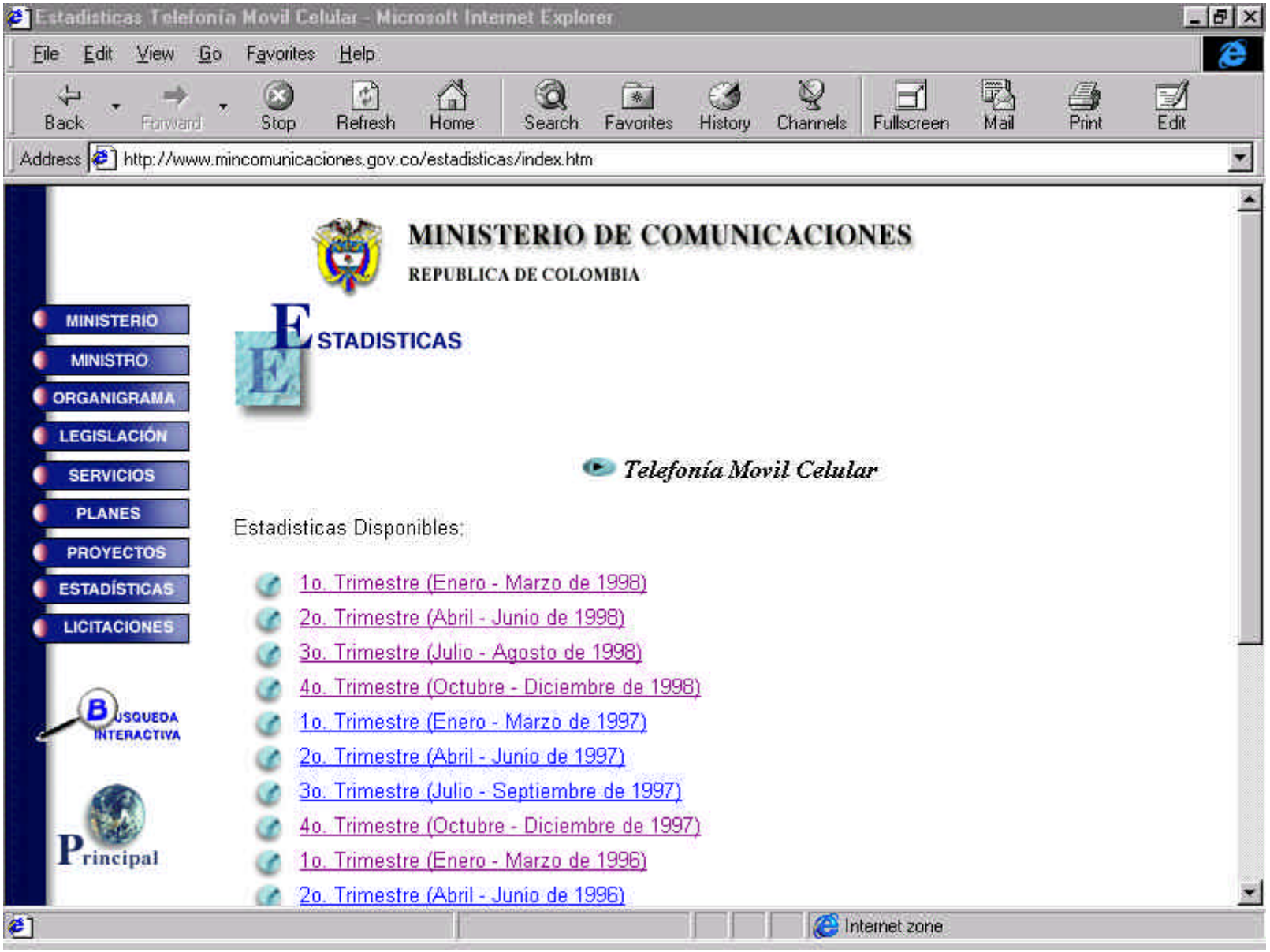
FCC


Industry Statistics - Microsoft Internet Explorer
File Edit View Go Favorites Help
Back Forward Stop Refresh Home Search Favorites History Channels Fullscreen Mail Print Edit
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

_____

Challenges to the Network:

Internet for Development

Edition 1999
ITU

FORUM

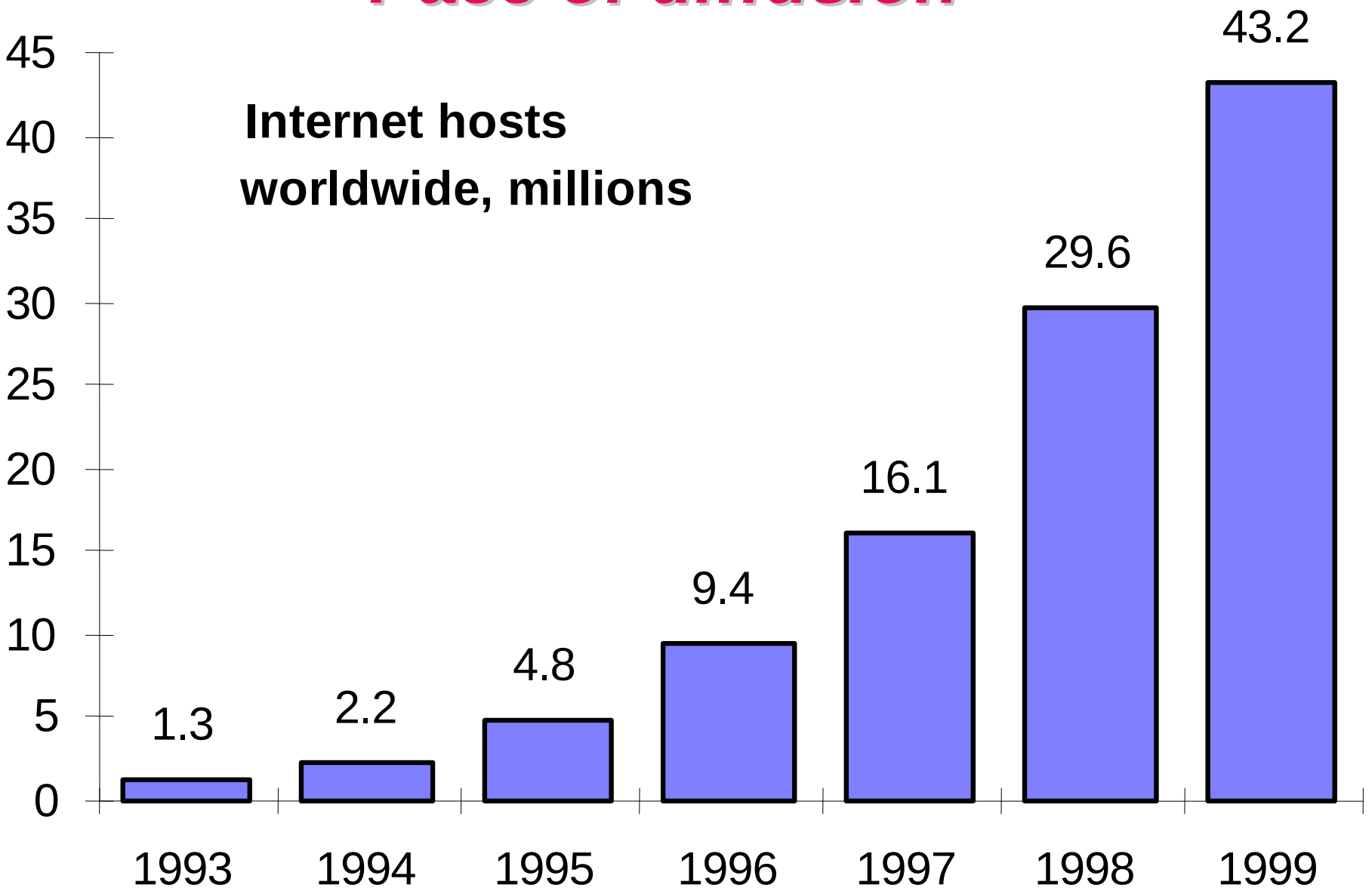
The views expressed in this paper are those of the author and do not necessarily reflect the opinions of the ITU or its membership.

Table of contents

What is so special about the Internet (Chap 1)

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

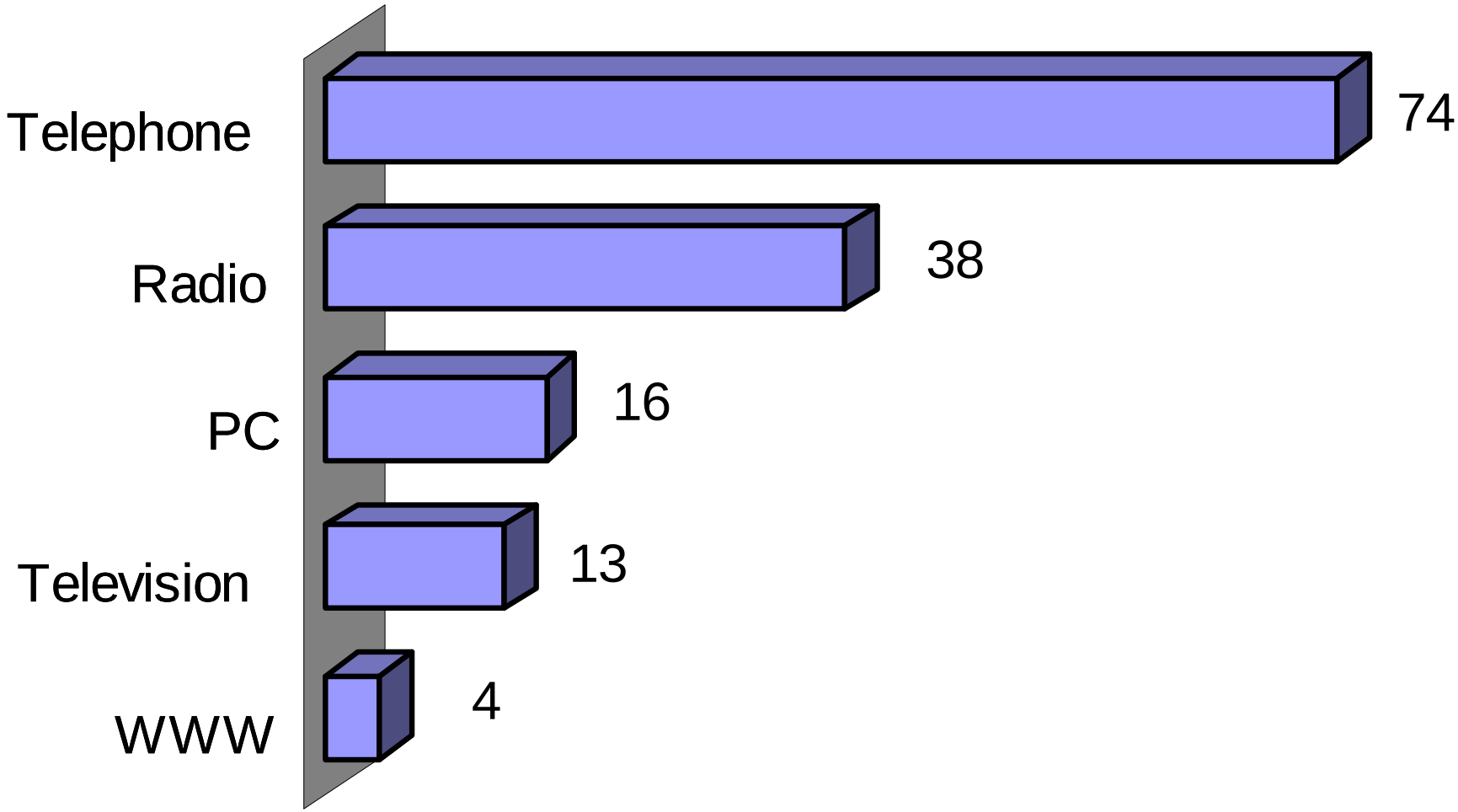
Pace of diffusion



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

Pace of diffusion

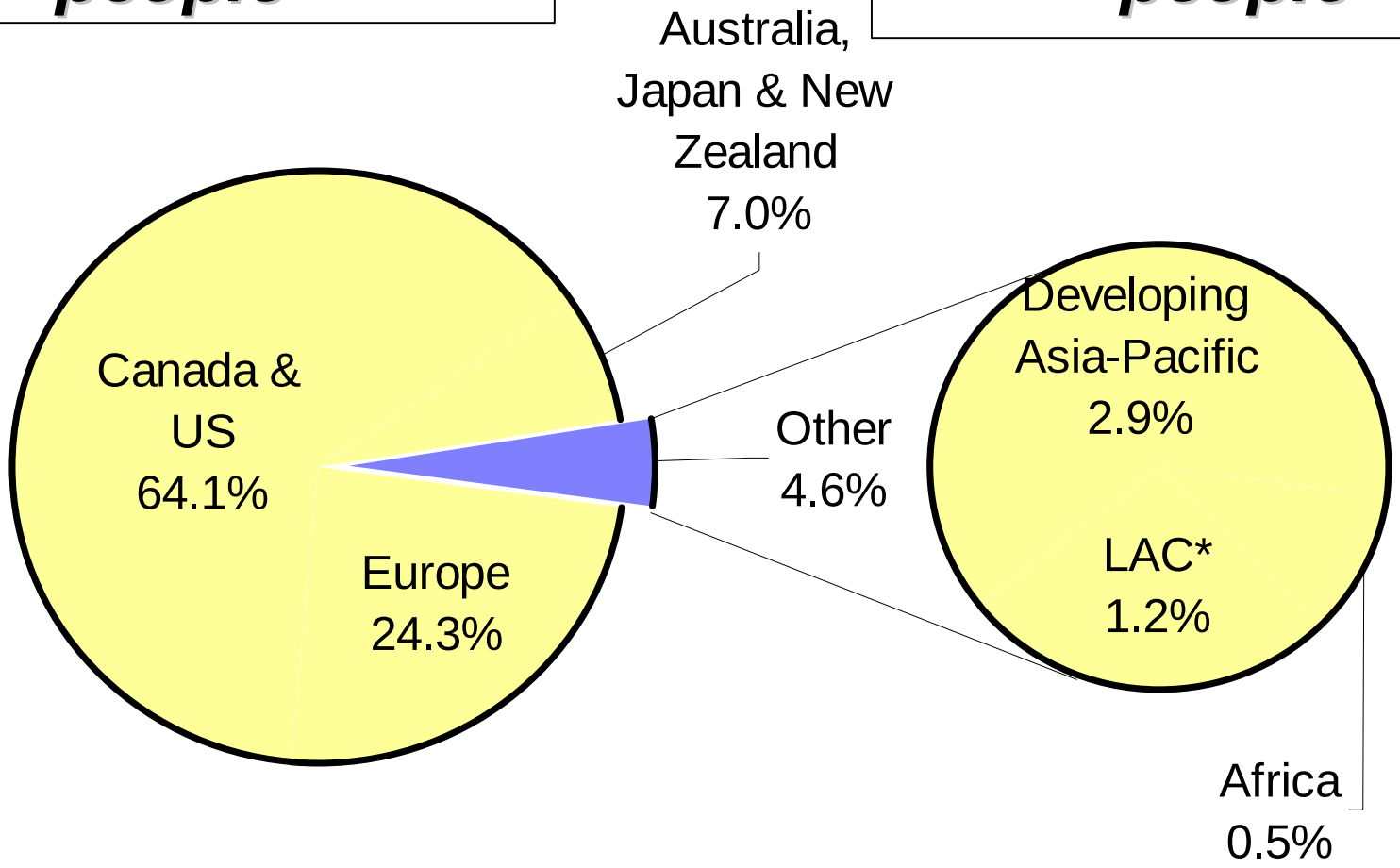
Years it took to reach 50 million users



… 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**

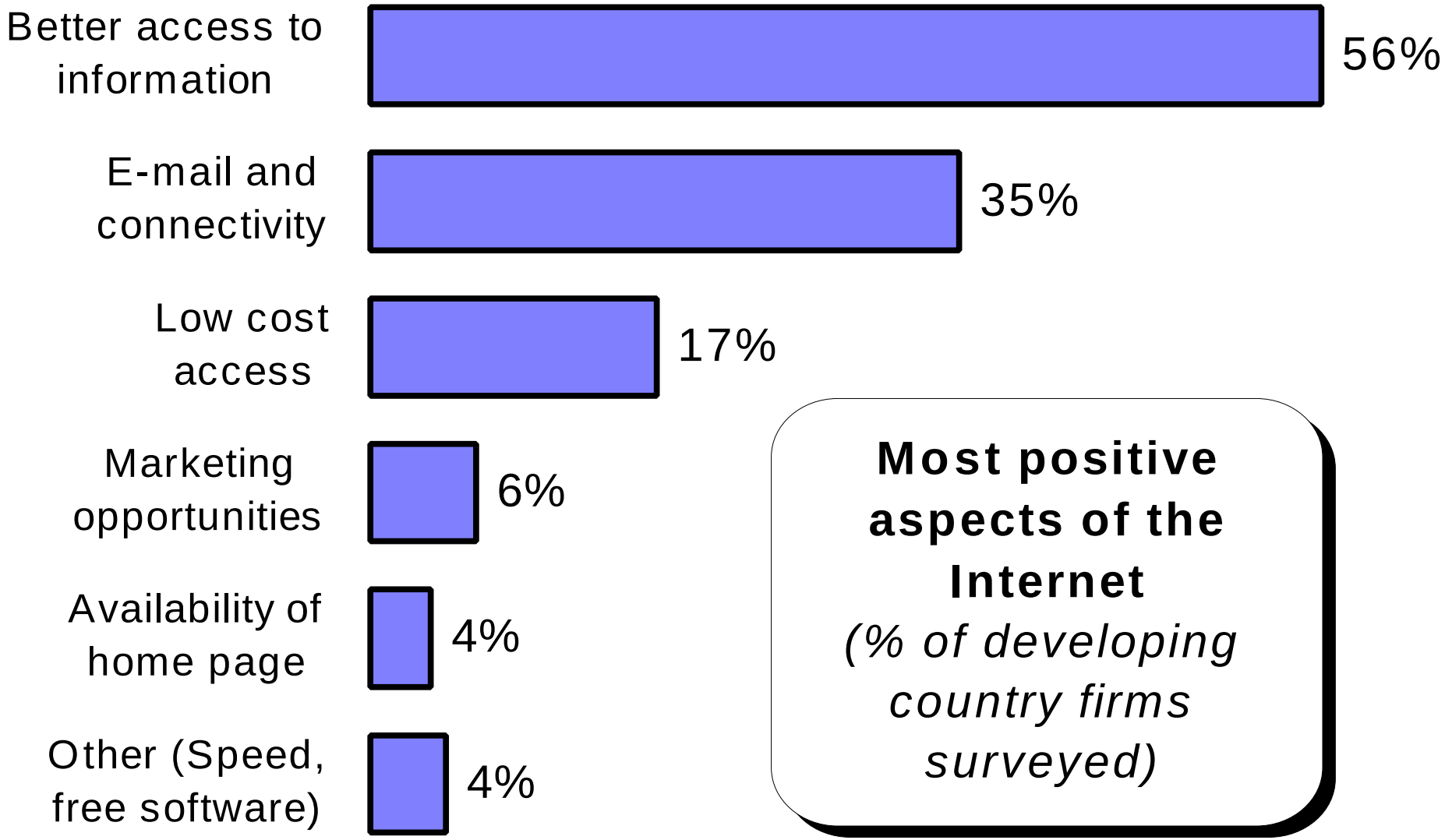
Internet in Developing Countries (Chap 2)

- **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**

Universal service / access indicators

- Measuring access to telecommunications: Universal service and access indicators
  Mr. M. Minges, ITU, Switzerland

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

Document WTIM99/4-E
12 March 1999
Original: English

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

SOURCE: MR. MICHAEL MINGES,ITU/BDT

TITLE: MEASURING ACCESS TO TELECOMMUNICATIONS: UNIVERSAL SERVICE AND ACCESS INDICATORS

_____

Measuring access to telecommunications:
Universal service & access indicators

Michael Minges

World Telecommunication Development Report 1998

World Telecommunication Development Report:

Universal Access

4th edition 1998, price: 100 Swiss Francs

Executive Summary
HTML (English, French, Spanish)
PDF (English, French, Spanish)

Back to top

The fourth edition of the ITU's *World Telecommunication Development Report* —specially prepared for the second World Telecommunication Development Conference (Malta, March 1998)—examines *universal access*. The growing importance of electronic information for economic, educational and social advancement highlights how critical universal access to communications has become. With over 40 million people waiting for a telephone line worldwide and with some least developed countries having telecommunication penetration levels up to 200 times below that of developed countries, universal access stands as one of the key issues confronting governments around the world. The report also presents the ITU's authoritative World Telecommunication Indicators for year end 1996. These statistics monitor the main telecommunication indicators as well

Introduction

Conventional measure of telecommunication development —***teledensity***✳— is inadequate for gauging universal service/access

✳ Main telephone lines per 100 inhabitants

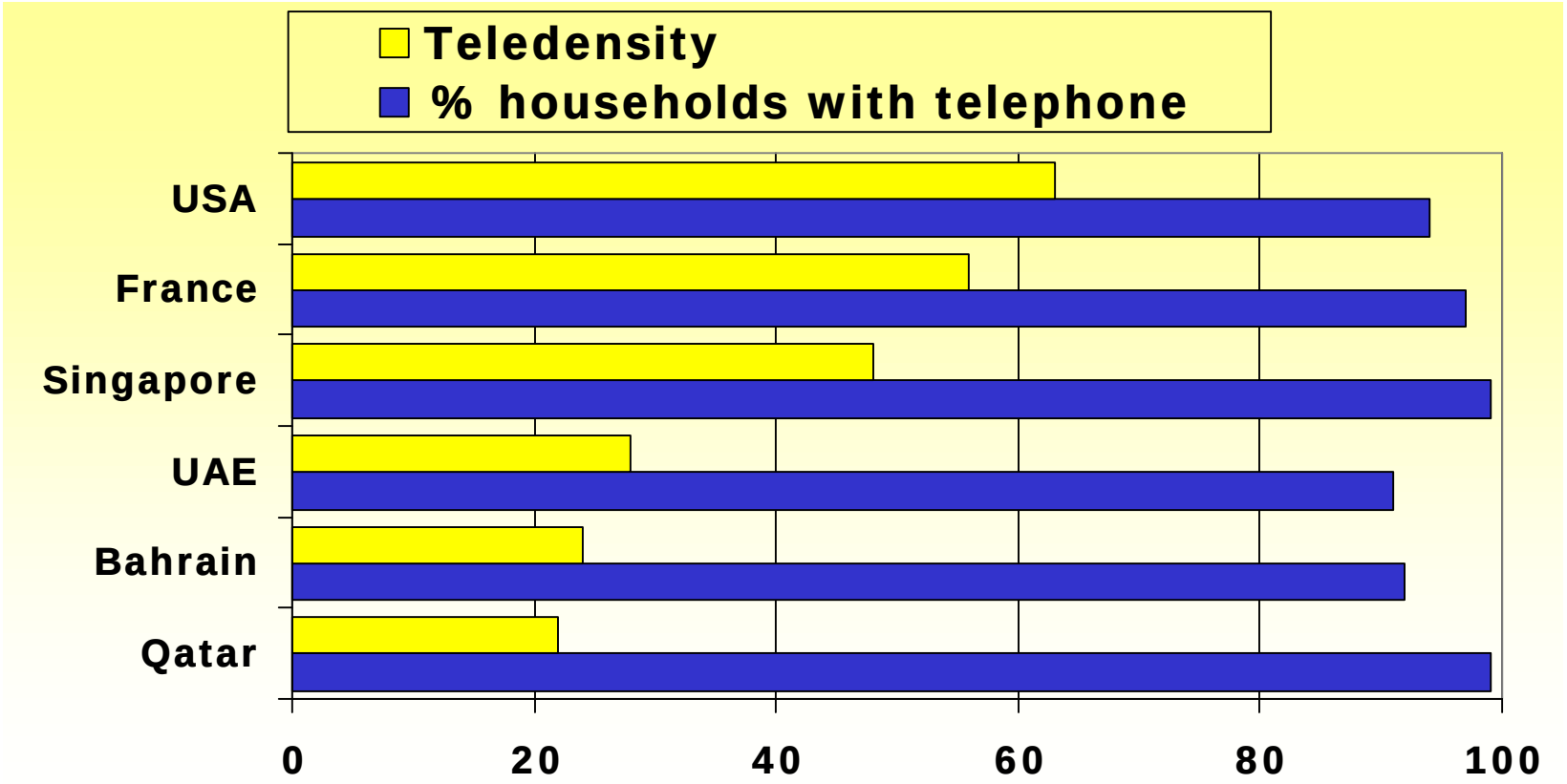
Topics of discussion

- Shortcomings of teledensity
- Universal service versus universal access
- Universal service / access indicators
- Conclusions

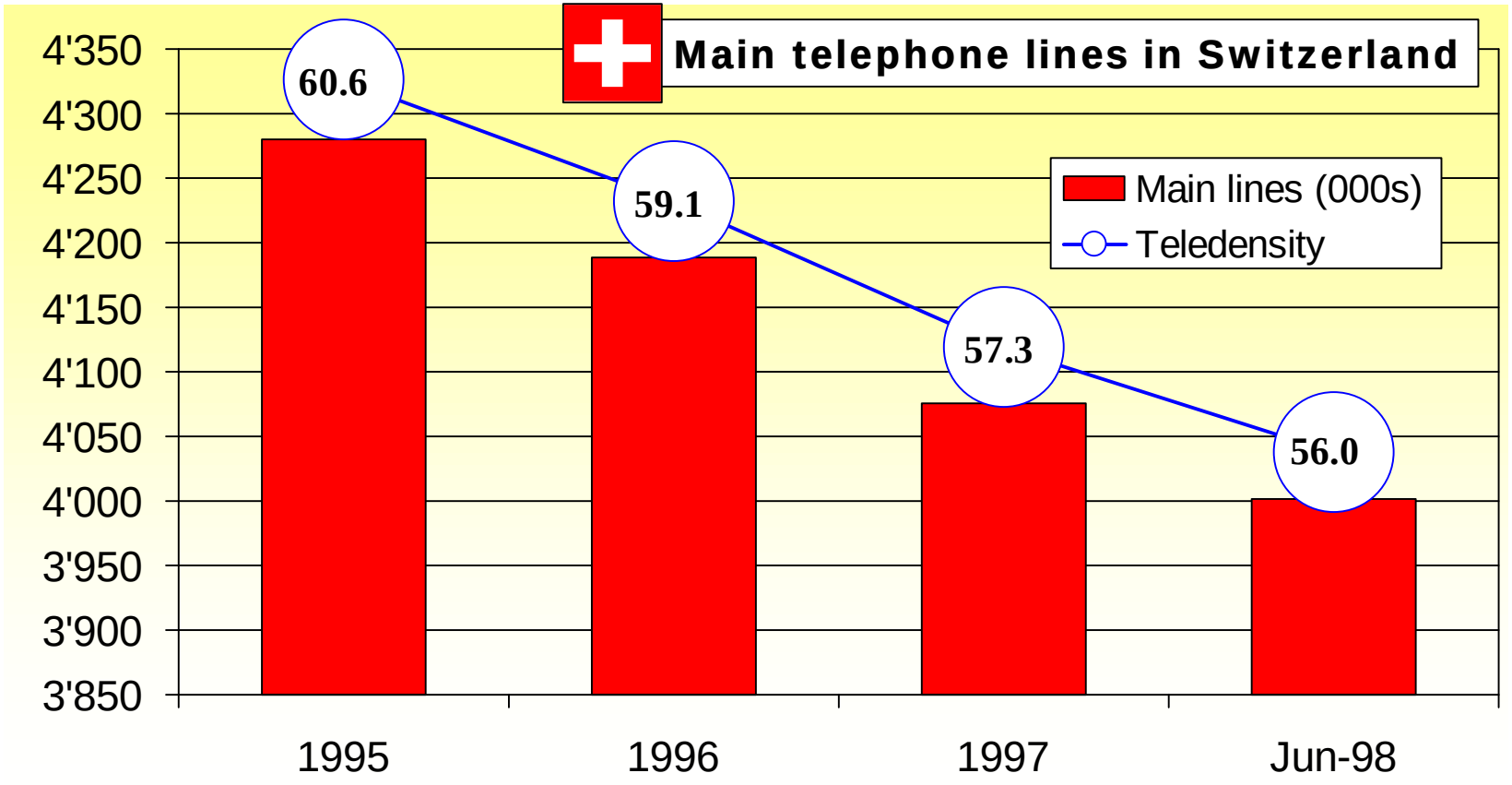
Teledensity shortcomings

- Emphasizes ***individual*** rather than ***family/community*** access
- Does not consider other access methods
- Not relevant for developing countries

Teledensity shortcoming I: Persons not families



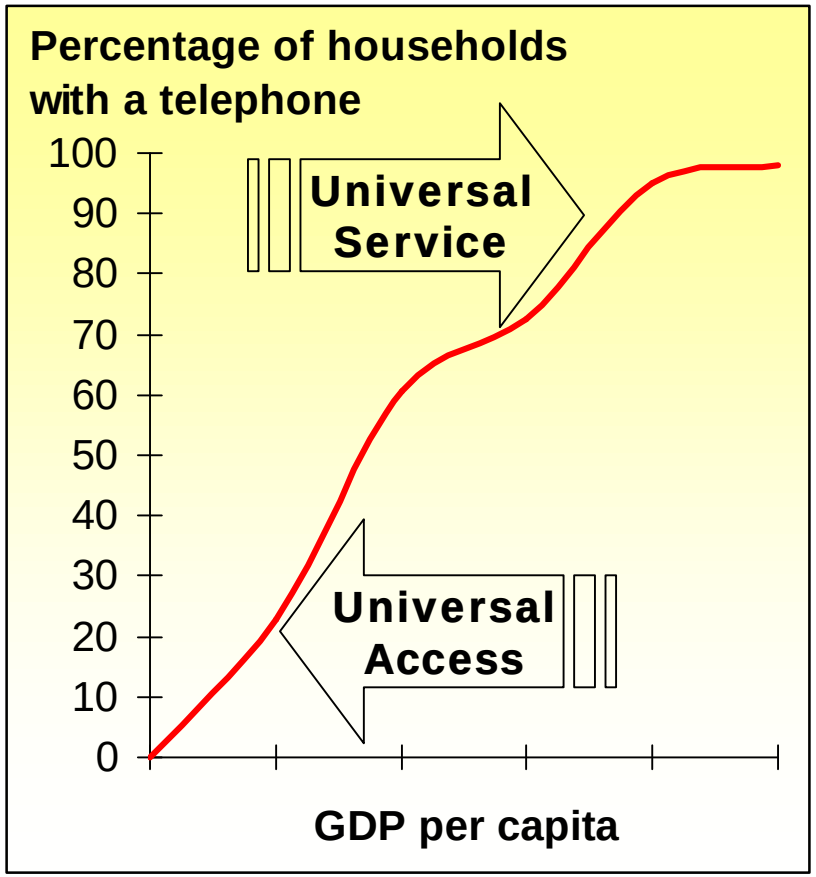
Teledensity shortcoming II: Main telephone lines declining



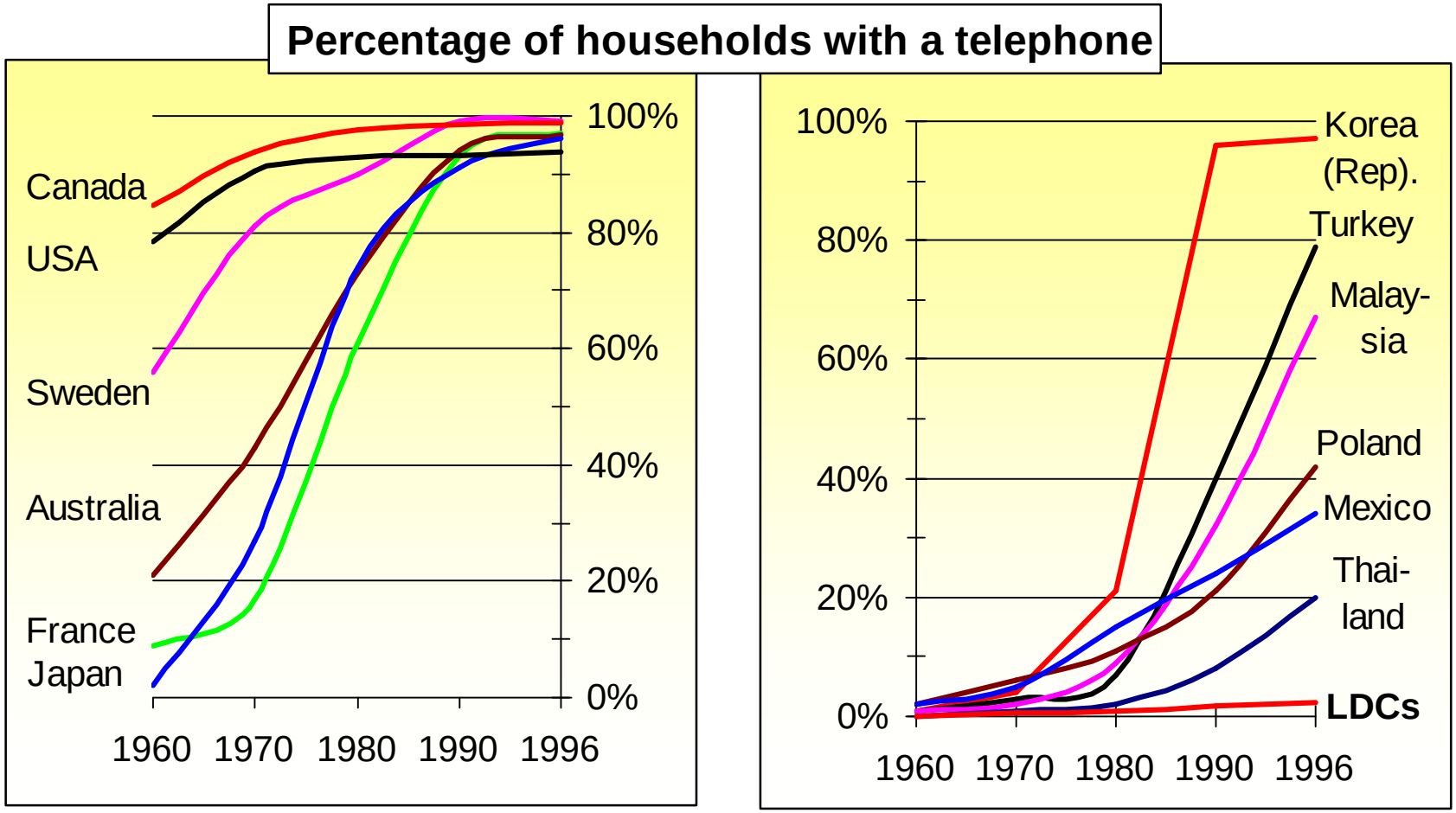
Source: Swisscom.

Universal *service* versus universal *access*

- *Universal service*: telephone in every home
- *Universal access*: telephone within reasonable distance for everyone
- Policy related to level of economic development



Universal service: Takes a long time



Universal service: Only a lucky few

	DEVELOPED ECONOMIES	% of house-holds with telephone reached	Year 90% reached
1	Canada	98.7	1971
2	United States	93.9	1970
3	Australia	96.8	1986
4	Japan	96.1 †	1989
5	New Zealand	96.0	1976
6	Austria	*90.0*	*1995*
7	Belgium	*92.0* †	1994
8	Denmark	‡	1982
9	Finland	90.0	1987
10	France	97.0	1985
11	Germany	94.7 †	1995
12	Greece	98.1 †	1993
13	Italy	97.5	1992
14	Luxembourg	‡	1989
15	Netherlands	*96.5*	1990
16	Spain	94.7 †	1994
17	Sweden	‡	1975
18	UK	*91.1*	1994

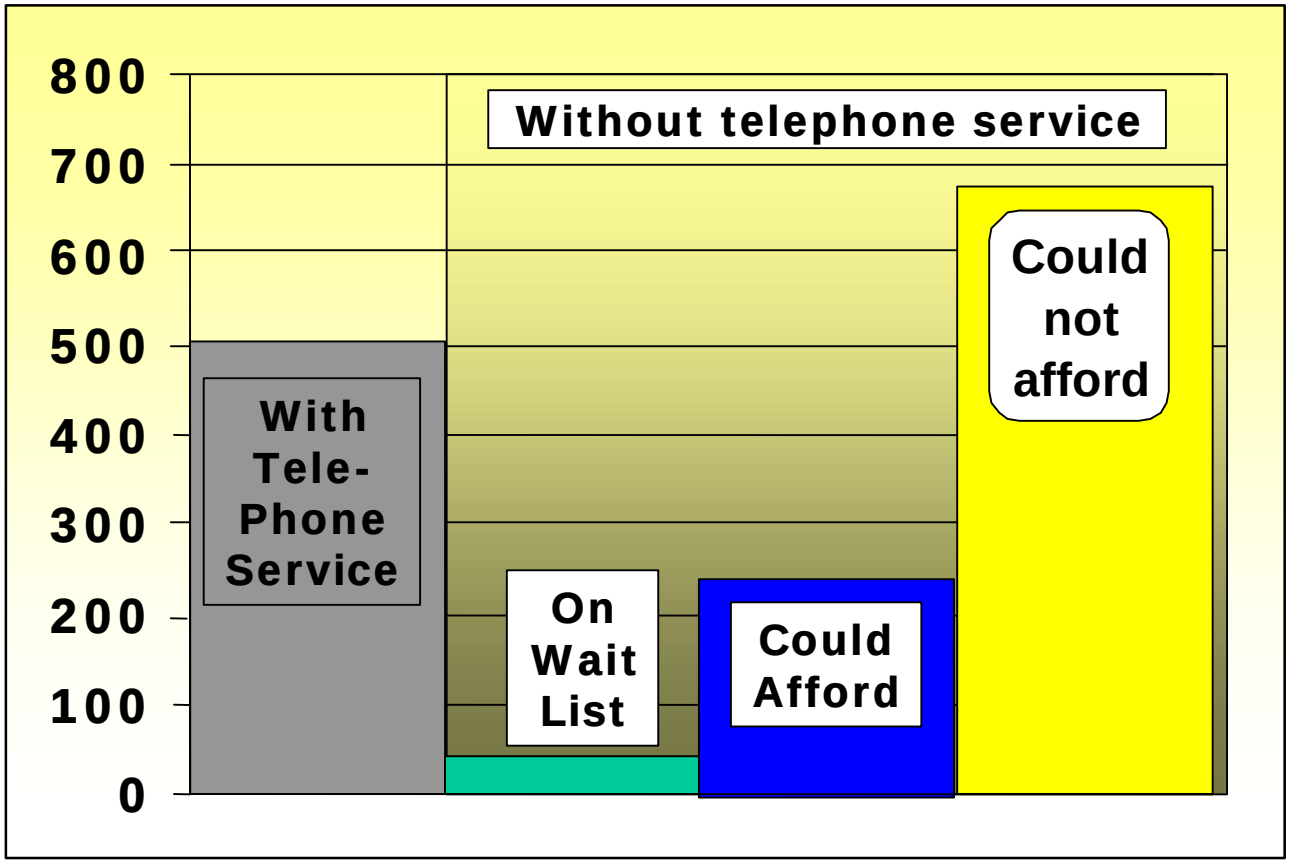
	DEVELOPING ECONOMIES	% of house-holds with telephone reached	Year 90% reached
19	Bahrain	‡	1992
20	Brunei	‡	1993
21	Cyprus	‡	1990
22	Hongkong	‡	1986
23	Israel	*95.0*	1989
24	Korea (Rep.)	*95.2*	1990
25	Kuwait	‡	1993
26	Macau	‡	1992
27	Malta	‡	1987
28	Qatar	‡	1983
29	Singapore	‡	1983
30	Taiwan-China	‡	1990
31	UAE	93.5 †	1995

Note: % of households with telephone obtained from census surveys and refer to year 1996. † Residential telephone lines per 100 households. ‡ Residential telephone lines per 100 households is greater than 100 due to 2nd telephone lines.

Source: *ITU World Telecommunication Development*

Universal service: Unaffordable for most

Around ~1'500 million households in the world



Affordability in South Africa

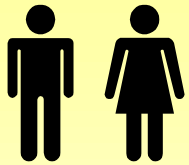
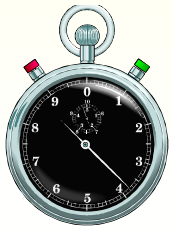
Affordability levels by differing costs of telephony per month*

	R30	R40	R50	R60	R70
H/h not able to afford more than 2% on income spent on telephony	44%	53%	60%	65%	69%
	3 829	4 648	5 215	5 642	6 017
H/h not able to afford more than 3% of income spent on telephony	30%	40%	48%	53%	58%
	2 616	3 445	4 142	4 648	5 067

* All estimates are done in 1997 Rands
Table from the DRA Development Document Defining the Categories of Needy People

http://www.usa.org.za/documents/discuss2.htm#access

Universal access concepts

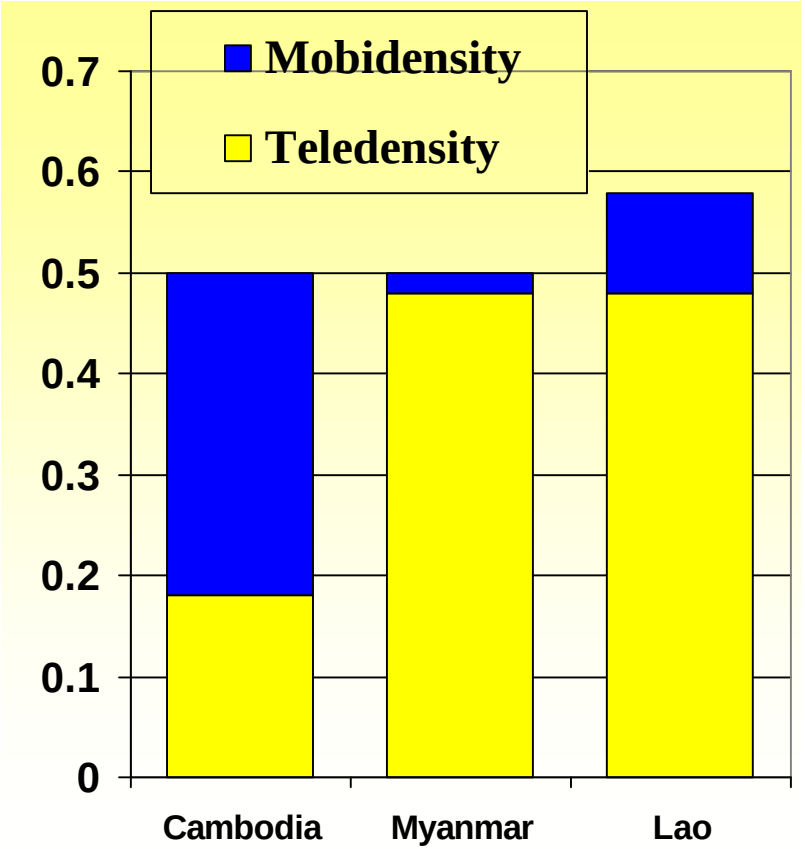
Criteria	Definition	Example
Population 	A telephone for every permanent settlement of ‘x’ population	In Ghana, defined as a telephone in every locality of more than 500 people.
Distance 	A telephone within ‘x’ kilometres	In Burkina Faso, defined as a telephone every 20 kilometres .
Time 	A telephone within ‘x’ minutes	In South Africa, proposed as a telephone within a 30 minute traveling distance.

Universal service & access indicators

- Total telephone density
- Households with a telephone
- Access to a telephone
- Towns with telephone service
- Payphones: Per inhabitant, Per main line
- Distance from a telephone
- Time from a telephone

Total telephone density

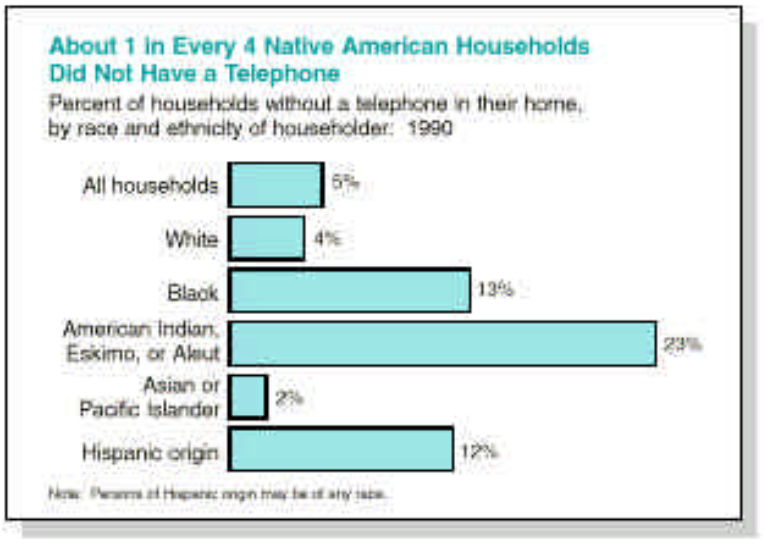
- Main telephone line **plus** mobile cellular penetration



Households with a telephone

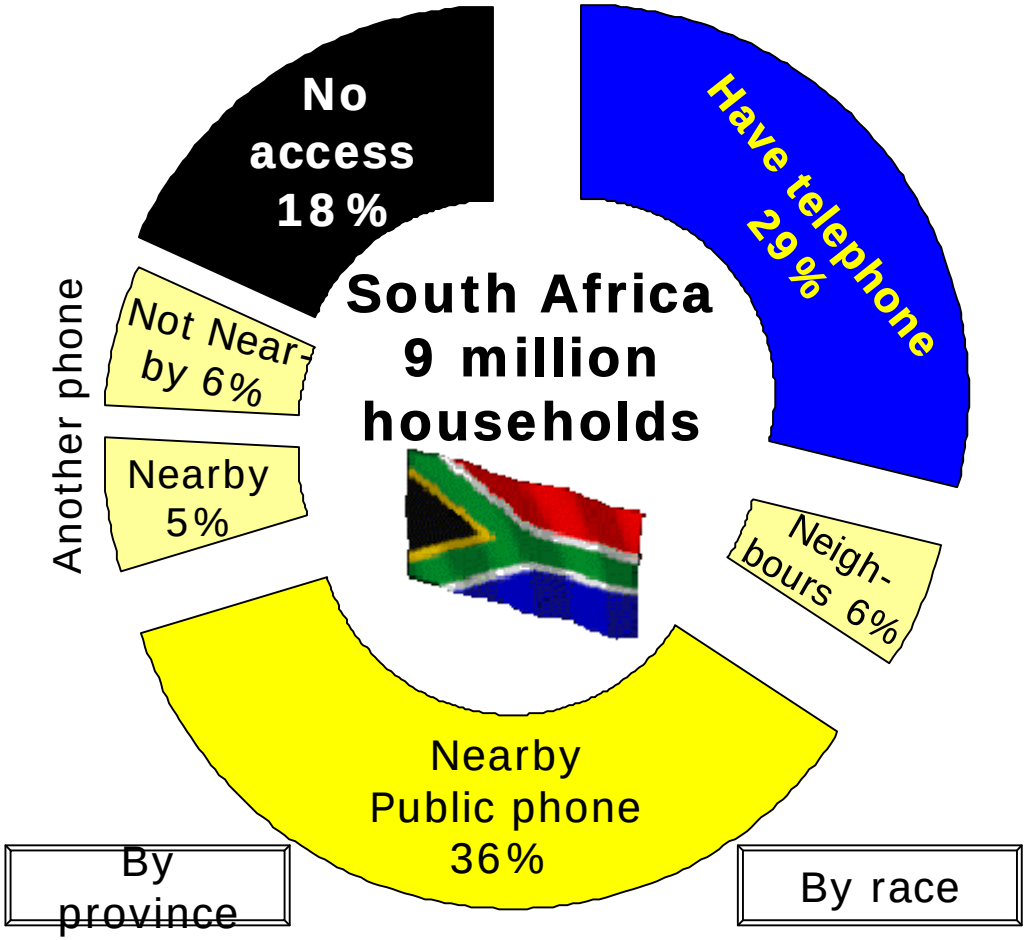
- Can derive from residential lines:
  - Residential telephone lines in service ÷ Households
- However:
  - Split between residential and business not always available or reliable
  - 2nd lines and vacation lines will distort result
- Some national statistical offices collect household telephone penetration.

Phoneless in America



Source: US Bureau of the Census.
http://www.census.gov/ftp/pub/apsd/www/statbrief/sb94_16.pdf

Universal access

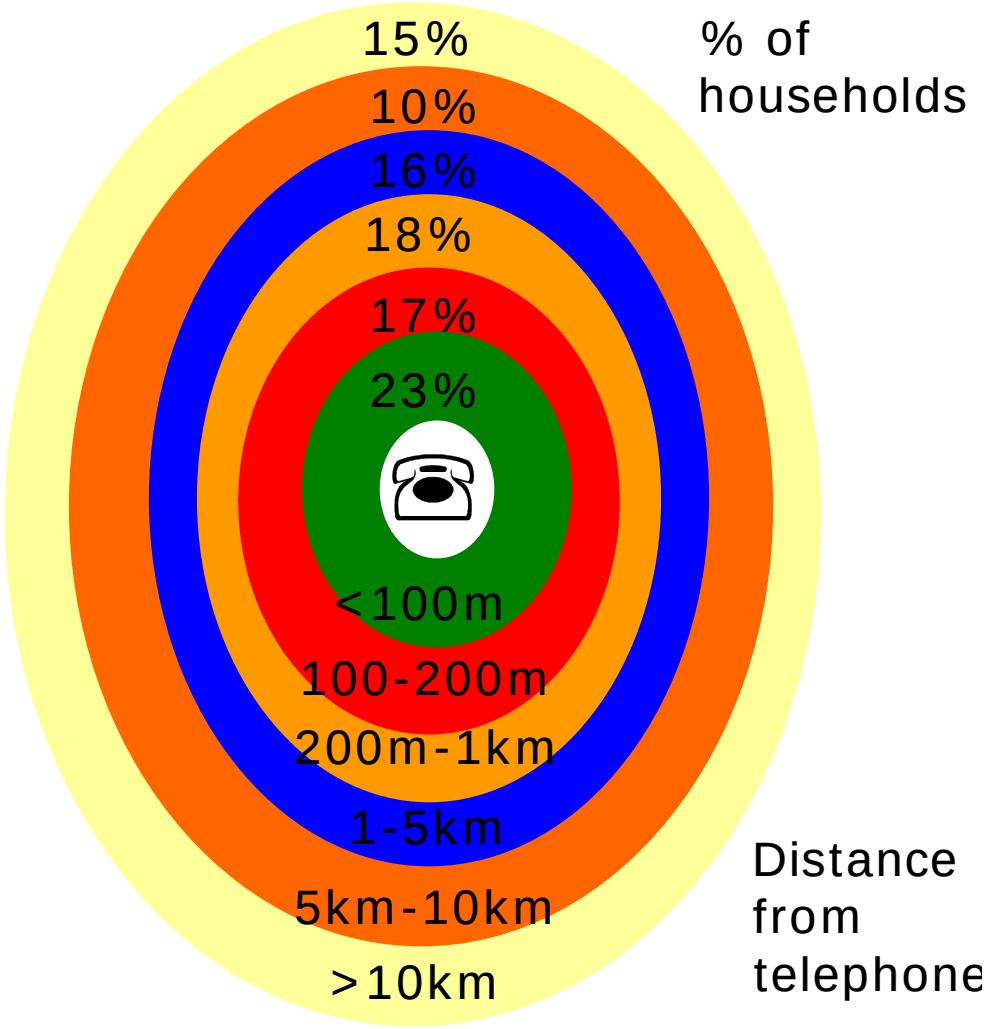


Source: Statistics South Africa. <http://www.statssa.gov.za/>

Teledensity:	10.7
Cellular density:	3.7
Total telephone density:	14.4
Household telephone penetration:	29%
Universal access penetration (% of households with access to telephone):	**82%**

Distances from telephone

- "Systematic"
- Hard to measure
- Relative to transport method (e.g., foot, bicycle, car, bus, etc.)
- Few known examples!



Source: Statistics South Africa.

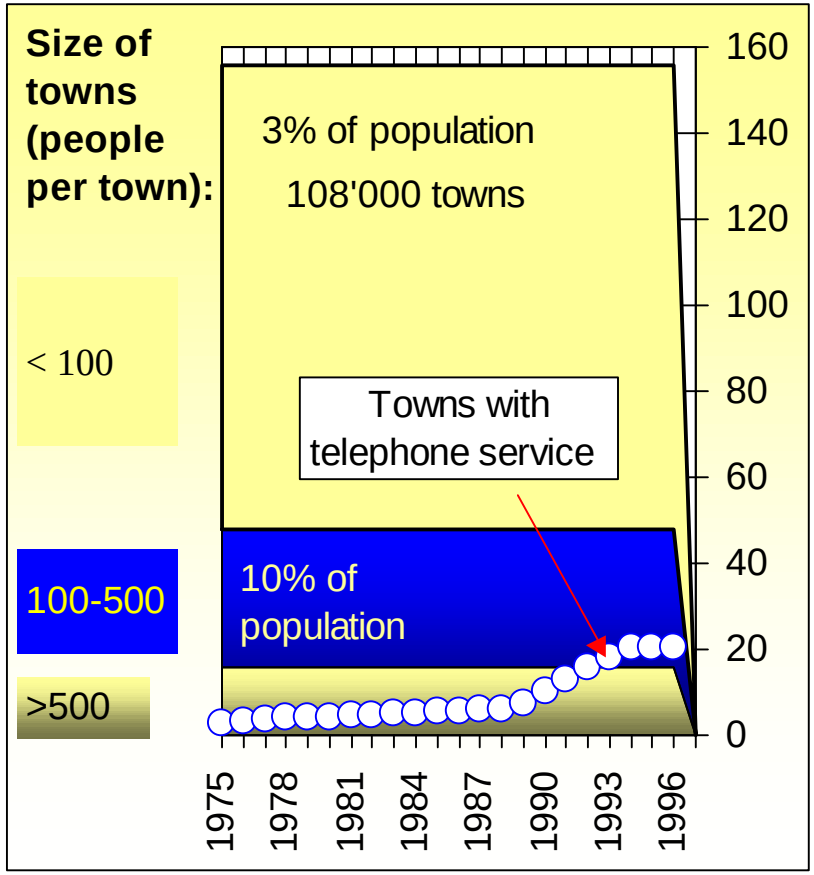
Time from a telephone

- Concrete concept that is fairly simple for person to understand
- Disadvantage is that time is relative to the means of transport for getting to a telephone (walking, bicycle, bus, car, etc.)
- Few known examples!

If there is no telephone in the dwelling How many minutes do you have to travel to the nearest telephone you can use (by your usual means of transport)?
0 - 5 minutes
6 - 15 minutes
16 - 30 minutes
31 - 60 minutes
1 - 2 hours
Over 2 hours
Source: Statistics South Africa. 1997 Household Survey

Towns with telephone service

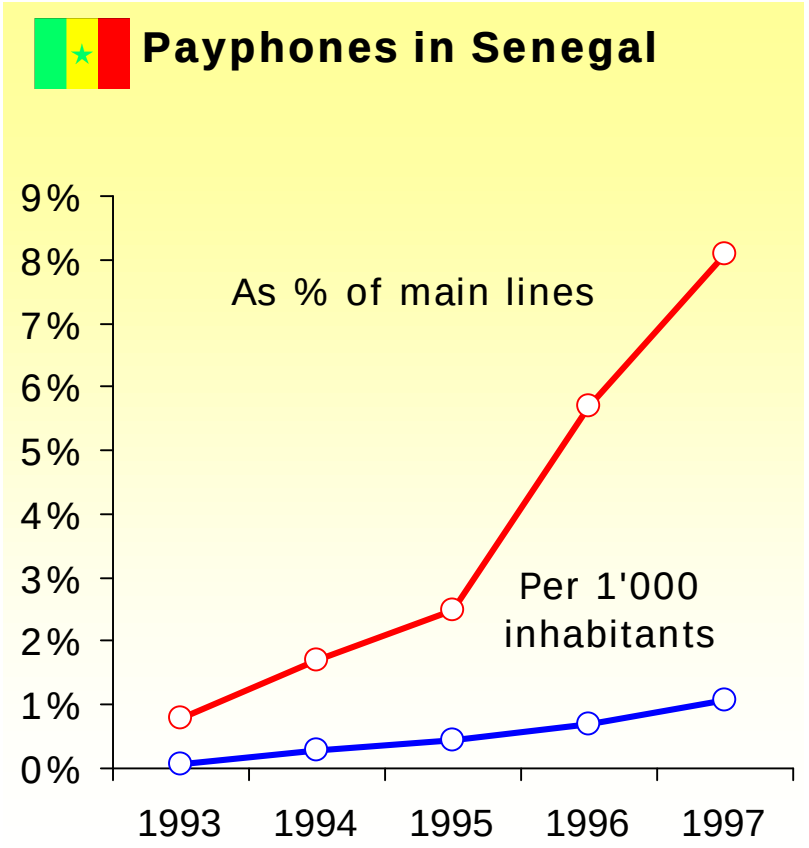
- Concrete measure
- Number of countries collect this statistic
- Needs to be related to size of towns



Mexico, Number of localities, 000s

Payphones

- Most countries collect this statistic
- Occasional definitional challenges (e.g., private payphones)
- Distribution important (e.g., how many in large cities?)
- Impact of pre-paid mobile cellular
- Share as % of main lines more relevant for developing countries



Conclusions

- Policy-makers & regulators need to reappraise (and collect!) the statistics used to measure universal service and access:
  - Developed countries: Universal service (households with telephone, preferably disaggregated)
  - Developing countries: As many universal access indicators as possible
- The trends of universal service and access need to be monitored carefully with liberalization and economic development
- Collaborate with national statistical agencies
- Access to other forms of communications (e.g., Internet) are becoming important

Telephone facilities by province: South Africa

3.10 Telephone facilities by province*

	Eastern Cape	Free State	Gauteng	Kwazulu-Natal	Mpuma-langa	Northern Cape	Northern Province	North West	Western Cape	South Africa
Telephone in dwelling/ cellular phone	207,292	143,057	889,960	447,048	110,049	57,513	72,941	120,717	542,673	2,591,249
Telephone at a neighbour nearby	62,804	27,760	66,036	122,430	23,669	25,715	52,432	33,190	81,625	495,662
A public telephone nearby	327,246	288,987	799,760	546,272	296,046	57,941	360,849	300,229	268,102	3,245,433
At another location nearby eg. work	42,756	48,681	82,751	76,335	44,386	18,037	59,680	67,543	46,567	486,736
At another location not nearby	84,592	42,027	33,879	127,949	38,359	4,290	130,890	56,686	11,114	529,785
No access to a telephone	598,909	72,188	77,446	329,328	87,525	22,765	299,434	138,854	29,295	1,655,743
Not stated	8,749	2,311	14,336	11,571	3,976	723	6,232	3,426	3,639	54,963
Total	1,332,348	625,011	1,964,168	1,660,934	604,010	186,984	982,457	720,643	983,015	9,059,571

* Excluding institutions and hostels

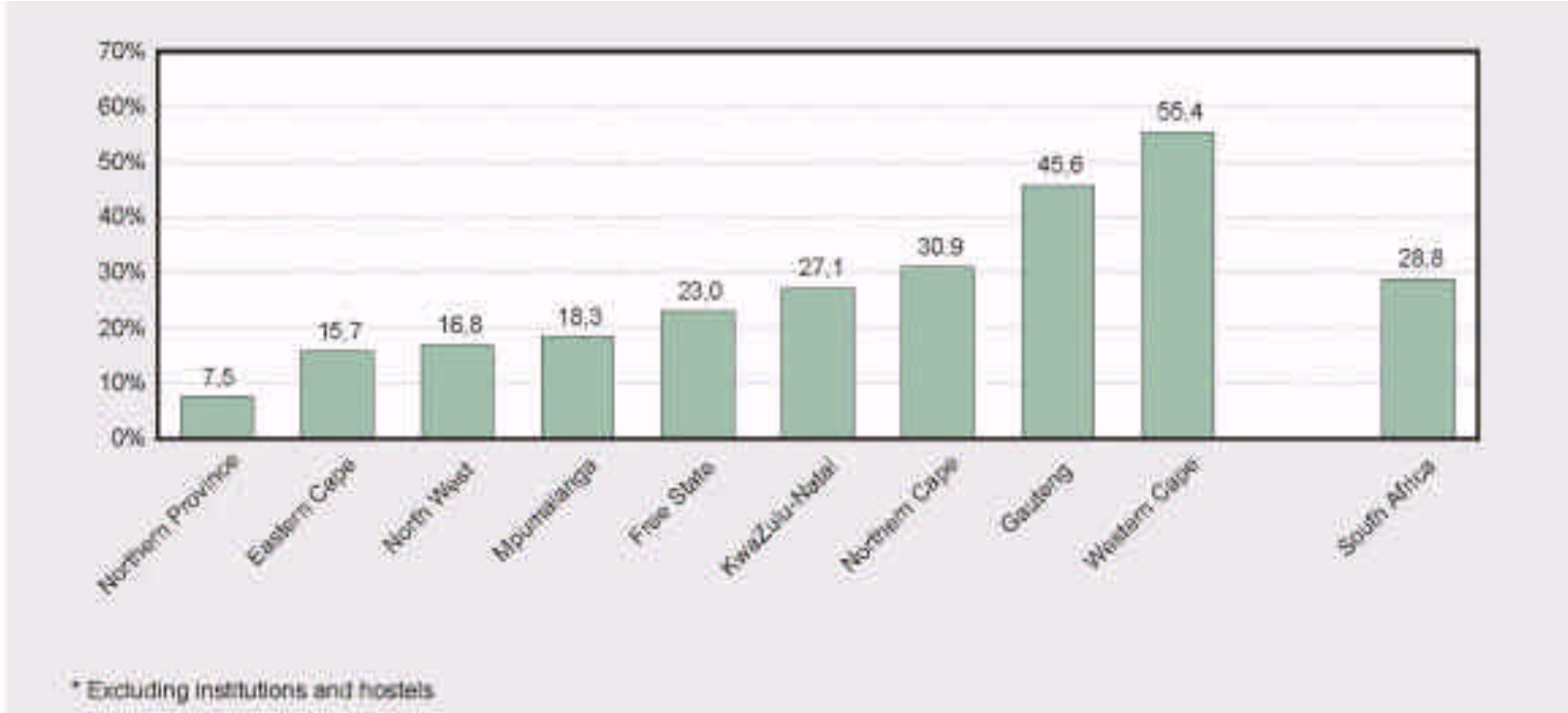
Telephone facilities by population group: South Africa

3.11 Telephone facilities by population group of head of household*

	African/ Black	Coloured	Indian/ Asian	White	Unspecified /Other	Total
Telephone in dwelling/ cellular phone	740,783	321,849	187,433	1,312,267	28,917	2,591,249
Telephone at a neighbour nearby	342,015	109,544	21,792	18,851	3,460	495,662
A public telephone nearby	2,916,226	194,306	24,753	96,622	13,526	3,245,433
At another location nearby eg. work	390,616	57,987	4,398	31,434	2,303	486,736
At another location not nearby	511,573	12,128	1,194	3,142	1,748	529,785
No access to a telephone	1,592,049	42,220	3,269	12,211	5,993	1,655,743
Not stated	40,736	3,171	801	7,965	2,290	54,963
Total	6,533,998	741,206	243,639	1,482,492	58,237	9,059,571

* Excluding institutions and hostels

Percent of households with telephones by province: South Africa



Other documents

Distributed for information
(not presented)

- Telecommunication statistics collection and dissemination in Taiwan
  The Directorate General of Telecommunications, Taiwan-China

- Telecommunications data gathering in Germany
  Regulatory Authority for Telecommunications & Posts, Germany

- Background Paper for Official Statistics on Telecommunications in Sweden
  Swedish Institute for Transport and Communications Analysis (SIKA), Sweden

- State of telecommunications data collection and dissemination in Liberia
  Ministry of Posts and Telecommunications, Liberia

- Definition of Questions
  Study Groups, BDT, ITU

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

Document WTIM99/19-E
26 March 1999
Original: English

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

SOURCE: THE DIRECTORATE GENERAL OF TELECOM, TAIWAN-CHINA

TITLE: TELECOMMUNICATION STATISTICS COLLECTION AND DISSEMINATION IN TAIWAN

_____

ITU/BDT

The 2nd World Telecommunication Indicators Meeting

Geneva, 29-31 March 1999

Telecommunication Statistics Collection and Dissemination in Taiwan

Prepared by

the Directorate General of Telecommunications, Taiwan

Telecommunication Statistics Collection and Dissemination in Taiwan

Prepared by Directorate General of Telecommunications

I. Current Status of Telecom Liberalization

The government amended the *Telecommunications Act of 1958* in Feb. 1996. The new Act formally separated the operational and regulatory functions of the Directorate General of Telecommunications (DGT) and hence made it an independent regulatory authority leading telecom liberalization from July 1, 1996. So far, cellular phone, radio paging, mobile data, and trunked radio services have been open to competition. A total of 45 licenses were issued. In addition, the satellite communication services were also opened up in Dec. 1998. A total of 18 licenses were issued, including three for Mobile Satellite Services (MSS) and fifteen for Fixed Satellite Services (FSS).

Currently, we are planning for the deregulation of fixed network services. It is scheduled to issue the licenses by the end of 1999, without limitation on the number of licenses. In Internet, our government opened the Internet service to competition at the end of 1995. So far, there have been 76 licenses issued.

The issuance status of licenses is listed as follows:

Type of Service	Service Area	Issuance of License	
		As of July 1, 1996	As of Dec. 31,1998
Type I Telecom Enterprises		4	75
Fixed Network Services		1	1
Mobile Communication Services		11	56
CT-2	Regional	8	8
Cellular Phone		2	11
AMPS	Nationwide	1	1
DS1800	Nationwide	-	3
	Regional	-	3
GSM900	Nationwide	1	1
	Regional	-	3
Radio Paging		1	9
	Nationwide	1	3
	Regional	-	6
Mobile Data		-	8
500 MHz	Nationwide	-	1
	Regional	-	3
800 MHz	Nationwide	-	1
	Regional	-	3
Trunked Radio		-	20
500 MHz	Nationwide	-	1
	Regional	-	12
800 MHz	Nationwide	-	1
	Regional	-	6
Satellite Communications Services		-	18
MSS		-	3
FSS		-	15
Type II Telecom Enterprises		67	168
Internet		-	76
Value-added services		-	92

* Type I telecom enterprises refers to facilities-based telecom operators. Type II telecom enterprises refers to non-facilities based telecom operators.

II. Collection and Dissemination Process of Telecom Statistics

1. Statistics Collection

In order to monitor network and service competition, to acquire market share information, to assess dominant carriers for anti-competition investigation, to measure efficiency of telecom operators, and to promote the development of telecom sector, the DGT requires operators to report their relevant statistics periodically. The data we collected are listed below:

1) Fixed Network

The fixed network carriers are required to report statistics to DGT monthly. The items include:

- Number of subscribers and capacity of local telephone network
- Number of long distance and international telephone calls
- Traffic minutes of long distance and international telephone calls
- Revenues of local, long distance and international telephone calls
- Revenue of data communications services

2) Mobile Communications

Operators for cellular phone and radio paging services are required to report their statistics to DGT monthly on the following items:

- Revenue
- Number of subscribers and capacity
- Traffic minutes
- Number of base stations
- Number of Carrier channels

Meanwhile, DGT also collects the following QoS indicators from cellular operators in a yearly basis.

- Service provisioning time
- Call blocking rate in rush hours
- Dropped call rate
- Service coverage
- Customer satisfaction

The above QoS data are gathered by operator's self-assessment and professional survey. As for the customer satisfaction, the *Consumers' Foundation* or similar organization is usually commissioned to make such a survey.

3) Internet

The Institute for Information Industry (III) collects the data monthly by attribute of subscriber, such as educational, individual and household, as well as corporate users.

Educational users:

The number of TANET (Academic Net) subscribers is derived from the amount of IP accounts allocated to schools every month.

Individual and household users:

The figure comes from the statistics of dial-up subscribers, excluding the free IP accounts.

Corporate users

The figure comes from the statistics of dedicated subscribers. We take 10 users for one leased line on average to figure out the number of corporate users.

4) Cable TV

The number of CATV home pass is defined as the product of penetration rate and number of households, which is provided by the Government Information Office. The penetration rate of CATV is derived by the sampling survey, while the number of households is provided by the Ministry of Interior.

2. Statistics Dissemination

The statistics are released by press release or posted on websites of related agencies.

III. Current Statistics on Telecom Services in Taiwan

1) Local Phone

By the end of 1998, the penetration rate and subscribers of our local telephone topped 52.45% and 11,500,000 respectively, compared to 50.08% and 10,860,000 in 1997. The growth rate of the local phone subscribers was 5.87%..

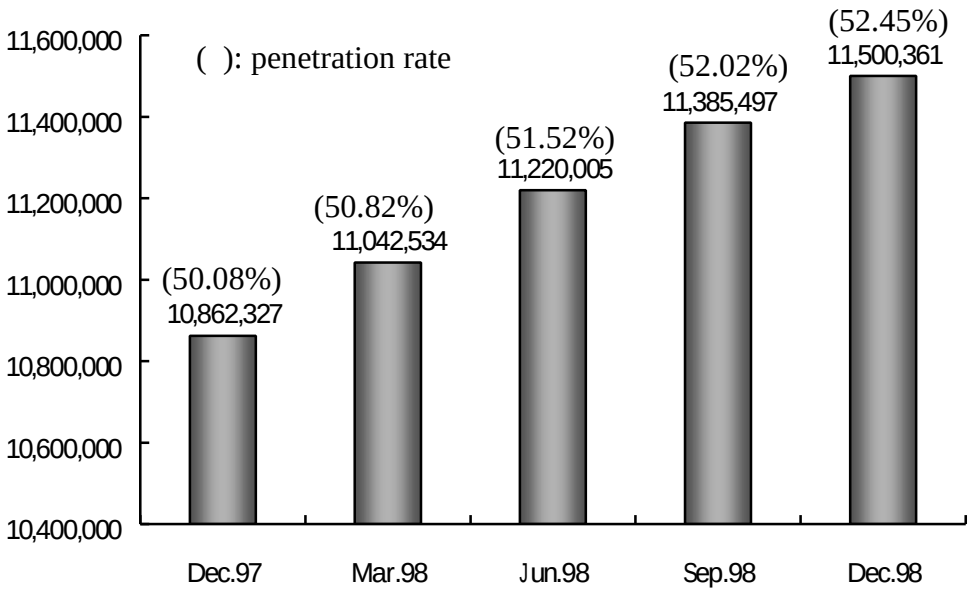


Figure 1. The Growth of Local Telephone Subscribers in Taiwan

2) Cellular Phone

Since the new entrants of cellular phone services launched their businesses in early 1998, they have contributed to the booming of the telecom market. By the end of 1998, the penetration rate and subscribers of the mobile phone service reached 21.56% and 4,720,000 respectively, compared to 6.88% and 1,490,000 in 1997. The growth rate of mobile phone subscribers hit an amazing 216% (see Figure 2).

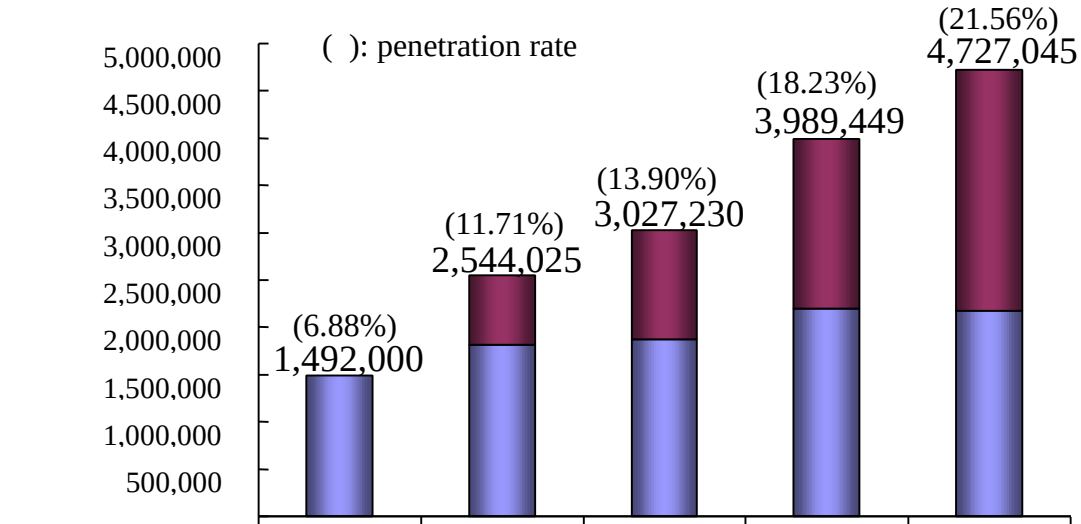


Figure 2. The Number of Mobile Phone Subscribers in Taiwan

3) Internet

By the end of Dec. 1998, the rate of Internet population in Taiwan hit 14.3%, and the Internet users broke 3 million ever since.

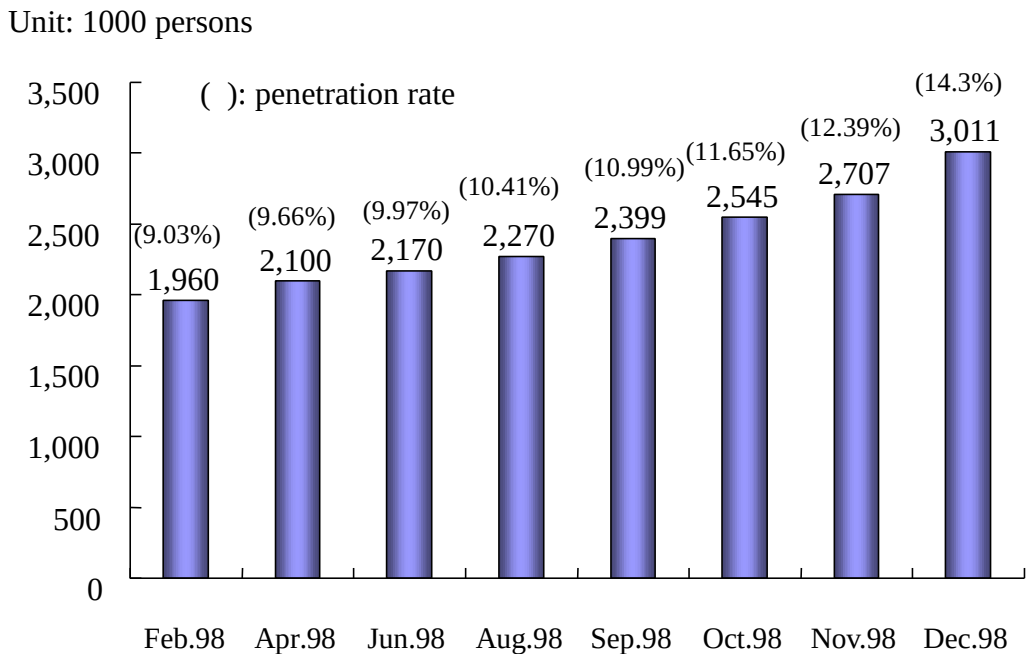


Figure 3. The Growth of Internet Population in Taiwan

5) Cable TV

According to the latest survey made in Dec. 1998, the penetration rate of cable TV reached 75%-80%. And the number of households in Dec. 1998 totalled 6.37 million. Thus, the number of CATV home pass reached 4.18-4.47 million.

IV. Conclusion

In the past, the telecom business was run by the government in a monopolistic way and the data gathering was easy, quick and simple. However, when telecom market is liberalized, the increasing number of private telecom operators is significant and the data collection becomes more difficult, time-consuming and complicated. It is very important for the regulatory body to release accurate and timely statistics. The telecom statistics not only help operators and relevant industries in making investment plans, but also help regulators in making policies. Hence, telecom authorities heavily rely on operators' cooperation in this regard. Since telecom market is toward globalization, the statistics provided by countries in the world render a developing trend of telecom sector. We have to follow the trend and take a look at the local and global statistics. Therefore, how to gather timely and accurate statistics becomes a very important issue for us to discuss. This includes, but not limit to, the method of data collection, the definition of data items, and the format of unified data.

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

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(Geneva, 29 - 31 March 1999)

SOURCE: REGULATORY AUTHORITY FOR TELECOMMUNICATIONS & POSTS

TITLE: TELECOMMUNICATIONS DATA GATHERING IN GERMANY

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Telecommunications data gathering in Germany

1. Legal basis for gathering primary data

The German Regulatory Authority's work is based on the *Telecommunications Act*, which entered into force on 1 August 1996, and the following ordinances having the force of law issued under the Act:

- Ordinance concerning Telecommunications Licence Fees of 23 July 1997,
- Ordinance concerning Rates Regulation in the Telecommunications Sector of 1 October 1996,
- Network Access Ordinance of 23 October 1996,
- Telecommunications Universal Service Ordinance of 30 January 1997,
- Frequency Fee Ordinance of 21 May 1997,
- First Ordinance amending the Frequency Fee Ordinance of 16 December 1997,
- Telecommunications Type Approval Ordinance 1995 of 20 August 1997,
- Ordinance concerning the Contributions for Frequency Usage of 19 November 1996,
- Telecommunications Customer Protection Ordinance of 11 December 1997,
- Ordinance regulating the Licensing of Technical Staff of 19 December 1997, and
- Functions Assignment and Accreditation Ordinance of 10 December 1997.

The following ordinance related to data protection has also been issued:

- Telecommunications Carriers Data Protection Ordinance of 12 July 1996.

The Telecommunications Act and the ordinances are available for viewing and downloading on the Regulatory Authority's web site (**http://www.regtp.de**). Most of the texts are available in English.

The Telecommunications Act contains several provisions, including Sections 72 and 81, which entitle the Regulatory Authority to gather data on companies operating in the telecommunications market. According to Section 72 the regulator may request information on the economic circumstances of companies engaged in telecommunications, in particular on their revenues, if this is necessary for it to discharge the functions provided for by the Act. According to Section 81 the regulator is obliged to submit to the legislative bodies of the Federal Republic of Germany every two years a report on its activity and on the situation in and development of the telecommunications sector; in this case the regulator requires aggregate company data in order to be able to fulfil its obligation satisfactorily.

The scope of the Regulatory Authority's rights to gather data is currently the subject of controversy. The regulator is not entitled to gather company data specially for general publication or forwarding to international organisations such as the ITU.

2. Current situation in respect of gathering data on the telecommunications market

The Regulatory Authority has one section which is responsible for telecommunications market observation and whose aim is to observe developments among telecommunications service providers, in particular the licensees operating in the German telecommunications market, and to overview the whole telecommunications market using the insight gained and the data gathered on individual companies and segments.

The telecommunications market, including the voice telephony market, was opened up to full competition on 1 January 1998. The total number of licensees in Germany at the beginning of February 1999 stood at 491. 181 of these licensees hold a Class 4 licence for voice telephony on the basis of self-operated telecommunications networks in competition with Deutsche Telekom AG, the former monopolist. More than 50 service providers have already entered the voice telephony market. There are also more than 1,100 providers which offer licence-exempt telecommunications services, including a number of Internet service providers.

In view of the current number of service providers in the telecommunications market and the unsatisfactory legal basis for gathering data (see Section 1) it is not easy to make sound statements about the whole telecommunications market within the scope of market observation. However, it is necessary to gather data in order to overview the size of and developments in the telecommunications market and to provide a basis for regulatory decisions. There is currently no legislation in Germany which entitles the Federal Statistical Office to gather data on telecommunications services; the Office therefore has no relevant data of significance available. The Regulatory Authority's telecommunications market observation section gathers the data required for market analysis from various sources such as

- annual reports from companies or groups obliged to publish such reports,
- technical publications and the press,
- market research institutes,
- professional associations, institutes and universities,
- research via the Internet,
- external and internal studies, and
- telephone and written company surveys.

German companies are comparatively reluctant to provide data, partly because of historical reasons related to a dislike of state intervention.

Thorough research needs to be conducted in order to gather processable data for analysis of the whole telecommunications market. In the light of the work involved in gathering such data it is clear that a full analysis of the whole market cannot be made. In the past figures related to revenue, jobs and, to a certain extent, investment in the whole telecommunications market could be projected using the data available on individual companies and segments. A more in-depth analysis could be made of individual market segments such as the mobile services and leased lines segments.

3. Provision of data for the ITU and related problems

The Regulatory Authority has for several years provided its data on the German telecommunications market for publication in particular in the *World Telecommunications Development Report*. The data required for the *Report* comprise data in response to questions on regulation and to rather comprehensive and, in some cases, detailed questions on individual segments of the telecommunications market.

Questions on the Regulatory Authority itself, the degree of liberalisation of individual market segments, and licensing and licensees are unproblematic.

The requested data on telecoms operators, ie their names, addresses and services, can be provided but are restricted to licensees and licence-exempt telecommunications service providers (see Section 2). However, it is not always possible to state whether or not a licensee has already entered the market.

The demographic questions are also unproblematic because the requested data are obtainable from the Federal Statistical Office.

In the past questions on the telephone networks, tariffs and international telephone traffic could not be fully answered. Most of the data provided were restricted to Deutsche Telekom AG which offers a full range of telecommunications services and which held the voice telephony monopoly until 31 December 1997. Up until then these data constituted a sufficiently accurate record of the whole telecommunications market.

A large number of carriers and voice telephony service providers entered the market in 1998. It is therefore increasingly difficult to answer the current ITU questionnaire in view of its scope and depth. A comparison of the old data, which relate only to Deutsche Telekom AG, with the new data, which relate to the whole market, could be misleading. It is almost impossible to provide data on the individual carriers' tariffs and outgoing international traffic flows.

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Enclosure 2

Proposals for the revision of the ITU questionnaire

- Questions on the regulatory situation are unproblematic and should be retained.
- Questions on the voice telephony service should relate only to the total market and not to individual companies and should not relate to quality of service or technical details.
- Questions on mobile service tariffs are difficult to answer because the tariffs can change several times a year and because there are currently 400 different tariff structures in Germany. The questions could be restricted to the carriers' tariffs for business and/or private customers and to the tariffs applicable at the end of the year in question.
- Questions should not relate to companies' finances, with the possible exception of real investment in the telecommunications market: companies' financial data are often confidential and available in only a few cases.
- Questions on voice telephony traffic flows should relate to total traffic per minute. Traffic flows should be subdivided into local, long-distance and outgoing international traffic flows at the most.

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INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

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(Geneva, 29 - 31 March 1999)

SOURCE: SIKA, SWEDEN

TITLE: BACKGROUND PAPER FOR OFFICIAL STATISTICS ON TELECOMMUNICATIONS IN SWEDEN

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1999-03-26

International Telecommunication Union
Att. Ms Dalia Mendiluce
Place des Nations
CH-1211 Geneva 20
Switzerland

Background paper for official statistics on telecommunications in Sweden

During 1996 Statistics Sweden carried out a questionnaire survey about the telecommunications industry in Sweden in co-operation with The Swedish Institute for Transport and Communications Analysis (SIKA) and Eurostat. The reference period was the year 1995. This was the first time this industry was surveyed since the deregulation of the telecommunication market in Sweden. Statistics on telecommunications was earlier published by the former state monopoly Televerket.

The second survey about the telecommunications industry was carried out in 1997 by Statistics Sweden in co-operation with SIKA and Eurostat. The reference period was the year 1996. The experiences from this survey is described below. At the moment a survey for the reference period 1997 is being carried out by Statistics Sweden in co-operation with SIKA. The results from this survey will hopefully be published in April this year.

Results from the surveys are published in a report called *Telecommunications*. A few tables from the last published report are also published on SIKA´s web site, www.sika-institute.se.

Telecommunications 1996

During the spring 1997 draft questionnaires were elaborated, one less comprehensive for companies with 0 to 9 employees and one more comprehensive for companies with 10 or more employees. There were no problems with the less comprehensive version of the questionnaire. For the more comprehensive questionnaire some meetings with the companies were held to check the draft questionnaire.

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P.O. Box 17 213 ·SE-104 62 Stockholm ·Visit: Maria Skolgata 83 ·Phone: +46-8506 206 00 ·Fax: +46-8506 206 10
E-mail: sika@sika-institute.se ·www.sika-institute.se

The survey concerned both companies and sole proprietorships within the sub-sectors 64.201, 64.202 and 64.203 according to NACE rev.1.

The sub-sectors of the survey was:

SE-SIC 92 / NACE Rev. 1	Group according to economic activity
64.2	Telecommunications
64.201	Network operation (incl. Mobile telephony)
64.202	Radio and television broadcast operation
64.203	Cable television operation

There were totally 163 enterprises in the population and all these enterprises were included in the survey. Answers from 146 companies were received, which gave a response rate of 89,6 per cent. 51 of the enterprises were wrongly classified (31 per cent) and 17 enterprises did not answer the questionnaire. 2 of the big companies and 15 of the smaller companies were missing in the survey.

The survey of NACE rev. 1 64.2 covers the telecommunications industry in Sweden quite well. All known bigger companies were included in the survey. At the end of the survey two small companies that were wrongly classified in the Business Register were found. These two companies had together 14 persons employed, 9 Millions SEK in total turnover and 21 Million SEK in total operating costs.

Below follows some result from the 1996 survey:

Telecommunications NACE Rev 1. 64.2	
Number of enterprises in the population	163
- of which wrong classification	51
- of which without any activity	5
- of which non response	17
The result is based on answers from 90 enterprises	90
Number of persons employed (year persons)	25 001
Employment 31 December 1997	24 081
Total turnover, Millions of SEK	50 845
Total costs, Millions of SEK	47 196
Value added, Millions of SEK	13 142

Methodological feedback of knowledge gained from the study of 1996

- The information about volume was difficult to estimate for the enterprises.
- Some enterprises had just started their business and therefore had some difficulties filling in the questionnaire.
- Many enterprises made very rough estimates both for the breakdown of turnover and for the volume, but especially for the volume figures.
- The most difficult parts were Data communication services in fixed network and fixed leased lines (both turnover and volume data).
- Information about both turnover and volume data for fixed telephony services (PSTN) in not so difficult for the companies to estimate. Often they can provide for example data about volume in traffic minutes.
- The information about volume for Data communication services is very sensitive. The companies were reluctant to reveal this information.
- What can be published? In Sweden there are a few very big companies that belong to the same group, which means that sensitive information about a single company can be revealed and therefore can’t be published.
- It is important to have instructions with clear definitions.

The definitions raise problems. Some companies have difficulty separating goods from services. They often sell solutions in a package, where both goods and services are included. Statistics on a very detailed level are asked for and some companies, especially the smaller ones, do not have any information on that detailed level.

INTERNATIONAL TELECOMMUNICATION UNION

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(Geneva, 29 - 31 March 1999)

SOURCE: MINISTRY OF POSTS AND TELECOMMUNICATIONS, LIBERIA

TITLE: STATE OF TELECOMMUNICATIONS DATA COLLECTION AND DISSEMINATION IN LIBERIA

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DOCUMENT PRESENTED BY THE LIBERIAN DELEGATION TO THE SECOND WORLD TELECOMMUNICATIN INDICATORS MEETING – GENEVA, SWTIZERLAND 29 – 31 MARCH 1999

PRESENTED BY : H. OCTAVIUS WALKER
ASSISTANT MINISTER
FOR PLANNING, RESEARCH
AND STATISTICS

Republic of Liberia
Ministry of Posts and Telecommunications
Monrovia, Liberia

Mr. Chairman, Honourable Director of the
Telecommunication Development Bureau,
Fellow Delegates,
Ladies and Gentlemen:

I bring you greetings from the people of Liberia and His Excellency Darkpanah Dr. Charles Ghankay Taylor, President of the Republic of Liberia for this important meeting. For us, we consider this meeting as highly important for the fact that we have just com from a seven years war, and all our Telecommunications Statistical Collection Mechanism have been totally destroyed.

Again, we see this meeting as one that will help our country, Liberia, in the Telecommunications Statistical Collection and Dissemination Process. I am sure that at the end of this meeting, all those knowledge that have been absent will be placed on track. We also seize this opportunity to congratulate the Country Representatives of the United Nations Developments Projects (UNDP) for its tireless efforts in making sure that all conferences organised by the ITU, through the TDB are properly handle, especially in ensuring that participants receive their invitation and all benefits on time.

Fellow participants, as you may all be aware, our country Liberia has just returned from war which acartered every fabric of our National Telecommunications Industry. Not with-standing, we are pleased to state herein some methods use in the collection of telecommunications statistics. It is herefore our wish and pleasure, that this paper and the content contained therein will be of beneficiary to member countries as we all strive to build a global Telecommunication industry.

Once again, I say, the people of Liberia loves you and asks the organisers that Liberia will always be remembered when ever such conference is organised.

THANK YOU!

H. OCTAVIUS WALKER
Asst. Minister for Planning, Research and Statistics
Liberia Representative
TDB Meeting, Geneva.

SOURCES OF DATA COLLECTIONS

Data collection made by the Bureau of Planning, Research and Statistics prior to the Civil Crisis was nation-wide from the various Post Offices established in the various counties in the country including the Central Office in Monrovia.

The sources were categorised into four (4) zones as follows:

a) Zone One (1)

Zone one (1) consisted of the various counties and the specific areas 1 Post Office.
- Bomi County - Tubmanburg Post Office
- Montserrado County - Bensonville
- Margibi County - Kakata, Harbel, Robertsfield and Marshall.

b) Zone Two (2)

- Nimba County - Tarpita, Sanequelle and Ganta
- Capemount - Robertspot
- Bong County - Gbanga

c) Zone Three (3)

- Sinoe County - Greenville
- Grand Bassa County - Buchanan
- Rivercess County - Rivercess City

d) Zone Four (4)

- Lofa County - Voinjama, Kolahun and Foya
- Grand Gedeh County - Zwedru and Kawekein
- Maryland County - Harper and Pleebo
- Grand Kru County – Barclayville

Data collection is presently being limited to the Central Office since after the Civil Crisis reason being that the postal establishments in the various counties were destroyed during the war.

However, efforts are being made to reactivate them. The sources of data collections in the Central Office are as follow:

A. Controller

- Central Cashier
- Domestic Account
- Supply Office (Postage Stamps)

B. Counter Service

C. Monrovia and its surroundings

- Paynesville
- Capitol Building
- Freeport
- Barclay Training Centre (BTC)
- Randall Street (Annex 1)

Other sources within the Ministry

- Regulatory Bureau
- Philatelic Bureau
- EMS

ANNUAL REPORT
BUREAU OF PLANNING, RESEARCH AND STATISTICS
JANUARY – DECEMBER 1998

The Bureau of Planning, Research and Statistics is charged with the responsibility of collecting statistical data of mailable items received, delivered and despatched for both foreign and local as well as revenue generated from lock boxes, stamps, sales, radio licence and EMS. It seeks to analyse these data and do a comparative analysis of previous years to the current to make some projections. It plans and makes research for the Ministry.

During the period under review, total mailable items received from foreign countries was 289,982, mailable items delivered was 141,519 while mailable items despatched amounted up to 62,184.

Revenue generated is as follows:

Stamps sale .... 215.845.00 LD$
Radio licences .... 118,120.00 USD$
EMS..... .... 14,265.00 USD$
DV-2000 .... 330,400.00 LD$

Total amount in USD$ amounted up to 22,750.00 and LD$ 60,939.00. The overall malable items, received, delivered and despatched is in the total of 493,685 for the fiscal year 1998.

The report system in the Bureau has been done on a quarterly basis. This implies that the report has been done from January – March, April – June, July – September and October – December.

Total number of DV-2000 collected and dispatched during the period, October 1 –31 was 6,608 which amounted to LD$ 330,400.00

<u>RECOMMENDATIONS</u>

The Bureau is pleased to make the following recommendations:

1. That the following positions in the Bureau be occupied:

    a) The position of Assistant Director
    b) The position of Statistician
    c) Office Assistant

2. The Bureau is left with a decision to collect its statistical data where it finds it necessary.

TOTAL MAILABLE ITEMS RECEIVED, DELIVERED AND DISPATCHED
FOR THE PERIOD UNDER REVIEW / JANUARY – DECEMBER 1998

ITEMS	**QUANTITY**
MAILABLE ITEMS RECEIVED	289,982
MAILABLE ITEMS DELIVERED	141,519
MAILABLE ITEMS DISPATCHED	62,184
DV-2000 DISPATCHED	6,608
TOTAL	**500.293**

TOTAL MAILABLE ITEMS RECEIVED FROM FOREIGN COUNTRIES WITHIN THE VARIOUS QUARTERS (JANUARY – DECEMBER) 1998

ITEMS	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	5th Quarter
Ordinary letters	51.248	46.511	51.248	41.921	190.928
Registered letters	13.160	7.469	13.160	4.157	37.946
Expressed letters	3.956	2.661	3.956	5.631	16.204
Printed matters	33.495	4.113	3.495	3.298	44.401
Parcels received	160	17	140	11	331
EMS parcels	82	19	39	14	154
EMS packages	2	-	3	13	18
TOTAL	**102.103**	**60.790**	**72.041**	**55.045**	**289.982**

TOTAL MAILABLE ITEMS DELIVERED

ITEMS	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	5th Quarter
Ordinary letters	28.021	19.664	28.021	23.961	99.6678
Registered letters	5.263	4.599	5.263	5.167	20.292
Expressed letters	2.475	3.278	2.475	3.747	11.975
Printed matters	2.646	1.566	2.646	2.084	8.942
Parcels received	112	8	77	14	211
EMS letters	62	135	62	109	368
EMS parcels	1	21	5	7	34
EMS packages	2	12	3	13	30
TOTAL	**38.582**	**29.283**	**38.552**	**35.102**	**141.519**

INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

INFORMATION SYSTEMS UNIT

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SOURCE: STUDY GROUP, BDT

TITLE: DEFINITION OF QUESTIONS

Observations and comments about the document are welcome at the Study Groups Secretariat of BDT

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Thank you very much

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INTERNATIONAL TELECOMMUNICATION UNION

TELECOMMUNICATION DEVELOPMENT BUREAU

ITU-D STUDY GROUPS

Document 2/019-E
6 August 1998
Original: English

FIRST MEETING OF STUDY GROUP 1: GENEVA, 10 - 12 SEPTEMBER 1998
FIRST MEETING OF STUDY GROUP 2: GENEVA, 7 - 9 SEPTEMBER 1998

Questions: All

STUDY GROUP 2

SOURCE: TELECOMMUNICATION DEVELOPMENT BUREAU (BDT)

TITLE: DEFINITION OF QUESTIONS

Please find hereafter the definition of Questions 10a/2 to 10g/2 for the study period 1998-2002.

Q. 10/2 Communications for rural and remote areas

This Question includes seven separate projects: 10a/2, 10b/2, 10c/2, 10d/2, 10e/2, 10f/2 and 10g/2.

All projects have been proposed for study within the context of the Question which addresses "Communications for rural and remote areas". Since there are substantial relationships and interdependencies among the individual projects, they can be handled most efficiently as components within a single Question.

Q. 10a/2 Communications for rural and remote areas

1 Statement of problem or situation

In the current study period, from 1994 to 1998, the study of Question 4/2: "Communications for rural and remote areas" has resulted in conclusions and recommendations which are based on available and existing experience and knowledge.

At this time, many factors which relate to and influence "Communications for rural and remote areas" are changing and are evolving very rapidly. Examples include:

– Technology is changing and progressing quickly, providing continually increased capability at progressively lower cost. This is especially true in radio technology, which is usually the technology of choice in serving the rural and remote areas of developing countries.

– Experience in implementing major Rural Telecommunications Programmes is expanding quickly as more developing countries recognize and respond to the requirement. This results in an increasing knowledge base which enables well proven conclusions to be reached regarding the "best practices" which should be followed by developing countries in implementing major Rural Telecommunications Programmes.

– The demands for telecommunication services from residents of the rural and remote areas of developing countries are rising dramatically, as are the demands of those elsewhere who want to communicate with these areas.

– Rapid gains are being made in understanding and taking advantage of the benefits in economic, social and cultural development for the citizens of rural and remote areas through integrated delivery of the applications which are made possible by the advent of telecommunication services.

New information and experience in this field of knowledge is becoming available steadily and rapidly. The conclusions and recommendations of the completed study period are based on the knowledge that is available at this time. In order to take advantage of the new knowledge which will continue to become available, it is recommended that the study of this Question continue during the next study period.

2 Question or issue proposed for study

On the basis of current and recent studies and information, analyse the material which is available and formulate conclusions and recommendations on the following topics:

a) the best methods and techniques for selecting appropriate technology options for rural telecommunications;

b) the best methods of planning, implementing and sustaining rural telecommunication development programmes.

Note that topics c), d) and e) of Question 4/2 in the 1994-1998 study period are not proposed to continue in the next study period.

3 Description of the expected output

The output will specifically address and provide details of "best practice methods" under the defined topics, e.g. selecting appropriate technology options for rural telecommunications, and planning and implementing sustainable rural telecommunication development programmes.

The output will provide helpful guidance at the senior and middle management levels, relative to promoting the provision of telecommunication services in the rural and remote areas, to those responsible for selecting the most appropriate technology, and for planning and implementing rural telecommunications programmes.

4 Required timing of the expected output

A preliminary report and conclusions and recommendations are to be available by mid-1999.

5 "Proposers/Sponsors" - Those who requested study of the Question or issue

Continuation of this Question is recommended by the group of experts who addressed this Question in the study period from 1994 to 1998.

6 Sources of input required, in carrying out the study

In order to study this Question successfully, contributions are required from sovereign governments and service providers which have successfully implemented telecommunications programmes in their rural and remote territories. These contributions will enable those responsible for work on the Question to develop a comprehensive understanding of current "best practice" techniques, and to develop the most appropriate conclusions and recommendations.

7 Target audience for the output

a) Indicate expected types of target audience, by noting all relevant points on the matrix which follows:

	Developed countries	Developing countries	LDCs
Telecom policy makers	Y	Y	Y
Telecom regulators	N	Y	Y
Service providers (operators)	N	Y	Y
Manufacturers	Y	Y	Y

All target audiences in developing countries and LDCs will benefit. Also, Manufacturers in developed countries will benefit, as a result of the new markets which will become open.

b) Target audience - Who specifically will use the output?

The output will be most helpful specifically to the senior and middle management personnel of all Member States and Sector Members who are responsible for establishing strategies and plans for the delivery of sustainable telecommunication services throughout the rural and remote areas of developing countries and LDCs.

c) Proposed methods for the implementation of the results

The report which documents the results of this work should be distributed to all Member States and Sector Members at no direct cost. The conclusions and recommendations should be addressed, and if appropriate endorsed by resolution at the next World Telecommunication Development Conference, and at regional telecommunication development conferences as appropriate. The conclusions and recommendations of this work should be endorsed, supported and promoted by the successor programmes to BAAP Programmes 9 - "Integrated Rural Development" and 12 - "Development of Telematics and Computer Networks".

8 Proposed method of handling this Question or issue

a) How? Indicate the suggested handling of the proposed Question or issue

1) Within a Study Group
   - Question (over a multi-year study period) *
   - Focus Group (12 months duration maximum) Preferred
   - Programmes *
   - Projects *
   - Expert consultants An alternative
2) In other ways - describe (e.g. regional, within other organizations, jointly with other organizations, etc.) *

b) Why? Explain why you selected the alternative under a) above

The study of this Question involves the review, analysis, and assessment of the experience of many countries in the delivery of telecommunication services to the rural and remote areas. From this investigation, "best practice" models will be developed, which will provide the basis for the conclusions and recommendations that will be determined.

Work of this nature, involving as it does the careful collection of experiences and opinions from many countries, and noting the relative urgency, can be carried out most effectively and promptly by a small group of experts, a Focus Group. As an alternative, if the formation of a Focus Group proves to be impractical, the work could be carried out effectively by expert consultants.

As noted above, topics c), d) and e) of Question 4/2, in the 1994-1998 study period, are not continuing. Topics a) and b) are continuing, having been reworded to more precisely focus the work.

9 Coordination requirements of the study

Close coordination is required with the successor programmes to BAAP Programmes 9 - "Integrated Rural Development" and 12 - "Development of Telematics and Computer Networks".

Coordination is required as appropriate with regional telecommunications organizations that are involved in work which relates to telecommunication services in rural and remote areas.

Also, there must be coordination as appropriate with other UN Agencies, including, *inter alia,* UNDP, UNESCO, and with selected NGOs which have interests in this field.

10 Other relevant information

To be defined.

Q. 10b/2 Development of multi-purpose community telecentres

1 Statement of the problem or situation

In the present context of globalization, it is necessary to put an end to the isolation of rural communities so that they can pool experience and keep abreast of progress in society, and thereby identify for themselves the opportunities that exist for their own activities and needs - in short, so that they too can have a chance to contribute to and draw on the global information society.

Rural communities have not benefited from worldwide and national progress as much as urban societies. In addition to immense problems of infrastructure, organization and human and financial resources, rural areas lack access to information which would be useful for their needs and to training facilities, as well as to machinery for communicating with those involved in development. They are thus excluded from the progress made by "city-based" institutions. At the same time, the knowledge and talents available in rural communities are often neglected or looked down upon, which leads to a break with traditional modes of life without any real prospects for change.

Today's developments in telecommunications and telematics represent for rural communities not just an opportunity to remedy the unbalanced situations existing at present, but also a challenge to make a leap forward into the information age and to become equal and competitive partners in our global society.

An integrated model of services for information, education and telecommunications would be a first step in the process of improving training in the rural environment and could stimulate education for development.

2 Question or issue proposed for study

How to set up and develop services that will involve the rural population? What facilities should telecentres be equipped with and how should they be organized in order to secure the participation of the people in applications for development activities, particularly in the educational and cultural fields? Consideration should also be given at the same time to ways of carrying out an evaluation in order to measure the impact of telecentres in the development process.

3 Description of the expected output

Evaluation studies in the field focusing on pilot projects (such as those undertaken by ITU and UNESCO) in order to make telecentres more viable in future and to develop guidelines for appropriate telematic services.

4 Required timing of the expected output

Three years.

5 "Proposers/sponsors" - Those who requested study of the Question or issue

UNESCO, in view of the interest of Member States and on the basis of its collaboration with ITU.

6 Sources of input required in carrying out the study

ITU, UNESCO, UNDP, FAO, WHO, UNEP, development sector NGOs, public telecommunication operators and public authorities of Member States concerned.

7 Target audience for the output

a) Indicate expected types of target audience, by noting all relevant points on the matrix which follows

	Developed countries	Developing countries	LDCs
Telecom policy makers		Yes	Yes
Telecom regulators		Yes	Yes
Service providers (operators)		Yes	Yes
Manufacturers			

b) Target audience - Who specifically will use the output

Governments of the different Member States concerned, rural associations and communities, development NGOs involved in the field, regional and international organizations in the development sector.

c) Proposed methods for implementation of the results

– Campaigns to increase the awareness and enlist the support of the local populations around the idea and in the establishment of telecentres.

– Training of managers from the communities to manage and run the telecentres; they will be responsible, among other things, for familiarizing members of the public with the telecentres and for maintenance.

8 Proposed method of handling this Question or issue

a) How? Indicate the suggested handling of the proposed Question or issue

1) Within a study group:
   – Question (over a multi-year study period) ☐
   – Focus group (12 months duration maximum) ☐
2) Within regular BDT activity:
   – Programmes ☐
   – Projects ☐
   – Expert consultants ☐
3) In other ways - Describe (e.g. regional, within other organizations, jointly with other organizations, etc.) ☐

By means of surveys and questionnaires, seek the opinion of national, regional and international organizations and development-oriented NGOs which might be involved in activities around the multi-purpose community telecentres.

b) Why? Explain why you selected the alternative under a) above

It is both necessary and useful to involve development players already in contact with the local people in the telecentre projects.

9 Coordination requirements of the study

ITU and UNESCO have come to develop sound collaboration in the field of telematics. It would be desirable to go on taking advantage of this cooperation for more ambitious projects.

The list of countries hosting telematic projects could thus be extended by involving development partners such as FAO, UNDP and other organizations interested in the Question. This would provide a solid cross-agency team capable of undertaking a rigorous evaluation through progress reports on projects.

10 Other relevant information

In the light of the document "ACC Statement on Universal Access to Basic Communication and Information Services" and within the framework of the Buenos Aires Action Plan (WTDC-94), ITU has set up an integrated rural development programme, in which the concept of a multi-purpose community telecentre is a central element. IDRC, ITU and UNESCO have since worked together on the development of a general multi-purpose community telecentre project, which, initially, is being applied in five pilot projects in Africa (Benin, Mali, Mozambique, Tanzania and Uganda). These are being implemented over a three-year period starting in 1997.

)

Q 10c/2 Penetration and service targets for rural telecommunications

1 Statement of problem or situation

When telecommunication services are provided in the rural and remote areas of developing countries, these services are normally provided at a Public Call Office (PCO) and/or Multipurpose Community Telecentre (MCT) located near the centre of the community. This is a cost-efficient way in which a relatively small number of lines can provide universal access to telecommunication services, to serve the entire local population.

It is important to provide sufficient lines to fully meet the telecommunications needs of the local population, both to originate and to receive calls and messages. However, to ensure substantial usage of each line, it is desirable to not provide an excessive number of lines. Matching the number of lines provided to the telecommunications needs of the community will maximize the net revenue of the service provider, and help to ensure the sustainability of the rural telecommunication services.

2 Question or issue proposed for study

On the basis of studies carried out, experience, and knowledge gained by the ITU-D, and by other organizations including Member States and Sector Members, consolidate the information available and formulate conclusions and recommendations on this Question:

What are the appropriate service levels required for rural telecommunications, when the services are typically provided in a PCO or equivalent, relative to the population of the area served and any other significant factors? What other factors are significant, and how should they be measured?

The intention is to define the service level that best meets the joint goals of fully meeting the service needs of the community, for both outward and inward calling, and that also maximizes the net revenue of the service provider.

3 Description of the expected output

The output will be a planning guideline that will be used by business development planners, network planners and network development managers, in service provider (operator) organizations, for developing plans and programmes to provide telecommunication services to rural and remote areas.

4 Required timing of the expected output

A preliminary report, conclusions and recommendations are to be available by mid-1999.

5 "Proposers/Sponsors" - Those who requested study of the Question or issue

Study of this Question is recommended by the group of experts who addressed Question 4/2, "Communications for rural and remote areas", in the study period from 1994 to 1998.

6 Sources of input required, in carrying out the study

The input/contributions required will provide appropriately detailed information from service providers in all parts of the world that are providing telecommunication services in their rural and remote areas through the use of PCOs, MCTs and equivalent.

7 Target audience for the output

a) Indicate expected types of target audience, by noting all relevant points on the matrix which follows:

	Developed countries	Developing countries	LDCs
Telecom policy makers	N	Y	Y
Telecom regulators	N	Y	Y
Service providers	N	Y	Y
Manufacturers	Y	Y	Y

This information will be used by Policy Makers, Regulators, and service providers in developing countries and LDCs, in developing, evaluating and implementing specific network extension plans to provide telecommunication services throughout the rural and remote areas.

Manufacturers will use this information in product design and product line evolution, ensuring that their products are well matched to the needs of the developing countries and LDCs.

b) Target audience - Who specifically will use the output?

The specific target audience is the business development planners, network planners and network development managers, in the service provider organizations of developing countries and LDCs, who are responsible for developing plans and programmes to provide telecommunication services to rural and remote areas. The output will also be used by those responsible for developing national telecommunications policy, and for regulating the provision of telecommunication services, in the rural and remote areas of developing countries and LDCs.

c) Proposed methods for the implementation of the results

The report which documents the results of this work should be distributed to all Member States and Sector Members at no direct cost. The conclusions and recommendations should be endorsed, utilized, supported and promoted by the successor programmes to BAAP Programmes 3 - "Guidelines for the Elaboration of a Business-oriented Development Plan", 9 - "Integrated Rural Development" and 11 - "Information Services".

8 Proposed method of handling this Question or issue

a) How? Indicate the suggested handling of the proposed Question or issue

1) Within a Study Group
   - Question (over a multi-year study period) *
   - Focus Group (12 months duration maximum) An alternative
2) Within Regular BDT Activity
   - Programmes *
   - Projects *
   - Expert consultants Preferred
3) In other ways - describe (e.g. regional, within other organizations, jointly with other organizations, etc.) *

)

b) Why? Explain why you selected the alternative under a) above

The task involves the obtaining of possibly elusive facts, not in rounding up opinion. There will be expert judgement involved, establishing legitimate causal relationships, based on the facts which are obtained, and careful evaluation of them. As well as knowledge and experience in telecommunications, expertise in the area of socio-economic factors and relationships is also required.

9 Coordination requirements of the study

As already noted, close coordination will be required with the successor programmes to BAAP Programmes 3, 9, and 11.

In seeking relevant experience and information, appropriate liaison and coordination should be established, *inter alia,* with regional organizations, e.g. CITEL, ETSI and APEC.

10 Other relevant information

To be defined.

Q. 10d/2 Definition of a set of indicators describing the state of development of a country's rural telecommunications network and services

1 Statement of problem or situation

The appearance of complex market structures with alternative service providers, new services, and competition make it increasingly difficult to assess the overall status and development situation of rural telecommunications in a country. It is widely accepted that the development and outlook of a country's telecommunications strongly impact the country's economic development and prospects. Easy and accurate assessment, enabling national and regional comparison, is helpful to central and local governments and to international organizations and investors, and thus benefits developing countries. The indicators will enable:

- comparative analysis of the state of telecommunications development of a country, via standard concepts, methods of assessment and demand criteria;
- assessment of development objectives;
- comparison via an appropriate set of indicators describing the country's:
  - demography and economy;
  - legal and regulatory system;
  - market structure for delivery of key services;
  - demand, coverage, penetration, service quality and service accessibility;
  - key economic parameters (e.g. rates, investment, earnings, taxation, etc.);
  - human resources used to deliver services.

This information supports efficient market assessment and comparative analysis.

2 Question or issue proposed for study

What is the appropriate set of indicators to adequately characterize a country's current and future telecommunication services market, for the information of business analysts, and political and business decision makers? These indicators and their standard determination and expression should facilitate simple information collection in developing countries.

3 Description of the expected output

The output will define a standard, accepted set of parameters ("key indicators") for national use which will be provided regularly to the ITU, to build and maintain an international database to facilitate analysis and decision-making. The definition of the parameters and their determination is intended primarily to define the state of rural telecommunications in developing countries.

4 Required timing of the expected output

A preliminary report and conclusions and recommendations are to be available by mid-1999.

5 "Proposers/Sponsors" - Those who requested study of the Question or issue

The initial sponsorship for this Question came from Inmarsat.

The output, and the regularly published international Key Indicator profile of rural telecommunications which it will make possible, will be of substantial value to all organizations and individuals who take a substantive interest in the creation of infrastructure which enhances

economic development. This includes sovereign governments, from both the policy and regulatory points of view, the International Funding Institutions (IFIs), and, in the private sector, both investors and service providers in developing countries and worldwide.

6 Sources of input required, in carrying out the study

The major contributions will come from Member States and Sector Members, in both developing and developed countries. It is hoped that detailed information about the extensive "Key Indicator Suites" which are in current use by both regulatory agencies and service providers in many developed countries will be made available to those responsible for addressing this Question.

7 Target audience for the output

a) Indicate expected types of target audience, by noting all relevant points on the matrix which follows:

	Developed countries	Developing countries	LDCs
Telecom policy makers	Y	Y	Y
Telecom regulators	Y	Y	Y
Service providers	Y	Y	Y
Manufacturers	Y	Y	Y

The telecommunications industry is well suited to the use of "Key Indicators" which describe and define both the services which are provided and the networks upon which they are provided. More availability of quantitative information, specifically focused on communications for rural and remote areas, will be helpful in both developed and developing countries, and to both the public and the private sector.

b) Target audience - Who specifically will use the output?

The output will be useful and will be used by high level authorities and managers responsible for planning, organizing and controlling the provision and delivery of telecommunication services to rural and remote areas throughout the world, and in particular to the rural and remote areas of developing countries and LDCs. This includes, in the public sector, those responsible for establishing national telecommunications policy and monitoring its implementation, and those with regulatory responsibility. In the service provider organizations, this includes those responsible for setting strategy and for developing and delivering rural telecommunications programmes. Both manufacturers and financial institutions will find the output helpful in defining and responding to market opportunities.

c) Proposed methods for the implementation of the results

The report which documents the results of this work should be distributed to all Member States and Sector Members at no direct cost. The conclusions and recommendations which result from this work should be implemented to expand and enhance the indicator type information already being provided by the ITU, with specific focus on telecommunication services in the rural and remote areas. The additional information which now becomes available on a regular and continuing basis will be circulated to Member States and Sector Members as appropriate, within existing procedures.

8 Proposed method of handling this Question or issue

a) How? Indicate the suggested handling of the proposed Question or issue

1) Within a Study Group
   - Question (over a multi-year study period) *
   - Focus Group (12 months duration maximum) *

2) Within Regular BDT Activity
   - Programmes Ongoing
   - Projects *
   - Expert consultants Initially

3) In other ways - describe (e.g. regional, within other organizations, jointly with other organizations, etc.) *

b) Why? Explain why you selected the alternative under a) above

This proposed Question uses the approach to the development of industry information which is proceeding well under BAAP Programme 11, and focuses specifically on communications for rural and remote areas. Once the appropriate Key Indicators have been developed, agreed on, and have become available, it is expected that the periodic ongoing aggregation and publication of this material will become part of the ITU "routine round" of information publication.

As a component of the work under this Question, it is hoped that it will be practical to address the aggregation of information on rural telecommunications at a finer granularity than the national level. In this regard, the management accounting techniques used by large service providers in developed countries offer valuable examples, both of how such information can be captured and displayed, and of the value that it brings to those responsible for managing and developing the network areas which are reported on.

The nature of this work, which is highly specialized and will require detailed bilateral dialogue and negotiation with many parties, can best be carried out by a knowledgeable and experienced consultant.

9 Coordination requirements of the study

The primary coordination of this proposal is with the successor programme to BAAP Programme 11 - "Information Services". This Question conforms to the objective of Programme 11, focused specifically on the delivery of communications to rural and remote areas.

Following directly from this, close coordination is also appropriate with the Strategic Planning Unit (SPU) of the ITU General Secretariat.

10 Other relevant information

To be defined.

Q. 10e/2 Sound and television broadcasting and communication for rural and remote areas

1 Statement of problem or situation

In the current study period, Question 8/2, "Public service broadcasting infrastructure in developing countries", has addressed the study of this important subject area. One part of this work has related to the identification of the ways and means to assist developing countries in improving their sound and television broadcasting technical infrastructure.

From the results of the survey carried out among the Public Service Broadcasters, it has become clear that the distribution of sound and television broadcasting services throughout developing countries is often difficult to implement due to the lack of communications facilities in rural areas.

The advent of telecommunication services in the rural and remote areas provides an excellent opportunity to take advantage of these new facilities to extend sound and television broadcasting capability into these previously unserved areas.

2 Question or issue proposed for study

On the basis of completed studies, experience and knowledge gained by the ITU-D and by other organizations including UNESCO, WBUs and the FAO, and by the Member States and Sector Members of the Development Sector, develop conclusions and recommendations on this question:

How best can the telecommunications infrastructure in the rural and remote areas be planned and used to provide sound and television broadcasting to the population living there? How will this effect the cost of creating telecommunications infrastructure in the rural and remote areas?

of the expected output

The output will provide a guideline on the network planning and provisioning of sound and television broadcasting capability throughout rural and remote areas, including appropriate technical and economic detail, for use by the service provider's network planners and/or the network planners of the broadcasting authority. This planning guideline will include broad gauge cost information.

This guideline will be based on "best practice" experience of countries and organizations which have been successful in providing sound and television broadcasting capability throughout their rural and remote areas.

4 Required timing of the expected output

A preliminary report, conclusions, and recommendations are to be available by mid-1999.

5 "Proposers/Sponsors" - Those who requested study of the Question or issue

Study of this Question is recommended by the groups of experts who addressed Question 4/2 and Question 8/2 in the study period from 1994 to 1998. Question 8/2 was proposed by the WBUs on behalf of Public Service Broadcasters (both radio and television) in developing countries. Other Proposers/Sponsors TBD.

6 Sources of input required in carrying out the study

Contributions are expected from sovereign governments, Public Service Broadcasters, service providers who provide sound and television broadcasting facilities, manufacturers whose product line includes appropriate systems and capability, and from both UN Agencies and regional organizations that have interest in and knowledge of public broadcasting.

Contributions from regional broadcasting organizations will be particularly helpful, as these organizations will be able to offer regional perspectives on sound and television broadcasting service for rural and remote areas.

7 Target audience for the output

a) Indicate expected types of target audience, by noting all relevant points on the matrix which follows:

	Developed countries	Developing countries	LDCs
Telecom policy makers	N	Y	Y
Telecom regulators	N	Y	Y
Service providers	N	Y	Y
Manufacturers	Y	Y	Y

b) Target audience - Who specifically will use the output?

The intent of this Question is to ensure that Public Broadcasting is appropriately included in plans and programmes that promote Integrated Rural Development through the provision of telecommunication services throughout the rural and remote areas of developing countries and LDCs.

Accordingly, in these countries, the output will be useful to and used by those responsible for establishing national telecommunications policy for remote and rural areas, those responsible for regulating telecommunications in remote and rural areas, and for those who actually plan and implement Programmes which bring telecommunications to remote and rural areas. It will also be used by Public Service Broadcasters who actually provide the sound and television broadcasting service in these areas.

c) Proposed methods for the implementation of the results

The report which documents the results of this work should be distributed to all Member States and Sector Members at no direct cost. The conclusions and recommendations should be addressed, and if appropriate endorsed by resolution at the next World Telecommunication Development Conference, and at regional telecommunication development conferences as appropriate. The conclusions and recommendations of this work should be endorsed, supported and promoted by the successor programmes to BAAP Programmes 9 - "Integrated Rural Development", 10 - "Broadcasting Infrastructure" and 12 - "Development of Telematics and Computer Networks".

8 Proposed method of handling this Question or issue

a) How? Indicate the suggested handling of the proposed Question or issue

1) Within a Study Group

– Question (over a multi-year study period) *

– Focus Group (12 months duration maximum) *

2)Within Regular BDT Activity

–Programmes *

–Projects *

–Expert consultant Recommended

3) In other ways - describe (e.g. regional, within other organizations, jointly with other organizations, etc.) *

b) Why? Explain why you selected the alternative under a) above

This Question can best be addressed through a study carried out by a consultant who is knowledgeable and experienced in the field. The output is intended to provide a "best practice network planning guideline" which provides detailed guidance and successful examples of how best to implement sound and television broadcasting service for rural and remote areas.

9 Coordination requirements of the study

The primary coordination requirement is with the successor programme to BAAP Programme 9 - "Integrated Rural Development". Appropriate coordination is also needed with Study Group Question 4/2, "Communications for remote and rural areas", and with Study Group Question 8/2, "Public service broadcasting infrastructure in developing countries".

Other coordination requirements - To be defined.

10 Other relevant information

The WBUs, working in conjunction with the Haso Bunko Foundation (HBF) of Japan, have recently funded an in-depth study of some of the more pressing aspects of Question 8/2, concerning the introduction of digital techniques into all areas of sound broadcasting, including delivery and transmission in telecommunication networks.

The recommendations which have been developed by Question 8/2 have been based on an extensive survey of the Public Service Broadcasters. A recommendation will be put forward to the WTDC 1998, addressing the issue of the joint development of telecommunications and broadcasting networks in a synergistic and coordinated fashion.

Q. 10f/2 Measurement of the impact of Information and Communications Technology (ICT) in rural and remote areas

1 Statement of problem or situation

It is widely assumed that the provision of access to telecommunication services and the computer-based applications which take advantage of these services, often known collectively as "Information and Communications Technology" (ICT), in previously unserved or underserved rural and remote areas, and also in previously unserved or underserved urban or semi-urban areas, has a significant positive impact in promoting and supporting economic, social and cultural development. More scientific evidence which confirms this assumption would encourage both public and private sector organizations to implement ICT programmes in rural and remote areas. To provide such evidence, a set of standardized key indicators is required to measure and evaluate the impact in case studies, which may involve comparisons over time or comparisons between areas with or without access to ICT. Such standardized indicators would also make international comparisons of the effectiveness of different approaches, technologies, etc. used in rural ICT projects more meaningful and enable identification of "best practice".

These indicators would address all three areas of economic, social and cultural development, and would primarily focus on direction and rate of change, e.g. improvement or worsening, and how quickly, not merely the current level of development. The sorts of indicators contemplated could include income, GDP/capita, trade measurements, measures of productivity, unemployment rates, generation of new employment, literacy and other educational indicators, health indicators (infant mortality, longevity and others), and indicators of cultural development.

Several attempts to develop such indicators at the macro level have been made by UN and other development organizations but there is not yet a set of universally accepted indicators, and additional indicators are needed at the micro level to measure impact in small scale projects, particularly in rural and remote areas and in deprived urban areas.

Clearly such indicators would also be of value to many other development cooperation agencies organizations, such as other UN organizations, financing institutions, bilateral cooperation agencies and NGOs. Governments of developing countries could also use them to measure progress and to evaluate the impact of development projects.

2 Question or issue proposed for study

What are the appropriate indicators to use, to assess the initial and ongoing impact of the provision of ICT in rural and remote areas, and in previously unserved or underserved urban and semi-urban areas, to measure the impact of the availability of ICT in furthering the economic, social and cultural development of the area?

3 Description of the expected output

The output will comprise an evaluation methodology and a set of "key indicators" that can be used to assess and describe the direction and rate of change of economic, social and cultural development of the area reported upon.

A subject which requires particular attention is the "granularity" of the key indicators. Desirably, it would be applicable to entities as small as a village, and as large as a sovereign country.

4 Required timing of the expected output

A preliminary report, conclusions and recommendations are to be available by mid-1999.

5 "Proposers/Sponsors" - Those who requested study of the Question or issue

Study of this Question is proposed by the group of experts who addressed Question 4/2 in the study period from 1994 to 1998 and by the BDT staff with responsibility for BAAP Programmes 9 and 12 in the same period.

Preliminary discussion with other UN Agencies, with representatives of the IFIs and of many NGOs, and with a wide range of other public and private sector organizations, indicates that a significant number of additional sponsors can be found.

6 Sources of input required in carrying out the study

Participation and contributions are expected from all of the groups indicated above - UN Agencies, sovereign governments, IFIs, NGOs, and other public and private organizations.

The initial approach will be to determine what techniques and measurements are currently in use by the various potential clients/users of the proposed indicators, to assess progress as addressed by this Question. This investigation will form the basis for synthesizing a set of more comprehensive, sensitive and accurate indicators of development state and progress.

The intention of these indicators is to provide a comprehensive, "whole person/whole community" measurement, addressing all aspects of integrated development, recognizing that telecommunications is the essential vehicle to provide access/connectivity to the area or community, and that the applications that provide the actual value, for example in telemedicine, distance education, information access and transaction processing, make use of the underlying ICT.

7 Target audience for the output

a) Indicate expected types of target audience, by noting all relevant points on the matrix which follows:

	Developed countries	**Developing countries**	**LDCs**
Telecom policy makers	Y	Y	Y
Telecom regulators	Y	Y	Y
Service providers	Y	Y	Y
Manufacturers	Y	Y	Y
Research institutions	Y	Y	Y
Development agencies	Y	Y	Y
NGOs	Y	Y	Y

b) Target audience - Who specifically will use the output?

The output will be used by senior managers, policy makers and planners at UN Agencies, in sovereign states, the IFIs, the NGOs, development agencies and in many other public and private sector organizations.

A hoped-for outcome of the development and availability of the indicators will be a higher degree of coordination and cooperation between multiple agencies and organizations, based on the

expectation that development efforts in the various occupational sectors are mutually supporting each other.

c) Proposed methods for the implementation of the results

The report which documents the results of this work should be distributed to all Member States and Sector Members at no direct cost. The conclusions and recommendations which result from this work should be implemented to expand and enhance the indicator type information already being provided by the ITU. It is expected that it will be appropriate to establish close linkages with the information-reporting function in other UN Agencies. It may in fact be appropriate to provide this integrated information through a jointly-prepared report involving other UN Agencies.

The indicators will also be used for impact evaluation in the pilot projects implemented by the BAAP Programme 9 - Integrated Rural Development.

The specific focus must of course be on the rural and remote areas. The evaluation reports which then become available on a regular and continuing basis will be circulated to Member States and Sector Members as appropriate, within existing procedures and also to the clients/users of reports from other participating UN Agencies.

8 Proposed method of handling this Question or issue

a) How? Indicate the suggested handling of the proposed Question or issue

1)Within a Study Group

–Question (over a multi-year study period) *

–Focus Group (12 months duration maximum) *

2)Within regular BDT activity

–Programmes Ongoing

–Projects *

–Expert consultants Initially

3)In other ways - describe (e.g. regional, within other organizations, jointly with other organizations etc.) *

Cooperation with organizations already involved in indicator development and/or participating in the BAAP Programme 9 will be sought.

b) Why? Explain why you selected the alternative under a) above

This proposed Question will require close coordination with other organizations, primarily other agencies within the UN system. The task, and the challenge, will be to obtain and systematize the best possible information profile utilizing an appropriately modest expenditure of resources. To the extent practicable, it will be desirable and appropriate to use existing indicator components, perhaps captured, aggregated and displayed in new ways, rather than establish unique new indicator components.

Once the appropriate Key Indicators and the resulting profile have been developed, agreed on, and have become available, it is expected that the periodic ongoing collection, aggregation and publication of this material will become part of the "routine round" of periodic information publication currently performed by the ITU and by the other UN Agencies.

As a component of the work under this Question, it is hoped that it will be practical to address the aggregation of the required information at a much finer granularity than the national level. It should

be noted that the management accounting techniques used by large telecommunication services providers in developed countries offer useful examples, both of how such information can be captured, aggregated and displayed and of the value that it brings to those responsible for managing and developing the business and network areas which are reported on.

The nature of the proposed work, which is highly specialized and will require detailed bilateral dialogue and negotiation with many parties, can best be carried out by a thoroughly knowledgeable and well experienced consultant.

9 Coordination requirements of the study

In addressing this Question, close coordination will be required with all the agencies and organizations that are in a position both to contribute to and to benefit from the outcome of this work. These will include, *inter alia*, UN Agencies, IFIs, NGOs, and development agencies such as CIDA, IDRC, SIDA and USAID.

In the context of the Buenos Aires Action Plan, there is a logical linkage with Programme 11. The work of Programme 11 will be a valuable component of the answer to this Question. Related to this, close coordination will also be appropriate with the strategic Planning Unit (SPU) of the ITU General Secretariat.

10 Other relevant information

To be defined.

Q. 10g/2 Enhancing the capacity of NGOs to achieve development aims, through the use of telecommunication

1 Statement of Problem or Situation

Increasingly, development efforts in less and least developed countries are being led by national and international NGOs, recognised by governments, the UN system and others as key actors. Some are directly involved in media (e.g. community radio, development video, telecentres); others use telecommunication to achieve their aims (e.g. aid agencies, training and educational initiatives, local economic initiatives etc.); while others still are generally aware of the important role of telecommunication but have yet to come to grips with the issues and possibilities.

There is a danger that many opportunities to enhance development using telecommunication are being lost, because of lack of awareness of potential especially of new technologies, lack of coordination between NGOs, national authorities and private sector, (often unintended) obstacles in national and international broadcasting policy and telecommunication regulation, and even poorly designed international standards that impede appropriate technologies.

Finding a solution to these problems should significantly increase the capacity of these NGOs to achieve their development aims, through the use of telecommunication and information technologies.

2 Question or Issue Proposed for Study

General Question:

What is the actual and potential impact of current telecommunication trends on the activities of development NGOs, and what policies and actions can enhance their capacity to utilize telecommunication more effectively to achieve development aims?

Specifically:

1) Based on existing evidence, what new opportunities have recent events opened up for development-oriented NGOs through communication media and technologies use (e.g. Internet, radio and television broadcast, satellite, video). How do they, and can they, contribute concretely to achieving the development aims of NGOs, especially in least developed countries?

2) What are the current obstacles to the widespread dissemination of these benefits? This might include: lack of awareness regarding benefits; lack of finance; inadequate universal service and access to basic network; restrictive telecommunication regulation; unsupportive broadcast policy including frequency allocation; inappropriate technology and standards, including digital sound broadcasting; etc.

3) What policies and action, from NGOs, governments, ITU, and others, can best address these obstacles? These might include better coordination between NGOs; additional support for non-commercial Internet use; regulation and frequency provision of local development-oriented radio; support for innovative universal service actions, especially in the context of liberalization; access to satellite broadcasting by NGOs; and so forth.

3 Description of the Expected Output

– An analysis of the impact and potential of telecommunication technologies on the development-oriented NGOs, especially in least developed countries.

– An analysis of the obstacles to disseminating the effective use of telecommunication technologies, in terms of awareness, regulations, access to resources and services, broadcasting policy, standards etc.
– Concrete policy guidelines and proposals for actions, at national and international level, to ensure NGOs can take advantage of these technologies, working with national governments, ITU and others, to maximize development gains.

The users will be:

National and International NGOs, and their representative and other organizations; national government, especially those involved in telecommunication and broadcasting policy and regulation; broadcasting and telecommunication regulators; telecommunication operators; the ITU.

4 Required timing of the expected output

This question must be addressed urgently, but without undue haste. The timescale for the recommendations extends into the future, taking into consideration the rapidly evolving national and international telecommunication environment

A careful consultation and research methodology (see below) will have to be deployed, if the output is to address the issues effectively. An 18- to 24-month study period would seem reasonable, before preliminary results can be achieved.

5 Proposers/Sponsors - Those who requested study of the Question or Issue

Organization: Platform for Cooperation on Communication and Democratization

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The Platform is in the process of becoming a member of ITU-D.

6 Sources of input required in carrying out the study

The following organizations would benefit from the output and are to contribute to the work in different ways:

Media related NGOs: The Proposers comprise an association of NGOs, members of which have agreed to contribute to this Study Group. Among these are:

1) AMARC: World Association for Community Radio Broadcasters;
2) APC: Association for Progressive Communication;
3) Article 19: International Centre Against Censorship;
4) Catholic Media Council;
5) IAMCR (PCR Section): International Association for Media and Communication Research;
6) IFJ: International Federation of Journalists;
7) IWTC: International Women's Tribune Centre;
8) MacBride Round Table on Communication;

9) PANOS London;

10) People's Communication Charter;

11) Vidéazimut: International Coalition for Audiovisuals for Development and Democracy;

12) WACC: World Association for Christian Communication;

13) Worldview International Foundation;

14) ZEBRA: Audio-Visual Network for North-South Understanding;

15) Group of Eight: A Network of Communication in Latin America and the Caribbean;

The support of others will be gained prior to the WDTC. These include:

– other agencies and organizations involved in communications and development especially in least developed countries, such as IDRC and FES;

– major development NGOs, such as Concern Worldwide, OXFAM and Trócaire, a number of whom have already been contacted;

– national governments, especially regulators and policy makers in broadcasting, media and development.

UNDP (especially Sustainable Development Media Programme);

UNESCO (Communications, Information and Informatics Sector);

ITU (all three sectors; and Inter-Agency Project on Universal Access);

World Bank (InfoDev Programme).

7 Target audience for the output

7.1 Indicate expected types of target audience, by noting all relevant points on the matrix which follows

	Developed countries	**Developing countries**	**LDCs**
Telecom Policy Makers	Limited	Yes	Yes
Telecom Regulators	Yes	Yes	Yes
Service Providers (Operators)	Limited	Yes	Yes
Manufacturers	Limited	Limited	

The enhancement of development activities by NGOs is of keen interest to governments and indeed regulators from the universal service perspective. Major commercial service providers have some interest in providing service, but small operators with a development brief, for instance in Internet provision, will be most interested. Manufacturers may have an interest in niche areas such as digital radio standards for use in local and small scale development radio.

7.2 Target audience – Who specifically will use the output

The target audience is primarily national and international NGOs, working hand in hand with government policy makers and development support actions. Those in development policy, telecommunication, and broadcasting will be especially targeted. The policy recommendations and actions will be focused especially on their requirements, and related to the practical problems they face in achieving their aims and the environment in which they daily work.

International organizations, especially the UN Agencies such as ITU, UNDP and UNESCO, will also be targeted for practically useful and feasible policies and actions that can, with minimal levels of financial support, significantly enhance the use of communications by NGOs.

7.3 Proposed methods for the implementation of the results

The Platform for Communication and Democratization comprises now over 20 international NGOs active in media, communication and development issues. This offers a ready-made means of dissemination, to their target groups, collaborators, partners and others. Several of these produce regular magazines and newsletters, organise conferences and meetings and engage in other dissemination and information activities. Members will also undertaken to publicise the findings at the many international and national gatherings in which they participate.

The output will also be the subject of one or more Colloquia, or Workshops dedicated to the results.

8 Proposed method of handling this question or issue

a) How? Suggested handling of the proposed Question

The preliminary proposed methodology for addressing this question is:

– a survey questionnaire to a selected number of NGOs, with a view to gaining at least 200 responses biased towards those involved in least developed countries;

– a review of the literature, including "grey literature" (unpublished reports, conference proceedings etc.) in the academic, NGO, UN and commercial contexts;

– a review of the activities of UN organizations in this domain, and possibly of selected countries, especially least developed countries;

– a series of interviews with key individuals among NGOs, UN and other agencies, national government, telecom operators and service providers;

– at least one Colloquium/workshop, or perhaps one each in a couple of regions, to debate preliminary findings and proposals.

The appropriate combination of mechanisms is still a matter for discussion. However, the following is a first approximation.

Within a Study Group

– Question (over a multi-year study period)	yes
– Focus Group (12 months duration maximum)	possible

Within Regular BDT Activity

– Programmes	yes
– Projects	uncertain
– Expert consultants	yes

This work will be completed working closely with the Platform for Cooperation on Communication and Democratization, and its member organizations. In particular, the Platform will be willing to prioritise this issue and devote its resources, in terms of time and energy, towards completing and disseminating the work.

b) Why? Why we selected the alternative under a) above

A Study Group would seem appropriate in order to bring together the range of interest represented at the ITU, and to allow a sufficient amount of time to complete the work. A Focus Group might be relevant only at a certain stage on the work.

A Programme (sharing with other related Questions) would be useful in organising the Colloquia, and in piloting possible actions towards the end of the study period.

Expert consultancy would be required in developing the methodology to be used, in undertaken the literature reviews and in organizing the interviews.

9 Coordination requirements of the study

Coordination will be required with related Study Groups and Programmes of ITU-D. Currently, in the two Study Groups, issues of relevance arise in: SG1/1; SG 2/1 SG 3/1; SG4/1; SG1/2; SG2/2; SG 4/2; SG 6/2; SG 7/2; SG 8/2. In relation to BAAP Programmes 1, 6, 9 10, 12 and 12 appear to be most relevant.

However, close cooperation may also be required with specific issues discussed in Study Groups of ITU-T and ITU-R, around specific spectrum allocation, technology and standardization issues.

Coordination will also be required with a range of organizations outside the ITU, including UN agencies as mentioned above; NGOs coalitions; regional telecommunications organizations; etc.

10 Other relevant information

Fundamentally, this is a request from the NGOs involved in the Platform for Cooperation on Communication and Democratization to engage in constructive cooperation with ITU member and UN agencies to together explore the obstacles, and develop proposals to enhance the use by NGOs of communication media to achieve common development aims.

Special ITU distribution

Doc Nº	Title
5	World Telecommunication Indicators database on STARS (diskette) http://www.itu.int/ti/publications/world/world.html
6	Telecommunication Indicators Handbook (included in diskette package) http://www.itu.int/ti/publications/world/material/handbk-e.htm
14	Yearbook of Statistics (1988-1997) http://www.itu.int/ti/publications/#YB99

Documents used as reference material

Doc Nº	Source	Title
21	OFTEL United Kingdom	Market information update - August 1998 http://www.oftel.gov.uk/market.htm
22	OFTA HongKong Sar	Traffic statistics reporting requirements for external telecommunication services http://www.ofta.gov.hk/datastat/rpt-requ.pdf
23	FCC United States	International telecommunications data http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/intl.html
24	OFTEL United Kingdom	Collection and publication of international call information http://www.oftel.gov.uk/feedback/iar798.htm
25	FCC United States	Telephone subscribership in the United States http://www.fcc.gov/Bureaus/Common_Carrier/Reports/FCC-State_Link/IAD/subs1198.pdf
28	ITU Switzerland	Basic indicators and cellular subscribers - 1998 http://www.itu.int/ti/industryoverview/index.htm
29	OFTA HongKong Sar	Telecommunication indicators in Hongkong submitted to ITU for the fiscal year ending 31 March 1998 http://www.ofta.gov.hk/datastat/hktelecom-indicators.html