



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

C.1

(03/93)

GENERAL TELECOMMUNICATION STATISTICS

ITU STATISTICAL YEARBOOK

ITU-T Recommendation C.1

(Previously "CCITT Recommendation")

FOREWORD

The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the International Telecommunication Union. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, established the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

ITU-T Recommendation C.1 was prepared by the ITU-T Study Group I (1988-1993) and was approved by the WTSC (Helsinki, March 1-12, 1993).

NOTES

1 As a consequence of a reform process within the International Telecommunication Union (ITU), the CCITT ceased to exist as of 28 February 1993. In its place, the ITU Telecommunication Standardization Sector (ITU-T) was created as of 1 March 1993. Similarly, in this reform process, the CCIR and the IFRB have been replaced by the Radiocommunication Sector.

In order not to delay publication of this Recommendation, no change has been made in the text to references containing the acronyms "CCITT, CCIR or IFRB" or their associated entities such as Plenary Assembly, Secretariat, etc. Future editions of this Recommendation will contain the proper terminology related to the new ITU structure.

2 In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Recommendation C.1

ITU STATISTICAL YEARBOOK

(Helsinki, 1993)

- 1) The CCITT recommends that an ITU STATISTICAL YEARBOOK containing telecommunication statistics, be published annually by the General Secretariat of the ITU. In addition to the publication, the data shall also be available on magnetic media and on-line from the ITU database.
- 2) These statistics are to be a collection of the data on the various branches of telecommunication namely:
 - telephone service;
 - telegram service;
 - telex service;
 - data transmission service;
 - other news services as identified and defined by the CCITT.
- 3) The statistical data to be included for new services shall be incorporated automatically once these services are defined by the respective study groups and the working parties entrusted with this job. These new services and the indices to be included in the Yearbook defined by the respective groups shall be communicated to the ITU General Secretariat on a regular basis.
- 4) The statistical data to be published are those covered by the items listed in Annex A. Any explanations required for uniform and unambiguous interpretations of the items are given in Annex B. In respect to the new services, the definition and the new items shall be automatically included after these services are identified and defined by the respective Study Groups and Working Parties, and are communicated to the ITU General Secretariat. This will, therefore, be accomplished without any further modification of this Recommendation and will be automatically implemented.
- 5) These statistical data should be provided each year by Administrations before 1st September of the year following the one to which they refer. In case some of the data is already available within the ITU (from official sources) the same shall be incorporated and the source of the data shall be indicated in the Yearbook. Data concerning demographic and macro-economic information will be obtained from UN agencies.
- 6) The data will be published in chronological series relating to the past ten years. The format for the presentation of the data shall be responsibility of the ITU General Secretariat.

NOTE – Those countries not in a position to communicate all the data listed in the Recommendation should provide the data they do have. They should also provide any relevant annual reports or statistical bulletins.

ANNEX A
(to Recommendation C.1)

List of items appearing in the ITU Statistical Yearbook

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TRAFFIC AND STAFF

1	Telephone service	
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1.1.1	Number of telephone stations (sets) of all kinds connected to the public network.....	10 ³
1.1.2	Number of main lines.....	10 ³
1.1.3	Number of main lines connected to private branch exchanges (PBX, etc.).....	10 ³
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1.1.5	Percentage of main lines equipped for direct customer dialling to international destinations	%
1.1.6	Percentage of main lines which are residential	%
1.1.7	Connection capacity of local public switching exchanges (number of subscriber terminal equipments).....	10 ³
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1.3.1.1	Volume of local traffic.....	10 ⁶
1.3.1.2	Volume of national trunk (toll) traffic	10 ⁶
1.3.2	Volume of total outgoing international traffic	10 ⁶
1.3.3	Volume of total traffic.....	10 ⁶
1.3.4	Outgoing international subscriber dialled telephone traffic as a percentage of total outgoing international telephone traffic	%
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3	Telex service	
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5.3	Technical staff.....	10 ³
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B. DEMOGRAPHIC, ECONOMIC, AND FINANCIAL INFORMATION

Area of country in square kilometres:

Denomination of the national monetary unit:

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6.4	Gross fixed capital formation.....	10 ⁶
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7.1.1	Income from connection charges	10 ⁶
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7.4	Other income (data, facsimile transmission services).....	10 ⁶
7.5	Total income from all telecommunication services.....	10 ⁶
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8.2	Total annual gross investments in telecommunications (excluding land and buildings)	10 ⁶
8.3	Annual gross investments for telephone services	10 ⁶
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9	Comparative ratios	
9.1	Telephone main lines per inhabitant	%
9.2	Telephone stations (sets) of all kinds, per inhabitant	%
9.3	Telecommunications investments as a share of GDP	%
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ANNEX B
(to Recommendation C.1)

ITU Statistical Yearbook

**Definitions, instructions and explanatory notes
on how the information should be provided**

General remarks

By “common carrier telecommunication” is meant the traditional field of telecommunication: telephony, telegraphy, telex and data transmission. As telecommunications undertakings in some countries are responsible for providing and maintaining sound broadcasting facilities and sometimes also for the collection of charges for these services, it is stipulated that neither these, nor the investments, income or expenditure for the service in question should be taken into account.

When items of statistics are presented in a different manner from that specified in this Annex, they should be accompanied by an explanation which facilitates their interpretation.

A. SIZE OF TELECOMMUNICATION SYSTEMS, TRAFFIC AND STAFF

1 Telephone service

Preliminary remarks

Common carrier telecommunications provide the inhabitants of a country with services involving access to the network and the possibility of sending traffic with a certain grade of service.

Access to the network is provided by switching exchanges with a certain access capacity, not all of which may be made available to users. These exchanges may be operated either manually or automatically.

The first characteristic of the size of a system from the traffic point of view is therefore the number of connection points to the network, i.e. *main lines*.

The second characteristic of the size of the system is the number of points of access to the network, i.e. *telephone sets*.

The traffic introduced at the points of access to a network is routed between the different switching exchanges by manually or automatically operated circuits.

1.1 *Size of telephone system*

1.1.1 *Telephone stations (sets) of all kinds connected to the public network*

Under this heading should be indicated the total number of telephone sets which have access to the public switched network.

1.1.2 *Main lines*

A "main line" is a telephone line connecting the subscriber's terminal equipment to the public switched network and which has a dedicated port in the telephone exchange equipment. This term is synonymous with the term "main station" which is commonly used in telecommunication documents.

It is understood that:

- the line connected to the telephone exchange may be either an exclusive exchange line or a shared line;
- when a subscriber's equipment has several extensions (private branch exchange), the number of main lines is equal to the number of lines connecting the installation to the telephone exchange, whether these lines are operated in one direction or in both directions.

Example:

A subscriber's equipment with extensions is served by 50 lines which connect it to the telephone exchange. The installation has ten operating positions (and therefore ten "operator's stations") and 500 extensions. In accordance with the above definition this installation must be counted as having *50 main lines* (i.e. as many as there are lines connecting the subscriber installation to the exchange).

In other words, it will not be counted as having:

- either *one* main line (which would refer to the installation),
- or *ten* main lines (which would correspond to the number of operator's stations).

It will thus be seen that according to this definition the number of main lines to be entered in the Statistics is equal to the number of individual lines connected to the exchange.

1.1.3 *Main lines connected to private branch exchanges (PBX, etc.)*

The number of these lines corresponds to the number of exchange lines connecting the PBX, etc. to the exchange.

1.1.4 *Percentage of main lines connected to automatic exchanges*

This percentage is obtained by dividing the number of main lines connected to automatic telephone exchanges by the total number of main lines.

1.1.5 *Percentage of main lines equipped for direct customer dialling to international destinations*

This percentage is obtained by dividing the number of main lines with access to the automatic international service by the total number of main lines.

1.1.6 *Percentage of main lines which are residential*

This percentage is obtained by dividing the number of main lines serving households (i.e. lines which are not used for professional purposes or as public telephone stations) by the total number of main lines.

1.1.7 *Connection capacity at local public switching exchanges*

The total capacity of public switching exchanges corresponds to the maximum number of main lines which can be connected. This number includes, therefore, main lines already connected and main lines available for future connection, including those used for the technical operation of the exchange (test numbers).

1.1.8 }
1.1.9 } *Trunk and international circuit ends*

Under these two headings should be indicated the total number of trunk and international circuits¹⁾ terminating at switching exchanges; no account should be taken of whether the circuit is incoming, outgoing or both-way, nor of the type of trunk or international exchange at the other end of the circuit, nor whether the other end is located within the same or another country.

The only distinction to be made is between the classes of operational use of these circuits, according to whether they are to be used for:

- a) manual operation²⁾;
- b) semi-automatic or automatic operation.

1.2 *Volume of the demand for telephone connection and size of the waiting list*

Requests for connection and waiting list for the telephone service refer to applications for a main line.

1.2.1 *New applications for main lines*

New applications for main lines are applications submitted for the first time.

1.2.2 *Total demand for main lines (including transfers)*

The total demand includes new applications and applications for transfer. A transfer application is an application submitted by the holder of a main line who wants it to be transferred from one place to another.

1.2.3 *Waiting list for main lines*

The waiting list comprises applications for connection which have had to be held over owing to a lack of technical availabilities (equipments, lines, etc.).

Each country should specify in a footnote the period (in days, weeks or months), counting from the date on which the application is submitted, beyond which applications are considered as being on the waiting list.

1.3 *Telephone traffic*

Depending on the type of telephone exchange equipment, telephone traffic can be measured by the number of calls, by the number of charged pulses or, in certain cases, by the number of charged minutes. It is preferable to provide the number of calls, even if this has to be estimated. In any case, the applied unit must be indicated.

¹⁾ Telephone circuit (international or trunk circuits) is defined in CCITT Recommendation E.100 (Fascicle II.2 of the *Blue Book*).

²⁾ International circuits are designated in different ways by the technical services depending on how they are used (see CCITT Recommendation M.140, §§ 1.2.2, 1.2.3 and 1.2.4 [Fascicle IV.1 of the *Blue Book*]).

Calls actually set up (successful calls) are classified in two categories for charging purposes: chargeable calls and non-chargeable calls. Non-chargeable calls include “service” calls made from Administration service stations, emergency directory assistance calls or other facility calls (where these are not charged for) and test calls for the technical monitoring of equipment.

1.3.1 *Total national traffic*

This covers all the effective (completed) traffic which both originates and terminates within the same country.

1.3.1.1 *Local traffic*

Local traffic consists of effective (completed) traffic exchanged within the local charging area in which the calling station is situated. This is the area within which one subscriber can call another on payment of the local charge (if applicable).

Each country should include a footnote explaining what it understands by the “local charging area” and indicating the number of such areas and their average size (in km²).

1.3.1.2 *National trunk (toll) traffic*

National trunk (toll) traffic consists of effective (completed) national traffic exchanged with a station outside the local charging area of the calling station.

1.3.2 *Total outgoing international traffic*

This covers all the effective (completed) traffic originating in a given country to destinations outside that country.

1.3.3 *Total traffic*

Total traffic is the sum of national traffic (§ 1.3.1) and outgoing international traffic (§ 1.3.2).

1.3.4 *Outgoing international subscriber dialled telephone traffic as a percentage of total outgoing international telephone traffic*

This is obtained by dividing the volume of automatic international outgoing traffic, i.e. the fully automatic traffic, by the total volume of international outgoing traffic.

2 Public telegram service

The public telegram service is concerned with the reproduction at a distance of documentary matter such as written, printed or pictorial matter. A pictorial document reproduced is a phototelegram. The traffic is measured by the number of telegrams or phototelegrams.

NOTE – It must not be confused with the public facsimile service, the traffic for which must not be included.

2.1 *National paid telegrams*

The number of charged telegrams which both originate and terminate within the same country.

2.2 *International outgoing full rate telegrams*

The number of charged outgoing full rate telegrams originating in a given country with a destination outside the country.

2.5 *Facsimile, teletex and videotex services*

2.5.1 *Total number of public facsimile stations (Bureaufax)*

A public facsimile station is an equipment operated by an administration in a facsimile bureau open to the public, including a facsimile terminal, with access to the telecommunication networks (with possible use of dedicated circuits) as well as connecting and possible additional equipment (see CCITT Recommendation F.160).

2.5.2 *Total number of subscriber's facsimile stations (Telefax)*

A subscriber facsimile station is an equipment made available to a facsimile service subscriber, including a facsimile terminal, with access to the appropriate public telecommunication networks as well as connecting and possible additional equipment (see CCITT Recommendation F.160).

2.6.1 *Total number of teletex subscribers*

Subscriber having a Teletex terminal capable of transmitting and receiving Teletex documents in accordance with the basic requirements of CCITT Recommendation T.60 (see CCITT Recommendation F.200).

2.6.2 *Total number of videotex subscribers*

A Videotex service is an interactive service which provides through appropriate access by standardized procedures, users of Videotex terminals to communicate with data bases via telecommunication networks (see CCITT Recommendation F.300).

The total number of videotex subscribers is the number of persons using the Videotex service via a Videotex terminal as defined in Recommendation F.300.

2.6.3 *Number of information providers (Videotex)*

Number of parties responsible by agreement with a Videotex service for providing information or transaction facilities to Videotex service users. The information provider may or may not operate the host computer on which the data base is stored (see CCITT Recommendation F.300).

3 Telex service

3.1 *Size of telex system*

3.1.1 *Subscriber line*

A subscriber line is a line connecting the subscriber's terminal equipment to the public telex network and which has a dedicated port in the telex exchange equipment.

3.2 *Telex traffic*

Telex traffic is measured by the number of calls, by the number of charged pulses or in certain cases by the number of charged minutes. It is preferable for the information to be supplied in charged minutes. In any case, the applied unit must be indicated.

3.2.1 *National traffic*

All the traffic which both originates and terminates within the same country.

3.2.2 *Outgoing international traffic*

All the outgoing traffic originating in a given country with a destination outside the country.

3.2.3 *Total traffic*

Total traffic is the sum of national traffic and outgoing international traffic.

4 Data transmission

4.1 *Size of data system*

4.1.1 Number of data terminal equipments on the public telephone and telex networks

4.1.2 Number of private leased circuits

4.1.3 Number of data terminal equipments connected to dedicated public data networks

5 Equivalent full-time telecommunication staff

The definitions applied to staff in some countries might differ to a greater or lesser extent from those in the Yearbook. It is therefore very important that such differences be explained.

5.1 *Total staff in telecommunications services*

Full-time equivalent staff of either sex employed by the telecommunication enterprises in the country for the common carrier telecommunication services.

5.2 *Operating staff*

Full-time equivalent staff employed by the telecommunications Administration/enterprise itself for:

- setting up of telephone and telex calls and the transmission and distribution of telegrams,
- answering requests for information in the switching exchanges (e.g. directory assistance),
- auxiliary work directly related to the above tasks and performed by the same grade of staff (e.g. exchange clerical work performed by operating staff),
- supervisory duties.

5.3 *Technical staff*

Full-time equivalent staff employed by the telecommunications Administration/enterprise itself for the installation, upkeep, maintenance and repair of telecommunications plant and lines.

5.4 *Other staff*

Full-time equivalent staff employed by the telecommunications Administration/enterprise itself for:

- management and administration,
- research and development,
- public relations,
- budgeting and accounting,
- other support functions.

B. DEMOGRAPHIC, ECONOMIC, AND FINANCIAL INFORMATION

6 Demographic and macro-economic data

Since the information about demographic and macro-economic data comes from sources outside the telecommunication services, the definitions and numerical information are those used in the Yearbook of National Accounts Statistics published by the United Nations Organizations. The financial information should be given in the national currency at current prices.

7 Income, expenditure and financial results of telecommunication services

The concepts of income, expenditure and financial results of telecommunication services depend on the legal, financial and accounting framework within which the telecommunication services are operated in each country.

7.1 to }
7.5 } *Income*

Income consists of all telecommunication revenue earned during the financial year under review. This may include income from subscribers, other national and foreign telecommunication Administrations, governments, etc., after deduction of the share of this income to be paid to other Administrations or organizations for outgoing telecommunication traffic (Administrations of the incoming and possibly transit countries).

It does not, however, include monies received in respect of revenue earned during previous financial years, neither does it include monies received by way of loans from governments, investors or money markets, nor monies received from repayable subscribers' contribution or deposits.

7.6 *Total current expenditure for all telecommunication services*

Generally speaking, the total disbursements should be broken down into capital expenditure for investments and current expenditures. The investment concept is explained in the paragraphs which follow.

Current expenditure means expenditure other than investments; it consequently refers to the running of telecommunication services on an annual basis and comprises, for instance the elements mentioned below under §§ 7.6.1 to 7.6.5:

7.6.1 *Operational expenditure*

- on salaries, etc., of operational staff, cost of material for operational purposes, etc.,
- labour and material costs of maintenance and repair of the existing system.

7.6.2 *Depreciation*

Depreciation means the financial charge made in the year for the loss of value of installed equipment and is normally calculated on hypotheses based on the useful life of the different categories of equipment.

7.6.3 *Interest*

Interest refers to the financial year for loans associated with fixed and current assets.

7.6.4 *Taxes*

Taxation refers to taxes on the Administration's income, expenditure, profit or capital (e.g. corporation tax, income tax, excise taxes, non-recoverable VAT and local land taxes) raised by central or local Government. This item does not include pay-related (e.g. social) taxes.

7.6.5 *Other expenditure*

"Other expenditure" means current expenditure which cannot be regarded as connected with operation, depreciation, interest or taxation. (N.B. It does not include expenditure on capital items.)

8 Investments (annual gross construction expenditure) on telecommunication services

The term "investments" generally means the expenditure associated with acquiring the ownership of property and plant. These include expenditure on initial installations and on additions to existing installations where the usage is expected to be over an extended period of time.

A distinction must be made between gross investment and net investment (after deduction of depreciation). It proved impossible to apply the concept of net investment, because of the considerable differences in the interpretation of the concept of depreciation in the telecommunication sector.

9 Comparative ratios

9.1 Item 1.1.2/Item 6.1 * 100

9.2 Item 1.1.1/Item 6.1 * 100

9.3 Item 8.1/Item 6.3 expressed in %

9.4 Item 8.1/Item 6.4 expressed in %