COVERING NOTE

Telecommunication Development Bureau (ITU-D)

Geneva, 17 February 2014

Subject: Methodology for the collection of revenue and investment data on telecommunications

This document revises and supplements the definitions and methodological details of the indicators on revenue and investment in telecommunications included in the *ITU Handbook for the Collection of Administrative Data on Telecommunications/ICT*. It reflects the outcomes of the Expert Group on Telecommunication/ICT Indicators (EGTI), and was endorsed by the 11th World Telecommunication/ICT Indicators Symposium (WTIS), held in Mexico City on 4-6 December 2013.

Methodology for the collection of revenue and investment data on telecommunications

Background

This methodological note provides detailed guidelines for the collection of internationally comparable data on revenue from, and investment in, telecommunication services.[1] It covers three main indicators: (i) *Revenue from all telecommunication services*; (ii) *Revenue from mobile services*; and (iii) *Annual investment in telecommunication services*. The methodology revises and complements the information on these indicators included in the ITU Handbook for the Collection of Administrative Data on Telecommunications/ICT,[2] incorporating the outcomes of the discussions held in 2012 within the ITU Expert Group on Telecommunication/ICT Indicators (EGTI),[3] as well as additional contributions from international organizations.[4] It also benefits from the experience gained from ITU's 2012 global data collection of these indicators from operators' annual reports, and the lessons learned about the international harmonization of these data.

ITU has been collecting data on revenue from telecommunication services since 1960,[5] and on investment in telecommunication services since 1965. ITU data are collected through annual questionnaires sent to national administrations that collect these indicators from operators, and aggregate the data at national level. Revenue and investment data provide an overview of the economic dimension of the telecommunication sector, its structure and the capital expenditure flows that underpin telecommunication developments.

Revenue and investment data from telecommunication operators are widely available through operators' annual reports. In addition, data for the telecommunication sector aggregated at national level are often collected by regulators or ministries as part of their regular data-collection exercises, and also made public. Even if not published, data are usually available internally through administrative records. Confidentiality issues are in most cases overcome by ensuring data confidentiality at the operator level and publishing only aggregate values for the sector. In those countries where unlisted operators – which may not have the obligation to publish their financial data – have a significant market share, it is important to have an appropriate framework to ensure legal certainty in the data-collection process. This makes it possible to produce aggregate revenue

[1] Throughout the document, the terms 'telecommunications' and 'telecommunication services' are used interchangeably.
[2] Available at: http://www.itu.int/pub/D-IND-ITC_IND_HBK-2011
[3] EGTI is ITU's expert group on indicators for the collection of administrative data on telecommunications/ICT (i.e. data collected from operators). It is open to all ITU members and experts in the field of ICT statistics and data collection. It works through an online discussion forum (http://www.itu.int/ITU-D/ict/ExpertGroup) and reports back periodically to the World Telecommunication/ICT Indicators Symposium (WTIS).
[4] The following international organizations provided comments on this note: the European Commission, IMF, OECD and UNCTAD.
[5] In the case of revenues from mobile services, ITU has been collecting data since the mid-1980s, insofar as previously mobile services had little relevance in terms of revenues.

and investment figures, which are relevant for evidence-based policy-making, while ensuring data confidentiality for operators.

Currently, most ITU Member States report data to ITU on: (i) revenues from all telecommunication services; (ii) revenues from mobile services; and (iii) investment in all telecommunication services.[6] Although data availability remains an issue in some developing countries, in the majority of countries the main challenge is the harmonization of data reported under these indicators, particularly with a view to international comparison. Indeed, methodological differences may give rise to large biases in the data – easily around 20-30 per cent of the total value reported – which make it difficult to benchmark countries on a like-for-like basis and to produce sound global figures.

This note proposes a common methodology for the collection of the three main indicators reported to ITU on revenue from, and investment in, telecommunications. Additional breakdowns of revenue and investment data by type of service are beyond the scope of this note, because there is not yet an agreed harmonized approach to producing them. For instance, in order to separate revenue data for fixed-telephone services and fixed-broadband services, a common methodology for the allocation of revenue from bundled services would be required. In the case of investment data, different telecommunication services share the same infrastructure, which makes the allocation of investment to different services particularly challenging.[7]

This note focuses on harmonizing the methodological differences that account for the largest sources of error when producing internationally comparable telecommunication investment and revenue data. The methodology proposed does not exclude other possible data aggregations at national level, but rather highlights the main items that should be included or excluded when reporting telecommunication revenue and investment data for the purpose of international comparisons.

[6] A total of 141 ITU Member States (accounting for 96 per cent of the world's GDP) provided data on revenue from all telecommunication services for at least one of the last three years; 139 ITU Member States (accounting for 94 per cent of the world's GDP) provided data on revenue from mobile services; and 128 ITU Member States (accounting for 95 per cent of the world's GDP) provided data on investment in telecommunication services.

[7] For a recent discussion on possible breakdowns of investment data, see the results of the *OECD Workshop on metrics for measuring broadband and the Internet Economy*, Report from Rapporteur Group 2, available at: http://stakeholders.ofcom.org.uk/binaries/internet/oecd/Session_21.pdf

Methodology

1. Definition of the sector

Telecommunication services are those offered by entities that are classified within the telecommunication sector, as defined in ISIC Revision 4, Division 61 (see Annex, Table 4). **The sector includes businesses that operate, maintain and provide access to telecommunication networks. Resellers of telecommunication services are also included.**

Activities related to the creation of content are excluded (see Annex, Table 5), since telecommunication activities are restricted to the transmission of the signal. For instance, if a cable operator produces TV content (e.g. news bulletins, series, shows, TV channels, etc.), the revenues generated by the sale of the rights to distribute the content should be excluded. On the other hand, revenues earned by this same operator from its cable-TV subscriptions should be included. This is a major source of discrepancies in data reported by countries, and will most probably remain an issue in the future because of convergence, which is blurring the boundaries between content creation and distribution. The following principle should be applied in order to harmonize the data reported:

- If a business engages in both the creation of content and its distribution through telecommunication networks, revenue and investment data should be reported only for those activities that relate to the distribution of content, and exclude those that relate to the creation of content.

The following list provides guidelines on the inclusion or exclusion of revenue and investment data for the telecommunication sector for those services which are most problematic (Table 1):

- Free-to-air TV should not be included, as it mainly relates to content creation from traditional broadcasters.
- IPTV should be included, since it deals mainly with content distribution by telecommunication operators.
- Cable TV should be included if it relates only to Internet/PSTN access and multichannel distribution. In cases where cable-TV operators also produce content, that part should be excluded from total revenue and investment.[8]
- Satellite operators that provide only Internet access and multichannel distribution should be included. In cases where satellite operators also produce TV content, that part should be excluded from total revenue and investment.[9]
- Pay digital terrestrial television channels should be excluded, since they relate mainly to content creation.

[8] It should be feasible to exclude investment related to content creation from that related to distribution of the signal, since most of the fixed assets involved are clearly different. Regarding revenues, the portion related to content should be easy to exclude if different branches (with separate accounting) exist: one for the distribution of content and the other for its creation. Even if there is no separate accounting, separate reporting should be possible as long as the national industrial classification applied separates cable programming distribution and cable content production. This is the case, for instance, in the North American Industry Classification System – used by Canada, Mexico and the United States – which requires separate reporting of content creation and its distribution by cable operators.

[9] Ibid.

In cases where specific national circumstances justify a different classification of the services listed in Table 1 in order to comply with the general principle of excluding content creation from the telecommunication sector, data should be submitted with an explanatory note.

Table 1: Summary of categories included and excluded in the telecommunication sector

	INCLUDED		EXCLUDED
Free-to-air TV	NO		YES
Pay DTT channels	NO		YES
IPTV	YES		NO
Cable TV	- Internet/PSTN access - Multichannel distribution	PARTIALLY	- Content creation
Satellite	- Internet access - Multichannel distribution	PARTIALLY	- Content creation

2. Investment

Indicator 1: Annual investment in telecommunication services

Definition: *Annual investment in telecommunication services* refers to the investment during the financial year made by entities providing telecommunication networks and/or services (including fixed, mobile and Internet services, as well as the transmission of TV signals) for acquiring or upgrading fixed assets (usually referred to as CAPEX), less disinvestment owing to disposals of fixed assets. Fixed assets should include tangible assets, such as buildings and networks, and non-tangible assets, such as computer software and intellectual property. The definition closely corresponds to the concept of gross fixed capital formation, as defined in the System of National Accounts 2008.

The indicator is a measure of investment made by entities providing telecommunication networks and/or services in the country, and includes expenditure on initial installations and additions to existing installations where the usage is expected to be over an extended period of time. It excludes expenditure on fees for operating licences and the use of radio spectrum.[10]

Key methodological issues

- The definition of investment in **Indicator 1 is similar to the concept of *gross fixed capital formation*** (GFCF), as defined in the System of National Accounts (SNA) 2008.[11]
- Annual investment in telecommunication services refers to **fixed capital additions, less disposals**. Since data are aggregated at country level, a change in the ownership of existing assets, such as in the privatization of a public operator, should mostly cancel out in the data reported.[12]
- **Only investment made by entities providing telecommunication networks and/or services within the country** should be included, irrespective of whether it comes from a nationally owned or foreign-owned source (Table 2). For example, if a nationally owned mobile operator invests in several countries, only investment within the country should be counted. Conversely, investment from foreign-owned operators in the country should be included.
- **Licence fees should be excluded**.[13] Otherwise, data reported will not be comparable at international level, since expenditures on one-off licence fees tend to correspond to large

[10] This definition is based on the ITU Handbook, with some revisions. More information on the method of collection, possible breakdowns and relationship with other indicators can be found at: http://www.itu.int/pub/D-IND-ITC_IND_HBK-2011

[11] For more details on the definition of GFCF, see "Chapter 10: The capital account" of SNA 2008, available at: http://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf

[12] Part of the transaction costs for the transfer of an existing fixed asset may be capitalized, and thus included in the investment expenses. In such cases, the buyer disburses more than the seller receives, and this spread is therefore counted as investment, although it will most likely represent only a small fraction of the total investment reported. In addition, since the data collection is limited to entities providing telecommunication services, transfers of fixed assets between these and other entities outside the scope of the data collection will not cancel out, and thus some transfers of existing assets may be included in total investment.

[13] Excluding licence fees from investment is consistent with the definition of GFCF in SNA 2008.

lump sums that distort time series and hinder international comparisons on a like-for-like basis.

- **Investment in intangible assets**, such as computer software or intellectual property rights, **should be included**. If not included, this should be indicated in a note.
- R&D expenditure is also considered as capital formation, and therefore should be included in the investment data reported.[14]
- Data reported should refer only to the telecommunication sector. If data are aggregated with another sector (usually post or transport), this should be indicated in a note. In this case, it may not be possible to use the data for international comparisons.
- Data should include all entities providing telecommunication networks and/or services. If data are collected from only some of them (e.g. the main operators or even only the incumbent), a note should be added with the list of included entities and some details on their representativeness (e.g. percentage of total subscriptions or revenues they represent).

Table 2: Items included in telecommunication investment

	INCLUDED
Additions less disposals of tangible fixed assets	YES
Additions less disposals of intangible fixed assets	YES
Investment from nationally owned operators in the country	YES
Investment from foreign-owned operators in the country	YES
Investment from nationally owned operators outside the country	NO
Licence fees	NO
R&D expenditures	YES

[14] See §§10.103-10.105 in SNA 2008.

3. Revenue

Indicator 2: Revenue from all telecommunication services

Definition: *Revenue from all telecommunication services* refers to revenue earned from retail fixed-telephone, mobile-cellular, Internet and data services offered by telecommunication operators (both network and virtual) providing services within the country during the financial year under review. It includes retail revenues earned from the transmission of TV signals, but excludes revenues from TV content creation. Revenue (turnover) consists of retail telecommunication service earnings (therefore excluding wholesale revenues, such as interconnection revenues) during the financial year under review. Revenues from device sales and rents, VAT and excise taxes should be excluded.[15]

Indicator 3: Revenue from mobile services

Definition: *Revenue from mobile services* refers to retail revenue earned from the provision of mobile-cellular services, including all voice, SMS and data (narrowband and broadband), offered by mobile operators (both network and virtual) providing services within the country during the financial year under review. Revenues from value-added services (e.g. premium SMS) should be included. Wholesale revenues, such as mobile termination rates, should be excluded. Revenues from device sales and rents, VAT and excise taxes should also be excluded.[16]

Key methodological issues

- **Revenue indicators include retail revenues from residential customers and businesses** (Table 3).
- **Wholesale revenues should be excluded** from the figures reported in order to avoid double counting. Wholesale revenues are those derived from the sale of telecommunication services to other telecommunication operators, and may include: revenues from termination rates, origination rates paid by mobile virtual network operators, transit rates, inbound roaming, etc.[17]
- In line with current accounting practices, **revenues should exclude VAT and excise taxes.**[18] Other taxes, such as corporate taxes, should not be deducted from revenue figures

[15] This definition is based on the ITU Handbook, with some revisions.
[16] Ibid.
[17] Data on wholesale revenues are often collected for the purpose of market analyses, and provide valuable information on telecommunication markets. The fact that they are excluded in this methodological note does not imply that they should not be collected nationally; simply that, if they are, they should be collected as a separate item and excluded when reporting revenue data to ITU.
[18] International Accounting Standard 18, §8, states: "*Revenue includes only the gross inflows of economic benefits received and receivable by the entity on its own account. Amounts collected on behalf of third parties such as sales taxes, goods and services taxes and value added taxes are not economic benefits which flow to the entity and do not result in increases in equity. Therefore, they are excluded from revenue.*"

reported.[19] Recurrent administrative fees – such as annual fees for the use of radio spectrum, contributions to universal service funds, numbering fees or right-of-way fees – should not be deducted from revenue figures reported.

- **Revenues from device sales and rents should be excluded**. For instance, revenues from the sale of mobile phones, modems and WiFi routers should be excluded.
- **Revenues from value-added services should be included**, such as for instance those generated by premium SMS messages.

Table 3: Items included in telecommunication revenue

	INCLUDED
Retail revenues from residential customers	YES
Retail revenues from business customers	YES
Wholesale revenues, e.g. interconnection revenues	NO
Revenues from resellers and mobile virtual operators	YES
VAT and excise taxes	NO
Corporate taxes and administrative fees, e.g. numbering fees	YES (not to be deducted from total revenues)
Revenues from device sales and rents	NO
Revenues from value-added services, e.g. premium SMS	YES

If revenue data reported do not comply with the methodological issues discussed above, a note should be added specifying the scope of the data reported. If this implies major harmonization issues in the figures reported, such as those related to the inclusion of wholesale revenues, it may not be possible to use the data for international comparisons.

[19] In some countries, such as the United Arab Emirates, the term 'royalties' is used to refer to a type of corporate tax applied to telecommunication operators, based on their profits, their revenues or a combination of both. These taxes should not be deducted from the revenue figures reported.

Annex

Table 4: Definition of telecommunication services based on ISIC Revision 4

ISIC code	Industry
61	**Telecommunications**
This division includes the activities of providing telecommunications and related service activities, i.e. transmitting voice, data, text, sound and video. The transmission facilities that carry out these activities may be based on a single technology or a combination of technologies. The commonality of activities classified in this division is the transmission of content, without being involved in its creation. The breakdown in this division is based on the type of infrastructure operated. In the case of transmission of television signals this may include the bundling of complete programming channels (produced in division 60, *Programming and broadcasting activities*) in to programme packages for distribution.	
6110	Wired telecommunications activities
This class includes: - operating, maintaining or providing access to facilities for the transmission of voice, data, text, sound and video using a wired telecommunications infrastructure, including: · operating and maintaining switching and transmission facilities to provide point-to-point communications via landlines, microwave or a combination of landlines and satellite linkups · operating of cable distribution systems (e.g. for distribution of data and television signals) · furnishing telegraph and other non-vocal communications using own facilities The transmission facilities that carry out these activities, may be based on a single technology or a combination of technologies. This class also includes: - purchasing access and network capacity from owners and operators of networks and providing telecommunications services using this capacity to businesses and households - provision of Internet access by the operator of the wired infrastructure	
6120	Wireless telecommunications activities
This class includes: - operating, maintaining or providing access to facilities for the transmission of voice, data, text, sound, and video using a wireless telecommunications infrastructure - maintaining and operating paging as well as cellular and other wireless telecommunications networks The transmission facilities provide omni-directional transmission via airwaves and may be based on a single technology or a combination of technologies. This class also includes: - purchasing access and network capacity from owners and operators of networks and providing wireless telecommunications services (except satellite) using this capacity to businesses and households - provision of Internet access by the operator of the wireless infrastructure	

6130	Satellite telecommunications activities
This class includes: - operating, maintaining or providing access to facilities for the transmission of voice, data, text, sound and video using a satellite telecommunications infrastructure - delivery of visual, aural or textual programming received from cable networks, local television stations or radio networks to consumers via direct-to-home satellite systems (The units classified here do not generally originate programming material.) This class also includes: - provision of Internet access by the operator of the satellite infrastructure	
6190	Other telecommunications activities
This class includes: - provision of specialized telecommunications applications, such as satellite tracking, communications telemetry, and radar station operations - operation of satellite terminal stations and associated facilities operationally connected with one or more terrestrial communications systems and capable of transmitting telecommunications to or receiving telecommunications from satellite systems - provision of Internet access over networks between the client and the ISP not owned or controlled by the ISP, such as dial-up Internet access etc. - provision of telephone and Internet access in facilities open to the public - provision of telecommunications services over existing telecom connections: · VOIP (Voice Over Internet Protocol) provision - telecommunications resellers (i.e. purchasing and reselling network capacity without providing additional services)	

Source: UNSD (2008), 'International Standard Industrial Classification of All Economic Activities Revision 4', Statistical Papers, Series M No. 4/Rev.4, UN, New York.

Table 5: Definition of content and media sector based on ISIC Revision 4

ISIC code	Industry
581	**Publishing of books, periodicals and other publishing activities**
5811	Book publishing
5812	Publishing of directories and mailing lists
5813	Publishing of newspapers, journals and periodicals
5819	Other publishing activities
591	**Motion picture, video and television programme activities**
5911	Motion picture, video and television programme production activities
5912	Motion picture, video and television programme post-production activities
5913	Motion picture, video and television programme distribution activities
5914	Motion picture projection activities
592	Sound recording and music publishing activities

60	Programming and broadcasting activities
This division includes the activities of creating content or acquiring the right to distribute content and subsequently broadcasting that content, such as radio, television and data programs of entertainment, news, talk, and the like. Also included is data broadcasting, typically integrated with radio or TV broadcasting. The broadcasting can be performed using different technologies, over-the-air, via satellite, via a cable network or via Internet. This division also includes the production of programs that are typically narrowcast in nature (limited format, such as news, sports, education or youth-oriented programming) on a subscription or fee basis, to a third party, for subsequent broadcasting to the public. This division excludes the distribution of cable and other subscription programming (included in the Telecommunications division).	
6010	Radio broadcasting
This class includes: - broadcasting audio signals through radio broadcasting studios and facilities for the transmission of aural programming to the public, to affiliates or to subscribers This class also includes: - activities of radio networks, i.e. assembling and transmitting aural programming to the affiliates or subscribers via over-the-air broadcasts, cable or satellite - radio broadcasting activities over the Internet (Internet radio stations) - data broadcasting integrated with radio broadcasting	
6020	Television programming and broadcasting activities
This class includes: - creation of a complete television channel programme, from purchased programme components (e.g. movies, documentaries etc.), self produced programme components (e.g. local news, live reports) or a combination thereof This complete television programme can be either broadcast by the producing unit or produced for transmission by third party distributors, such as cable companies or satellite television providers. The programming may be of a general or specialized nature (e.g. limited formats such as news, sports, education or youth oriented programming), may be made freely available to users or may be available only on a subscription basis. This class also includes: - programming of video-on-demand channels - data broadcasting integrated with television broadcasting This class excludes: - assembly of a package of channels and distribution of that package via cable or satellite to viewers (included in the Telecommunications division)	
639	**Other information service activities**
6391	News agency activities
6399	Other information service activities n.e.c.

Source: UNSD (2008), 'International Standard Industrial Classification of All Economic Activities Revision 4', Statistical Papers, Series M No. 4/Rev.4, UN, New York.