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THE ICT AREA IN TERMS OF COMMODITIES

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THE ICT AREA IN TERMS OF COMMODITIES

Introduction

In the first meeting of the OECD statistical panel in June 1997 it was decided to start work by preparing a discussion paper on the definition of the Information and Communication Technology (ICT) sector. The aim of this paper (A DRAFT DEFINITION OF THE ICT SECTOR. A discussion document prepared by the Statistical Panel under the ægos of the ICCP. August 1997) is to facilitate the development of a common definition of the ICT sector by proposing a framework for identifying and delineating the industries in the sector.

For a number of reasons the Panel at that time decided to initially concentrate on a definition of the industries that make up the ICT sector. Some of the difficulties with establishing a list of ICT goods and services concern their rapidly changing character and the dated nature of current « standard » classifications. New products are continually being developed in line with technological advances and at a fast pace. Users generally require data to be comparable over time and to be able to link domestic production data with international trade data.

So the starting point was to consider a number of broader issues associated with the delineation of the ICT sector, hopefully leading to the compilation of internationally comparable ICT sector statistics. But it was also said that some issues of detail about precisely which parts of an industry are to be included can only be finally settled when the definition of the goods and services has been completed.

Thus a definition of the goods and services to be included in the statistical framework should be considered. But how should this task be approached? The purpose of this paper is not to give any answers but to help to launch this discussion by putting some ideas on the table.

Why a commodity definition of ICT ?

Industry classifications and commodity classifications are very closely related, but nevertheless serve different purposes. An industry classification is a classification of the (economic) activities that result in a certain output. The basis for the classification is likeness in process or likeness in output. As it is a classification of activities it can be said to be a classification of the way production is organised. The data presented according to industrial activities are typically related to the organisation, e.g. number of enterprises, turnover, value added, number of employees, investments etc.

A commodity classification is a classification of goods and services, i.e. the output of economic activities. The data relate to what is produced or traded and is expressed in terms of value, number, weight etc.

In paragraph 17 of the paper on the draft definition of the ICT sector it is said that it is always likely that there will be a number of industry classes which will include some units which are ICT related

and some which are not. The way of deciding whether or not a unit in a specified class is a specialist IT unit should be on the basis of predominant ICT activity, i.e. turnover of 50% or more in ICT goods and services.

The crucial question is then: what goods and services should be considered to be ICT ?

Trends concerning economic activities and commodities

There are some overall trends that make it difficult to provide good data on the ICT and its developments and impacts as well as the economy in general. They are

- Convergence : the coming together of telecommunications, broadcasting and TV, information technology made possible by technological and regulatory developments.
- Divergence : the offering of new services made possible by the technological and commercial innovations.
- Bundling : the offering of ready made packages of goods and services.
- Blurring : the offering of services packages that contains elements from several different NACE categories/economic activities. E.g. a travel agency that sells a ticket to your destination, make a hotel reservation, rents a car for you, fix an insurance for you, provide you with the foreign currency and get you the financing of your holiday.

All these trends are more or less based on ICT developments. The convergence and blurring seem to be most related to economic activities, while divergence and bundling concern commodities more directly.

How do we cope with this development?

Classification systems versus classifying

The process of classifying statistical data according to a system of classification of economic activities result in the statistical description of the economic activities in a country and is the basis for international comparisons. The outcome of the classifying process might distort the international comparability as anticipated by the classification system for a number of reasons, apart from simple misclassifications. Two such reasons are given below.

The first is the common situation where an enterprise produces commodities that belong to more than one ISIC/NACE category. There exist rules for how the unit should be classified in such a case. If the unit produces e.g. three or more products belonging to different NACE categories it will be assigned to one of them according to the classifying rules and the others will thus become invisible.

The other is that if the classification of industrial activity is not detailed enough the structural statistics according to ISIC/NACE might represent an aggregate of ICT and other products. This means that different industrial structures in different countries might be hidden by the statistics and thus limit comparability.

Therefore two classical statistical measures concerning economic activities -- **homogeneity** and **coverage** -- should be taken into account.

Homogeneity concerns the proportion of the total output of a given industry that is made up of commodities characteristic for that particular industry.

Coverage concerns the proportion of the total output of a commodity, characteristic for a particular industry, that is in fact produced by that industry.

A problem with perhaps special relevans for the ICT sector and its development is the relation between auxillary services and marketed services. What is the impact of for example outsourcing?

Towards an ICT commodities definition

The general model

It seems that a useful approach is to establish the definition of the ICT sector in terms of ISIC Rev.3/NACE Rev.1 and the definition of ICT in terms of CPC/CPA in parallell. The definition of ICT commodities should have its point of departure in the definition of the ICT sector and made successively more detailed.

The proposed general model is :

ISIC Rev3/NACE Rev1 \leftrightarrow CPC/CPA \leftrightarrow Detailed product classifications

The detailed product classifications are HS ; CN ; SITCrev ; PRODCOM and other survey classifications.

An example and an illustration of how such an integrated definition of the ICT sector and ICT commodities can be constructed is given in the following. Here it is made in terms of NACE Rev.1 and CPA, as there is an unambiguous relation between CPA and NACE Rev.1. As is illustrated in Annex 1 « The revised System of International Classifications » there are corresponding links between ISIC Rev.3 and CPC, so the model is general for all levels – worldwide, EU and national.

Why should we use CPC/CPA when detailed product classifications exist and CPC/CPA are not universally used for data collection and reporting of statistics? The reason is twofold: firstly, CPC/CPA are Central Product Classifications and as such parts of the internationally integrated system of classifications, which ensures as far as possible consistency and coherence and, secondly, detailed product classifications exists for goods but for services the situation is poor – both as regards classifications and datacollection. CPC/CPA are the only product classifications that comprises both goods and services.

However, the services part of CPC/CPA needs to be developed. In Annex 2 is presented a proposal for a revised CPA concerning Audio-visual services (which might fall outside the ICT) elaborated by Eurostat and in Annex 3 a detailed survey classification of telecommunications services that currently is being tested in a pilot survey with 10 EU Member States participating. One of the purposes of the pilot survey is to find out what level of detail of telecommunications services that is appropriate, and on that basis make up a proposal for a revised CPC/CPA in this field.

A revision of the CPC/CPA is now being launched with the aim to finalise the revised version in the year 2000. This means that elaborated proposals should be presented during 1999. The Statistical Panel should take advantage of this occasion and develop the classifications of the ICT relevant services.

Principles for definition of ICT commodities

The point of departure is the products and their classification into the two categories ICT commodities and other commodities ; the latter can be more or less ICT intensive. The delineation should be made according to principles common for both the definition of the ICT sector and the ICT commodities. The UK DTI has provided a set of principles for the definition of the ICT sector, which are presented in document DSTI/ICCP/AH/RD(98)1. It should be the starting point for the discussion.

The following is an additional comment on the principles for definition of ICT commodities. Micro electronics, integrated circuits and related semiconductor components, that normally are not end products by themselves make up the heart of the ICT category. Such components can be put into a computer, telecommunications equipment, a car or a washing machine for example. This does not mean that all products in which there is an ICT component should be considered as an ICT product, even if all of them imply data or information processing and transmission to some extent. The dividing line between these « second level » ICT and non-ICT products might be found in the degree of generality of the purpose of the product.

The computer and telecommunications equipment should then be considered as ICT products because the end results of the information processing and transmission are for external use in relation to the product. The car and the washing machine are not considered as ICT products because the end results of the information processing and transmission are for internal use in the product – to facilitate the physical transport from A to B and to make dirty laundry clean.

In my view sensing, measurement and control equipment should be included in the ICT definition in the same way as components. Information processing and transmission starts with the acquisition of data and observations, which makes equipment with this function – like electronic components – a prerequisite for information processing and transmission. If such equipment is excluded it seems to me that the ICT concept becomes too limited.

ICT services include services which enable us to utilise ICT goods and realise their value or potential. This category includes computer and related services and telecommunication services, but wholesale and retail trade with ICT goods and services, education as well as research in the field might be considered because of the « enabling » content.

An example of a definition of ICT Commodities

In the following is given an illustration of how the definition of ICT commodities might be built. It is an example of how the definition might be successively made more and more precise by an iterative process. The detailed product classification does not necessarily need to be HS, but any detailed national survey classification with a direct or indirect link to CPC/CPA. The important thing is to stick to CPC/CPA as being the Central Product Classifications and as such the overall framework.

Let us chose the NACE Rev.1 group 30 Manufacture of office machinery and computers for the illustration. It comprises the two classes 30.01 Manufacture of office machinery and 30.02 Manufacture of computers and other information processing equipment. In order to save space we then look at Manufacture of office machinery.

NACE Rev.1

30.01 Manufacture of office machinery

This class includes

- manufacture of manual or electric typewriters
- manufacture of word-processing machines
- manufacture of hectograph or stencil duplicating machines, addressing machines and sheet-fed office-type offset printing machines
- manufacture of calculating machines, cash registers, postage franking machines, special terminals for issuing tickets and reservations, etc.
- manufacture of diverse office machinery or equipment :
- * machines that sort, wrap or count coins ; automatic bank note dispensers ; machines that stuff envelopes, sort mail ; pencil sharpening machines ; perforating or stapling machines ;

Do we want to include all these activities ? Perhaps the manufacture of typewriters, duplicating machines and diverse office machines should be excluded ? The doubtful parts are set out in italics. To clarify this issue let us look at the corresponding CPA categories.

CPA

30.01 Office machinery and parts thereof

30.01.1 Typewriters, word-processing and calculating machines and parts thereof

30.01.11 Automatic typewriters and word-processing machines

30.01.12 Other typewriters

30.01.13 Calculating and accounting machines, cash registers and similar machines incorporating a calculating device

30.01.14 Parts and accessories of typewriters and calculating machines

30.01.2 Photocopying apparatus, offset printing and other office machinery and parts thereof

30.01.21 Photo-copying apparatus incorporating an optical system or of the contact type and thermo-copying apparatus

30.01.22 Offset printing machinery, sheet fed, office type

30.01.23 Other office machines

30.01.24 Parts and accessories of other office machines

30.01.25 Parts and accessories of photocopying apparatus

30.01.9 Installation services of office machinery

30.01.90 Installation services of office machinery

Again, do we want to regard all these positions as ICT commodities ? (Note that here appears a code for a service) Perhaps we wonder if not other typewriters and photocopying etc. machines should be excluded ? Let us now go to the HS with the help of the references given in CPA to see if we can get any help to decide.

HS (Harmonised system)

84.69 – TYPEWRITERS OTHER THAN PRINTERS OF HEADING No. 84.71 ; WORD-PROCESSING MACHINES.

84.69.11 – Word-processing machines

84.69.12 – Automatic typewriters

84.69.20 – *Other typewriters, electric*

84.69.30 – *Other typewriters, non-electric*

84.73.10 – Parts and accessories of the machines of heading No. 84.69

84.70 – CALCULATING MACHINES AND POCKET-SIZE DATA RECORDING, REPRODUCING AND DISPLAYING MACHINES WITH CALCULATING FUNCTIONS ; ACCOUNTING MACHINES, POSTAGE-FRANKING MACHINES, TICKET-ISSUING MACHINES AND SIMILAR MACHINES, INCORPORATING A CALCULATING DEVICE ; CASH REGISTERS.

84.70.10 – Electronic calculators capable of operation without an external source of electric power and pocket-size data recording, reproducing and displaying machines with calculating functions

- Other electronic calculating machines

84.70.21 – Incorporating a printing device

84.70.29 – Other

84.70.30 – Other calculating machines

84.70.40 – Accounting machines

84.70.50 – Cash registers

84.70.90 – Other

- Parts and accessories of the machines of the heading No. 84.70

84.73.21 – Of the electronic calculating machines of subheading No. 84.70.10, 84.70.21 or 84.70.29

84.73.29 – Other

90.09 – PHOTO-COPYING APPARATUS INCORPORATING AN OPTICAL SYSTEM OR OF THE CONTACT TYPE AND THERMO-COPYING APPARATUS.

- *electrostatic photo-copying apparatus*

9009.11 – Operating by reproducing the original image directly onto the copy (direct process)

9009.12 – Operating by reproducing the original image via an intermediate onto the copy (indirect process)

- *other photo-copying apparatus*

9009.21 – Incorporating an optical system

9009.22 – Of the contact type

9009.30 – Thermo-copying apparatus

84.43 – PRINTING MACHINERY, INCLUDING INK-JET PRINTING MACHINES, OTHER THAN THOSE OF HEADING No.84.71 ; MACHINES FOR USES ANCILLARY TO PRINTING (+)

- *Offset printing machinery*

8443.12 – Sheet fed, office type (sheet size not exceeding 22 x 36 cm)

84.72 – OTHER OFFICE MACHINES (FOR EXAMPLE, HECTOGRAPH OR STENCIL DUPLICATING MACHINES, ADDRESSING MACHINES, AUTOMATIC BANKNOTE DISPENSERS, COIN-SORTING MACHINES, COIN-COUNTING OR WRAPPING MACHINES, PENCIL-SHARPENING MACHINES, PERFORATING OR STAPLING MACHINES).

84.72.10 – Duplicating machines

84.72.20 – Addressing machines and address plate embossing machines

84.72.30 – Machines for sorting or folding mail or for inserting mail in envelopes or bands, machines for opening, closing or sealing mail and machines for affixing or cancelling postage stamps

84.72.90 – Other

84.73.40 – Parts and accessories of the machines of heading No. 84.72

- *Other photo-copying apparatus*

9009.90 – Parts and accessories

The positions printed in italics might be candidates for exclusion. Further information to help us decide is found in the explanatory notes to the HS. (The code 84.71, to which reference is made in the heading 84.43 above, means Computers and other information processing equipment).

Supply and demand of ICT Commodities

In order to increase the precision of the ICT sector data and to become able to take different industrial structures in different countries into account a **make matrix** should be established

A simple illustration of the make matrix is shown on the next page. A similar model has already been discussed in the earlier DSTI/ICCP work on a definition of ICT.

The make matrix

ISIC/NACE	Product classification : Goods and services				Total prod. in resp. ISIC/NACE
	ICT goods and services				
	1	--	--	n	
ISIC/NACE 1					
--					
--					
ISIC/NACE n					
Tot prod. of resp. good and service					
Import					
Total supply					

The use matrix looks the same but instead of imports it deals with exports and, of course, use or demand instead of supply. Data availability for a use matrix seems to be even more problematic than for the make matrix.

The data availability in different countries to produce the make matrix should be investigated. We know that some countries have the necessary data for goods, but how general is this situation ?

Some of the reasons for studying the feasibility of establishing a make matrix are the following. To measure the size of the total production of ICT goods and services a simple aggregation of production values for different commodities should not be done. That would give misleading information, because of a lot of double counting. What is necessary is that the industrial origin of the produced goods and services is recorded.

To measure the size of the ICT sector value added should be used.

To come as close as possible to a correct estimate of the ICT sector and ICT production, the make matrix and total national supply of respective ICT good (and service), turnover and value added in combination should be used. The proportion of value added generated by ICT might be gestimated by the proportion of the respective industries production that is ICT.

Annex 1

THE REVISED SYSTEM OF INTERNATIONAL CLASSIFICATIONS

Norbert Rainer

A thorough revision of the international statistical classifications has recently been completed, with the result that the new classifications have been developed as an integrated system of statistical classifications, whereby a) the various product classifications have been harmonized and b) the central product classifications have been related to the classifications of economic activities by the economic origin criterion. In addition, the European Union's classifications have been harmonized with global classifications. This also applies to the national classifications of the EU Member States.

This article presents the main features of this group of harmonized international classifications: ISIC Rev.3, CPC, HS, SITC Rev.3 (global level); NACE Rev.1, CPA, CN, PRODCOM (EU level).

Statistical classifications, also called nomenclatures, belong to the **basic instruments** without which statistical data cannot be compiled. They are, however, more than just an essential prerequisite: they are also an important factor in the quality of statistical information. Statistical classifications must therefore be revised from time to time. Although this is particularly evident in the case of economic classifications, it does not apply only to them. Changing economic structures generate new activities and products which overtake existing activities and products in importance. Such change is thus a constant challenge for the compilation of statistical classifications. The intervals between revisions must not be too long, since the pertinence of the classification diminishes with time, nor must they be too short, since otherwise the comparability of the data over time is adversely affected. Any revision of a classification, particularly if it also includes structural changes, is bound to lead to breaks in the time series.

In order to produce internationally comparable statistics, it is of course necessary not only to use uniform statistical definitions but also to **harmonize the classifications used**. One of the main tasks of international statistical bodies is therefore to compile the necessary classifications or to revise existing ones.

A series of revisions of the international statistical classifications has recently been concluded. The main difference between this and earlier revisions is that the **new classifications have been developed as an integrated system of statistical classifications**. This article sets out to provide an overview of the new system of statistical classifications¹.

Classifications of economic activities and products

Different classifications are needed to cater for the different functions which statistics are required to perform, so at international and national levels classifications have been developed for a wide

range of purposes, whereby each has its own specific area of application depending on the subject of classification.

Economic classifications can be broadly divided into two categories:

- **Classifications of economic activities** cover all economic activities - from agriculture to services - and are used to classify economic entities (enterprises, local units and similar statistical units). Such classifications therefore form the basis for compiling statistics on output, the production factors entering into the production process (input: labour, raw materials and supplies, energy etc.), capital formation or financial transactions.
- The outputs of the economic entities are termed products and are generally divided into goods and services. They are classified in **product classifications**, wherein goods classifications have traditionally been far more important than classifications of services. Product classifications are therefore used for statistics on very many aspects of the production and use of products and on their price dimension. Examples of this type of product-related data are foreign trade statistics, statistics on production and consumption, energy statistics etc.

There are two categories of product classifications: those in which the classification criterion is the **industrial origin** of the goods and those which are structured according to the **material** of which the goods are made. Product classifications of the first category, which are based on the criterion of industrial origin, can therefore be related to a classification of economic activities, so that the resulting classification is symmetrical to the classification of economic activities. Each product is allocated to the economic activity which, by definition, produces it (e.g. milk powder → milk processing, lawnmowers → production of agricultural machinery, retail trade in fuels → petrol stations), on condition that each product is

¹It does not deal with functional classifications or specific classifications for National Accounts.

entered under only one heading in the classification of activities. Product classifications which are mainly structured according to the material of which the goods are made have their historical origin in the requirements of customs and foreign trade statistics. But this does not necessarily mean that they do not take some account of the industrial origin of the goods.

Product classifications, especially those used in foreign trade, already have a very long tradition. They were also the first to be internationally harmonized, a process which began decades ago. The same cannot be said, however, for the other central economic classifications. It was not until the 1970s that a comprehensive programme was launched at international level to harmonize such classifications, the aim being to create an integrated system of classifications of activities and products.

Integrated system of classifications of economic activities and products

The resolutions adopted at the 17th meeting of the United Nations Statistical Commission (1972) and the 21st meeting of the Conference of European Statisticians (1973) marked the beginning of the compilation of an integrated system of classifications of activities and products. It was agreed that the international classifications of activities and products which had been drawn up over the previous decades should be harmonized. At about the same time, the Customs Cooperation Council (CCC) decided on a thorough revision of the customs classification in use at the time in order to produce a uniform classification for foreign trade statistics and customs purposes. This new classification, which was adopted by the CCC in June 1983 and entered into force in January 1988, is called the "Harmonized Commodity Description and Coding System" (HS). The United Nations Statistical Office was also involved in drawing up the HS, mainly in order to press for the HS to be based as far as possible on the economic origin criterion.

On the basis of a report by one of the groups of experts commissioned by the United Nations, the

Statistical Commission adopted in 1976 a work programme to harmonize the economic classifications at global level. For this purpose, a joint working party of the United Nations Statistical Office and the Statistical Office of the European Communities was set up, in which the United Nations Regional Economic Commission, the Council for Mutual Economic Assistance, a number of other international organizations, and representatives of National Statistical Institutes also took part. The task of this working party was to draw up the Integrated System of Classifications of Activities and Products (ISCAP).

ISCAP was used as a basis for revision and harmonization. It was clear that the objective of integration could only be achieved by restructuring the classifications in question.

The plan covered the following aspects:

- revision and harmonization of the UN and EC classifications of economic activities and, if possible, those of the Council for Mutual Economic Assistance (CMEA, also referred to as COMECON);
- relating the classifications of economic activities to the corresponding product classifications;
- harmonization between production-related product classifications and product classifications for foreign trade;
- development of a central product classification;
- integration of the HS as the supplier of the smallest components.

The aim was therefore both to harmonize the classifications of the various organizations and to align product classifications with classifications of economic activities. The HS, as supplier of the smallest components, played a key role. It was therefore essential that the HS should be based as far as possible on the economic origin criterion.

Once the ISCAP system had been completed in the mid-1980s following the adoption of the HS in June 1983, when it was possible to begin detailed

work on the individual classifications. The outcome of this work at UN level was the following two **central classifications**:

- **ISIC Rev.3:** International Standard Classification of all Economic Activities;
- **CPC:** Central Product Classification .

The European counterparts of the above are:

- **NACE Rev.1:** Statistical Classification of Economic Activities in the European Community (Nomenclature statistique des activités économique dans la Communauté Européenne);
- **CPA:** Classification of Products by Activity.

The European central economic classifications are fully harmonized with the global ones. Under the relevant European regulations, this also applies to the national classifications of the Member States of the European Union and, under the EEA Treaty, to the EFTA-EEA countries. In Europe the requirement for harmonization between the central economic classifications and any special survey classifications also applies. The central economic classifications thus form only the core of an international, European and national group of classifications.

This group of classifications is described in detail below. First the classifications of economic activities are dealt with, then the central product classifications and lastly the HS, which is used as the "building-block" classification, the SITC Rev.3 (Standard International Trade Classification), which is aggregated from the HS, and the PRODCOM (Community Production) system as an example of a survey classification for production statistics which is related to the central product classification.

Classifications of economic activities *ISIC Rev.3 (International Standard Classification of All Economic Activities)*

ISIC Rev.3² is the hierarchically structured classification of economic activities drawn up by the United Nations and recommended for use throughout the world. The current version (Third Revision) was approved by the Statistical Commission of the United Nations in **February 1989** and published the year thereafter. The first version of ISIC dates back to 1948, and revised versions were published in 1958 and 1968.

ISIC Rev.3 was the first of the central economic classifications prepared using the integrated approach. These requirements made drawing up the third revision a much more complex task than had been the case with the earlier revisions. Moreover, one of the principal aims was to bring the classification structures into line with the changed economic structures, while at the same time bearing in mind that it was a classification which had to be used not only by the industrialised countries, but also by developing countries.

All these requirements finally produced a third revised version which is much more detailed, at all levels of breakdown, than the previous version. The number of levels of breakdown remains the same, but their designations are different. Furthermore, whereas in ISIC Rev. 2 all the levels of breakdown had purely numerical codes, in ISIC Rev.3 the top level of breakdown is coded by letters. The following *overview* gives a comparison of the two versions of ISIC:

ISIC Rev.2		ISIC Rev.3	
Level of breakdown	Number of headings	Level of breakdown	Number of headings
Major Division	10	Section	17
Division	34	Division	60
Major Group	72	Group	159
Group	160	Class	292

The greater degree of detail in ISIC Rev.3 compared with ISIC Rev. 2 applies to both the product areas and the services branches, but is particularly marked in the services. However, it should be noted that major sectors of the economy had no breakdown at all in ISIC Rev. 2. Instances

² International Standard Classification of All Economic Activities, Third Revision, United Nations, Statistical Papers, Series M, No 4, Rev. 3, New York 1990.

are construction and trade, the latter being subdivided only into wholesale and retail trade.

In the services sector, the following **innovations**, which reflect the increased importance of the branches in question, are worthy of mention:

- a separate division for software manufacture, data processing and databanks, as well as repair of office machines and data processing installations
- a separate division for renting and leasing
- a separate division for research and development

The situation with the product areas is similar, with the technologically dynamic areas, in particular, receiving more adequate treatment. In this context, the introduction of a division for recycling (recovery) is worthy of mention.

Compared with ISIC Rev. 2, the new version has some other **structural differences**. Given below are some examples which - in addition to the differences already mentioned - also represent structural differences compared with the previous version.

- Introduction of a group for mixed agriculture
- Aggregation of the manufacture of furniture of all types in a single group
- Extension of the scope of the concept of construction to include all installation work undertaken on buildings and structures
- Aggregation of wholesale and retail trade in motor vehicles, repair of motor vehicles, and filling stations in a single division under trade
- Introduction of a group for the repair of personal and household goods
- Aggregation of supporting and auxiliary transport activities in a separate division.

Only **explanatory notes** are available as an aid to interpretation of the individual headings in ISIC Rev.3. There is no index to ISIC Rev.3, as was provided for ISIC Rev. 2. However, there is a new type of aid to interpretation available in the form of the Central Product Classification (CPC), since each item in the CPC is accompanied by an ISIC Rev.3 code in accordance with the criterion of economic origin.

NACE Rev. 1 (Statistical Classification of Economic Activities in the European Community)

NACE Rev. 1³ is the classification of economic activities corresponding to ISIC Rev.3 at European level. It is totally in line with ISIC Rev.3 and can thus be regarded as its European counterpart. It came into force in **1990** through a **Council Regulation**⁴.

Work on drawing up NACE Rev. 1⁵ began in 1986, when a working party of the EC Member States was set up by the Statistical Office of the European Communities (Eurostat). Its first task was to investigate what relationship there should be between the revised classification and ISIC Rev.3. The ideas ranged from the complete acceptance of ISIC Rev.3 without changes or extensions to the introduction of a fifth and sixth level. It soon emerged that large parts of ISIC Rev.3 were inadequately broken down for the purposes of observing and analysing the European economies, so that a further disaggregation was required. On the other hand, the introduction of a five- or six-digit classification at European level would have led to seven or eight digits in the national classifications of the Member States, which frequently wanted a still more detailed breakdown. The working party finally agreed to the following compromise:

- The **first** level of ISIC Rev.3 (sections) would be taken over unchanged in NACE Rev. 1, but disaggregated into subsections in some areas
- The **second** level of ISIC Rev.3 (divisions) would be taken over unchanged in NACE Rev. 1
- The **third** and **fourth** levels (groups and classes) of ISIC Rev.3 would be subdivided in NACE Rev. 1 according to European requirements. However, the groups and classes of NACE Rev. 1 can always be aggregated into the groups and classes of ISIC Rev.3 from which they were derived

³ The acronym "NACE" derives from the French title: Nomenclature générale des activités économiques dans les Communautés Européennes.

⁴ Council Regulation (EEC) No 3037/1990 of 9 October 1990, OJ L 293, 24 October 1990, as amended by Commission Regulation (EEC) No 761/1993 of 24 March 1993, OJ L 83, 3 April 1993.

⁵ The new classification was given the title "NACE Rev. 1" to distinguish it from NACE 1970, Statistical Office of the European Communities: General Industrial Classification of Economic Activities within the European Communities - NACE, Luxembourg 1970.

- The lowest level of NACE Rev. 1 consists of **four-digit** classes.

The following *overview* gives the structure, number of headings and coding of ISIC Rev.3 and NACE Rev. 1:

Level of breakdown	ISIC Rev.3		NACE Rev. 1	
	Number	Coding	Number	Coding
Sections	17	A-Q	17	A-Q
Subsections	-	-	31	CA-DN*
Divisions	60	01-99	60	01-99
Groups	159	011-990	222	01.1-99.0
Classes	292	0111-9900	503	01.11-99.00

*) Only 16 of the 31 subsections in NACE Rev. 1 are given a two-letter code, viz. only those subsections of Sections C and D in which a distinction is made between more than one subsection.

In order to reflect the differences between ISIC Rev.3 and NACE Rev. 1 in the **coding system**, a full stop was inserted between the second and third places in NACE Rev. 1. In addition, a "9" in ISIC Rev.3 always refers to "Other", whereas in NACE Rev. 1 it is used in the same way as the other digits.

Since the groups and classes of ISIC Rev.3 were broken down further for NACE Rev. 1 - albeit without introducing further hierarchical levels - some of the corresponding elements in NACE Rev. 1 had to be recoded differently from the corresponding ISIC Rev.3 numbers. One and the same activity at the level of groups and classes may therefore have a numerical code in NACE Rev. 1 which differs from that in ISIC Rev.3.

The aim of the further disaggregations in NACE Rev. 1, as compared with ISIC Rev.3, was to obtain a classification more suited to the structures of the European economies. However, since the national economic structures vary considerably, there are branches of industry in NACE Rev. 1 which are not of importance or do not occur in all Member States (e.g. branches of mining and quarrying, manufacture of spacecraft, etc.). Nevertheless, when NACE Rev. 1 was being drawn up, care was taken - as had been the case

when ISIC Rev.3 was being prepared - to give sufficient prominence to those branches of the economy which were clearly gaining in importance.

The most important aid to interpretation of NACE Rev. 1 is the Explanatory Notes on the individual headings. These notes are based on those of ISIC Rev.3. This ensures that not only the structure but also the contents of NACE Rev. 1 are in line with those of ISIC Rev.3. In addition, the Regulation on NACE Rev. 1 set up a management committee (**NACE Committee**) whose main tasks include the interpretation of NACE Rev. 1. Another aid to interpretation is the CPA - the European version of the CPC.

From the outset, the European Commission had intended that the new NACE should be used by all Member States for **both the compilation and the presentation of the statistical data**. The Member States and the Commission thus decided to introduce NACE Rev. 1 in the same form and on the same date in all Member States. On 9 October 1990 the Council of Ministers approved a **Regulation** which, as such, has the force of **directly applicable law** in all Member States of the European Union. This Regulation also forms part of the **EEA Treaty**⁶.

Under **Article 10** of this Regulation, statistics collected after 1 January 1993 by the Member States of the European Union involving classification by economic activity must be compiled according to NACE Rev. 1 or a national classification derived therefrom. It must be stressed that this obligation applies to **all types of statistics**, i.e. even to those compiled for national purposes only and which do not currently form part of the European Statistical System. This provision thus makes the European classification of economic activities into a **nationally binding classification**.

The NACE Rev. 1 Regulation allows the Member States to use a **national version** derived from NACE Rev. 1 for national purposes. Such national versions must, however, fit into the structural and hierarchical framework laid down by NACE Rev. 1.

⁶ Treaty on the European Economic Area

As far as the entry into force is concerned, **Article 11** of the NACE Rev. 1 Regulation provides for a transitional period ending on 31 December 1994, and some Member States have taken up that opportunity.

Product classifications

CPC (Provisional Central Product Classification)

The most significant achievement to come out of the work to develop an international system of integrated classifications of economic activities and products is without doubt the "**Central Product Classification**" (CPC)⁷ devised by the United Nations. Before the CPC was developed, the international system did not have any classification which encompassed both goods and services.

The CPC was created with the aim of providing a framework for the comparison of many different kinds of statistics concerning goods and services. Its purpose is therefore not to replace other product classifications, but rather to enable the latter to be harmonised in such a way that data can be transposed into the relevant categories of the CPC. The CPC can thus be regarded as a means of harmonisation at both international and national level.

Strictly speaking, the scope of the CPC extends to cover more than just products; it also includes land and buildings and also intangible assets (e.g. patents, licences, trademarks, copyrights) deriving from legally binding contracts. The aim of the CPC's covering more than products alone is to create a classification system whose categories can be used for recording transactions at national and international level. These categories relating to assets are, however, clearly identifiable as such and can thus be differentiated quite easily from the "pure" product categories. The description of the CPC which follows relates only to product categories.

⁷ Provisional Central Product Classification, United Nations, Statistical Papers, Series M, No. 77, New York 1991.

The criterion according to which the CPC arranges products is their "**material composition and nature (properties)**". This includes, for example, the type of raw material used, the production process involved, the purpose for which the goods are intended, etc. Although this criterion is often the same as that used for classifications of economic activities, the CPC should not be regarded as a mere product classification forming part of a classification of economic activities. It is, therefore, also structured differently from ISIC Rev.3. Despite this specific approach, however, the CPC has also taken into consideration the criterion of **economic origin**. Thus efforts were made to define headings at the lowest level of the CPC in such a way that as many products as possible at this level can be allocated to a single category of ISIC Rev.3. As regards goods, the CPC uses the headings and subheadings of the **HS** (Harmonised Commodity Description and Coding System) as **building blocks**, i.e. every heading at the lowest level of the CPC corresponds exactly to a heading or subheading of the HS or to an aggregation of two or more HS headings or subheadings. With respect to goods, therefore, the definition of categories in the HS is used as the basis for classification in the CPC. The use of the HS headings and subheadings as building blocks and of HS definitions for CPC classifications represents without doubt an important step towards the development of an integrated classification system. Furthermore, the HS has been used in many countries for a number of years for customs and foreign trade statistics purposes, which means that it is a widely used and thus well-known system, which should also make the introduction of the CPC somewhat easier. The drawback with this approach, however, is that the headings and subheadings of the HS do not always satisfy the criterion of economic origin. CPC headings may therefore include goods whose economic origins vary.

The CPC has its own **coding system** which is independent of ISIC Rev.3. The aim of this is to ensure that the CPC is not regarded simply as an extension of the ISIC Rev.3 in the form of a list of goods and services. This would be incompatible with the CPC's claim to be a central product

classification in its own right. The CPC's coding is based on the decimal system; a numerical code (with a maximum of five digits) corresponds to each of the five hierarchical levels.

The following *overview* gives the structure and number of headings of CPC:

Level of breakdown	Number of headings			
	Goods	Construction	Services	Total
Section	5	1	4	10
Division	39	3	27	69
Group	184	14	95	293
Class	735	62	253	1050
Subclass	1136	89	586	1811

At the lowest hierarchical level, the CPC thus has 1 811 headings. Transportable goods account for something over 60% of these, and services represent just over 30%. At first sight, this may seem rather disappointing, but this breakdown in no way reflects the importance of services. It should, however, also be borne in mind that the goods domain in the CPC is based on the HS, i.e. a classification system with many more hierarchical levels and with very clear and unambiguous definitions. On the other hand, the definition of and differentiation between individual services certainly pose considerable problems from the point of view of statistics. Furthermore, there are many areas in which practical experience of statistical surveys in the field of services is lacking.

With regard to interpretation of the CPC, a distinction should be made between goods and services (including building work). The CPC's **Explanatory Notes** are restricted to building work and services. For headings defined via the HS, users are referred to the Explanatory Notes to the HS, a work consisting of several thousand pages.

On the title page of the UN publication concerning the CPC, it is stated that the CPC is still of a provisional nature, particularly in relation to services. As already mentioned, relevant

experience of collecting statistical data in this field is largely lacking. Work to revise the CPC in the field of services has thus already begun. Particular mention should be made here of the "Voorburg Group for Statistics on Services"; this group not only played a major role in drawing up the part of the provisional CPC relating to services, but will also be in overall charge of preparing a revised version. An interim report drawn up by the Voorburg Group will be submitted to the Statistical Commission of the United Nations in February 1995.

CPA (Statistical classification of products by activity in the European Economic Community)

The CPA⁸ is the European version of the CPC, and the purposes it serves are in line with those of the CPC. Whilst the CPC is merely a recommended classification, however, the CPA is legally binding in the European Community. In addition, the specific survey classifications were and are linked to the CPA unless the CPA is itself used as a survey classification.

Although the CPA is the European counterpart of the CPC, it differs from the latter not only in that it is more detailed but also as regards its **structuring**. The view at European level was that a central product classification should be structured according to the **criterion of economic origin**, with the framework (and thus the definition of the economic activities) being based, naturally enough, on NACE Rev.1. This recourse to NACE Rev.1 with respect to the definitions of economic activity means that the CPA's structure corresponds at all levels to that of NACE Rev.1.

Specifically, the **derivation of the CPA from the CPC** involved the following steps:

- The CPC subclasses were arranged according to their economic origin. The basis for this step were the ISIC Rev.3 references in the CPC.

⁸ Council Regulation (EEC) No 3696/93 of 29 October 1993 on the statistical classification of products by activity (CPA) in the European Economic Community, OJ L 342 of 31 December 1993.

- The CPC subclasses were then allocated to the NACE Rev. 1 classes, in the process of which quite a few CPC subclasses had to be subdivided because NACE Rev. 1 is more detailed than ISIC Rev.3. In some cases, the often more detailed Combined Nomenclature (CN) had to be used instead of the HS. In exceptional cases in which not even the CN was detailed enough, an "Other" category was created.
- The next step was to fix the hierarchy of the CPA categories and subcategories. The general principle applied here was that group level in the CPC should correspond to category level in the CPA, and subclass level in the CPC to subcategory level in the CPA. The main consideration underlying this principle was the mutual harmonisation of the CPA and CPC.
- Finally, further subdivisions were carried out in line with the specific requirements of the Community and the individual Member States. As a result of this breakdown, the CPA has around 500 subcategories more than the CPC has subclasses.

The following *overview* gives the structure and number of headings of CPA:

Level of breakdown	Number of headings			
	Goods	Construction	Services	Total
Section	5	1	11	17
Division	33	1	26	60
Group	125	5	90	220
Class	266	17	209	492
Category	636	42	268	946
Subcategory	1533	100	670	2.303

The link between the CPA and NACE Rev. 1 can also be seen in the **coding**. At all levels of the CPA derived from NACE Rev. 1, the coding is also identical with that used in NACE Rev. 1. Coding at category level consists of a five-digit numerical code, with a six-digit numerical code being used at subcategory level; in each case, a full stop is placed between the fourth and fifth digits (not to be confused with the coding system used in the HS).

Since the elements of the CPA are based on those of the CPC, links between the CPA and the HS exist in the same way as those between the CPC and the HS which have been referred to above. The same also applies as regards the Explanatory Notes to the CPA.

National versions of the CPA are possible in the same way as national versions of NACE Rev. 1.

HS (Harmonised commodity description and coding system)

The Harmonised System⁹ has already been referred to several times in this article. The HS took on a key role in the development of the revised international system of economic classifications, providing the building blocks for the central product classifications.

In the same way as many other countries, EU has since 1988 been using the HS for both customs tariff and foreign trade statistics purposes. The HS is a hierarchically structured goods classification. It is divided into 96 chapters which are each identified by means of a two-digit numerical code. These chapters are grouped under 21 section headings, each coded with Roman numerals. The chapters are subdivided into 1 241 headings, which are in turn subdivided into 5 019 subheadings. The headings are identified by means of a four-digit and the subheadings by a six-digit numerical code.

Although the HS basically covers goods, i.e. products which have a physical dimension, it also encompasses electricity. Its structure is such that any goods item can be assigned unambiguously to a specific heading within the system. The HS therefore does not cover services, but clearly does cover the physical "manifestations" of services (e.g. architects' plans, diskettes with software etc.).

CN (Combined Nomenclature)

The Combined Nomenclature is the classification used within the EU for the purposes of foreign trade and provides a degree of detail going beyond

⁹ Harmonised Commodity Description and Coding System, Customs Cooperation Council, Brussels 1983.

that in the HS. The CN was introduced in 1988 together with the HS. Headings in the CN are identified by means of an eight-digit numerical code.

The very considerable number of subdivisions within the CN were introduced with the EU's specific customs and foreign trade statistics requirements in mind. The CN is revised every year and, as a Council Regulation, is binding on the Member States¹⁰. Up until 1995 (inclusive), the EU Member States are also entitled to enter supplementary items in the CN for national purposes¹¹.

SITC Rev.3 (Standard International Trade Classification)

The SITC is the international trade classification published by the United Nations. The third revised version of the SITC¹² came into force at the same time as the HS was introduced. Up until the time the HS was adopted, the SITC was the only trade classification which enabled comparisons to be made on a worldwide basis. Now that the HS is used throughout virtually the entire world, the SITC has therefore declined in importance.

The third revised version of the SITC uses the constituent elements of the HS as building blocks. SITC Rev.3 has a five-level hierarchical structure with purely numerical coding. The link between SITC Rev.3 and the HS is very similar to that between the CPC and the HS: the five-digit headings in SITC Rev.3 are equivalent to all or part of a single CPC subclass. However, a link also runs in the other direction in that every CPC subclass is part only of a three-digit heading in SITC Rev.3. CPC subclasses can therefore always

¹⁰ Most recently: Commission Regulation (EC) No 2086/97 on the tariff and statistical nomenclature and on the Common Customs Tariff, OJ L 312 of 14 November 1997.

¹¹ See Council Regulation (EEC) No 1969/93 of 19 July 1993 amending Regulation (EEC) No 2658/87 on the tariff and statistical nomenclature and on the Common Customs Tariff, OJ L 180 of 23 July 1993.

¹² Standard International Trade Classification, Revision 3, United Nations, Statistical Papers, Series M, No 34, Rev. 3, New York 1986

be aggregated to three-digit headings in SITC Rev.3.

PRODCOM (Community Production)

"PRODCOM" is the abbreviation for the new EU system of production statistics for mining and goods (i.e. excluding services). What is of interest here is only the product classification (PRODCOM list) upon which this new source of production statistics is based. This new system was adopted by the Member States via a Council Regulation¹³. However, the PRODCOM list itself is not part of the Regulation, but is drawn up each year by the PRODCOM committee.

The headings of the PRODCOM list are derived from the HS or the CN, which thus enables comparisons to be made between production statistics and foreign trade statistics. PRODCOM headings are coded using an eight-digit numerical code, the first six digits of which are identical to those of the CPA code. The PRODCOM list is therefore linked to, and consistent with, the central product classification.

Overview of the entire classification system

The previous section set out details of the new statistical classification system. By way of conclusion, the links between the various classifications will now be illustrated by means of a diagram.

In this connection, it is appropriate to distinguish between the following three levels:

- worldwide
- EU level
- national level

As regards the classifications themselves, a distinction should be made between

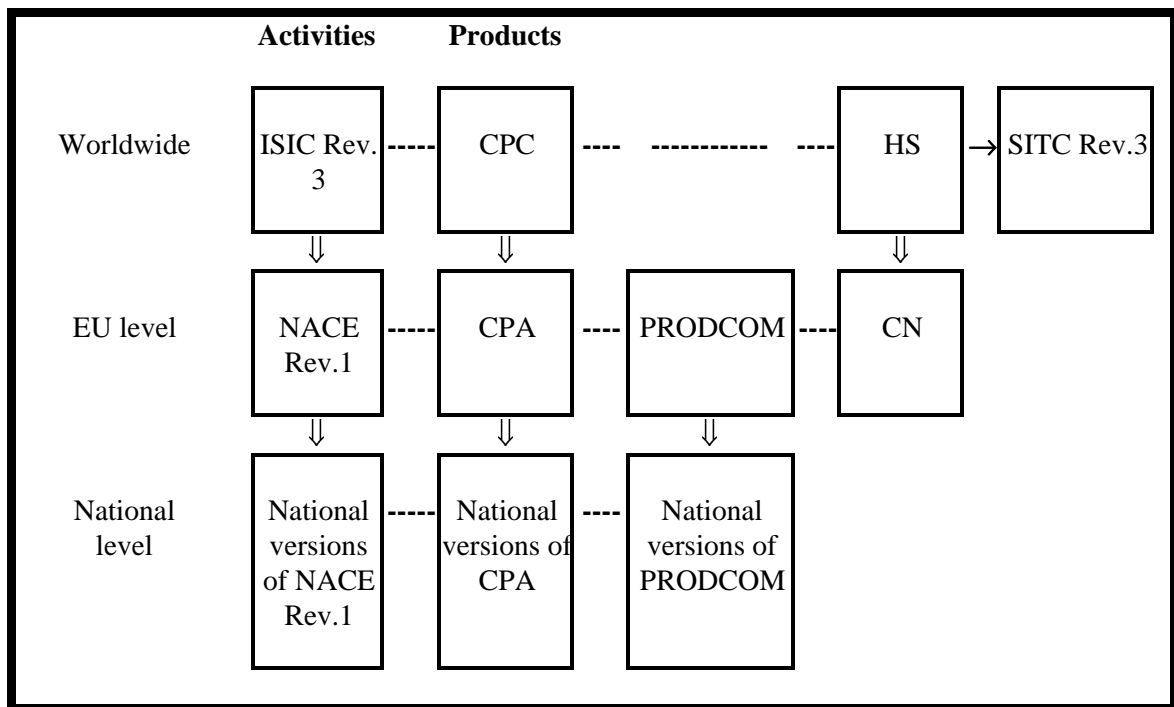
- classifications of economic activities;
- central product classifications;
- product classifications serving as "building blocks", and

¹³ Council Regulation (EEC) No 3924/91 of 19 December 1991 on the establishment of a Community survey of industrial production, OJ L 374 of 31 December 1991.

- survey classifications (survey lists) linked to the central product classifications.

The following diagram can of course only indicate the direct links between the individual classifications. The links between the worldwide and EU levels, and between the EU and national levels, are of the same kind: in each instance, headings are further subdivided while at the same time the given structure is adhered to. The links between classifications of economic activities and central product classifications lie in the criterion of economic origin; in the case of the relevant classifications at EU and national level, this is reflected in the structuring of the central product classifications: although the CPC is structured differently from ISIC Rev.3, it also takes into account economic origin. The HS and CN function (with respect to movable goods) as "building block" classifications for the central product classifications, and also serve to define and specify the scope of PRODCOM headings. There is thus also a direct link between PRODCOM and the CPA . Survey classifications for production statistics in the field of services would, given the lack of any suitable "building block" similar to the HS, be taken directly or derived from the CPA.

REVISED SYSTEM OF INTEGRATED STATISTICAL CLASSIFICATIONS: OVERVIEW



Annex 2**PROPOSAL FOR THE CPA CONCERNING AUDIO-VISUAL SERVICES****Eurostat/D3****Revised version of January 1997**

This proposal was endorsed by the Eurostat Working Group on Audio-visual Services in September 1997. Explanatory notes are available.

- 92 Audiovisual, Recreational, Cultural and Sporting Services
- 92.1 Motion picture and video services
- 92.11 Motion picture and video production services
- 92.11.1 Cinematographic film, exposed and developed
- 92.11.11 Cinematographic film, exposed and developed, of a width of 35 mm or more
- 92.11.12 Cinematographic film, exposed and developed, other
- 92.11.2 Magnetic tapes with sound and vision recordings
- 92.11.20 Magnetic tapes with sound and vision recordings
- 92.11.3 Production services for advertising and institutional films made to order
- 92.11.31 Production services for advertising films made to order
- 92.11.32 Production services for institutional films made to order
- 92.11.4 Production services for cinematographic films or for television or video films (fiction, documentaries)
- 92.11.41 Production services for cinematographic films
- 92.11.42 Production services for television or video films (fiction, documentaries)
- 92.11.5 Auxiliary services in connection with the production of cinematographic, television or video films

- Auxiliary services in connection with the production of cinematographic, television or video films
- 92.12 Motion picture and television or video film distribution services
 - 92.12.1 Distribution services for cinematographic, television or video films and other related services in connection with film distribution
 - 92.12.11 Distribution services for cinematographic films
 - 92.12.12 Distribution services for television or video films
 - 92.12.13 Other distribution services
 - 92.12.14 Other related services in connection with film distribution
 - 92.12.2 Management of marketing portfolios of audiovisual rights and sales of copyrights on films
 - 92.12.20 Management of marketing portfolios of audiovisual rights and sales of copyrights on films
- 92.13 Motion picture and video film projection services
 - 92.13.1 Cinematographic and video film projection services
 - 92.13.11 Cinematographic film projection services
 - 92.13.12 Video film projection services
- 92.2 Radio and television services
 - 92.20 Radio and television services
 - 92.20.1 Radio and television programme services
 - 92.20.11 Radio programme services
 - 92.20.12 Television programme services
 - 92.20.13 Other programme services
 - 92.20.14 Sales management of broadcasting rights for radio programmes produced on own account
 - 92.20.15 Sales management of broadcasting rights for television programmes produced on own account
 - 92.20.2 Production services for television programmes for third parties and auxiliary services in connection with television and radio programme production n.e.c.

- 92.20.21 Production services for television programmes for third parties
- 92.20.22 Auxiliary services in connection with television and radio programme production
n.e.c.
- 92.20.3 Radio and television services in connection with the operation of direct-broadcasting
satellites or cable networks
- 92.20.31 Radio and television services in connection with the operation of direct-broadcasting
satellites or cable networks
- 92.20.32 Other radio and television services in connection with the operation of direct-
broadcasting satellites or cable networks

Annex 3

**AN EUROSTAT/D3 DRAFT SURVEY CLASSIFICATION OF
TELECOMMUNICATION SERVICES M.M.**

This draft is currently being tested in a pilot survey with 10 participating Member States. The numbering refers to the pilot questionnaire. The level of detail actually used in the survey varies between the participants.

3. Breakdown of turnover and volume data

3.1 According to type of product

*Fixed network services

3.1.1 Public telephony services (subdivision optional)

- 3.1.1.1 Subscription fees, connection fees and other one off fees
- 3.1.1.2 National telephony services
- 3.1.1.3 International telephony services

of which

- 3.1.1.3.1 EU
- 3.1.1.3.2 extra-EU
- 3.1.1.4 Calls from fixed to mobile
- 3.1.1.5 Other services in fixed network

3.1.2 Datacommunication services in dedicated public networks

- 3.1.2.1 Circuit and packet switched network

of which

- 3.1.2.1.1 Start up fees
- 3.1.2.1.2 Call fees

3.1.3 Other fixed network services

- 3.1.3.1 Domestic leased lines
- 3.1.3.2 International leased lines
- 3.1.3.3 Integrated digital network services (ISDN)
- 3.1.3.4 Leasing of lines to closed user groups
- 3.1.3.5 LAN interconnection services

- 3.1.3.6 Telex, telegraph and telegram services
- 3.1.3.7 Other fixed telecom services, please specify

* Mobile telecommunication services

3.1.4 Public mobile telecommunications services

- 3.1.4.1 subscription fees
- 3.1.4.2 entrance fees
- 3.1.4.3 Monthly fees + call fees
- 3.1.4.4 Paging services
- 3.1.4.5 Public mobile dedicated data services
- 3.1.4.6 Radio networks for closed user groups (PMR)
- 3.1.4.7 Private mobile dedicated data services
- 3.1.4.8 Maritime services and air-to-ground communication services
- 3.1.4.9 Localizing and positioning services

- 3.1.4.10 Other mobile services, please specify

3.1.5 Freephone calls and pay calls

- 3.1.5.1 Freephone calls
- 3.1.5.2 Pay calls

* Interconnection services

- 3.1.6 Interconnection services
 - 3.1.6.1 Access services
 - 3.1.6.2 Terminal services
 - 3.1.6.3 Transit services
 - 3.1.6.4 Other interconnection services, please specify

* Communications management services

- 3.1.7 Communications management services
 - of which
 - 3.1.7.1 Managed network services and outsourcing
 - 3.1.7.2 Resale of bearer services
 - 3.1.7.3 Provision of intelligent network features
 - 3.1.7.4 Other communications management services, please specify.....

* Value added network services

Network and related services necessary to send and receive electronic messages and/or to access information in data bases.

3.1.8 Value added network services

of which

3.1.8.1 Electronic messaging services (e-mail)

3.1.8.2 Voice messaging services

3.1.8.3 Telemetry

3.1.8.4 Other value added network services, please specify:

* Information services

3.1.9 Information services

of which

3.1.9.1 Internet, leased connection

3.1.9.2 -" - , dialled connection

3.1.9.3 Other information services, please specify

* Broadcast services

3.1.10 Broadcast services

of which

3.1.10.1 TV broadcast transmission services

3.1.10.2 Radio broadcast transmission services

3.1.10.3 Cable TV services, total

of which

3.1.10.3.1 installation of networks and basic service

3.1.10.3.2 intermediary of pay TV

3.1.10.3.3 other

3.1.10.4 Other radio and TV broadcasting services, please specify

* Other telecommunications/network services

3.1.11 Other telecommunications/network services, please specify

* Turnover from the sale of goods and services related to telecommunications

3.1.12 Turnover from the sale of goods and services related to telecommunications

* Other operational revenues

3.1.13 Other operational revenues

3.1.14 Received subsidies

3.2 Breakdown of turnover by type of client

3.2.1 Share by sector	
3.2.1.1 Private business	%
3.2.1.2 Public sector	"
3.2.1.3 Households and others	"
Total	100%
3.2.2 Share of activity classes of total turnover from private business	
3.2.2.1 Manufacturing, incl, construction	%
3.2.2.2 Wholesale and retail trade	"
3.2.2.3 Transport and storage	"
3.2.2.4 Communication	"
(of which telecommunication services operators and providers %)	
3.2.2.5 Financial intermediation	"
3.2.2.6 Real estate, renting and business services	"
3.2.2.7 Audio-visual services	"
3.2.2.8 Other activities	"
Total	100%
3.2.3 Share of various levels of public administration of total turnover from public sector	
3.2.3.1 State	%
3.2.3.2 Local authorities (regional, local)	"
3.2.3.3 Others	"
Total	100 %