

**ALTERNATIVE AGGREGATIONS
AND THE STANDARD INDUSTRIAL CLASSIFICATION**

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Abstract:

Industrial statistics are generally compiled on the basis of a Standard Industrial Classification. Industries are defined in terms of activities. Industries are shown to produce and use products which may be classified according to an independent standard classification of products or according to their principal industry of origin. Standard classifications are necessary, however, users have a variety of analytical needs not all of which can be met by the concepts and definition of a single standard. These needs can often be met by alternative aggregations of standard industries, special groupings of production units based on criteria other than those used for the standard, by special aggregations of product outputs and of associated inputs, and satellite accounts.

Industries/products/Industrial classification/Product classification/alternative aggregations.

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Alternative Aggregations and the Standard Industrial Classification: A note

The definition of ‘industry’

Industrial statistics are generally compiled on the basis of a Standard Industrial Classification. The Standard Industrial Classification delineates industries at the lowest level of its hierarchy. Industries are described in terms of the activities of which they are composed. Activities in turn are defined in terms of inputs, skills, production processes and technologies used, or they are defined in terms of products produced. The classification is designed to characterise the production units of businesses, on the assumption that those units use a particular or similar production process, specialise in the production of a relatively narrow range of products, and have a relatively stable behaviour over time. They in turn have a degree of autonomy and constitute economic transactors, that is they buy and sell and records are kept about their behaviour in the market. Businesses may be composed of one or more production units. These production units are usually described as establishments or kind of activity units (KAU). Each production unit is classified in its entirety to an industry on the basis of its principal activity. Statistics are collected about that unit and industrial statistics are compiled by bringing together statistics relating to the revenues and costs of all the units classified to each industry and to the groups of industries articulated by the classification.

Production units produce products, both goods and services, so industrial statistics based on standard industrial classifications have two dimensions. They show the industries of which the economy is composed and the products produced (and used) by those industries.

The industries of the industrial classification, constructed as they are on the basis of production units assign all the products produced by each producing unit to the same industry. Industries are more narrowly defined than the range of products produced by the units defined to them, so in the statistics produced about them, industries are shown to produce a range of products, some of which are principal to them and others that are secondary to them. The same product may be produced by more than one industry because it may be both the principal product of one industry and the secondary product of another but also because industries may be defined in terms of the production process used. Units using a vertically integrated production process may produce the same product as others that buy the unfinished product and further process it.

In the world of Business, there is a different definition of ‘industry’.

Businesses think of the producers of a particular group of products as constituting an industry. When they are interested in the market for particular products and in analysing market share, they may describe that group of products as 'an industry' and form a Trade association to look after their interests. A business can belong to as many 'industries' as the products that it produces.

Industrial Classifications

With respect to the production of industrial statistics, statistical agencies are faced with the general problem that in this case, as in others, users have a variety of analytical needs not all of which can be met by one concept, definition or classification. Even if it only serves a general purpose, a standard industrial classification is still necessary. It has the advantage of being comprehensive in that it covers all the activities that make up the economy. It divides the economy into groups of activities at various levels of aggregation and provides a framework that reflects the structure of the economy, without gaps or duplication. Traditionally it has divided the economy at the highest level into primary, secondary and tertiary activities. The way the classification chooses to group activities provides a framework at its most detailed level, for the study of individual industries, their performance and productivity, and at higher levels, for the analysis of the structure of the economy. The Standard Industrial Classification provides the underlying structure for the production accounts of the System of National Accounts. It provides the standard in terms of which alternative aggregations of industries can be defined.

Product Classifications

Product Classifications are required for the production and analysis of product data and for the presentation and analysis of industrial outputs and inputs.

The alternative definitions and aggregations required by analysts and users take many forms. They may be partial or overlapping in terms of the coverage of the economy. Often they do not follow the principles used to create the categories of the standard classification, so they cannot be incorporated into the classification. The logic for the groupings, and the resulting groupings themselves, are as varied as the interests, mandates and objectives of different data users.. Because no single classification system whether of industries or of products can satisfy all users and uses, it becomes necessary for statistical agencies to address the issue of providing users with alternatives to the standard to enable them to undertake other types of analyses.

Among the different types of alternative aggregations needed by users are:

- A. Non-standard groupings of standard industries.
- B. Non-standard groupings of production units.

In addition they may also need:

- C. Product groupings and groupings involving the breakdown or redefinition of production units.
- D. Satellite accounts

Alternate Aggregations

A. Non-standard groupings of standard industries

Industries have a number of characteristics related to their inputs and product outputs. Alternative or cross cutting industry aggregations, in which users and analysts are interested, draw on different characteristics of industries.

Examples of non-standard groupings of industries are **a)** knowledge- based industries: a grouping of industries based on the skill of their workforce; or **b)** high technology and low technology industries, aggregations that use information about the technology used in production, as the criterion of grouping.

Where detailed industry data are available, it is often feasible for users, themselves, to create alternative aggregations of industries to suit their own needs or for the statistical agency to re-aggregate the data for them. However, they do have to turn to the statistical agency to compile the data for them, if the aggregations depend on additional information, only available through the statistical agency

At intervals, statistical agencies themselves need to and do review the aggregations of the standard to see whether they reflect the current structure of the economy and the importance of different sectors within it and undertake a revision of the standard.

Until now the categories of the higher level aggregations of Standard Industrial Classifications have followed a certain common approach. Primary, secondary and tertiary activities are separated at this level. Generally goods producing industries are separated from services producing ones, though services used by particular sectors of the economy are sometimes grouped with that sector. Among the goods producing industries, those that produce transportable goods are distinguished from those that produce non-transportable ones and among service producing ones, services related to the distribution of goods are separated from services directly consumed by businesses and persons. Separate sectors are created for education, health and public administration. As time has passed and services have begun to account for a larger proportion of the economy industry classifications have reflected the change by articulating more service-producing industries.

In the newly created North American Industry Classification System (NAICS), to be adopted by the statistical agencies of Canada, Mexico and the US, the higher level structure was changed in order to recognise the way in which the use of Information technology has transformed the nature of the economy. The new structure recognises the important role that industries that produce and disseminate Information and those that provide the means to disseminate it, are now playing in the economy. To create the Information Sector, Publishing was brought out of Manufacturing and combined with three other areas, Broadcasting and telecommunication, Information services and data processing, and Motion picture and sound recording. Under Publishing two new industries were created for database publishing and software publishing and Information services include on-line Information Services.(See Appendix I for a description of the NAICS Information sector and its content).

In itself, even this new sector does not contain all the industries that users wish to combine to analyse the role of information and information technology in the economy. They create a number of different groupings for purposes of analysis that are variously defined and described as information, information technology, the information economy etc. Given their policy needs, Industry Canada, the federal government department responsible for micro-economic policy, together with Statistics Canada have defined and compiled statistics for what they call ‘The information and communication technology sector.’ For the moment, this definition, based on the Canadian 1980 SIC includes Computer services, Broadcasting and Telecommunication Carriers from Services, to which are added the manufacture of consumer electronics, computer and peripheral equipment, communication equipment, audio and video equipment, semiconductor and electronic components, navigational, measuring and control instruments and the manufacture and reproduction of magnetic and optical media (see Appendix II for a description of the ICT sector and its content) . In the future when data are collected on the basis of NAICS, those manufacturing industries will be combined with all the industries that will constitute the NAICS Information Sector. Finally, in their document on the Information Economy in the 21st century¹, the Canadian government departments of Industry Canada and Heritage Canada also recognise the importance of the Performing arts and spectator sports industries in providing the content of that which is taped, filmed, and broadcast and Heritage institutions for the preservation and exhibition of objects, sites and natural phenomena of historical, cultural or educational value. They also conclude that creators of a diversity of content will become increasingly productive as computers and television with their wide range of programs are adopted as tools for delivering recreation, amusement and gambling related activities. For this reason they propose that recreation, amusement and gambling industries be included as part of any analysis of the impact of information technology in the future.

B. Non-standard groupings of production units.

These alternative types of groupings can be based on criteria such as:

- a) Products - all units primarily producing (or transporting) a particular product or set of products.

An example would be a grouping of transportation carriers primarily engaged in transporting hazardous materials, whether by road, rail or water.

- b) function or use - all units primarily producing products that have a similar or complementary purpose or function, or that serve the same or similar markets.

Examples would be groups of producers of services used by businesses and those used by persons.

- c) industrial organisation - all producing units that are up-stream or down-stream of production processes that may include primary, secondary and tertiary sector activities

¹ Measuring the Global Information Infrastructure for a Global Information Society Concepts and Performance Indicators, Industry Canada, September 1996.

An example would be all producing units engaged in the extraction, refining, transportation and distribution of fuel oil.

d) ownership and control - all units owned privately or by government.

When these types of aggregations need the micro-data by production unit collected by the statistical agency or other information maintained only within the statistical agency, issues of confidentiality and residual disclosure arise and users have to depend on the statistical agency to provide them with the data.

Other groupings and frameworks

C. Product groupings and groupings involving the breakdown or redefinition of the production unit

Product Groupings - Product data and the standard classification of products.

When analysts are interested in studying market share for services, as in the case of goods, it may be sufficient to provide them with product data for the output of their own industry or group of industries and the total output by all industries, of the product or group of products in which they are interested. This can be described as the second dimension of the matrix of industries and products that is the result of the compilation of industrial statistics. For purposes of analysis users may wish to go on and create product groups of complementary products, substitutes or products that serve the same market, which may it turn be different from the aggregations of the standard product classification or classification of services being used.

However, the problem becomes more complex when users want not only output data but also a grouping of the inputs associated with the output of those products. These data are used to study productivity or employment by product groups (described as ‘industries’ by some users) rather than by the industries defined for the standard industrial classification.

Producers of services, like those of goods may not be able to associate particular inputs with particular outputs or to provide data that separate the inputs associated with each product produced. In such cases, if the data are required they can only be modelled on the basis of certain assumptions. The well-known assumptions for approaching the problem from the input or supply side are those of commodity technology or of industry technology or some combination of both. Inputs and input structures are extracted from the micro-data of production units, to represent the inputs required to produce the grouping of product outputs that have been defined to constitute ‘the industry’. The commodity technology approach assumes that a similar set of inputs are required to produce the output, irrespective of the industry or unit in which it is produced. The industry technology approach assumes that the inputs required vary depending upon the industry and the unit in which it is produced.

Some statistical agencies create product-based analytical units or product-by-product input-output tables as part of their regular statistical programs.

D. Satellite Accounts

A very important alternative grouping of industry data needed by policy analysts and one that cannot be incorporated into the standard industrial classification is that which is needed for an analysis of Tourism. This is an example of a demand-based grouping of data. A grouping of Tourism -related industries comprises all industries, an important proportion of whose services are purchased by Tourists. Such an aggregation usually comprises a grouping of standard industries in transportation, accommodation, food and beverage services, travel services and recreation and entertainment services. However, because users are interested in isolating that part of each standard industry that relates to Tourism, a satellite account is created. With the help of estimates of travel expenditures by tourists (both business and personal) on the output of these industries, estimates are made of the proportion of each industry's output that can be attributed to Tourism to create a 'Tourism Industry'². (See Appendix III for the grouping used by Statistics Canada). Through a satellite account, traditional economic data can also be supplemented by other data that are useful for the analysis of the 'industry' for example occupancy rates of different types of accommodation used by tourists.

The issue of non-standard groupings and satellite accounts

Statistical agencies are increasingly being called upon to provide alternative aggregations of all the kinds described above.

To meet the needs of users, ad-hoc user defined aggregations are provided and special surveys are undertaken. In some important areas regular or ad-hoc programs for the compilation of satellite accounts are put in place. In Statistics Canada such programs exist for the compilation of statistics on Information and Information Technology and satellite accounts in the areas of Tourism, the Environment, and Unpaid Work for example.

Issues of confidentiality and residual disclosure arise if users request different but overlapping aggregations. There are also issues of definition, nomenclature and labelling so that the content of different aggregations are not confused with one another.

To monitor the situation, Statistics Canada asks that non-standard aggregations be registered with Standards Division (see Appendix IV).

² Statistics Canada, Guide to the National Tourism Indicators; Source and Methods, Cat. No. 13-594-GPE, August 1996

It is useful for statistical agencies to keep a record of the non-standard aggregations that are requested, and to analyse their nature and frequency, so that if they are of general interest, statistical agencies can decide whether they should start to collect and record the additional data required and to compile them on a regular basis.

At the micro-data level, it is useful for the agency to determine what additional characteristics are in frequent demand and to incorporate them into their regular statistical programs so as to be prepared to create aggregations based on those characteristics. Some characteristics of production units can be incorporated into the business register, for example it is common to add ownership as one of the characteristics of the production unit on the business register. Though it is not a criterion used for creating classes of the standard industrial classification it is one on which data relating to production units can be and are regrouped.

Other user needs can be met by introducing new industries or different aggregations into the standard classification when it is revised.

Finally satellite accounts can be created when the data that are needed do not follow the concepts of the System of National Accounts or the principles of the standard classifications; when the required aggregation cuts across those of the standard, when the production unit is not the suitable unit of observation or physical or other characteristics need to be combined with traditional economic variables.

At the international level it is necessary to agree upon common definitions based on common classifications to produce alternative aggregations or alternative frameworks, for the analysis of important issues of international interest.

APPENDIX I – NAICS INFORMATION SECTOR:

51 INFORMATION AND CULTURAL INDUSTRIES

This sector comprises establishments primarily engaged in creating and disseminating (except by wholesale and retail methods) information and cultural products, such as written works, musical works or recorded performances, recorded dramatic performances, software and information databases, or providing the means to disseminate them. Establishments that provide access to equipment and expertise to process information are also included.

The unique characteristics of information and cultural products, and of the processes involved in their production and distribution, distinguish this sector from the goods-producing and services-producing sectors. In particular,

- the value of these products lies in their information, educational, cultural or entertainment content, not in the format in which they are distributed. Most of these products are protected from unlawful reproduction by copyright laws. Only those possessing the rights to these works are authorized to reproduce, alter, improve and distribute them. Acquiring and using these rights often involves significant costs.
- the intangible nature of the content of information and cultural products allows for their distribution in various forms. For example, a movie can be shown at a movie theatre, on a television broadcast, through video on demand, or rented at a local video store; a sound recording can be aired on radio, embedded in multi-media products or sold at a record store; software can be bought at retail outlets or downloaded from an electronic bulletin board; a newspaper can be purchased at a newsstand or received on-line. In addition, improvements in information technology are revolutionizing the distribution of these products. The inclusion in this sector of telecommunications carriers and Internet access providers reflects the increasingly important role these establishments play in making these products accessible to the public.

The main components of this sector are the publishing industries, including software publishing, the motion picture and sound recording industries, the broadcasting and telecommunications industries, and the information services and data processing industries. Certain establishments engaged in culture-related activities are classified in other sectors of NAICS.

STRUCTURE OF THE NAICS INFORMATION SECTOR

51 INFORMATION AND CULTURAL INDUSTRIES

511 PUBLISHING INDUSTRIES

5111 Newspaper, Periodical, Book and Database Publishers
5112 Software Publishers

512 MOTION PICTURE AND SOUND RECORDING INDUSTRIES

5121 Motion Picture and Video Industries
5122 Sound Recording Industries

513 BROADCASTING AND TELECOMMUNICATIONS

5131 Radio and Television Broadcasting
5132 Pay TV, Specialty TV and Program Distribution
5133 Telecommunications

514 INFORMATION SERVICES AND DATA PROCESSING SERVICES

5141 Information Services
5142 Data Processing Services

NAICS INFORMATION SECTOR

51 INFORMATION AND CULTURAL INDUSTRIES

511 Publishing Industries

This subsector comprises establishments primarily engaged in publishing newspapers, periodicals, books, databases, software and other works. These works are characterized by the intellectual creativity required in their development and are usually protected by copyright. Publishers distribute, or arrange for the distribution of, these works.

Publishing establishments may create the works in-house, or contract for, purchase, or compile works that were originally created by others. These works may be published in one or more formats, such as print, electronic and on-line. Publishers of “multimedia” products, such as interactive children’s books, multimedia CD-ROM reference books, and musical greeting cards are also included. Establishments in this subsector may print, reproduce or offer direct access to the works themselves or they may arrange with others to carry out such functions.

5111 Newspaper, Periodical, Book and Database Publishers

This industry group comprises establishments primarily engaged in publishing (or publishing and printing) newspapers, periodicals, books, databases and other works, such as calendars, greeting cards and maps.

51111 Newspaper Publishers

This industry comprises establishments, known as newspaper publishers, primarily engaged in carrying out operations necessary for producing and distributing newspapers, including gathering news, writing news columns, feature stories and editorials, and selling and preparing advertisements. These establishments may publish newspapers in print or electronic form.

51112 Periodical Publishers

This industry comprises establishments, known as magazine or periodical publishers, primarily engaged in carrying out operations necessary for producing and distributing magazines and other periodicals, including gathering, writing, soliciting and editing articles, and preparing and selling advertisements. Periodicals are published at regular intervals, typically on a weekly, monthly or quarterly basis. These periodicals may be published in printed or electronic form.

51113 Book Publishers

This industry comprises establishments, known as book publishers, primarily engaged in carrying out various design, editing and marketing activities necessary for producing and distributing books of all kinds, such as text books; technical, scientific and professional books; and mass market paperback books. These books may be published in print, audio or electronic form.

51114 Database and Directory Publishers

This industry comprises establishments primarily engaged in publishing compilations and collections of information or facts that are logically organized to facilitate their use. These collections may be published in one or more formats, such as print or electronic form. Electronic versions may be provided directly to customers by the establishment, or offered through on-line services or third party vendors.

51119 Other Publishers

This industry comprises establishments, not classified to any other industry, primarily engaged in publishing works.

511 Software Publishers

51121 Software Publishers

This industry comprises establishments primarily engaged in computer software publishing. Establishments in this industry carry out operations necessary for producing and distributing computer software, such as designing, providing documentation, assisting in installation and providing support services to software purchasers. These establishments may design and publish, or publish only.

512 Motion Picture and Sound Recording Industries

This subsector comprises establishments primarily engaged in producing and distributing video and audio recordings or providing related services, such as post-production services, exhibition services, and motion picture processing and developing services. Sound recording studios are also included.

5121 Motion Picture and Video Industries

This industry group comprises establishments primarily engaged in producing and/or distributing motion pictures, videos, television programs or commercials; exhibiting motion pictures or providing post-production and related services.

51211 Motion Picture and Video Production

This industry comprises establishments primarily engaged in producing, or producing and distributing, motion pictures, videos, television programs or commercials.

51212 Motion Picture and Video Distribution

This industry comprises establishments primarily engaged in acquiring distribution rights and distributing film and video productions to motion picture theatres, television networks and stations, and other exhibitors.

51213 Motion Picture and Video Exhibition

This industry comprises establishments primarily engaged in exhibiting motion pictures. Establishments primarily engaged in providing occasional motion picture exhibition services, such as those provided during film festivals, are also included.

51219 Post-Production and Other Motion Picture and Video Industries

This industry comprises establishments, not classified to any other industry, primarily engaged in providing post-production services and services to the motion picture and video industries, including specialized motion picture or video post-production services, such as editing, film/tape transferring, dubbing, subtitling, creating credits, closed captioning, and producing computer graphics, animation and special effects, as well as developing and processing motion picture films.

5122 Sound Recording Industries

This industry group comprises establishments primarily engaged in producing and distributing music recordings, publishing music, or providing sound recording and related services.

51221 Record Production

This industry comprises establishments primarily engaged in record production. These establishments contract with musical artists, and arrange and finance the production of original master recordings. Establishments in this industry hold the copyright to the master recording and derive most of their revenues from selling, leasing, and licensing master recordings. Establishments in this industry do not have their own duplication or distribution capabilities.

51222 Integrated Record Production/Distribution

This industry comprises establishments primarily engaged in releasing, promoting and distributing sound recordings. Establishments in this industry manufacture or arrange for the manufacture of recordings, such as audio tapes/cassettes and compact discs, and promote and distribute these products to wholesalers, retailers or directly to the public. These establishments produce master recordings themselves, or obtain reproduction and/or distribution rights to master recordings produced by record production companies or other integrated record companies.

51223 Music Publishers

This industry comprises establishments primarily engaged in acquiring and registering copyrights in musical compositions, in accordance with the law, and promoting and authorizing the use of these compositions in recordings, on radio and television, in motion pictures, live performances, print, multimedia or other media. Establishments in this industry represent the interests of songwriters or other owners of musical compositions in producing revenues from the use of such works, generally through licensing agreements. These establishments may own the copyright or act as administrator of the music copyrights on behalf of copyright owners.

51224 Sound Recording Studios

This industry comprises establishments primarily engaged in providing the facilities and technical expertise for recording musical performances. Establishments in this industry may also provide audio production or post-production services for producing master recordings, and audio services for film, television and video productions.

51229 Other Sound Recording Industries

This industry comprises establishments, not classified to any other industry, primarily engaged in providing sound recording services.

513 Broadcasting and Telecommunications

This subsector comprises establishments primarily engaged in operating radio and television broadcasting studios and facilities, or in operating telecommunications networks. Resellers of telecommunications services are also included.

5131 Radio and Television Broadcasting

This industry group comprises establishments primarily engaged in operating broadcasting studios and facilities for the transmission of a variety of radio and television broadcasts, including entertainment, news, talk shows and other programs. These establishments produce, purchase and schedule programs and generate revenues from the sale of air time to advertisers, from donations and subsidies, or from the sale of programs.

51311 Radio Broadcasting

This industry comprises establishments primarily engaged in operating broadcasting studios and facilities for the production and transmission of radio programs to its affiliates or the public. The radio broadcasts may include entertainment, news, talk shows and other programs.

51312 Television Broadcasting

This industry comprises establishments primarily engaged in operating broadcasting studios and facilities for the production, and over-the-air transmission to the public, of a variety of television programs. Programming may originate in their own studios, from an affiliated network or from external sources.

5132 Pay TV, Specialty TV and Program Distribution

This industry group comprises establishments primarily engaged in broadcasting television programs, in a defined and limited format, via operators of cable and satellite distribution systems, and establishments primarily engaged in the delivery of programs, to subscribers, by cable or satellite.

51321 Pay and Specialty Television

This industry comprises establishments primarily engaged in broadcasting television programs, in a defined and limited format, such as family and youth-oriented, news, feature films, music, health, sports, religion, weather, travel and educational programming. These establishments may produce programs in their own broadcasting studios or they may acquire programming from external sources. The programming is delivered to subscribers by operators of cable or satellite distribution systems.

51322 Cable and Other Program Distribution

This industry comprises establishments primarily engaged in distributing television and radio programs, to subscribers, via cable or satellite distribution systems. These establishments deliver programming that originates from television and radio broadcasters, and pay and specialty channels. These establishments may also provide other services, such as interactive television, information services and tele-banking services.

5133 Telecommunications

This industry group comprises establishments primarily engaged in operating and maintaining network facilities for the transmission of voice, data, text, sound and full motion picture videos between network termination points. Telecommunications resellers are also included. Transmission facilities may be based on a single technology or a combination of technologies.

51331 Wired Telecommunications Carriers

This industry comprises establishments primarily engaged in operating and maintaining switching and transmission facilities to provide direct communications via land lines, microwave or a combination of land lines and satellite link-ups.

51332 Wireless Telecommunications Carriers (except Satellite)

This industry comprises establishments primarily engaged in operating and maintaining switching and transmission facilities to provide direct communications via the airwaves. Establishments that provide cellular phone services, paging services and personal communication services are included.

51333 Telecommunications Resellers

This industry comprises establishments primarily engaged in purchasing access and network capacity from owners and operators of telecommunications networks and reselling telecommunications services to businesses, institutions or households. These establishments do not operate or maintain a full network.

51334 Satellite Telecommunications

This industry comprises establishments primarily engaged in operating and maintaining satellite telecommunications facilities for the transmission of voice, data, text, sound and full motion picture videos. Resellers of satellite communications are also included.

51339 Other Telecommunications

This industry comprises establishments primarily engaged in providing specialized telecommunications services, such as satellite tracking, communications telemetry, radar station operation. This industry also includes establishments primarily engaged in providing satellite terminal stations and associated facilities connected with one or more terrestrial systems and capable of transmitting telecommunications to, and receiving telecommunications from, satellite systems.

514 Information Services and Data Processing Services

This subsector comprises establishments primarily engaged in providing, storing, providing access to and processing, information. The main components are news syndicates, libraries, archives, on-line information service providers and data processors.

5141 Information Services

This industry group comprises establishments primarily engaged in providing, storing, and/or providing access to, information. The main components are news syndicates, libraries, archives and on-line information service providers.

51411 News Syndicates

This industry comprises establishments primarily engaged in supplying information, such as news reports, articles, pictures and features to the news media.

51412 Libraries and Archives

This industry comprises establishments primarily engaged in providing library or archive services. These establishments maintain collections of documents (such as books, journals, newspapers and music) and facilitate the use of such documents (recorded information, regardless of its physical form and characteristics) as are required to meet the informational, research, educational or recreational needs of their users. They may also acquire, research, store, and make accessible to the public, original historical documents, photographs, maps, audio material, audio-visual material and other archival materials of historical interest. Cinematheques, videotheques and other film and video archives, whose primary purpose is the preservation of archival audio-visual material, are included. All or portions of these collections may be accessible electronically.

514121 Libraries

This Canadian industry comprises establishments primarily engaged in maintaining collections and facilitating the use of such documents (recorded information regardless of its physical form and characteristics) as are required to meet the informational, research, educational or recreational needs of their users.

514122 Archives

This Canadian industry comprises establishments primarily engaged in acquiring, researching, storing, and making accessible to the public, original historical documents, photographs, maps, audio or audio-visual material, and other archival materials of historical interest. Cinematheques, videotheques, and other film and video archives whose primary purpose is the preservation of archival audio-visual material, are included.

51419 Other Information Services

This industry comprises establishments, not classified to any other industry, primarily engaged in providing information services. Examples of establishments in this industry are on-line information service providers, Internet access providers, telephone-based information service providers and information search service providers.

514191 On-Line Information Services

This Canadian industry comprises establishments primarily engaged in providing direct access, through telecommunications networks (including Internet providers), to computer-held information compiled or published by others. These establishments may provide access to information on a particular area of specialization, but generally cover a wide range of information resources. These establishments often provide electronic mail services, bulletin boards, browsers and search routines.

514199 All Other Information Services

This Canadian industry comprises establishments, not classified to any other Canadian industry, primarily engaged in providing information services, including telephone-based information recordings and information search services on a contract basis.

5142 Data Processing Services

See industry description for 51421, below.

51421 Data Processing Services

This industry comprises establishments primarily engaged in providing electronic data processing services. These establishments may provide complete processing and preparation of reports from data supplied by the customer; specialized services, such as automated data entry; or they may make data processing resources available to clients on an hourly or time-sharing basis.

APPENDIX II: THE INFORMATION AND COMMUNICATION TECHNOLOGY SECTOR: A DEFINITION

The information and the computing technology industries are changing rapidly. They are having more economic impact on consumers, businesses and governments, as well as on the nature of work and the skill distribution of the labour force. This change results from changing technology and liberalized regulatory regimes leading to greater competition.

Before the information and computing technology sector can be measured, there must be a definition of the sector if there is to be a meaningful discussion of the results of such measurement by the public, the policy makers and the regulator. To facilitate this, Industry Canada has adopted the definition described in this note.

THE NEED FOR A DEFINITION

Industry Canada has adopted a definition for a sector, taking into account international practices and changes occurring within the designated industries, in order to ensure that industries can be grouped together for analytical purposes. The grouping is now referred to as the *Information and Communication Technologies Sector*, or the *ICT Sector*.

The sector is defined as a collection of a group of manufacturing industries and a group of services industries, which are described below, and for which economic data are collected by Statistics Canada, the central statistical office. The 1980 Standard Industrial Classification (SIC) is given in brackets and the complete industry descriptions follow.

THE DEFINITION

The ICT Sector

Services

Computer and Related Services (772)

Broadcasting (481)

Telecommunications Carriers

INCLUSIONS AND EXCLUSIONS

Manufacturing

Consumer Electronics (3341)

Communications and Other Electronic Components (335)

Telecommunications Equipment (3351)

Electronic Parts and Components (3352)

Other Communication and Electronic Equipment (3359)

Computer Equipment (336)

Electronic Computing and Peripheral Equipment
(3361)

Other Office, Store and Business Machines (3368)

Instrumentation(3911 and3912)

Indicating, Recording and Controlling Instruments (3911)

Other Instruments and Related Products (3912)

Broadcasting is included in its entirety, including the radio and television industries as well as the cable industry.

FUTURE DEVELOPMENT

The wholesale activity related to computer services and related machinery and equipment is excluded. This makes up part of the Computer and Related Machinery, Equipment and Packaged Software Industry (SIC 5744). An argument can be made for its inclusion to reflect the role of what is known in the trade as value added resellers? or system integrators. These are firms which modify or customize their products provide "value added" beyond trade margins) before reselling the product (the wholesale activity). Although a Statistics Canada study was made describing this group in 1988, it was felt that the information was not sufficiently up to date to allow for the split of this industry's data so as to reflect that of the value added resellers alone. Until a meaningful split can be made, it was felt best to omit all of SIC 5744 to avoid overstating the activity. This problem may be addressed in the long term by reassigning value added resellers to a non-wholesale industrial classification, such as the new NAICS industry, Computer Systems Design and Related Services (54151) and conducting a new survey.

The definition of the ICT sector described above is based on the 1980 Canadian SIC. This classification will be replaced by the new North American Industry Classification System (NAICS) scheduled to come into effect with reference year 1997. The NAICS recognizes explicitly the existence of an Information and Cultural Industries sector, taking into account the importance of the content to be delivered in the context of the Information Society. The NAICS industries and definitions can be found on the Statistics Canada Web site:
<http://www.statcan/english/Subjects/Standards/sector.htm>.

**THE INFORMATION AND COMMUNICATION TECHNOLOGY SECTOR:
*DESCRIPTION***

1980 SIC

ICT Manufacturing Industries

INDUSTRY GROUP 334 Record Player, Radio and Television Receiver Industry

3341 Record Player, Radio and Television Receiver Industry

Establishments primarily engaged in manufacturing radio and television receiving sets, sound playing and recording equipment and parts (except electronic parts) and video recording and duplicating equipment. Establishments primarily engaged in producing automobile radios are classified here. Establishments primarily engaged in manufacturing records, tapes and other media for recording vocal or instrumental performances are classified in 3994 – Musical Instrument and Sound Recording Industry, and those primarily engaged in manufacturing electronic parts are classified in 3352 – Electronic Parts and Components Industry.

INDUSTRY GROUP 335 Communication and Other Electronic Equipment Industries

Establishments primarily engaged in manufacturing telephone and telegraph equipment and other communications and electronic equipment not elsewhere classified. Establishments primarily engaged in the repair of such equipment are included here.

3351 Telecommunication Equipment Industry

Establishments primarily engaged in manufacturing telephone, telegraph and microwave transmitting and related equipment.

3352 Electronic Parts and Components Industry

Establishments primarily engaged in manufacturing electronic components and parts. Establishments primarily engaged in manufacturing stereo equipment amplifiers are classified in 3341 – Record Player, Radio and Television Receiver Industry.

3359 Other Communication and Electronic Equipment Industry

Establishments primarily engaged in manufacturing electronic equipment not elsewhere classified. Establishments primarily engaged in the overhaul of electronic equipment, except household equipment, are classified here. Establishments primarily engaged in manufacturing electronic instruments are classified in 3911 – Indicating, Recording and Controlling Instruments Industry. Those primarily engaged in manufacturing electronic data processing equipment or electronic office equipment are classified in Industry Group 336 – Office, Store and Business Machine Industries. Those primarily engaged in manufacturing railway and street traffic signals systems are classified in 3399 – Other Electrical Products Industries n.e.c. Those Primarily engaged in manufacturing telephone and telegraph equipment are classified in 3351 – Telecommunication Equipment Industry and those primarily engaged in repairing electronic household equipment are classified in 6223 – Appliances, Television, Radio and Stereo Repair Shops, retail.

INDUSTRY GROUP 336 Office, Store and Business Machine Industries

Establishments primarily engaged in manufacturing electronic computing and peripheral equipment electronic office, store and business machines and other office store and business machines.

3361 Electronic Computing and Peripheral Equipment Industry

Establishments primarily engaged in manufacturing electronic data processing equipment. Establishments primarily engaged in manufacturing electronic parts including those for such equipment are classified in 3352 – Electronic and Components Industry.

3362 Electronic Office, Store and Business Machine Industry

Establishments primarily engaged in manufacturing electronic office, store and business machines. Establishments primarily engaged in manufacturing scientific scales and balances are classified in 3912 – Other Instruments and Related Products Industry.

3369 Other Office, Store and Business Machine Industry

Establishments primarily engaged in manufacturing office, store and business machines and equipment (except electronic). Establishments primarily engaged in manufacturing electronic computing and peripheral equipment or in electronic office, store and business machines are classified respectively in 3361 – Electronic Computing and Peripheral Equipment Industry or in 3362 – Electronic Office, Store and Business Machine Industry and those primarily engaged in manufacturing scientific scales and balances are classified in 3912 – Other Instruments and Related Products Industry.

NOTE: 3368 is a combination of SIC 3362 and SIC 3369

3911 Indicating, Recording and Controlling Instruments Industry

Establishments primarily engaged in manufacturing mechanical, electrical or electronic instruments for indicating, recording and controlling (except electronic process control and electrical industrial control). Establishments primarily engaged in manufacturing electrical industrial control equipment are classified in 3379 – Other Electrical Industrial Equipment Industries, and those primarily engaged in manufacturing electronic process control equipment are classified in 3359 – Other Communication and Electronic Industries.

3912 Other Instruments and Related Products Industry

Establishments primarily engaged in manufacturing professional and scientific instruments, excluding electronic navigational instruments. Establishments primarily engaged in manufacturing electronic navigational instruments are classified in 3359 – Other Communication and Electronic Equipment Industries.

ICT Service Industries

INDUSTRY GROUP 481 Telecommunication Broadcasting Industries

Establishments primarily engaged in broadcasting audio or video signals by radio and television including cable systems.

4811 Radio Broadcasting Industry

Establishments primarily engaged in operating radio broadcasting studios and facilities for programs of entertainment, news, talks and the like. This industry includes establishments primarily engaged in operating radio broadcasting networks and relay systems. Establishments primarily engaged in broadcasting messages for a fee or radio systems to provide a communication service are classified in 4839 – Other Telecommunication Industries.

4812 Television Broadcasting Industry

Establishments primarily engaged in television broadcasting and in the operation of television broadcasting studios for programs of entertainment, news, talks and the like. This industry includes establishments primarily engaged in operating television broadcasting networks and relay systems. Establishments primarily engaged in operating closed circuit television systems are classified in 4839 – Other Telecommunication Industries and those primarily engaged in producing programmes for television are classified in 9611 – Motion Picture and Video Production.

4813 Combined Radio and Television Broadcasting Industry

Establishments primarily engaged in an integrated radio and television broadcasting operation for programs of entertainment, news, talks and the like. This industry includes establishments primarily engaged in operating integrated radio and television broadcasting networks and relay systems. Establishments primarily engaged in operating closed circuit radio or television systems providing a variety of programs to particular subscribers are classified in 4839 – Other Telecommunication Industries.

4814 Cable Television Industry

Establishments primarily engaged in broadcasting television and frequency modulated radio signals to subscribers by means of co-axial cable and community antennas.

INDUSTRY GROUP 482 Telecommunication Carriers Industry

Establishments primarily engaged in operating telephone and other telecommunication transmission services by electro-magnetic means. Some establishments may be secondarily engaged in the construction of transmission facilities and the operation of schools to train operators. Establishments primarily engaged in the construction of transmission facilities are classified in 4124 – Power and Telecommunication Transmission Lines, construction.

INDUSTRY GROUP 772 Computer and Related Services

Establishments primarily engaged in providing computer services and in the maintenance and repair of computer equipment.

7721 Computer Services

Establishments primarily engaged in providing computer facilities on a rental, leasing or time-sharing basis, and such activities as programming, planning and systems work. Establishments primarily engaged in financial leasing are classified in 7124 – Financial Leasing Companies.

7722 Computer Equipment Maintenance and Repair

Establishments primarily engaged in providing computer equipment maintenance and repair services.

APPENDIX III – DEFINITION OF THE TOURISM INDUSTRY:

The following list includes the industries, as defined in the Standard Industrial Classification (1980 SIC), that form the *tourism industry* in the TSA and the NTI. A tourism industry is so considered in the TSA and the NTI if it provides commodities to visitors and if, without tourism, it would cease to exist or would continue to exist only at a significantly reduced level of activity. The tourism industries are the major suppliers of tourism commodities. The industries are taken from a list established during the 1980's by the National Task Force on Tourism Data. The Task Force included representatives from the industries, associations and academic institutions interested in tourism, and provincial and federal government officials.

Tourism industries are not identified separately in the Canadian statistical system. Revenues and expenses by commodity, as well as number of employed persons, must be extracted for each industry to derive a measure of the production and employment generated by tourism within the *tourism industry*. For example, industry 4511 includes both passenger and merchandise transportation. When the purpose is to measure tourism in the TSA and the NTI, only the production and employment associated with the passenger portion purchased by visitors is taken into account. The same approach is used for each industry in the following list.

1980 SIC industries which define the tourism industries of the TSA and the NTI:

Air Transportation

- 4511 – Scheduled air transport industry
- 4512 – Non-scheduled air transport, chartered, industry

Railway Transportation

- 4531 – Railway transport industry

Water Transportation

- 4541 – Freight and passenger water transport industry
- 4542 – Ferry industry
- 4549 – Other water transport industries

Bus Transportation

- 4571 – Urban transit systems industry
- 4572 – Interurban and rural transit systems industry
- 4574 – Charter and sightseeing bus service industry

Taxicabs

- 4581 – Taxicab industry
- 4575 – Limousine service to airports and stations industry

Vehicle Rental and Leasing

- 9921 – Automobile and truck rental and leasing services

Hotels

- 9111 – Hotels and motor hotels
- 9114 – Guest houses and tourist homes

Motels

- 9112 – Motels

Campgrounds

- 9131 – Camping grounds and travel trailer parks

Other accommodation

- 9113 - Tourist courts and cabins
- 9141 - Outfitters (hunting and fishing camps)
- 9149 - Other recreation and vacation camps

Food and Beverages Services

- 9211 - Restaurants, licensed
- 9212 - Restaurants, unlicensed (including drive-ins)
- 9213 - Take-out food services
- 9221 - Taverns, bars and night clubs

Recreation and Entertainment

- 8551 - Museums and archives
- 9621 - Regular motion picture theatres
- 9622 – Outdoor motion picture theatres
- 9629 - Motion picture exhibition
- 9631 - Entertainment production companies and artists
- 9639 - Other theatrical and staged entertainment services
- 9641 - Professional sports clubs
- 9643 - Horse race tracks
- 9644 - Other race tracks
- 9651 - Golf courses
- 9652 - Curling Clubs
- 9653 - Skiing facilities
- 9654 - Boat rentals and marinas
- 9661 - Gambling
- 9691 - Bowling alleys and billiard parlours
- 9692 - Amusement park, carnival and circus operation
- 9694 - Coin-operated amusement services
- 9695 - Roller skating facilities
- 9696 - Botanical and zoological gardens
- 9699 - Other amusement and recreational services n.e.c.
- 9999 - Other services n.e.c.

Travel Services

- 9961 – Ticket and travel agencies
- 9962 – Tour wholesalers and operators

APPENDIX IV: PROPOSED DOCUMENTATION OF NON-STANDARD AGGREGATIONS:

Title:

Type:

- industry-based
- unit based (establishment, enterprise)
- product based.

Specifications:

Industry based: List of SIC or NAICS codes included

Unit based: List of business numbers from Business Register and/or names Product based:

List of SCG /HS or SCS/CPC codes included

Publication:

- Title
- Catalogue
- Date

Sponsor:

Rationale:

Interpretation notes: Similarities or differences from other standard or non-standard aggregations and delineation issues of which users should be aware.