Unclassified **DSTI/ICCP/IIS(2006)11/FINAL**

Organisation de Coopération et de Développement Economiques
Organisation for Economic Co-operation and Development **01-Mar-2007**

English - Or. English

DIRECTORATE FOR SCIENCE, TECHNOLOGY AND INDUSTRY
COMMITTEE FOR INFORMATION, COMPUTER AND COMMUNICATIONS POLICY

DSTI/ICCP/IIS(2006)11/FINAL
Unclassified

Working Party on Indicators for the Information Society

CLASSIFYING INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) SERVICES

JT03222855

Document complet disponible sur OLIS dans son format d'origine
Complete document available on OLIS in its original format

English - Or. English

FOREWORD

In May 2006, this report was presented to the Working Party on Indicators for the Information Society (WPIIS). It was recommended to be made public by the Committee for Information, Computer and Communications Policy (ICCP) in October 2006.

The definition and classification of ICT services presented in this document are part of a system that also includes a classification of ICT goods developed earlier by the WPIIS. The classification of ICT goods is currently under review by an expert group. The review may lead to changes in the classification of ICT services to ensure coherence of the system. Proposed changes, if any, will be described in a forthcoming paper on product classifications. The paper will be subjected to the usual approval process.

This report was prepared by Mr. Daniel April of Statistics Canada. It is published under the responsibility of the Secretary-General of the OECD.

© Copyright OECD/OCDE, 2007

CLASSIFYING INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) SERVICES

Introduction

The Ad Hoc Meeting on Indicators for the Information Society was convened in 1997 "to establish a set of definitions and methodologies to facilitate the compilation of internationally comparable data for measuring various aspects of the information society, the information economy and electronic commerce".

The group agreed at that time that the development of a statistical infrastructure to support and inform policy making in this domain should begin by mining existing data, in particular the rich industry and commodity data available to the OECD. That required an agreement on industry and commodity[1] definitions; developing those definitions became one of the early challenges of the group. The goal was to put in place a classification framework to answer basic questions concerning the role of the Information and Communication Technology (ICT) sector in the economy, in particular those that pertain to wealth creation and structural change originating from industries that primarily produce ICT goods and services.

The expert group became the Working Party on Indicators for the Information Society (WPIIS) in 1998. It has since steadily added to an evolving framework for measuring the information society. The Guide to Measuring the Information Society [internal working document: DSTI/ICCP/IIS(2005)6] presented at the last World Summit on the Information Society consolidates the many outputs of the Working Party and its partners.

However that framework still does not include a formal definition of ICT services despite several discussions. This is largely the result of not having an international product classification that adequately describes ICT services, or shared experiences in the collection of such data. The situation has evolved on both fronts and the recent adoption by the United Nations Statistical Commission of an updated version of the Central Product Classification (CPC) makes it possible for WPIIS to submit a final draft to the ICCP Committee for declassification.

The final proposal is outlined in the last section of this paper. The section that follows provides some background on its development.

Background

The definition (classification) of ICT services proposed here is part of a set of related definitions that also includes one for the ICT sector and another for ICT goods. Together these definitions are meant to support the production of a variety of statistics, including but not limited to, measures of ICT outputs, ICT investments and ICT trade.

The group approached the task of developing definitions by first agreeing on a set of principles to identify ICT industries and products within existing classification systems. These principles are: For **manufacturing industries**, the products of a candidate industry must be intended to fulfil the function of information processing and communication including transmission and display, **or** must use electronic processing to detect, measure and/or record physical phenomena or to control a physical process. For **services industries**, the products of a candidate industry must be intended to enable the function of information processing and communication by electronic means.

1. In this paper, the terms commodity and products refer to both goods and services.

A definition of the ICT sector in terms of ISIC Rev. 3 was developed on the basis of these principles and adopted at the 1998 meeting of WPIIS. The original definition was amended at the 2002 meeting to refine the wholesale component of the definition. The sector definition has since gained wide recognition and is the basis for international comparison of an important sector in OECD economies.

The development of a definition of ICT goods proved more challenging; opinions concerning the appropriate scope of the definition and the interpretation of the guiding principles varied. After being on the agenda of all WPIIS meetings between 1998 and 2002, a consensus was reached at the 2003 meeting for a definition based on the 2002 version of the Harmonized System (HS 2002) of the World Custom Organization. With this definition, WPIIS was putting in place the second element of the framework, potentially extending its scope to measures of domestic production, consumption, market size, investments and international trade.

The strategy of using existing classification systems to identify ICT industries and commodities has an obvious limitation; those systems do not provide an up-to-date description of ICT industries and commodities in all cases. This limitation was most apparent in the case of services where the only available international standard – the UN's Central Product Classification (CPC) – made no mention of core ICT services such as web hosting and application provisioning.

For industry and goods statistics this limitation is counterbalanced by a long tradition of detailed data collection that supports international comparison. Our definitions, albeit not the most up-to-date, would nevertheless ensure greater international comparability than had been previously possible. That was not necessarily true of service statistics.

The dated nature of the CPC in this domain and the relative shortage of comparable data were serious obstacles to the development of an ICT services definition. It led WPIIS towards a different approach, that of engaging in the revision of the CPC in partnership with the Voorburg Group and the United Nations Statistical Division (UNSD).

That revision process called upon relevant national experiences. Canada (2002) and the United States (2003) reported on promising test results of pertinent parts of the North American Product Classification System. The United Kingdom (2002) reported on a similar experience, a survey of NACE 72 that attempted to collect detailed product information. The French delegation (2003) offered insights on possible approaches to developing a list of ICT services.[2]

An invitation to collaborate on the revision of elements of the CPC to improve the classification of ICT related services was extended to the Voorburg Group at its Tokyo meeting.[3] The project was presented as an opportunity for the Voorburg Group, the OECD, the UNSO and national statistical offices to work in partnership on a project of common interest. It was well received and later given consideration by the technical subgroup of the Expert Group on International Economic and Social classification of the UNSD.

At the 2004 meeting, WPIIS delegates were invited to submit a proposal to the UNSD to revise relevant sections of the CPC.[4] The proposal essentially consisted of restructuring, and improving the description of, the products of computer services and related industries. Subject to the approval of the

2. See internal working documents: DSTI/ICCP/IIS(2002)6, DSTI/ICCP/IIS(2002)3, DSTI/ICCP/IIS/RD(2003)2, DSTI/ICCP/IIS/RD(2003)4 for more details.

3. http://stds.statcan.ca/english/voorburg/2003%20tokyo/papers/2003-108.pdf

4. See Classifying Information and Communication Technology Services, working document: DSTI/ICCP/IIS(2004)2.

proposed modifications to the CPC, the ICT services definition would be submitted to the ICCP Committee for declassification.

The proposal was discussed at the Ottawa meeting (2004) of the Voorburg Group and the October meeting of the technical subgroup of the Expert Group on International Economic and Social classification of the UNSD. [5] Most proposed changes were adopted and included in a draft of the revised CPC that was circulated for comments in July 2005. Forty-three countries responded to the call for comments on this section of the CPC; the structure and detail received overall acceptance and a few countries put forth amendments. The UN statistical commission adopted an amended structure at its March 2006 meeting.

Differences between the WPIIS proposal and CPC version 2.0

The WPIIS proposal essentially consisted of re-organising the outputs of the computer services and software publishing industries from this structure:

ISIC	CPC 1.1	CPC titles
7210	83141	Hardware consultancy and systems integration services
7221	47520	Records, tapes and other recorded media for sound or other similarly recorded phenomena (except cinematographic film and cards with magnetic stripe); packaged computer software
7221	73310	Licensing services for the right to use computer software
7229	83142	Software consultancy services
7229	83149	Other computer consultancy services
7229	83160	Systems maintenance services
7230	83150	Computer facilities management services
7230	85960	Data processing services
7250	87130	Computer hardware servicing, repair and maintenance

To this structure:

ISIC	CPC	Proposed CPC titles
	8314	IT technical consulting and support services
7200	83141	IT technical consulting
7200	83142	IT technical support services
	8315	IT design and development services
7200	83151	IT design and development services – Applications
7200	83152	IT design and development services - Network and systems
	8316	Hosting and IT infrastructure provisioning services
7200	83161	Web hosting
7200	83162	Application service provisioning
7200	83163	Business process management
7200	83169	Other IT infrastructure provisioning services
	8317	IT infrastructure and network management services
7200	83170	IT infrastructure and network management services
7200	8318	Published Software
	83181	Published Software, excluding multi-media software
	83182	Published Software, multi-media

5. A short paper was prepared for the committee that dealt more specifically with revisions to the CPC. The full paper is reproduced in Annex 1; it outlines the rationale underlying the proposal, describes tests results and provides explanatory notes for the proposed product categories.

The WPIIS proposal is largely embedded in the CPC version 2.0. The definition, placement, code and titles of ICT services are not always identical to the WPIIS proposal, but the essence of the WPIIS proposal is unchanged with the notable exception of software.

One of the main features of the WPIIS proposal was to consolidate all software related products (other than custom) under a single heading of the classification. That represented a clear departure from the current practice where software products are classified to different parts of the CPC depending on the mode of delivery. The proposed change in structure was meant to recognise the central role of software in the information economy, but also to allow for a more explicit distinction based on the functionality of the software, in particular the difference between software as a productivity tool and software as educational and entertainment content (multi-media software). Such a distinction gave the option of including or excluding multi-media software from our ICT services definition. The technology-centric approach adopted for the ICT sector and goods definitions implies exclusion rather than inclusion.

The WPIIS proposal for software was considered but not retained by the technical subgroup. The fundamental restructuring of the classification it implied for all copyrighted products was found too disruptive. Software is therefore still classified in different divisions of the CPC depending on the mode of delivery, as are other copyrighted products:

- Software delivered on a physical media is classified in group 478 (Packaged software) of division 47 (Radio, television and communication equipment and apparatus). It is further classified by type at the class and subclass levels.
- Software downloaded from the web is classified in group 843 (Online information provision) of Division 84 (Telecommunications, broadcasting and information supply services). Software downloads is a separate class (8434) and is further divided by type at the subclass level.
- Software original code is classified in group 831 (Management consulting and management services; information technology services) of division 83 (Other professional, technical and business services). Software originals are classified in a distinct subclass (83143).
- Software accessed on-line is classified in group 843 (Online content) of Division 84 (Telecommunications, broadcasting and information supply services). Online software is a distinct subclass (84392).
- Software licensing is classified in group 733 (Licensing services for the right to use non-financial intangible assets) of Division 73 (Leasing or rental services without operators). Licensing services for the right to use computer software is classified in a separate subclass (73310).

Although software and other copyrighted products are still found in different parts of the new CPC, the treatment of these products is clearer and more coherent than it is in the current classification. The classification is also sufficiently detailed to allow for a special aggregation for ICT services that is consistent with, and similar to, the original proposal by WPIIS.

The definition expressed in terms of the new CPC is shown below. In order to simplify the presentation, the most detailed CPC codes (5-digit) are only shown if they provide detail not found at the 4-digit level of the classification. A detailed comparison of the final and original WPIIS proposals is provided in Annex 2.

There are three cases where the CPC does not provide the required grouping of ICT services; leasing of ICT equipment, business process management and software. In those cases the proposal includes such a grouping (without a code and in italics) with the appropriate detailed CPC categories nested under it for definitional purposes.

Recommendation

It is proposed that:

- WPIIS recommends that the ICCP Committee approve declassification of a CPC-based ICT services classification in its present form in the expectation that it will stimulate statistical activity and thus provide a source of feedback for ongoing revision.
- The OECD forwards the proposal to the UNSD for inclusion as a special aggregation in the print and soft versions of the next CPC publications.

Code	ICT Service definition based on CPC version 2.0
841	Telephony and other telecommunications services
8411	Carrier services
8412	Fixed telephony services
84121	Fixed telephony services - access and use
84122	Fixed telephony services - calling features
8413	Mobile telecommunications services
84131	Mobile telecommunications services - access and use
84132	Mobile telecommunications services - calling features
8414	Private network services
8415	Data transmission services
8419	Other telecommunications services
842	Internet telecommunications services
8421	Internet backbone services
8422	Internet access services
8429	Other Internet telecommunications services
	Leasing or rental of ICT equipment
73123	Leasing or rental services concerning office machinery and equipment (excl. computers) without operator
73124	Leasing or rental services concerning computers without operator
8313	Information technology (IT) technical consulting and support services
83131	IT technical consulting services
83132	IT technical support services
8314	Information technology (IT) design and development services
83141	IT design and development services for applications
83142	IT design and development services for networks and systems
8315	Hosting and information technology (IT) infrastructure provisioning services
83151	Website hosting services
83152	Application service provisioning
83159	Other hosting and IT infrastructure provisioning services
	Business process management services
83117	Business process management services
8316	IT infrastructure and network management services
83161	Network management services
83162	Computer systems management services
8713	Maintenance and repair services of computers and peripheral equipment
	Published Software
478	Packaged software
83143	Software originals
8434	Software downloads
84392	On-line software
73310	Licensing services for the right to use computer software

ANNEX 1
PROPOSAL TO REVISE THE CPC BY THE WORKING PARTY ON INDICATORS FOR THE INFORMATION SOCIETY SUBMITTED TO THE CLASSIFICATION TECHNICAL SUBGROUP OF THE EXPERT GROUP ON INTERNATIONAL ECONOMIC AND SOCIAL CLASSIFICATION OF THE UNSD

Introduction

This paper outlines a proposal by the Working Party on Indicators for the Information Society (WPIIS) to revise elements of the Central Product Classification (CPC) to improve the classification of Information and Communication Technology (ICT) related services.

The updated CPC would improve the description of the outputs of computer services industries. The current CPC was developed at a time when some of today's core ICT services did not exist or were at an early stage of development. This is the case for products such as website hosting, application provisioning or network management services. The proposed structure also enhances the homogeneity and applicability of the classification.

The WPIIS plans to use the updated CPC to construct a list of ICT service commodities. An agreement on such a list is nearly finalised.[6] The development of that list represents the logical conclusion to the elaboration by our group of an industry-commodity framework designed to promote international comparability of statistics on various aspects of the production and trade of ICT goods and services. Developing the analytical grouping on the basis of an existing classification is consistent with the approach favoured by the WPIIS since the beginning. This approach was chosen to accelerate the process of generating internationally comparable statistics.

Background

The first component of the framework is the industry-based ICT sector definition. The ICT sector is defined to include ISIC Rev. 3 industries that have the following characteristics: For manufacturing industries, the products of a candidate manufacturing industry must be intended to fulfill the function of information processing and communication, including transmission and display; or use electronic processing to detect, measure and/or record physical phenomena, or to control a physical process. Components primarily intended for use in such products are also included. ***For service industries***, the products of a candidate industry must be intended to enable the function of information processing and communication by electronic means. That definition is now endorsed by the United Nations Statistical Office (UNSO) and is used in the production of statistical compendia by the OECD and a number of National Statistical Institutes (NSI).

The second component of the framework is a commodity-based definition of ICTs. The guidelines used to identify ICT manufacturing industries were applied to select relevant merchandise categories from

6. The proposed classification of ICT services is outlined in internal working document: DSTI/ICCP/IIS(2004)2 – Classifying Information and Communication Technology Services, OECD, April 2004.

the Harmonized System. The OECD intends to use this standard in future compilations of ICT-related statistics. But this is an incomplete description of ICT commodities since it covers only transportable goods.

The WPIIS has been working on the development of this missing piece. In doing so, the group has looked at the CPC, the CPA and the NAPCS. The conclusion reached is that the NAPCS can be used to improve the CPC in areas of particular interest to WPIIS. The essence of our proposal is to use a NAPCS derived classification to update the CPC.

The proposal

It is generally accepted that most of the services originating from ***ISIC 72 – Computer and related services*** are ICT services. The available CPC documents (v 1.1) show a number of products originating from that industry. These products are shown in the table below. Two of these products are not considered ICTs: 84300 – On-line information provision services and 83633 – Sale of internet advertising space (except on commission). These products consist of content delivered by electronic means, rather than products enabling the function of information processing and communication by electronic means. Such products are explicitly out of scope from the technology-centric definition of ICTs adopted by our group. They are shown below for sake of completeness but are not in scope for the proposal presented in paragraph 10.

ISIC	CPC	CPC title
7210	83141	Hardware consultancy and systems integration services
7221	47520	Records, tapes and other recorded media for sound or other similarly recorded phenomena (except cinematographic film and cards with magnetic stripe); packaged computer software
7221	73310	Licensing services for the right to use computer software
7229	83142	Software consultancy services
7229	83149	Other computer consultancy services
7229	83160	Systems maintenance services
7230	83150	Computer facilities management services
7230	85960	Data processing services
7240	***83633***	***Sale of internet advertising space (except on commission)***
7240	***84300***	***On-line information provision services***
7250	87130	Computer hardware servicing, repair and maintenance

The coverage of the NAPCS proposal for information technology (IT) services[7] significantly overlaps with the coverage of this group of CPC products. It describes, among others, the principal products of the following three NAICS industries; 51121 - Software publishers, 51821 - Data Processing, Hosting, and Related Services, and 54151 - Computer Systems Design and Related Services. These are the main components of ISIC 72 – Computer and Related Services.

Although similar in coverage, the structure, dissection, amount of detail and nomenclature of these two classification systems differ significantly. For instance, the amount of detail found in the North American classification goes far beyond the amount of detail found in the CPC and is probably impractical for an international classification. The classification of software in the CPC is based on its carrying media. In NAPCS, software is classified by function independently of its carrying media.

7. Annex 1 provides the full detail and definitions of the relevant NAPCS categories as background information. The link to the proposed CPC is shown to help the reader understand the intended coverage of the CPC categories.

That being said the North American classification provides useful and homogeneous groupings of IT services at its highest level of aggregation. Those groupings form the basis of the structure proposed below.

ISIC	CPC	ICT Services
	8314	*IT technical consulting and support services*
7200	*83141*	*IT technical consulting*
7200	*83142*	*IT technical support services*
	8315	*IT design and development services*
7200	*83151*	*IT design and development services – Applications*
7200	*83152*	*IT design and development services – Network and systems*
	8316	*Hosting and IT infrastructure provisioning services*
7200	*83161*	*Web hosting*
7200	*83162*	*Application service provisioning*
7200	*83163*	*Business process management*
7200	*83169*	*Other IT infrastructure provisioning services*
	8317	*IT infrastructure and network management services*
7200	*83170*	*IT infrastructure and network management services*
7200	*8318*	*Published Software*
	83181	*Published Software, excluding multi-media software*
	83182	*Published Software, multi-media*

This proposed classification is somewhat more detailed than the most aggregated level of NAPCS. It re-organises the NAPCS aggregates into five categories in order to respect the constraints of the CPC structure. The five aggregates attempt to bring together like products. They are broadly defined as follows:

- 8314 – IT technical consulting and support services – access to human resources with the expertise and skills to address IT related problems. It regroups 3 high level categories of NAPCS: IT technical consulting, IT technical support services and, Information and document transformation. It is proposed to distinguish consulting from support services at the 5-digit level.

- 8315 – IT design and development services – access to human resources to design IT solutions such as custom applications, networks and computer systems. It corresponds to the NAPCS high level category with the same title. It is proposed to distinguish applications from systems design at the 5-digit level.

- 8316 – Hosting and IT infrastructure provisioning services – access to IT infrastructure (hardware, software and networks) and expertise to host ICT applications and process information. It corresponds to the high level NAPCS category with the same title. It is proposed to distinguish web hosting, applications provisioning and business process management at the 5-digit level.

- 8317 – IT infrastructure and network management services – management and monitoring of a client's IT infrastructure. It corresponds to the high level NAPCS category with the same title.

- 8318 – Software - Software developed for multiple sales or licensing. It corresponds to the high level NAPCS with the same title. The proposed 5-digit detail differs from the detail currently found in the CPC or in NAPCS in order to distinguish software that is intrinsically a technology product from software that is intrinsically a leisure or educational product (multi-media). The first type is considered an ICT service, the later type not.

Of the above broad service categories, only IT technical consulting does not have sub-components in NAPCS. The level of detail appropriate for use in the CPC is a matter of judgment and practical experience. This is thought to be a reasonable amount of detail for a classification such as the CPC.

In order to clarify the definition of each category, a link to the NAPCS explanatory notes is provided in Annex 1.

Experience in using the classification

The section of the NAPCS underlying the proposed changes to the CPC has been successfully used in both Canada and the United States, using more detailed categories than those proposed here.

In the United States, product data were collected for the Information Sector (NAICS 51) and the Computer Systems Design and Related Services industry (NAICS 5415) as part of the Annual Services Statistics Program.[8] The same product classification was used for the main ICT services industries, that is, Software Publishers, ISPs and Web Search Portals, Data Processing and Hosting, and Computer Design and Related Services. The use of a single product classification for these industries reflects the extensive overlap observed in the products they offer. NAPCS-based data were published for the first time in February 2003 in "*Services Annual Survey – 2001"*.

The experience in the United States was conclusive. The use of NAPCS has led to a significant increase in the amount of product detail published from the Services Annual Survey, and the data provide new insights on the output structure of the targeted industries.[9]

A similar approach was used in Canada. The relevant sections of NAPCS are used in two surveys which are part of a broader Service industries annual statistics program.

- **The Annual Survey of Internet Service Providers** is a sample survey of establishments primarily engaged in the provision of Internet access services.

- T**he Annual Survey of Software Development and Computer Services** is a sample survey of establishments classified in the following three NAICS industries: Software Publishers, Data Processing Services, Computer Systems Design and Related Services.

The product classification has been tested at different levels of detail for reference years 1999 to 2003. The results discussed here are those for the 2001 reference year.

8. NAICS codes in this section of the paper refer to the 2002 version.

9. For more information on implementation in the United States, see B.K. Atrostic, "Overview of the new Services Products Data in the United States", Working Party on Indicators for the Information Society, OECD, Paris, 5-6 May, 2003 [internal working document: DSTI/ICCP/IIS/RD(2003)2].

The **Annual Survey of Software Development and Computer Services** has been conducted since the early 90s. A preliminary version of the NAPCS classification system was introduced with the 1999 survey. Commodity data have been collected every year since then at different levels of detail. The population targeted by this survey is quite diversified and was known to house many multi-service establishments. It was also known that significant overlap existed between the boundaries of the various industries covered by this survey. The collection of product data is particularly important when these conditions exist, allowing the measurement of total market size and of industry specialisation ratios.

The product classification proved relevant and applicable. Seventeen of the twenty products tested accounted for more than 4% of revenues in its principal industry of origin. More than half of the respondents to this survey reported revenues in three or more product categories. The single service establishments (29%) tended to be of small or medium size and to serve one of the following markets: IT technical consulting, software publishing and computer systems design and development.

The significant overlap between the outputs of the 3 NAICS industries covered by this survey was confirmed. Thirteen of the twenty services tracked by the survey were produced in all industries and eighteen in two of the three industries. Despite the overlap between the outputs of these industries, the specialisation ratio for each industry was above the threshold of 70% deemed sufficient to define an industry in the Canadian system.

The **Annual Survey of Internet Service Providers** was conducted for the first time in 2000 (for reference year 1999). The industry is highly specialised with more than 88% of its revenues generated from the provision of Internet access services. Despite the high level of specialisation, more than 80% of establishments reported revenues in 3 or more product categories. In total, the industry reported revenues from the provision of 14 products in addition to its primary products.

The coverage of the product classification was very good for all industries targeted by these two surveys. Unclassified revenues accounted for no more than 7.5% of total revenues, and for only 5.4% of the combined revenues of the four industries. A similar observation can be made regarding the situation in the United States. Unclassified revenues ranged from 5.1 % of total revenues for NAICS 54151 – Computer Design and Related Services to 11.0 % for NAICS 51419 – Other Information Services. The module for product detail was relatively easy to implement in Canada for both surveys. The incidence of non-response and need for follow-up has been low.

In conclusion, the implementation of NAPCS for ICT-related services has been a positive experience in both Canada and the United States. The data collected provide new market information and help understand the structure of these dynamic industries. It also was relatively easy to use for most respondents. The integration of this system, or of a similar system, in the CPC would promote international comparability in an area of considerable interest.

NAPCS CATEGORIES AND LINKS TO THE PROPOSED CPC

NAPCS	Title	Description	New PC
1.1	Information technology (IT) technical consulting services	The provision of advice or expert opinion on technical matters related to the use of information technology. This includes advice on matters such as hardware and software requirements and procurement, systems integration, and systems security. The provision of expert testimony on IT related issues is also included here. **Exclusion:** Advice on issues related to business strategy, such as advising on developing an e-commerce strategy, is classified in 2.13, Management Consulting. Service contracts where advice is bundled with the design and development of an IT solution (website, database, specific application, network, etc.) are classified to the appropriate Information technology (IT) design and development services sub-category under 1.2.	83141
1.2	Information technology (IT) design and development services	The provision of technical expertise to design and/or develop an IT solution such as custom applications, networks, and computer systems.	8315
1.2.1	Custom Application design and development services	This service consists of designing the structure and/or writing the computer code necessary to create and/or implement a software application.	83151
1.2.1.1	Website design and development services	This service consists of designing the structure and content of a web page and/or of writing the computer code necessary to create and implement a web page. Exclusions: Service contracts where the design and development of a web page is bundled with the hosting of the web page are classified in the appropriate Website hosting services sub-category under 1.3.1.	
1.2.1.2	Database design and development services	This service consists of designing the structure and content of a database and/or of writing the computer code necessary to create and implement a database (data warehouse). Exclusions: Service contracts where the design and development of a database is bundled with the on-going management of the data holdings are classified in 1.3.6 Data management services.	
1.2.1.3	Custom programming services, except websites, database, and packaged software integration	This service consists of designing the structure and writing the computer code as necessary to design and develop a custom software application, other than programming for websites, databases, or packaged software integration.	
1.2.1.4	Customization and integration of packaged software	This service consists of adapting (modifying, configuring, etc.) and installing an existing application so that it is functional within the clients' information system environment. This service may include custom programming and training. Exclusions: Service contracts where this service is bundled with the hosting and management of the application on an on-going basis are classified to the appropriate sub-category of the Hosting and IT Infrastructure provisioning services under 1.3.	

NAPCS	Title	Description	New PC
1.2.1.4.1	Customization and integration of cross-industry applications	This service consists of adapting (modifying, configuring, etc.) and installing an existing cross-industry application so that it is functional within the clients' information system environment. This service may include custom programming and training. Exclusions: Service contracts where this service is bundled with the hosting and management of the application on an on-going basis are classified to the appropriate sub-category of the Hosting and IT Infrastructure provisioning services under 1.3.	
1.2.1.4.2	Customization and integration of vertical market applications	This service consists of adapting (modifying, configuring, etc.) and installing an existing vertical market application so that it is functional within the clients' information system environment. This service may include custom programming and training. Exclusions: Service contracts where this service is bundled with the hosting and management of the application on an on-going basis are classified to the appropriate sub-category of the Hosting and IT Infrastructure provisioning services under 1.3.	
1.2.1.4.3	Customization and integration of other packaged software	This service consists of adapting (modifying, configuring, etc.) and installing an existing application (except vertical market or cross-industry application) so that it is functional within the clients' information system environment. This service may include custom programming and training. Exclusions: Service contracts where this service is bundled with the hosting and management of the application on an on-going basis are classified to the appropriate sub-category of the Hosting and IT Infrastructure provisioning services under 1.3.	
1.2.2	Network design and development services	This service consists of designing, developing and implementing a customer's networks such as Intranets, Extranets and Virtual Private Networks. It includes the design and development of network security systems. Exclusions: Service contracts where this service is bundled with the day-to-day management of the client's network are classified in 1.4.1 Network management services.	83152
1.2.2.1	Network security design and development services	This service consists of designing, developing and implementing software, hardware and procedures to control access to data and programs and to allow for the safe exchange of information over a network.	
1.2.2.2	Network design and development services, other than security	This service consists of designing, developing and implementing customer's networks such as Intranets, Extranets and Virtual Private Networks. Exclusions: Service contracts where this service is bundled with the day-to-day management of the client's network are classified in 1.4.1 Network management services.	
1.2.3	Computer systems design, development and integration services	This service consists of assessing an organisation's computer requirements, advising on hardware and software acquisitions, developing system specifications and either putting the new system in place or providing the client with the necessary specifications to put the new system in place.	83152
1.2.3.1	Computer systems design services	This service consists of assessing an organisation's computer requirements, advising on hardware and software acquisitions, and providing the client with the specifications necessary to put the system in place.	
1.2.3.2	Computer systems design and development services	This service consists of assessing an organisation's computer requirements, advising on hardware and software acquisitions, developing system specification and putting the new system in place.	

NAPCS	Title	Description	New PC
1.2.3.3	Computer systems integration services	This service consists of a bundle that includes an analysis of the client's current computer system, present and future computing requirements, the purchase of new equipment and software, and the integration of the new and old systems components to create a new integrated system.	
1.3	Hosting and information technology (IT) infrastructure provisioning services	The provision of information technology (IT) infrastructure (hardware, software, and networks) to process data, host applications and host processes for a client.	8316
1.3.1	Website hosting services	The service of providing the infrastructure to host a customer's website and related files in a location that provides fast, reliable connection to the Internet.	83161
1.3.1.1	Website hosting services (without integration of related applications)	The service of providing the infrastructure to host a customer's website and related files in a location that provides fast, reliable connection to the Internet. The service is limited to storage on a single server, in either shared or dedicated capacity, without the service provider managing or integrating software applications. Software hosted on the server is the client's responsibility. Service level guarantees are standardised and limited in scope.	
1.3.1.2	Website hosting services with integration of related applications	A bundled service package that consists of the hosting and management of the website and related applications. An important characteristic of this service is the promise of a secure and reliable site and Internet connections that can be quickly scaled to accommodate variations in traffic use. Frequently, consulting, customisation and systems integration are part of the package. Applications are frequently e-commerce related and enable online storefronts, shopping carts and catalogues with advanced and complex features such as order processing, fulfilment, procurement, invoicing, transaction processing, customer relational management and back-end database and data warehouse integration and migration services.	
1.3.2	Application service provisioning	The provision of leased software applications from a centralised, hosted, and managed computing environment.	83162
1.3.2.1	Application service provisioning with integration services	The provision of leased software applications from a centralised, hosted, and managed computing environment with integration to the systems and infrastructure of the client. Frequently, consulting, customisation and systems integration services are bundled with the hosting and management of the application.	
1.3.2.2	Application service provisioning without integration services	The provision of leased software applications from a centralised, hosted, and managed computing environment where the leased application is not customised and not integrated with other applications of the client. The application is usually accessed over the Word Wide Web. A common example is office suite software applications.	
1.3.3	Business process management services	A bundled service package that combines information-technology-intensive services with labour (manual or professional depending on the solution), machinery, and facilities to support, host and manage a business process for a client.	83163
1.3.3.1	Business process management services - Financial	A bundled service package that combines information-technology-intensive services with labour (manual or professional depending on the solution), machinery, and facilities to support, host and manage a financial business process for a client such as financial transaction processing, credit card processing, payment services and lending services.	

NAPCS	Title	Description	New PC
1.3.3.2	Business process management services - Human resources	A bundled service package that combines information-technology-intensive services with labour (manual or professional depending on the solution), machinery, and facilities to support, host and manage a human resource business process for a client such as benefits administration, payroll processing, and personnel administration.	
1.3.3.3	Business process management services - Supply chain management	A bundled service package that combines information-technology-intensive services with labour (manual or professional depending on the solution), machinery, and facilities to support, host and manage a supply chain management business process for a client such as inventory management, procurement services, logistics services, production scheduling and order processing.	
1.3.3.4	Business process management services - Customer relations management	A bundled service package that combines information-technology-intensive services with labour (manual or professional depending on the solution), machinery, and facilities to support, host and manage a customer relations management business process for a client such as help desk, call centre, and customer service.	
1.3.3.5	Business process management services - Vertical markets	A bundled service package that combines information-technology-intensive services with labour (manual or professional depending on the solution), machinery, and facilities to support, host and manage a vertical market business process for a client. These are business processes that are conducted by specific industries such as electric, chemical, and petroleum.	
1.3.3.6	Business process management services – Other	A bundled service package that combines information-technology-intensive services with labour (manual or professional depending on the solution), machinery, and facilities to support, host and manage other business processes for a client.	
1.3.4	Collocation services	The provision of rack space within a secured facility for the placement of servers and enterprise platforms. The service includes the space for the client's hardware and software, connection to the Internet or other communication networks, and routine monitoring of servers. Clients are responsible for the management of the operating system, hardware, and software.	83169
1.3.5	Data storage services	The service of managing or administrating the storage and back-up management of data such as remote back-up services, storage, or hierarchical storage management (migration).	83169
1.3.6	Data management services	The on-going management and administration of data as an organisational resource. Services may include performing data modelling, data mobilisation, data mapping/rationalisation, data mining and system architecture.	83169
1.3.7	Video and audio streaming services	The service of sending audio and video data over the Internet or providing services associated with the storage, production (including encoding), and support of video and audio streaming over the Internet.	84169
1.3.8	Other IT infrastructure provisioning services	Other IT hosting or infrastructure provisioning services such as hosting client's application, processing client's data and computer time share.	83169
1.4	IT infrastructure and network management services	The service of managing and monitoring a client's IT infrastructure including hardware, software and networks.	8317

NAPCS	Title	Description	New PC
1.4.1	Network management services	The service of managing and monitoring communication networks and connected hardware to diagnose networking problems and gather capacity and usage statistics for the administration and fine-tuning of network traffic. These services also remotely manage security systems or provide security-related services.	83170
1.4.2	Computer systems management services	Providing day-to-day management and operation of a client's computer system.	83170
1.5	IT technical support services	The provision of technical expertise to solve problems for the client in using software, hardware, or an entire computer system.	83142
1.5.1	Software-related technical support services	The provision of customer support in using or troubleshooting the software and includes upgrade services and the provision of patches and updates.	
1.5.2	Hardware-related technical support services	The provision of customer support in using or troubleshooting the computer hardware. It includes the testing and cleaning on a routine basis, and repair of IT equipment. Includes technical assistance in moving a client's computer system to a new location.	
1.5.3	Combined software and hardware technical support services	The provision of customer support in using or troubleshooting the computer hardware and software.	
1.5.4	Other IT technical support services	The provision of technical expertise to solve specialised problems for the client in using a computer system. These specialised services include computer auditing and assessment, data recovery services, and disaster recovery services.	
1.5.4.1	Auditing and assessing computer operations	Services of auditing or assessing computer operations without providing advice or other follow-up action. Includes auditing, assessing and documenting a server, network or process for components, capabilities, performance, or security.	
1.5.4.2	Data recovery services	Retrieving a client's data from a damaged or unstable hard drive or other storage medium.	
1.5.4.3	Disaster recovery services (Business continuity services)	Providing standby computer equipment and duplicate software in a separate location to enable a client to relocate regular staff to resume and maintain routine computerised operations in the event of a disaster such as a fire or flood.	
1.5.4.9	Other IT technical support services n.e.c.	The provision of technical expertise to solve specialised problems for the client other than computer auditing and assessment, data recovery services, and disaster recovery services.	
1.6	Information and document transformation services	The provision of technical expertise and equipment to transform information and documents from one format or media to another.	83142
1.6.1	Imaging and other data capture services	The service of converting paper documents into digital or other machine-readable formats. The service generally involves the following components: 1) document preparation, 2) scanning, optical character recognition, and other data capture activities, 3) and the delivery or output of the information captured into a database or a physical medium.	
1.6.2	Data conversion and migration services	The service of moving data from one storage device to another or from one file format to another.	
1.7	Internet access and backbone services	The provision of a connection to the Internet and carriage of traffic over the Internet.	842
1.7.1	Internet access services	The provision of a direct connection to the Internet, both wired and wireless. This product reconciles with product 1.5 in joint product list for 515 and 5175 and with product 3 in product list for 517 except 5175.	84220

NAPCS	Title	Description	New PC
1.7.1.1	Internet access - narrowband	Providing a direct connection to the Internet, both wired and wireless, at speeds not exceeding 64Kbps. The Internet Service Provider (ISP) may also provide free services along with Internet access such as e-mail, space for the customer's web page, tools for simple web page design, chat, technical support, etc. This service may also include remote access or other types of Internet access and package upgrades such as international roaming, extra e-mail boxes, etc., usually for additional costs to customers.This product reconciles with product 1.5.1 in joint product list for 515 and 5175 and with product 3.1 in product list for 517 except 5175.	
1.7.1.2	Internet access – broadband	Providing a direct connection to the Internet, both wired and wireless, at speeds exceeding 64Kbps. The Internet Service Provider (ISP) may also provide free services along with Internet access such as e-mail, space for the customer's web page, tools for simple web page design, chat, technical support, etc. This service may also include remote access or other types of Internet access and package upgrades such as international roaming, extra e-mail boxes, etc., usually for additional costs to customers. This product reconciles with product 1.5.2 in joint product list for 515 and 5175 and with product 3.2 in product list for 517 except 5175.	
1.7.2	Internet backbone services	This service consists of the carriage of Internet traffic by one ISP for another ISP (generally known in the industry as peering and transit charges).	84210
1.8	Internet telecommunication services	This service consists of providing telecommunications services over the Internet other than Internet access. This includes services such as fax, telephony, audio conferencing and video conferencing over the Internet	84290
1.9	Software publishing	Publication of software that is developed for wide distribution and is produced for multiple sales or licensing.	8318
1.9.1	System software publishing	Publication of low-level software required to manage computer resources and support the production or execution of application programs but which is not specific to any particular application.	
1.9.1.1	Operating systems software publishing	Publication of low-level software which handles the interface to peripheral hardware, schedules tasks, allocates storage, and presents a default interface to the user when no application program is running. (Includes all client and network operating systems).	
1.9.1.2	Network software publishing	Publication of software that is used to control, monitor, manage and communicate with operating systems, networks, network services, databases, storage and networked applications in an integrated and co-operative fashion across a network from a central location. (Includes all network management software, server software, security and encryption software, middleware, etc).	
1.9.1.3	Database management software publishing	Publication of a collection/suite of software programs that enables storage, modification and extraction of information from a database. There are many different types of DBMSs ranging from small systems that run on computers to huge systems that run on mainframes, *e.g.* Oracle.	

NAPCS	Title	Description	New PC
1.9.1.4	Development tools and programming languages software publishing	Publication of software used to assist in the development and/or authoring of computer programs. Software products that support the professional developer in the design, development, and implementation of a variety of software systems and solutions. (Includes all program development tools and programming languages software).	
1.9.1.5	Other systems software publishing	Publication of systems software not elsewhere classified.	
1.9.2	Application software publishing	Publication of a software program that performs a specific function directly for the end user.	
1.9.2.1	General business productivity and home use applications publishing	Publication of software used for general business purposes to improve productivity, or in the home for entertainment, reference or educational purposes. (Includes office suite applications such as word processors, spreadsheets, simple databases; graphics applications; project management software, computer-based training software, games, reference, home education, etc.	
1.9.2.2	Cross-industry application software publishing	Publication of software that is designed to perform and/or manage a specific business function or process that is not unique to a particular industry. (Includes professional accounting software, human resource management, customer relations management software, Geographic Information System software, web page/website design software, etc.)	
1.9.2.3	Vertical market application software publishing	Publication of software that performs a wide range of business functions for a specific industry such as manufacturing, retail, healthcare, engineering, restaurants, etc.	
1.9.2.4	Utilities software publishing	Publication of a small computer program that performs a very specific task. Utilities differ from other applications software in terms of size, cost and complexity. Examples include: compression programs, anti-virus, search engines, font, file viewers, and voice recognition software.	
1.9.2.5	Other application software publishing	Publication of applications software not elsewhere classified.	
1.10	Re-sale of computer hardware and software	Retailing of computer hardware and software.	Out of scope
1.11	Rental and leasing of computer hardware	The rental or lease of computer hardware.	73124
1.12	IT-related training services	The provision of training for the use of computer hardware, software, networks, or other IT-related topic.	Out of scope

ANNEX 2
COMPARISON BETWEEN THE ORIGINAL WPIIS PROPOSAL AND THE PROPOSAL BASED ON CPC VERSION 2.0

ISIC R3	CPC 1.1	Original proposal by WPIIS for a CPC based definition of ICT services (including proposed revisions)	ISIC R4	CPC 2.0	Final proposal based on the CPC structure adopted by the UN statistical commission (CPC version 2.0)
	841	Telecommunications and program distribution services		841	Telephony and other telecommunications services
	8411	Carrier services		8411	Carrier services
6420	84110	Carrier services	61	84110	Carrier services
	8412	Fixed telephony services		8412	Fixed telephony services
6420	84121	Fixed telephony services - Access and use	6110	84121	Fixed telephony services - access and use
6420	84122	Fixed telephony services - Calling features	6110	84122	Fixed telephony services - calling features
	8413	Mobile telephony services		8413	Mobile telecommunications services
6420	84131	Mobile telecommunications services - Access and use	6120	84131	Mobile telecommunications services - access and use
6420	84132	Mobile Telecommunications services - Calling features	6120	84132	Mobile telecommunications services - calling features
	8414	Private network services		8414	Private network services
6420	84140	Private network services	61	84140	Private network services
	8415	Data transmission services		8415	Data transmission services
6420	84150	Data transmission services	61	84150	Data transmission services
	8416	All other telecommunications services		8419	Other telecommunications services
6420	84160	All other telecommunications services	61	84190	Other telecommunications services
	842	Internet telecommunications services		842	Internet telecommunications services
6420	84210	Internet backbone services	61	8421	Internet backbone services
6420	84220	Internet access services	61	8422	Internet access services
6420	84290	Other internet telecommunications services	61	8429	Other Internet telecommunications services
	7312	Leasing or rental services concerning other machinery and equipment without operator		7312	Leasing or rental services concerning other machinery and equipment without operator
7123	73123	Leasing or rental services concerning office machinery and equipment (excl. computers) without operator	7730	73123	Leasing or rental services concerning office machinery and equipment (excl. computers) without operator
7123	73124	Leasing or rental services concerning computers without operator	7730	73124	Leasing or rental services concerning computers without operator
	8314	IT technical consulting and support services		8313	Information technology (IT) technical consulting and support services
7200	83141	IT technical consulting	6202	83131	IT technical consulting services
7200	83142	IT technical support services	6202	83132	IT technical support services

	8315	IT design and development services		8314	Information technology (IT) design and development services
7200	83151	IT design and development services - Applications	6201	83141	IT design and development services for applications
7200	83152	IT design and development services - Network and systems	6202	83142	IT design and development services for networks and systems
	8316	Hosting and IT infrastructure provisioning services	6311	*8315*	*Hosting and information technology (IT) infrastructure provisioning services*
7200	83161	Web hosting	6311	83151	Website hosting services
7200	83162	Application service provisioning	6311	83152	Application service provisioning
7200	83163	Business process management	7020	***83117***	Business process management services
7200	83169	Other IT infrastructure provisioning services	6311	83159	Other hosting and IT infrastructure provisioning services
	8317	IT infrastructure and network management services		8316	IT infrastructure and network management services
7200	83170	IT infrastructure and network management services	6202	83161	Network management services
			6202	83162	Computer systems management services
	8713	Computer hardware servicing, repair and maintenance		8713	Maintenance and repair services of computers and peripheral equipment
7250	87130	Computer hardware servicing, repair and maintenance	9511	87130	Maintenance and repair services of computers and peripheral equipment
	8318	Published Software			*Published Software*
	83181	Published Software, excluding multi-media software	5820	478	Packaged software
	83182	Published Software, multi-media	5820	83143	Software originals
			5820	8434	Software downloads
			6311	84392	On-line software
			7740	73310	Licensing services for the right to use computer software

Note: The coverage of these 2 groups is not identical