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DIRECTORATE FOR SCIENCE, TECHNOLOGY AND INDUSTRY
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Working Party on Indicators for the Information Society

CLASSIFYING INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) SERVICES

OECD, Paris, 29-30 April 2004

This paper presents a proposal to amend the UN Central Product Classification (CPC) in order to develop a classification of ICT service commodities.

Delegates are invited to discuss the ICT services proposal and agree to recommend this proposal, or a proposal amended by the group, to be submitted to the next meeting of the UN classification sub-committee for approval. Subject to United Nations' approval of the CPC proposed modifications, the ICT services definition will then be submitted to the ICCP Committee with a view to its declassification.

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CLASSIFYING INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) SERVICES

Introduction

1.   The WPIIS has made significant contributions in recent years to the development of standards in the domain of information society statistics. The group's first contribution was the definition of the Information and Communication Technology sector (ICT sector) based on ISIC rev. 3. That definition is now endorsed by the United Nations Statistical Office (UNSO) and used by a number of National Statistical Institutes (NSI). At the last meeting, WPIIS agreed on a list of ICT goods based on the Harmonized System. Definitions developed by the group in the domain of e-commerce and ICT use have gained wide acceptance.

2.   These standards were developed by making the best possible use of existing international classifications or the best possible use of recent developments by NSIs. This strategy was chosen to accelerate the process of generating internationally comparable statistics.

3.   This paper proposes a similar approach in the development of a list for ICT service commodities. The strategy consists of proposing updates to the UN Central Product Classification (CPC) in selected areas and in identifying ICT service commodities within the updated CPC on the basis of the guidelines developed by WPIIS.

4.   The update of the CPC proposed in this paper is based on the North American Product Classification (NAPCS). That system was developed with input from industry insiders and particular attention was given to services originating from the information sector, as defined in the North American Industry Classification System (NAICS). Most producers of core ICT services are classified within that sector. There is therefore an opportunity for WPIIS to leverage existing development work.

5.   The proposed strategy also has the advantage of fostering collaboration, in particular with the Voorburg Group on Service Statistics and the UNSO. This is consistent with the spirit of co-operation established at the World Summit on the Information Society that took place last December.

6.   The proposal to co-operate was well received at the last Voorburg Group meeting. This paper is largely based on a submission to its Tokyo meeting. The Classification sub-committee of the UNSO also welcomed the suggestion to collaborate on this project of common interest.

Why not the current CPC?

7.   The CPC (version 1.1) does not explicitly isolate some core ICT services.[1] Products that did not exist or were at an early stage of development when the CPC was elaborated are now significant. This is the case for products such as web site hosting, application provisioning or network management services.

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1.   In this paper, the terms product, service and commodity are used as synonyms.

What are the limits of the proposed approach?

8.   The UNSO does not plan to change to the CPC's aggregation structure prior to the 2007 revision. However additions and changes at the 4 and 5 digit level of the classification are possible before that time. The proposal submitted here should therefore be seen as the initial stage of a process that could lead to a more fundamental assessment of the product classification, both in its structure and amount of detail.

9.   The CPC is a known international standard. Updating it in selected areas could influence the international comparability of statistics outputs for many years to come.

How should the list of ICT services be determined?

10. The concept underlying the list of ICT industries is used to develop the list of ICT services. This is reasonable since it is based on characteristics of products rather than on characteristics of industries. "*For manufacturing industries*, the <u>products</u> of a candidate 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 <u>products</u> of a candidate industry must be intended to enable the function of information processing and communication by electronic means." (See DSTI/ICCP/IIS(2003)1/REV2).

11.   The concept does not restrict the list of ICT services to those primarily produced by ICT industries, nor does it imply that all primary products of ICT industries should be included in the list of ICT commodities. However, in this case it appears to largely be the case. This paper does not propose a discussion of the principles underlying the definition of ICT services. Rather it suggests a pragmatic approach based on the following assumptions:

- The primary outputs of ICT service industries are, for the most part, ICT services.

- The production of ICT services as primary outputs by non-ICT industries is not material.

12.   These assumptions can be challenged and comments by delegates are welcomed. Available information in Canada suggests they are reasonable.

13.   The identification of core ICT services is likely not to be very controversial. The principal outputs of ***ISIC 6420 – Telecommunications, 7200 – Computer and related services and 7123 – Renting of office machinery and equipment (including computers) are***, for the most part, in-scope. The services of these industries are generally intended to enable the function of information processing and communication by electronic means, the accepted guideline to recognize ICT goods and services.

14.   There are three possible exceptions: CPC 84170 – Program distribution services, CPC 84300 – On-line information provision services and CPC 83633 – Sale of internet advertising space (except on commission). The first is an output of ISIC 6420 – Telecommunications, the second and third outputs of ISIC 7240 – Data base activities. These services consist of the delivery of content by electronic means. Such services are explicitly excluded from our ICT definition. They are also excluded from the proposal presented below.

15.   The primary products of these industries as delineated in CPC version 1.1 are shown below. The categories that appear in bold and italic (84170, 83633 and 84300) are those that we might wish to exclude.

ISIC	CPC	Description
6420	84110	Carrier services
6420	84121	Fixed telephony services – Access and use
6420	84122	Fixed telephony services – Calling features
6420	84131	Mobile telecommunications services – Access and use
6420	84132	Mobile Telecommunications services – Calling features
6420	84140	Private network services
6420	84150	Data transmission services
6420	84160	All other telecommunications services
6420	*84170*	***Program distribution services***
6420	84210	Internet backbone services
6420	84220	Internet access services
6420	84290	Other internet telecommunications services
7123	73123	Leasing or rental services concerning office machinery and equipment (excl. computers) without operator
7123	73124	Leasing or rental services concerning computers without operator
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

What parts of the CPC need updating?

16.   This paper proposes an update to computer and related services (the primary products of ISIC 7200) only. It does not propose to update the CPC for telecommunications as this was done recently.

17.   There could, however, be a need to re-think the classification of telecommunications services in a few years. The CPC largely reflects market regulation and limitations of technologies. Both the regulatory framework and telecommunication technologies are evolving rapidly. In particular, the opening of some markets to competition and the deployment of broadband technologies are setting the stage for bundling of services. In Canada major cable operators are upgrading their networks to offer VoIP (Voice over the Internet Protocol) within the next 2 years, and major telecommunications carriers are planning to video over DSL within a similar timeframe; some already do. Some believe that competition for the "broadband home" will lead suppliers to offer bundles of services (e.g. voice telephony, Internet access and video) to attract and retain clients. If this method of marketing services becomes widespread, the existing statistical classification of services could become obsolete. Changes in regulations could have a similar impact. There are still too many uncertainties to predict the impact of these changes on markets (and therefore on product classifications). It is also not clear whether these changes will be the same across countries.

18.   The NAPCS proposal for information technology services[2] is close in coverage to the CPC grouping for computer and related services. It is designed to describe the principal products of four NAICS industries: 511210 – Software publishers, 51811 – ISPs and Web Search Portals, 51821 – Data Processing, Hosting, and Related Services, 54151 – Computer Systems Design and Related Services. The activities covered by these industries mostly relate to ISIC 7200 – Computer and related services, and the products it describes are mostly covered by CPC 8314 – Computer consultancy services, 8315 – Computer facilities management services and 8316 – Systems maintenance services. Software is covered by CPC 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, and CPC 73310 – Licensing services for the right to use computer software.

19.   Although similar in coverage, the structure and detail of the CPC and NAPCS are significantly different. The amount of detail found in the NAPCS is likely not practical for an international classification.

20.   At the highest level of the NAPCS proposal, the following categories of ICT services are identified:

- IT technical consulting – expert opinion on technical matters related to the use of IT.

- IT design and development services – design and development of IT solutions such as custom applications, networks and computer systems.

- Hosting and IT infrastructure provisioning services – access to IT infrastructure (hardware, software and networks) enabling the hosting of applications and the processing of information.

- IT infrastructure and network management services – management and monitoring of a client's IT infrastructure.

- IT technical support services – technical expertise to solve IT related problems.

- Information and document transformation – technical expertise and equipment to transform information from one format or media to another.

- Internet access and backbone services – connection to, and carriage of traffic on, the Internet.

- Published Software – software developed for wide distribution and produced for multiple sale or licensing.

21.   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. Input from other statistical offices on this matter would be most useful.

22.   The proposal below goes slightly beyond the most aggregated level of NAPCS (as shown in paragraph 18 above), but reorganizes the NAPCS aggregates into five categories in order to respect the constraints of the CPC structure.

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2.   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.

- 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 5-digit detail of the CPC is retained for the time being but this treatment should be re-assessed for the 2007 revision.

23.   The following table presents a CPC based list of ICT services after the proposed update to the CPC (new categories shown in italics). The right column shows the principal industry of origin.

ISIC	CPC	ICT Services
	841	Telecommunications and program distribution services
	8411	Carrier services
6420	84110	Carrier services
	8412	Fixed telephony services
6420	84121	Fixed telephony services - Access and use
6420	84122	Fixed telephony services - Calling features
	8413	Mobile telephony services
6420	84131	Mobile telecommunications services - Access and use
6420	84132	Mobile Telecommunications services – Calling features
	8414	Private network services
6420	84140	Private network services
	8415	Data transmission services
6420	84150	Data transmission services
	8416	All other telecommunications services
6420	84160	All other telecommunications services
	842	Internet telecommunications services
6420	84210	Internet backbone services
6420	84220	Internet access services

ISIC	CPC	ICT Services
6420	84290	Other internet telecommunications services
	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
7123	73124	Leasing or rental services concerning computers without operator
	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*
	8713	Computer hardware servicing, repair and maintenance
7250	87130	Computer hardware servicing, repair and maintenance
	8318	*Published Software*
7200	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
7200	73310	Licensing services for the right to use computer software

24.   The proposed level of detail is based in part on the relative importance of these products in Canada, and in part on the author's perception of what is feasible at the international level Delegates are invited to give their country's perspective on this.

Has the proposed classification been tested?

25.   The section of the NAPCS underlying the proposed changes to the CPC has been successfully used in both Canada and the United States in more detail than suggested here.

26.   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[3]. 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

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3.   NAICS codes in this section of the paper refer to the 1997 version.

overlap observed in the products they offer. NAPCS based data were published for the first time in February 2003 in "*Services Annual Survey – 2001*".

27.   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.[4]

28.   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.

29.   The product classification has been tested at different levels of details for reference years 1999 to 2002. The results discussed here are those for the 2001 reference year.

30.   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 specialization ratios.

31.   The product classification proved relevant and applicable. All products, except network design, collocation and video and audio streaming represented more than 4% of revenues in its principal industry of origin. More than half of the respondents to this survey reported revenues in 3 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.

32.   The significant overlap between the outputs of the 3 NAICS industries covered by this survey was confirmed. Thirteen of the twenty 20 services tracked by the survey were produced in all industries and eighteen in two of the three industries. Collocation services and data storage services were the only services originating from a single industry. Despite the overlap between the outputs of these industries, the specialization ratio for each industry was above the threshold of 70 % deemed sufficient to define an industry in the Canadian system.

33.   The **Annual Survey of Internet Service Providers** has been conducted for the first time in 2000 (for reference year 1999). The industry is highly specialized with more than 88% of its revenues generated from the provision of Internet access services. Despite the high level of specialization, 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, but only 3 of those accounted for

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4.   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 [DSTI/ICCP/IIS/RD(2003)2].

more than 1% of the it's revenues: web site hosting (3.9%), sales, rental and maintenance of IT equipment (1.1%) and other services (3.0%). This industry is also the second largest producer of collocation and video and audio streaming services, two relatively small markets.

34.   The coverage of the product classification was very good for all industries targeted by these two surveys. Unclassified revenues accounted for less than 7.5% of total revenues in all cases, 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.

Conclusion

35.   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.

36.   Delegates are asked to express their position on the following questions:

- Is the strategy outlined, that is to propose amendments to the CPC so that the latter can be used to define a list of ICT services, acceptable and feasible?

- Are the proposed amendments to the CPC acceptable and feasible?

- Is the proposed list of ICT services (scope and level of detail) acceptable?

- Should this proposal, or a proposal amended by the group, be tabled at the next meeting of UN classification sub-committee tentatively scheduled for October 2004?

- If the proposal is accepted by the UN classification sub-committee, do delegates agree that the proposed list of ICT services be submitted to the ICCP committee with a view to its declassification?

ANNEX 1

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 organization'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 organization'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 organization'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 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 standardized 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, customization 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 centralized, hosted, and managed computing environment.	83162
1.3.2.1	Application service provisioning with integration services	The provision of leased software applications from a centralized, hosted, and managed computing environment with integration to the systems and infrastructure of the client. Frequently, consulting, customization 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 centralized, hosted, and managed computing environment where the leased application is not customized 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 organizational resource. Services may include performing data modelling, data mobilization, data mapping/rationalization, 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 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 specialized problems for the client in using a computer system. These specialized 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 computerized operations in 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 specialized 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 cooperative 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 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