

**USE OF CPC VERSION 1.0 FOR DEFINING  
SERVICE PRODUCT OUTPUTS:  
Canadian Experience: some notes**

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## **USE OF CPC VERSION 1.0 FOR DEFINING SERVICE PRODUCT OUTPUTS: Canadian Experience : some notes**

### **1.0 Introduction**

There is as yet little general understanding among the users of services data, of the difference between products and industries in the compilation of Services data, whether of domestic production or international trade. The use of consistent categories and definitions of products across industry surveys, is a necessary prerequisite to the compilation of economy wide production data for service products.

Statistics Canada has adopted CPC Version 1.0 , chapters 5 to 9 as its reference classification for services, extending it where necessary for Canadian purposes. While no data have yet been published on this basis, data on inputs and outputs, defined in CPC terms, have been collected in a number of production surveys, in particular in the new Unified Enterprise Statistics Program (UES).

This paper brings together notes on a number of different surveys that describe how the CPC was used for the purpose of collecting output or revenue data in selected services surveys conducted by Statistics Canada and the results obtained to date. The Canadian experience will be useful in considering updates to CPC Version 1.0.

### **2.0 Pre-Unified Enterprise Survey**

Statistics Canada has recently started a new program called the Unified Enterprise Survey, in which CPC-based classes have been introduced for the purpose of collecting output data by product. Prior to the introduction of the CPC-based classes in the Unified Enterprise Survey, production surveys in selected service industries used the CPC to define categories for the “Revenue by Type of Service” module. Results and observations regarding two such surveys are presented here: the Annual Survey of Management Consulting; and, the Annual Survey of Computer Services.

#### **2.1 Annual Survey of Management Consulting, 1997 (NAICS Canada 541611, 541612, 541619 / ISIC 6309, 6720, 7414, 7491)**

The “Revenue by type of service” module of the 1997 Annual Survey of Management Consulting utilizes the entire suite of seven 5-digit management consulting classes offered in the CPC version 1. A few service categories thought to be important secondary products of the industry were also included. All product classes appearing in this module and their corresponding CPC classes are shown in the accompanying Table 1.

**Table 1 – Revenue by Type of Service, 1997 Annual Survey of Management Consulting**

<b>Questionnaire descriptors</b>	<b>Cell #</b>	<b>CPC code</b>	<b>CPC descriptor</b>
<b>Section 5. "Revenue by type of service"</b>			
<i>Management consulting services</i>			
Strategic management and planning, organizational structure and review	Q094	83111	General management consulting services
Financial management	Q096	83112	Financial management consulting services
Human resource management and planning	Q097	83113	Human resources management consulting services
Executive search services	Q098	85111	Executive search services
Operations management consulting	Q099	83115	Production management consulting services
Marketing management and planning (excl. marketing research)	Q100	83114	Marketing management consulting services
Other management consulting	Q104	83119	Other management consulting services
<i>Secondary product categories</i>			
Physical environment management and planning	Q095	83131	Environmental consulting services
Industrial marketing research/studies (excl. consumer marketing research)	Q101	83700	Market research and public opinion polling services
Economic and social research (incl. industry studies/analysis)	Q102	81220	Research and experimental development services in economics
Public relations services	Q103	83121	Public relations services
Computer services and information systems management	Q105	8314	Computer consultancy services
Training and education	Q106	92900	Other education and training services
Revenue from management services	Q107	83190	Other management services, except construction project management

To help analyze the effectiveness of these CPC classes in the revenue module, a test group of 175 complete questionnaires from the 1997 survey was used. In Table 2, the percentage of non-zero responses to each revenue category and the proportion of operating revenue accounted for by each are depicted side by side. All revenue data are unweighted.

**Table 2 – Frequency and importance of revenue categories, 1997 Annual Survey of Management Consulting**

<i>CPC descriptor</i>	<i>Percent of respondents reporting revenue in cell</i>	<i>Percent of total operating revenue accounted for in cell</i>
<i>Management consulting services</i>		
General management consulting services	31%	16.5%
Financial management consulting services	11%	1.5%
Human resources management consulting services	13%	23.0%
Executive search services	8%	6.3%
Production management consulting services	13%	5.8%
Marketing management consulting services	6%	1.4%
Other management consulting services	29%	21.9%
<i>Secondary products</i>		
Environmental consulting services	3%	0.1%
Market research and public opinion polling services	1%	0.1%
Research and experimental development services in economics	2%	0.4%
Public relations services	1%	0.003%
Computer consultancy services	7%	0.4%
Other education and training services	8%	3.9%
Other management services, except construction project management	17%	12.5%
All other operating revenue	16%	6.2%

Overall, the results from the 1997 Annual Survey of Management Consulting seem to reaffirm the applicability and relevance of the seven existing 5-digit management consulting classes in the CPC. There was also evidence of the continued viability of the classes used for secondary products.

A majority of respondents (62%) reported all of their revenue in one category, accounting for 65% of revenue in the unweighted sample.

Nearly half of all revenue was reported in one of *general management consulting, financial management consulting, human resource management consulting, or executive search services* – generally considered to be the mainstay of the industry. Another third was accounted for in either *production management consulting, marketing management consulting, or other management consulting services*. Secondary products of the industry accounted for most of the remaining revenue share (17.4%), with the vast majority residing in education and training and other management services. The remaining 6.2% of revenue was taken up by “other operating revenue”. While this residual category was used by 16% of respondents, its relatively small revenue share indicates that the classification does an adequate job of covering the range of

services provided by the management consulting industry. The types of services specified by respondents who used the residual categories were quite homogeneous, leading to no firm suggestions of possible new sub-classes.

**2.2 Annual Survey of Computer Services, 1997 (NAICS Canada 511210, 514191, 514210, 541510 / ISIC 6420, 7210, 7220, 7230, 7290, 7499)**

Groupings or further breakdowns of CPC classes were used to define Types of Services in this survey, as shown in Table 3.

**Table 3 – Categories for Revenue by Type of Service, 1997 Annual Survey of Computer Services**

<b>Questionnaire descriptor</b>	<b>Cell</b>	<b>CPC code</b>	<b>CPC descriptors</b>
Software products	Q301		
<i>Professional services</i>			
Corporate EDP consulting	Q304	83141	Hardware consultancy services
Systems and technical consulting	Q305	83142	
Custom software development	Q307	83142	Software consultancy services
Contract programming	Q308	83142	
Training and education	Q309	92900	Other education and training services
Facilities management	Q313	83150	Computer facilities management services
Provision of access to internet	Q606	84200	on-line access services
Other professional services	Q314		
<i>Data processing services</i>			
Network Services – Electronic information systems	Q322	84300	on-line information provision services
Network Services – Network applications (including EDI)	Q324	84300	
Shared processing	Q325	85960	
Data entry	Q327	85960	Data processing services
Other processing services	Q328	85960	
<i>Hardware sales, rentals and maintenance</i>			
Sales of hardware purchases for resale	Q331	62284	Specialized store retail trade services, of computers and packaged software
Sales of hardware of own manufacture	Q332	62284	
Lease and rental of computer equipment	Q333	73124	Leasing or rental services concerning computers without operator
Repair and maintenance of equipment	Q334	87130	Computer hardware servicing repair and maintenance
Third party maintenance	Q600	87130	
Other services	Q330		

**Table 4 – Distribution of Revenue by Type of Service, 1997 Annual Survey of Computer Services**

<b>Annual Survey of Computer Services, 1997 Questionnaire descriptor</b>	<b>Percent of respondents reporting revenue in cell</b>
<b>Section 5.C "Revenue by type of service"</b>	
Software products	46%
<i>Professional services</i>	
Corporate EDP consulting	14%
Systems and technical consulting	37%
Custom software development	37%
Contract programming	20%
Training and education	31%
Facilities management	7%
Provision of access to internet	7%
Other professional services	19%
<i>Data processing services</i>	
Network Services – Electronic information systems	7%
Network Services – Network applications (including EDI)	4%
Shared processing	4%
Data entry	7%
Other processing services	8%
<i>Hardware sales, rentals and maintenance</i>	
Sales of hardware purchases for resale	26%
Sales of hardware of own manufacture	3%
Lease and rental of computer equipment	5%
Repair and maintenance of equipment	3%
Third party maintenance	8%
Other services	12%

In the paper entitled, “Implementation of the Model Survey of Computer Services: Canada’s Experience”, presented to the 1994 Voorburg Group meeting, the author noted an upward trend in revenues from facilities management services. It was suggested that additional analysis of the service bundles embodied in this category was needed to facilitate a further breakdown of this class in the CPC. More latterly, it has been concluded that any bundles associated with this form of outsourcing tend to be non-standard from firm to firm and not the same over time. Classification of these services can therefore only be in a separate class. These products cannot be priced by conventional methods. An approach designed for pricing unique products would need to be adopted for this class.

A side issue, to be considered for the redesign of the computer services survey, is the need to provide respondents with an explicit place to report revenue from software maintenance/support. Under the residual category “other professional services”, which was used by 19% of respondents, one of the most frequent respondent-specified service types indicated was support and maintenance of software and/or systems. If such a category were added in the questionnaire redesign process, it would be mapped to CPC 83160, Systems maintenance services.

Software publishing: Of all revenue modules on the computer services questionnaire, module 5.F. is unique in that it was not modeled after the CPC. Its main purpose is to allow software publishers to distribute their revenue according to the function of the software they publish.

**Table 5 – Distribution of Revenue by Type of Software Published, 1997 Annual Survey of Computer Services**

**Annual Survey of Computer Services, 1997  
Questionnaire descriptor**

<b>Questionnaire descriptor</b>	<b>Cell</b>	<b>Percent of respondents reporting revenue in cell</b>
System software (e.g. operating systems, compilers, communications , utilities)	Q390	14%
Financial software (non-industry specific, e.g. Accounting, Payroll)	Q391	9%
Application tools (non-industry specific, e.g. word processing, database, spreadsheet, graphics, etc.)	Q392	10%
Manufacturing software (e.g. CAD, MRP, MMS)	Q393	4%
Scientific and engineering software (e.g. mathematical, simulation, GIS, seismic analysis)	Q394	5%
Industry specific application solutions (e.g. restaurants, hotels, retail, banking)	Q395	17%
Multi media	Q396	4%
Voice recognition	Q397	0.2%

These categories could be used as a model for further enhancing the CPC in the area of software publishing. Much like the service of computer software *retailing* is uniquely classified in the CPC, so too could *publishing* of computer software. Given that the types of software published span a wide gamut of uses and are purchased by many different types of end-users, an argument can be made for sub-dividing software publishing services according to the function of the products firms specialize in. To that end, it is suggested that CPC classes be created for software publishing based on the following software functional types. The following is a draft very preliminary list of software products / functional types proposed for the North American Product Classification System, that is under development (NAPCS - Sector 51 subgroup meeting Aug 5, 99).

Systems software  
  Operating systems

- Computer language software
- Network software
- Server software
- Development tools (eg, assemblers, utilities)

#### Applications software

- General personal/business productivity software (eg word processors, graphics etc,)
- Cross-industry business-specific software
- Industry specific software (eg GIS, CAD, POS software)
- Communications and networking
- Multi media
- Electronic commerce (eg ATM, security/encryption)
- Utilities

Table 5 shows that respondents were able to distribute their software product revenues using the “type of software by function” categories provided in question 5.F. While these categories do not directly reflect the proposed categories above, they do provide an indication of respondents’ ability to break down their software publishing revenue along functional lines. This seems to suggest that these functional types may provide a useful model for creating CPC classes to fill the void for software publishing services.

### **3.0 Unified Enterprise Survey**

As in the two pre-UES surveys presented earlier, the CPC was used to define categories in the Revenue by Type of Service module of the UES questionnaire. In some cases, the CPC was expanded with a further level of detail, for the survey. Three surveys are described below. In section 3.4, three tables show the detail elaborated for the surveys in relation to the classes of CPC Version 1.0.

#### **3.1 1997 Annual Survey of the Real Estate Rental and Leasing and Property Management Industries (NAICS Canada 53111, 531120, 531130, 531190, 531310 / ISIC 6302, 7010, 7020)**

In general, for all categories of revenue from “non-residential” sources that appear on the 1997 real estate lessors questionnaire, no *explicit* CPC classes exist in the international version of the classification. Revenue categories for this part of the questionnaire were assembled using the explanatory notes of CPC 72112 (rental or leasing services of non-residential property). While most categories broken out were explicitly mentioned in the notes, others were assumed inclusions. In all, six new classes were added to the Canadian expansion of the CPC) in support of this survey’s content needs. Respondents, with a few exceptions, seemed to receive these categories quite readily. In light of the 1997 results, some further amendments to the CPC are suggested.

Respondents who operate self-storage facilities, for example, often included their revenue under the “industrial space” category, which, by definition, excludes such services. It is suggested that

most of the explicit and implicit content of 72112 be broken out into well defined classes. This includes creating a specific class for services of self-storage facilities as well as for services of parking lots and lock-up garages.

It is also suggested that a specific CPC class for Mobile home park leasing services, be broken out, to round out the *residential* revenues section. The motivation behind this suggestion is that most mobile home park lessors entered their revenue under “other non-residential revenue”, despite the fact that mobile home space rental is considered to be a residential revenue source much like apartment rentals.

In the CPC, appraisal services are included with each category under 7222 Buildings and associated land sales on a fee or contract basis, Residential 72221, and Non-residential 72222 and under 72230 Land sales on a fee or contract basis. For purposes of this survey, it was found useful and necessary to separate appraisal services from each and create a separate single category for appraisal services. It is recommended that a separate category for appraisal services be created in the CPC. For the complete details see Table 6 in section 3.4.

### **3.2 1997 Annual Survey of Real Estate Agents, Brokers, Appraisers and other Real Estate Activities Industries (NAICS Canada 531210, 531310, 531320, 531390 / ISIC 7020, 7499)**

For the question, on the 1997 Survey, that asks for commission and fee revenue from various real estate-related services, respondents were asked to distribute their revenue by “residential”, “commercial”, and “other non-residential” sources. To accommodate this three-way split, several subclasses were added to the Canadian expansion of the CPC. Specifically, the existing CPC classes for non-residential real estate-related revenue were broken down further into commercial and other non-residential sources.

In practice, as the 97 results revealed, only a select number of respondents could split non-residential revenues into the requested categories. Record keeping practices did not permit such a breakdown. In fact, a number of respondents could provide only a total revenue figure for a given source. Very few were able to supply revenue detail for “other non-residential” properties.

Special CPC subclasses were also added to the Canadian version to differentiate between revenue derived from new properties versus resale properties. For example, CPC class 72222, “non-residential buildings and associated land sales on a fee or contract basis” was divided into 72222.11 (new properties) and 72222.21 (resale properties). From fairly early on in the collection phase, it was clear that some respondents were unable to split out their revenue into these two categories, opting instead to report all revenue in one category or the other.

In this survey appraisal services are a distinct service provided by separate establishments in a Canadian industry entitled Offices of Real Estate Appraisers. From them it was possible to obtain information on real estate appraisal services subdivided into residential, commercial and other non-residential.

The “Property management fees” category was not used often by respondents to this survey, however this was expected, given the nature of the survey – property management is at most a secondary source of income in the case of real estate agents and brokers.

Real Estate Auction services seems to be a distinctly unused category with respect to the survey of real estate agents and brokers – not used once.

Real Estate Consulting Services was not well responded to, however, as with property management this activity is not traditionally carried out by any of the industries covered by this survey. For the complete details, see Table 7 in section 3.4.

### **3.3 1997 Annual Survey of the Food Services and Drinking Places Industry (NAICS Canada 722110, 722210, 722310, 722320, 722330, 722410/ISIC 5520)**

To meet desired level of revenue detail for the food services questionnaire, it was found necessary to create classes that were not explicit in the CPC. For example, three types of food service – take-out service, drive through service, and delivery service - had to be broken out from CPC class “other food services”, 63290. The expectation is that the Canadian version of the CPC will be modified to include these sub groups. See appendix I, for additional examples. Anecdotally, respondents had no difficulty providing revenue for the CPC subclasses provided on the questionnaire, supporting the notion that these sub-classes should be adopted in the CPC. For the complete details see Table 8 in section 3.4.

### **3.4**

**Table 6 – Revenue by Type of Service, 1997 Annual Survey of the Real Estate Rental and Leasing and Property Management Industries (NAICS Canada 53111, 531120, 531130, 531190, 531310 / ISIC 6302, 7010, 7020)**

<b>CPC code</b>	<b>CPC descriptor</b>	<b>Questionnaire descriptors</b>	<b>Cell #</b>
54300	Site preparation services	Servicing Land	1396
62500	Retail trade services on a fee or contract basis	Revenue from sales of other goods and services - specify:	2000
72111	Renting or leasing services involving own or leased residential property	Gross revenue from rental and leasing of properties owned or leased by your firm - Residential	1150
		Gross revenue from rental and leasing of properties owned or leased by your firm - Property management fees: Residential	1337
72112	Renting or leasing services involving own or leased non-residential property	Gross revenue from rental and leasing of properties owned or leased by your firm - Shopping centres, plazas, malls, stores	1160
		Gross revenue from rental and leasing of properties owned or leased by your firm - Office buildings	1170

72112 (cont'd)		Gross revenue from rental and leasing of properties owned or leased by your firm - Industrial space (factories, warehouses) Gross revenue from rental and leasing of properties owned or leased by your firm - Recreational space (indoor and outdoor) Gross revenue from rental and leasing of properties owned or leased by your firm - Convention space (hotels, motels, convention centres) Gross revenue from rental and leasing of properties owned or leased by your firm - Other non-residential - specify: Gross revenue from rental and leasing of properties owned or leased by your firm - Total non-residential Property management fees: Non-residential	1180  1190  1200  1210  1220  1360
72200	Real estate services on a fee or contract basis	Real estate appraisal services  Commission revenue (Remuneration as an agent or middleman for providing the service to the vendor or purchaser of bringing together the two parties to a transaction)	1370  2060
83129	Other business consulting services	Real estate consulting services	1392
87000	Maintenance and repair services	Repair and maintenance revenue	2045

**Table 7 – Revenue by Type of Service, 1997 Annual Survey of Real Estate Agents, Brokers and Other Real Estate Activities Industries (NAICS Canada 531210, 531310, 531320, 531390 / ISIC 7020, 7499)**

<b>CPC code</b>	<b>CPC descriptor</b>	<b>Questionnaire descriptors</b>	<b>Cell #</b>
		Revenue from sales of other goods and services - specify	2000
72000	Real estate services	Revenue from other real estate services - specify	1393
72200	Real estate services on a fee or contract basis	Commissions and fees from real estate sales: Resale properties (include vacant land): Residential	1311
		Commissions and fees from real estate sales: Resale properties (include vacant land): Commercial	1312
		Commissions and fees from real estate sales: Resale properties (include vacant land): Other non-residential	1313
		Commissions and fees from real estate sales: Resale properties (include vacant land): Total	1320
		Real estate appraisal services: Residential	1361
		Real estate appraisal services: Commercial	1362
		Real estate appraisal services: Other non-residential	1363
		Real estate appraisal services: Total	1370

72210	Property management services on a fee or contract basis	Property management fees: Total	1340
72211	Residential property management services on a fee or contract basis	Property management fees: Residential	1337
72212	Non-residential property management services on a fee or contract basis	Property management fees: Commercial	1338
		Property management fees: Other non-residential	1339
72220	Buildings and associated land sales on a fee or contract basis	Commissions and fees from real estate sales: New properties - Total	1310
		Referral service: Total	1328
		Commissions and fees from rental or leasing of property owned by clients: Total	1335
		Real estate listing services: Total	1380
		Real estate auction services: Total	1390
72221	Residential buildings and associated land sales on a fee or contract basis	Commissions and fees from real estate sales: New properties - Residential	1301
		Referral service: Residential	1325
		Commissions and fees from rental or leasing of property owned by clients: Residential	1331
		Real estate listing services: Residential	1371
		Real estate auction services: Residential	1381

72222	Non-residential buildings and associated land sales on a fee or contract basis	Commissions and fees from real estate sales: New properties - Commercial	1302
		Commissions and fees from real estate sales: New properties - Other non-residential	1303
		Referral service: Commercial	1326
		Referral service: Other non-residential	1327
		Commissions and fees from rental or leasing of property owned by clients: Commercial	1332
	Non-residential buildings and associated land sales on a fee or contract basis	Commissions and fees from rental or leasing of property owned by clients: other non-residential	1333
		Real estate listing services: Commercial	1372
		Real estate listing services: Other non-residential	1373
	Non-residential buildings and associated land sales on a fee or contract basis	Real estate auction services: Commercial	1382
		Real estate auction services: Other non-residential	1383
733	Leasing or rental of non-financial intangible assets	Franchise fees	2040
		Fees charged to real estate agents for office use, publicity and advertising	1391
83129	Other business consulting services	Real estate consulting services	1392

**Table 8 – Revenue by Type of Service, 1997 Annual Survey of the Food Services and Drinking Places Industry (NAICS Canada 722110, 722210, 722310, 722320, 722330, 722410/ISIC 5520)**

CPC code	CPC descriptor	Questionnaire descriptors	Cell #
		<b>"Revenue Category"</b>	
62400	Other non-store retail trade services	Sales of merchandise (Gifts, newspapers, cigarettes, etc.) Revenue from sales of other goods and services (e.g. parking, cover charges, coat check, rental of halls and meeting rooms) – specify:	1455 2000
62500	Retail trade services on a fee or contract basis	Commission revenue	2060
63000	Lodging; Food and Beverage serving services	Alcoholic beverage service: (include drinks served with meals) – Beer	1400
		Alcoholic beverage service: (include drinks served with meals ) – Wine	1405
		Alcoholic beverage service: (include drinks served with meals) – Liquor	1410
63100	Lodging services	Accommodation revenue	1450
63210	Food serving services	Food service: (exclude alcohol and report above) – Full table food service	1415
63220	Meal serving services in self-service facilities	Food service: (exclude alcohol and report above) – Counter service	1420
63230	Caterer services, providing meals to outside	Food service: (exclude alcohol and report above) – Contract catering service	1435
		Food service: (exclude alcohol and report above) – Catering (social)	1440
		Food service: (exclude alcohol and report above) – Mobile food service	1445

63290	Other food serving services	Food service: (exclude alcohol and report above) – Take-out service	1425
		Food service: (exclude alcohol and report above) – Drive –through service	1430
		Food service: (exclude alcohol and report above) – Delivery service	1432
72112	Renting or leasing services involving own or leased non-residential property	Rental or lease – Real estate	2005
73000	Leasing or Rental services without operator	Rental or lease – Other – specify:	2030
733	Leasing or rental of non-financial intangible assets	Franchise fee revenue	2040
	Leasing or rental of Non-financial intangible assets	Royalties (Revenue derived from the granting of rights or usage of patents, trademarks or copyrights)	2065

#### 4.0 Conclusion

This paper presents some notes on the experience of Services Division of Statistics Canada in using CPC Version 1.0 to collect output data from certain service industries. This experience is offered by Services Division as a contribution to the discussion of future updates of the CPC.