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DEVELOPING A SERVICE PRODUCT CLASSIFICATION FOR THE UNITED STATES

Pamela S. Powell-Hill

United States Bureau of the Census

BACKGROUND

Classification work in the United States is probably more decentralized than in most countries, with a minimum of four different agencies involved, complicating any efforts to keep the classification system up-to-date. The primary responsibility lies with the Office of Management and Budget (OMB). This agency makes the final decisions concerning proposals for changing the system, and the process used to make these changes. In response to increasing criticism about the existing classification system, OMB established the Economic Classification Policy Committee (ECPC) in 1991 and charged them with taking a fresh look at the concepts, methodologies, procedures, and uses of economic classifications for statistical purposes. The charge includes an examination of industrial classifications, product lassifications and product code groupings. Among a range of criteria specified for this review is "comparability with international classifications, to facilitate analysis of domestic data and data of other countries as well as international trade data".

The ECPC has embarked on an extensive outreach program to obtain comments from a wide range of interested parties. In fact, on July 26, 1994 a notice was published by OMB seeking public comment on a proposal to develop a new industry classification system. The proposed system, to be developed in cooperation with Mexico's Instituto Nacional de Estadistica, Geografia e Informatica (INEGI) and Statistics Canada would be known as the North American Industry Classification System (NAICS). This proposed NAICS would replace the current U.S. Standard Industrial Classification system. The notice proposes a production-oriented concept for the NAICS. It also commits the United States to providing improved data for purposes that require market-oriented groupings, including an expansion of the lists of commodities and services that will be available from the 1997 Economic Censuses.

Because of the decentralized nature of the U.S. statistical system, a tremendous amount of coordination is necessary complete this ambitious project. In the past year, the ECPC has set in motion the mechanism for accomplishing this task. They have appointed a Coordinating Committee that oversees the day to day operations of the entire process. Reporting to the Coordinating Committee are seven subcommittees that will actually review all proposals for industry changes, research the issues, and make recommendations regarding changes needed. The subcommittees are: the Agriculture, Forestry, and Fishing Subcommittee; the Mining, Manufacturing, and Construction Subcommittee; the Distribution Networks Subcommittee; the Finance, Insurance, and Real Estate Subcommittee; the Health, Social Services, and Public Administration Subcommittee; the Other Business and Personal Services Subcommittee; and the Administration, Coding, and Interpretation Subcommittee.

Working parallel to the subcommittees are two task forces, the Investment Goods Product Code Task Force, and the Service Product Code Task Force. The two task forces were established last year to begin work on the development of standard product codes. While the U.S. has never had standard product codes, in the manufacturing area the Census Bureau has extensive 7-digit product codes that are often used as a standard. The same is not true for the service sector. Therefore, the task of creating standard service product codes is even more challenging.

The Coordinating Committee, Subcommittees and Task Forces are working very closely with Canada and Mexico. In addition, all subcommittees have been asked to also be ever mindful of other existing international classification systems and how they relate to any changes being proposed.

SERVICE PRODUCT CODE TASK FORCE WORK

Since the ECPC established the Service Product Code Task Force (Task Force) last year, they have been working to develop a comprehensive list of service products. The intent is to think of products on a wherever produced basis. For example, "Software design and development" could be a product of an economic consulting establishment, a manufacturing establishment, or a computer consulting establishment. To begin with, the Task Force is only identifying "Software design and development" as a potential product and is not attempting to relate it to any specific industry. However, they are using broad industry groups as a means of organizing their work. For example, most of the past year has been spent looking at business services. More specifically, they have looked at computer services and professional services. Discussions of professional services have included architects, engineers, accountants, lawyers, and consultants since it is thought that the products of these industries could be similar.

To the extent possible, the Task Force is using the CPC and related Model Survey work as a starting point for developing their product lists. They are finding in some areas that neither are detailed enough. In fact, the United States often has industry codes that are the equivalent of the CPC codes. In addition to the CPC, they are also looking at the CPA. For further guidance the group reviews the types of detailed data that the U.S. currently collects in these areas to get some indication of what the products might be. For example, the economic censuses request some revenue data by source of receipts. The Task Force examines these receipt lines to see if they might be feasible products. They look for coding systems that may already exist for the specific areas they are reviewing. For some of the professional areas (lawyers, architects, etc.) they have even looked at the Dictionary of Occupational Titles which provides a brief explanation of the types of activities related to specific occupations. The hope is that this might provide some guidance as to what services they may offer.

As the Task Force develops a probable list of products for a particular area, they also develop a list of questions. These are questions that arise during the discussion, but are not answered satisfactorily, and may affect the product list. Once the Task Force discussion on a particular area is completed, the list of products, proposed definitions and questions are sent to experts in the related industries for comment. Since there is not enough time to conduct model surveys, this process provides an avenue for obtaining advice from interested parties. The comments received will be instrumental in developing a final list of products. After the Task Force receives comments from the "experts" they will review the list of products and improve it. The Task Force will forward recommendations to the Coordinating Committee. Once the list of products is agreed upon they will be tested in the 1997 Economic Censuses. Since the service products are new, they will be considered provisional until they have been

tested for collectibility, relevance, and level of detail. Using this process the Task Force has been making some progress in developing service product codes for what is broadly referred to as "business services".

COMPUTER SERVICES

The Task Force has developed a preliminary set of service products relating to computer services, but numerous questions still remain. Attachment I includes the preliminary list of computer service products, proposed definitions, and a list of questions. The numbers on the proposed list are merely to facilitate discussion. The indentations are to show a probable hierarchical structure. You can see from the long list of questions that the product list is far from final. Things are changing rapidly in this area. The Task Force is consciously trying to develop a list that will not be obsolete before it is published.

This is one reason for the questions pertaining to multi-media, virtual reality, and artificial intelligence. It is not clear if there are specific service products associated with these concepts, or if they are merely different configurations of hardware combined with packaged or custom software. In a similar vein, there is still no clear understanding of exactly what systems iintegration services are. Some maintain that it is an easily identifiable services, others argue that it is a bundle of services which changes frequently. Either side would agree that it is an area that is continuing to grow both in volume and scope. The Task Force is also curious about what is involved in the development of software for things such as talking or singing cards, automobile alarms and accessories, or appliances with memories. Who develops this technology and where is it being done?

Once they accepted that development of packaged software is a service, the Task Force has two basic questions about the need for additional detail for packaged software. First, does the preliminary list cover the major types of packaged software? Second, is software that is developed for a mainframe a different product than that developed for a personal computer? If so, should that distinction be made? For example, the product list contains several types of applications software. Is it then necessary to ask for these types of software based on the type of platform for which they were developed, i.e. personal computer, main frame, or other? The Task Force will use the answers to these questions to help formulate a more comprehensive list of products.

The Task Force is also asking for help in defining some of the terms. In some cases the products placed on the list were repeatedly referenced in computer literature but not defined. In other cases, there was more than one definition for the same term and clarification was needed. Since part of this process is defining mutually exclusive categories, it is important to get this type of input from industry experts.

Attachments II and III provide a basic idea of how these proposed computer service products correspond to the categories used in the U.N. Model Survey of Computer Services. The major difference is that the products proposed by the Task Force are more detailed. In addition, the Model Survey has custom software development and consultancy services in the same 3-digit group. The U.S. proposal splits "Software

design and development services" and "Computer consulting services" with more detail for each category.

ARCHITECTURAL AND ENGINEERING SERVICES

The Task Force has also been looking at services related to architecture and engineering but are not quite as far along. This has proven more challenging because of the level of expertise needed. It is more difficult to determine what the "products" are and the level of detail needed. There are some who feel strongly that the products should take into account the type of project. For example, is designing a single family dwelling, a different product than designing a commercial building? These distinctions are important for the National Accounts. Others argue that designing is designing regardless of the type of project, and that the type of project should be a data collection issue. It is not clear what architects and engineers see as their products or what services they offer their customers.

The Task Force has been struggling with how to treat some of the scientific and technical services such as surveying, map making, environmental consulting, and prospecting. While recognizing that these are products, the discussion started leading to even more scientific and technical services which they thought might be better discussed separately or with products related to research and development. Attachment IV is an early attempt at listing the products in these areas.

For the draft product list the Task Force purposefully excluded categories like "All other design services". The reason is that when looking for comments, they want to force industry experts to tell them what is missing, rather than assuming that it is in an all other category. The Task Force recognizes the need for a "Contract administration" and/or "Project management" category, but has not been able to find a satisfactory definition. Therefore, they are still discussing exactly what to do with this product, especially since it could apply to several different areas, i.e. construction, engineering, architects, etc.

Because of the discussions still taking place regarding this area of the CPC and the very preliminary nature of this list, a comparison is not included. However, you can see some similarity in the products. Again, the level of detail is the most obvious difference. At this point in time the Task Force has decided not to include any combined activities like CPC 86714 Combined architectural design and contract administration or CPC 8673 Integrated engineering services. They want to get feedback from industry experts to see if these combined activities are viewed differently than the independent activities.

WHAT'S NEXT

The Task Force has found it helpful to be looking at all of these areas at the same time because of the significant amount of overlap of products and the way they relate to one another. Work is continuing on products for lawyers, accountants, and research and development. In the near future the Task Force is looking forward to working with trade associations that represent businesses from all of these

professional areas. Assistance from them and other related trade associations should help the Task Force come to some final list of products for these areas by early next year.

The Task Force is just beginning to look into communications services, a complex and growing area of the economy. This industry is changing so rapidly that it may be like shooting at a moving target. However, in the past few years the Census Bureau has begun collecting information from the communications industry and their experience should be helpful.

As those of you who have worked with the CPC know, it is a major undertaking to develop service products. Because of the dynamics of the economy, it is a process that really never seems to end. As the Task Force continues its work, we will continue to keep you informed and look to you for advice and encouragement.

ATTACHMENT 1

PROPOSED COMPUTER SERVICE PRODUCTS

1. Packaged software products

    Application software
        Word processing
        Spreadsheets
        Databases
        Graphics
        Entertainment
        Statistical and financial software
        Other applications software

    Systems Software
        Communications software

    Utilities Software

2. Software design and development services

    Modification of prepackaged software
    Database development services
    Other programming services

3. Computer consulting services

    Consulting services related to installation of hardware
    Consulting services related to the installation of software
    Systems and technical consulting services
    Systems integration services
    Other computer related consulting services

4. Computer facilities and equipment services

    Repair and maintenance of hardware
    Systems and facilities management
    Computer rental and leasing

5. Processing and output services

    Data processing and tabulation
        Problem solving services
        Transaction processing services
        Data base inquiry services
    Data entry and verification services
    Data output and dissemination services
    Disaster recovery services

6. Online information retrieval services

7. Other computer related services
    Training and education services

PROPOSED COMPUTER SERVICE PRODUCT DEFINITIONS

Packaged software - The design, development, and production of packaged software. Documentation, maintenance and other support services such as assistance in installation and training can be integral components of this service. The custom design of software or the modification of packaged software to meet specific user needs is classified in Software design and development services.

Systems software - An essential set of programs that manage hardware and data files and work with application programs.

> Communications software - software that enables two computers to communicate through the phone line to transmit and receive data.

Utilities software - Programs such as an editor or debugger, designed to perform a particular function. Usually refers to software that solves narrowly focused problems or those related to computer system management; for example, a storage backup program, a disk and file recovery program or a resource editor.

Software design and development services - The development (analysis, design and programming) of software for a specific client. The modification of packaged software is also included here. The provision of assistance during the installation phase and training services can be an integral component of this service.

> Systems integration services - Development or modification of computer software, and bundling the software with computer hardware and other services (such as consulting, training, engineering and distribution)

Computer consulting services - The provision of advice and assistance on matters related to the management of clients' computer resources. This service may consist of assessing the computer needs of the organization, of planning the organization's acquisitions, of counseling the client on the procurement of hardware and software, and etc. Can also include providing advice and assistance on technical matters related to computer systems.

Computer facilities and equipment services

> Computer repair and maintenance services - Routine maintenance and repair of computers and peripheral equipment.
>
> Computer wywtems and facilities management - The provision of personnel to manage and operate client owned (leased) computer facilities on an on-going basis. The incidental development of software can be an integral component of this service.
>
> Computer rental and leasing services - The rental and leasing of computer equipment and peripherals for a specified period of time (usually less than the expected life of the equipment) on the client's or the lessors site.

Processing and output services - The provision of computing resources for the

purpose of processing data owned and supplied by the client. The execution of the application may be performed by the client (remote access) or the supplier. The provision of accounting (e.g. payroll accounting), statistical (e.g. tabulating an analyzing results of a market research survey), administrative (e.g. billing service from a computerized list supplied by the client), etc. services where the supplier uses computers to deliver the service are not classified here but rather according to the nature of the service rendered.

> Disaster recovery - The provision of back-up data processing capabilities to firms who lose their computer processing capability from some cause, often a natural disaster such as an earthquake or hurricane.

On-line information retrieval services - The provision of on-line information retrieval services. This includes the provision of the information (data base development) and of the computer resources (hardware and software - data base vending) necessary to store, retrieve and manipulate the information.

QUESTIONS ABOUT COMPUTER PRODUCTS

1. We have listed seven major categories of products. Have we correctly identified all major categories? If not, what are we missing?

2. We have listed some of the major types of applications software using information from the Software Publishers Association. Are these the major types of applications software?

3. What is the term most often used to describe an individual computer used at one's desk (either home or office)? A personal computer, a work station, or something else?

4. Is the software developed for various platforms (pcs, mainframes, etc.) considered different enough to warrant dividing software by type of platform as well as type of application? For example: Should we list Applications software for mainframes, and Applications software for pcs?

5. We are using the term "packaged software" to refer to the development of software like WordPerfect or Dbase that is then mass produced as opposed to custom software that is designed for a specific purpose and a specific client. Is this the correct term?

6. Multi-media, virtual reality and artivicial intelligence all involve some software development which interfaces with various (one or many) hardware products. Is the software development a separate activity which is then combined with the appropriate hardware, or is it always part of an "integrated" system?

7. Is the software developed for each of these (multi-media, virtual reality, and artificial intelligence) considered custom or is some of it considered packaged? If packaged, is it applications software or something else?

8. Is there a difference between systems and utilities software? If so what is it?

9. We have placed communications software under systems software. Is this a distinct type of software, and if so, does it belong with systems software or somewhere else?

10. Does network software refer to software such as Novell and 3Com? If not, what is it? Where should this be placed in our hierarchy?

11. We discussed software that combines several types of applications like word processing, spreadsheet, and possibly database into one package. Some referred to this as "integrated software", others as "bundled software". Is this a distinct product we should be listing? If so, how do you refer to it?

12. Many types of products (appliances, automobiles, etc.) include software that performs various functions. Do we need a separate category for software that is not "computer" software?

13. Some members of the Task Force did not see a difference between technical support services (those offered to a client by the vendor who sold (leased) them the equipment) and computer consulting as defined in the attached definitions. In the trade, do you distinguish between computer consulting and technical support? If so, how do you define them? Do the categories we listed under consulting services reflect what is being done in the trade?

14. CAD/CAM/CAE products may be comprised only of software which can be run on standard computers (PC's, work stations, etc.) and does not necessarily involve the integration of software and hardware. Should development of these products be included under packaged software?

15. Is systems integration considered a separate, unique product, or is it a bundle of goods and services (such as software development, consulting, training, and even engineering, distribution, and/or manufacturing) each of which can be identified separately? Does it best belong with software design and development services or Computer facilities and equipment services?

16. Do we need to split leasing into "finance" and "operating"? Are these terms recognized in the trade?

17. Can you (do you?) differentiate computer maintenance from repair?

18. How are "computer" systems differentiated from "non-computer" systems such as communications systems)?

19. Do you consider on-line information retrieval such as Compuserve, Prodigy or On-line America a computer service or a communication service?

20. Should we divide on-line information retrieval between: 1) the provision of a database which can be accessed on-line either directly or through a vendor and 2) those providing access to various databases (such as Prodigy)?

ATTACHMENT II

MODEL SURVEY CATEGORIES COMPARED TO PROPOSED U.S. COMPUTER SERVICE PRODUCTS

MODEL SURVEY	*PROPOSED PRODUCTS*
841 Packaged software products	*Packaged software products*
8411 Systems and user tools software	*Systems software*
	Communications software
	Utilities software
8412 Application software	*Applications software*
	Word Processing software
	Spreadsheet software
	Database software
	Graphics software
	Entertainment software
	Statistical and financial software
	Other applications software
	Computer consulting services
8421 Consultancy services related to the installation of computer hardware	*Consulting services related to installation of hardware*
8422 Systems and technical consulting services	*Systems and technical consulting services*
	Consulting services related to the installation of software
	Systems integration services
	Other computer related consulting services
8423 Custom software development services	*Software design and development services*
	Modification of prepackaged software
	Database development services

MODEL SURVEY CATEGORIES COMPARED TO PROPOSED U.S. COMPUTER SERVICE PRODUCTS

MODEL SURVEY	*PROPOSED PRODUCTS*
8424 Systems analysis and programming services	*Other programming services*
8425 Computer facilities management services	*Computer facilities and equipment services*
8426 Systems maintenance services	*Systems and facilities management*
	Computer rental and leasing
845 Maintenance and repair of office machinery and equipment including computers	*Repair and maintenance of computer hardware*
	Processing and output services
8431 Data processing and tabulation services	*Data processing and tabulation*
	Problem solving services
	Transaction processing services
	Database inquiry services
8432 Data entry services	*Data entry and verification services*
	Data output and dissemination services
	Disaster recovery services
8440 Database services	*On-line information retrieval services*
	Other computer related services
	Training and education services

ATTACHMENT III

MODEL SURVEY CATEGORIES COMPARED TO PROPOSED U.S. COMPUTER SERVICE PRODUCTS

PROPOSED PRODUCTS	*MODEL SURVEY*
Packaged software products	*841 Packaged software products*
Applications software	*8412 Application software*
Word processing software	
Spreadsheet software	
Database software	
Graphics software	
Entertainment software	
Statistical and financial software	
Other applications software	
Systems software	*8411 Systems and user tools software*
Communications software	
Utilities software	
Software design and development services	*8423 Custom software development services*
Modification of prepackaged software	
Database development services	
Other programming services	*8424 Systems analysis and programming services*
Computer consulting services	
Consulting services related to installation of hardware	*8421 Consultancy services related to the installation of computer hardware*
Consulting services related to the installation of software	
Systems and technical consulting services	*8422 Systems and technical consulting services*

MODEL SURVEY CATEGORIES COMPARED TO PROPOSED U.S. COMPUTER SERVICE PRODUCTS

PROPOSED PRODUCTS	*MODEL SURVEY*
Other computer related consulting services	
Computer facilities and equipment services	*8425 Computer facilities management services*
Repair and maintenance of hardware	*845 Maintenance and repair of office machinery and equipment including computers*
Systems and facilities management	*8426 Systems maintenance services*
Computer rental and leasing	
Processing and output services	
Data processing and tabulation	*8431 Data processing and tabulation services*
Problem solving services	
Transaction processing services	
Data base inquiry services	
Data entry and verification services	*8432 Data entry services*
Data output and dissemination services	
Disaster recovery services	
Online information retrieval services	*8440 Database services*
Other computer related services	
Training and education services	

ATTACHMENT IV

SUGGESTED PRODUCT LISTING
Architectural, Engineering, and Other Scientific
and Technical Services

Advisory and pre-design services
Architectural design for residential projects
Architectural design for commercial projects
Architectural design for industrial projects
Architectural design for marine projects
Architectural design for public and institutional projects
Architectural design for landscape projects

Engineering design for construction of foundations and building structures
Engineering design for mechanical and electrical installations for buildings
Engineering design for construction of civil engineering works
Engineering design for industrial processes and production
Engineering design for products
Engineering design for marine projects
Other engineering services during the construction and installation phase

Surface surveying services
Subsurface surveying services

Project/Construction Management

Contract Management/Administration Services

Environmental Consulting Services

Urban and Regional Planning Services