

**NAPCS Discussion Paper\***

**NAPCS Structure Illustration: Possible Product Groups, Sub-Groups, and Classes**

**Discussion Paper  
for**

**Trilateral Steering Group Meeting  
May 5-9, 2003  
Washington, DC**

**Prepared by  
Michael F. Mohr  
US Coordinator for NAPCS  
April 2003**

**\* NAPCS Discussion Papers are provided to foster and facilitate professional exchange on matters related to the development and implementation of NAPCS.**

**Note: the structure outlined in this document is not an official proposal by the United States.**

## **Introduction**

During the May 5-9, 2003 meeting of the Trilateral Steering Committee for Economic Classification (TSC), Canada, Mexico and the U.S. agreed to fundamental conceptual objectives and guidelines for the creation of a demand-based aggregation structure for NAPCS (see Discussion Paper 1 under **NAPCS Discussion Papers** link on the [NAPCS Home Page](#)). The NAPCS structure illustration presented here was designed to help facilitate the translation of these concepts into form by: (1) providing a considered and comprehensive illustration regarding the possible architecture of a demand-based aggregation structure for products that is consistent with the agreed-to NAPCS structure objectives and guidelines and (2) defining the upper levels of the NAPCS demand-based hierarchy at a level of detail sufficient to (a) identify the appropriate placement of broad categories of goods and services and (b) allow the development of detailed aggregation structures for service products underneath the top-level NAPCS aggregates for services. In general, I suggest that the upper levels of aggregation in the NAPCS structure should conform best with the product detail collected on expenditure surveys, while the lowest levels of aggregation, especially the detailed NAPCS products, should work best for classifying detailed product data available from suppliers. While I believe the illustration covers the overwhelming value of products that must be accounted for and placed in the final NAPCS structure, I make no pretense that the structure is anything but suggestive.

### **Guidelines and Considerations Underlying this Illustration**

The dominant conceptual driver behind the illustration is the fundamental principle that all products should be classified according to their primary use and according to how they are used in relationship to each other. Having applied this fundamental principle, the resulting structure contains product groups that fall naturally into one of three class of customer categories:

1. Overwhelmingly purchased by households/persons
2. Overwhelmingly purchased by businesses, including institutions and government
3. Primary class of consumer is not overwhelming or clear.

However, the structure is based on how products are used, not on the class of customer that purchases them. And, it neither assumes nor requires data providers to delineate product revenues by class of customer beyond that stated in NAPCS product lists or already provided in known existing data collections. As such, the structure is entirely consistent with the principle the TSC previously in this area: “NAPCS structure should not be exclusively based on class of customer or final/intermediate demand grouping categories but those grouping categories are acceptable when appropriate for any particular detailed product area.”

At the top-level, the structure contains 45 product groups, with product group 45 devoted to public administration products. While product groups numbered 1-24 in the structure contain most all products primarily consumed for household/personal uses, it is important to note that many of these same products are heavily (perhaps primarily) purchased by businesses (e.g. prepared meals and beverage products in 1.2.1 and 1.2.2, travel and lodging products in 16.1 and 16.2, and health care products in 19.1 – 19.4). Similarly, while product groups numbered 25-45 in the structure contain most products that are primarily consumed for business uses, some of the products contained here are also heavily consumed and purchased by persons/households. For example, single-family home construction, maintenance and repair construction, and building materials and supplies are also included here (under product class 25.1.2, Construction of Buildings) because all these product types are used in close association with construction and it is not possible to comparably subdivide these product types between person/household uses and businesses uses. Overall, the products in Groups 25-44 are overwhelmingly used as inputs to production processes, and I arranged them according to a modified KLEMS (capital, labor, energy, materials, and services) configuration commonly found in the production theory literature. Specifically, because empirical studies indicate that capital, energy, and utilities are used as complements in production, I used a KELMS structure, except where specific service products were used in close association with the KELM components of the structure.

In creating the structure, I examined and borrowed from existing classification materials, even if I did not use the same terminology. I also wrestled constantly with the issue of how best (especially at what level of aggregation) to integrate goods and services used in close association with each other to satisfy a common need. In some cases, I judged that this integration could be successively achieved at a fairly low-level of aggregation; while in others I concluded would be best achieved by integrating at a higher level of aggregation. For example, under Product Sub-Group 25.1, Construction and Related Products, I first sought to integrate construction with architecture, urban planning, and engineering services, etc. at the product class level under non-building construction (25.1.1) and at the residential and nonresidential levels under building construction (25.1.2). Ultimately, however, I opted to integrate construction with these related product areas at the product subgroup level 25.1.

## **NAPCS Structure Illustration: Possible Product Groups, Sub-Groups, and Classes, April 2003**

- 1 Food and Beverage Products for Persons
  - 1.1 Processed Food and Beverages for Persons
    - 1.1.1 Original Production of Processed Food and Beverage Products for Persons
    - 1.1.2 Reselling of Processed Food and Beverage Products for Persons
    - 1.2.1 Meals and Non-Alcoholic Beverages, Prepared and Served or Dispensed, for Immediate Consumption
    - 1.2.2 Alcoholic Beverages, Prepared and Served or Dispensed for Immediate Consumption
    - 1.3.1 Meals and Beverages for Immediate Consumption, Prepared under Long-Term Contract, for Transportation
    - 1.3.2 Meals and Beverages for Immediate Consumption, Prepared under Long-Term Contract, Other than for Transportation
    - 1.4.1 Catered Meals and Beverages Services, Served at the Caterer's Premises
    - 1.4.2 Catered Meals and Beverages Services, Served at the Customer's Premises
- 2 Home Food Preparation, Service, and Storage Products
  - 2.1 Original Production of Home Food Preparation, Service, and Storage Equipment and Supplies
    - 2.1.1 Kitchen and Other Home Food Appliances
    - 2.1.2 Kitchen and Dining Accessories and Supplies
- 3 Tobacco and Smoking Products for Persons
  - 3.1 Tobacco, Smoking, and Accessory Products
    - 3.1.1 Original Production of Tobacco, Smoking, and Accessory Products
    - 3.1.2 Reselling of Tobacco, Smoking, and Accessory Products
  - 3.2 Cleaning and Repair Products for Smoking Accessories
    - 3.2.1 Cleaning and Repair Goods for Smoking Accessories
    - 3.2.2 Cleaning and Repair Services for Smoking Accessories
- 4 Clothing, Footwear, and Jewelry Products for Persons
  - 4.1 Clothing, Footwear, and Jewelry for Persons
    - 4.1.1 Original Production of Clothing, Footwear, and Jewelry
    - 4.1.2 Reselling of Clothing, Footwear, and Jewelry
  - 4.2 Cleaning, Repair, and Alteration Products for Clothing, Footwear, and Jewelry
    - 4.2.1 Home Laundry Appliances
    - 4.2.2 Laundry Soaps, Detergents, Bleaches, Cleaning Agents, and Polishes
    - 4.2.3 Other Repair Goods for Clothing, Footwear, and Jewelry
    - 4.2.4 Laundry, Tailoring, and Repair Services for Clothing, Footwear, and Jewelry
    - 4.2.5 Rental of Formal Wear and Costume Clothing
- 5 Housing and Related Products for Persons, except home construction and manufacturing
  - 5.1 Reselling/Buying of Single-Family Homes
  - 5.2 Home Financing
  - 5.3 Home Inspection

- 5.3.1 Home Inspection Services
    - 5.3.2 Combined Home and Pest Inspection Services
    - 5.3.3 New Home Inspection Services
  - 5.4 Home, Apartment, and Rooming House Rental
  - 5.5 Residential Property and Liability Insurance
    - 5.5.1 Homeowners Multiple Peril Insurance Products
  - 5.6 Public Housing for Persons
  - 5.7 Home Real Estate Services, except reselling/buying and rental
- 6 Home Cleaning Products
  - 6.1 Home Vacuum Cleaners and Cleaning Equipment
    - 6.1.1 Original Production of Home Vacuum Cleaners and Cleaning Equipment
    - 6.1.2 Reselling of Home Vacuum Cleaners and Cleaning Equipment
  - 6.2 Home Cleaning Agents
    - 6.2.1 Original Production of Home Cleaning Agents
    - 6.2.2 Reselling of Home Cleaning Agents
  - 6.3 Home Cleaning Services
- 7 Home Furnishings, Fixtures, and Accessory Products
  - 7.1 Home Furnishings, Fixtures, and Accessories
    - 7.1.1 Original Production of Household Furnishing, Fixtures, and Accessories
    - 7.1.2 Reselling of Household Furnishings, Fixtures and Accessories
  - 7.2 Cleaning, Repair, and Alteration of Household Furnishings, Fixtures, and Accessories
    - 7.2.1 Cleaning and Repair Goods
    - 7.2.2 Cleaning and Repair Services
- 8 Home Heating, Cooling, and Power Products
  - 8.1 Home Heating and Cooling Equipment
    - 8.1.1 Original Production
    - 8.1.2 Reselling
  - 8.2 Fuels and Utilities
    - 8.2.1 Natural Gas Utilities
    - 8.2.2 Propane
    - 8.2.3 Home Heating Oil
    - 8.2.4 Coal
    - 8.2.5 Steam and Water Utilities
    - 8.2.6 Electric Utilities
    - 8.2.7 Air-Conditioning from Water Utilities
- 9 Home Water and Sewer Products, except steam and air conditioning
  - 9.1 Home Water Purification Products

- 9.1.1 Original Production
  - 9.1.2 Reselling
- 9.2 Home Water and Sewer Utilities
- 10 Home Waste Management Products, except water and sewer
  - 10.1 Equipment and Supplies for Home Waste Management
    - 10.1.1 Original Production
    - 10.1.2 Reselling
  - 10.2 Home Waste Management Services
    - 10.2.1 Non-Hazardous Waste and Recyclable Materials Collection Services, Residential
    - 10.2.2 Hazardous Waste Collection Services, Residential
- 11 Home Security and Safety Products
  - 11.1 Home Security and Safety Equipment
    - 11.1.1 Original Production
    - 11.1.2 Reselling
  - 11.2 Home Security and Safety Services
- 12 Household Entertainment, Recreation, and Culture Products
  - 12.1 Home Audio and Visual Equipment (except computers), Components, and Accessories
    - 12.1.1 Original Production
    - 12.1.2 Reselling
  - 12.2 Home Computers, Game Computers, and Related Equipment and Accessories
    - 12.2.1 Original Production
    - 12.2.2 Reselling
  - 12.3 Home Computer Software, Personal and Game
    - 12.3.1 Original Production
    - 12.3.2 Reselling
  - 12.4 Home Programming Services, including cable and wireless, subscription and pay-for-view
    - 12.4.1 Television Programming Services
    - 12.4.2 Radio Programming Services
  - 12.5 Home Internet Service
    - 12.5.1 ISP Service
    - 12.5.2 Online Personal and Entertainment, except Newspapers, Periodicals, and Books
  - 12.6 Home Newspapers, Periodicals, and Books (except textbooks)
    - 12.6.1 Original Production/Publication
    - 12.6.2 Reselling
  - 12.7 Movie Theaters and Cinemas
  - 12.8 Movie Rental
  - 12.9 Performing Arts

- 12.10 Spectator Sports
- 12.11 Participatory Sports
  - 12.11.1 Sporting and Recreational Equipment, including bikes
  - 12.11.2 Sporting and Recreational Clubs, Centers, and Instructional Camps
- 12.12 Amusements Parks and Arcades
- 12.14 Other Activities and Hobbies NEC
  - 12.14.1 Children's Games and Toys
  - 12.14.2 Other
- 13 Home Communication Products
  - 13.1 Residential Telephone Equipment
    - 13.1.1 Original Production
    - 13.1.2 Reselling
    - 13.1.3 Rental
  - 13.2 Residential Telephony Services
- 14 Installation, Repair, Maintenance, and Rental Services for Household Electronics and Appliances
- 15 Transportation Products for Persons, except leisure travel
  - 15.1 Automobiles and Light-Duty Motor Vehicles, except fleet (includes motor cycles and scooters)
    - 15.1.1 Original Production of Automobiles and Light-Duty Motor Vehicles, except fleet
    - 15.1.2 Reselling of Automobiles and Light-Duty Motor Vehicles, except fleet
  - 15.2 Repair and Maintenance Services for Automobiles and Light-Duty Motor Vehicles, except fleet
  - 15.3 Leasing of Automobiles and Light-Duty Motor Vehicles, except fleet
  - 15.4 Parking Lots and Garages
  - 15.5 Automobile Driving Instruction
  - 15.6 Individual Motor Vehicle Insurance
  - 15.7 Local Transportation Services
    - 15.7.1 Taxis and Limousine
    - 15.7.2 Intra-city Bus
    - 15.7.3 School and Employee Bus
    - 15.7.4 Local Rail and Cable Car
    - 15.7.5 Local ferry and other water
- 16 Travel and Lodging Products for Persons, leisure and business
  - 16.1 Travel
    - 16.1.1 Motor Homes, Travel Trailers, and Campers
    - 16.1.2 Air Travel
    - 16.1.3 Intercity Rail and Related Travel
    - 16.1.4 Intercity and Chartered Bus Travel
    - 16.1.5 Cruise Ship Travel

- 16.1.6 Scenic and Sightseeing Travel
- 16.1.7 Short-Term Rental of Motor Vehicles and Other Transportation Equipment
- 16.2 Lodging
  - 16.2.1 Hotels and Motels
  - 16.2.2 Bed and Breakfast
  - 16.2.3 Other Leisure and Business Travel Lodging
- 16.3 RV Parks and Recreational Camps
- 16.4 Travel Arrangements, Reservation, and Planning Services
- 17 Financial, Insurance, and Tax Services for Persons NEC
- 18 Legal Products for Persons
- 19 Health Care Products for Persons
  - 19.1 Drugs and Medicines
    - 19.1.1 Original Production
    - 19.1.2 Reselling
  - 19.2 Health Care Equipment, Appliances, and Supplies for Persons
    - 19.2.1 Original Production
    - 19.2.2 Reselling
  - 19.3 Rental of Home Health Care Equipment
  - 19.4 Home Health Care and Related Products
    - 19.4.1 Services of Doctors Dentists, and Other Health Practitioners
    - 19.4.2 Hospital Services
    - 19.4.3 Medical and Diagnostic Services
    - 19.4.4 Home Health Care Services
    - 19.4.5 Nursing Home and Residential Care
    - 19.4.6 Public Health Services NEC
    - 19.4.7 Health Care Related Services NEC
  - 19.5 Health, Life, and Accident Insurance
- 20 Death Care Products for Persons
  - 20.1 Caskets and Other Goods
    - 20.1.1 Original Production
    - 20.1.2 Reselling
  - 20.2 Death Care Services
- 21 Personal Care Products
  - 21.1 Personal Care Goods
    - 21.1.1 Original Production
    - 21.1.2 Reselling
  - 21.2 Personal Care Services



- 22 Educational Products for Persons, except on-the-job training
  - 22.1 Textbooks and School Supplies
    - 22.1.1 Original Production
    - 22.1.2 Reselling
  - 22.2 Educational Services
    - 22.2.1 Elementary and Secondary Schools
    - 22.2.2 Colleges, Universities, and Professional Schools
    - 22.2.3 Business, Computer, and Management Training
    - 22.2.4 Technical and Trade Schools
    - 22.2.5 Vocational And Rehabilitation Services
    - 22.2.6 Other Educational Services
    - 22.2.7 Educational Support Services
- 23 Household Pet Products
  - 23.1 Goods for Household Pets
    - 23.1.1 Original Production
    - 23.1.2 Resale
  - 23.2 Services for Household Pets
    - 23.2.1 Veterinary Services
    - 23.2.2 Other Household Pet Services
- 24 Household and Personal Products NEC
  - 24.1 Household and Personal Goods NEC
    - 24.1.1 Original Production
    - 24.1.2 Reselling
  - 24.2 Household and Personal Services NEC
- 25 Capital Formation and Related Products
  - 25.1 Construction and Related Products
    - 25.1.1 Construction for Land and Resource Development and Infrastructure and Roads
    - 25.1.2 Construction of Buildings
    - 25.1.3 Special Trades Contractor Services NEC
    - 25.1.4 Landscaping Services
    - 25.1.5 Construction Materials and Supplies
    - 25.1.6 Architecture and Urban Planning Services, construction
    - 25.1.7 Engineering Services, construction
    - 25.1.8 Drafting Services, construction
    - 25.1.9 Surveying and Mapping Services, construction
  - 25.2 Building Acquisition and Management Products
    - 25.2.1 Reselling/Buying of Buildings, except single-family homes

- 25.2.2 Rental and Leasing of Nonresidential Buildings and Real Estate
- 25.2.3 Building Inspection, except home
- 25.2.4 Building Insurance, except home
- 25.2.5 Building Management, Security, Janitorial, and Support Services
- 25.2.6 Interior Design Services
- 25.3 Nonresidential Equipment and Related Products
  - 25.3.1 Information Processing Equipment and Related Products
  - 25.3.2 Industrial Equipment
  - 25.3.3 Transportation Equipment
  - 25.3.4 Farm Tractors and Machinery
  - 25.3.5 Construction Tractors and Machinery
  - 25.3.6 Mining, Oil, and Gas Field Machinery and Equipment
  - 25.3.7 Floating Oil and Gas Drilling and Production Platforms
  - 25.3.8 Engines (except aircraft and light-duty motor vehicles), Turbines, and Power Transmission Equipment
  - 25.3.9 Electrical Appliances and Equipment NEC, commercial/heavy-duty
  - 25.3.10 Electrical Transmission and Distribution Equipment
  - 25.3.11 Service Industry Equipment
  - 25.3.12 Furniture and Fixtures, except household
  - 25.3.13 Other Nonresidential Equipment
  - 25.3.14 Nonresidential Equipment Related Services NEC
- 25.4 Capital Formation Related Products NEC
  - 25.4.1 Architecture and Urban Planning Services NEC
  - 25.4.2 Engineering Services NEC
  - 25.4.3 Drafting Services NEC
  - 25.4.4 Geophysical Surveying and Mapping Services NEC
  - 25.4.5 Surveying and Mapping Services, except Geophysical NEC
- 26 Nonresidential Heat and Power Products, except equipment
  - 26.1 Refined Fuels, except natural gas
    - 26.1.1 Original Production
    - 26.1.2 Reselling
  - 26.2 Natural Gas Utilities
  - 26.3 Electric Utilities
- 27 Nonresidential Water, Sewer, and Environmental Products, except pollution abatement equipment
  - 27.1 Water Supply and Sewage Treatment
    - 27.2.1 Non-Hazardous Waste Management
    - 27.2.2 Hazardous Waste Management
- 28 Labor Supply Products

29 Materials and Supplies NEC, classified by primary use

- 29.1 Materials and Supplies for Food and Beverage Manufacturing
  - 29.1.1 Original Production
  - 29.1.2 Reselling
- 29.2 Materials and Supplies for Clothing and Footwear Manufacturing
  - 29.2.1 Original Production
  - 29.2.2 Reselling
- 29.3 Materials and Supplies for Wood Manufacturing
  - 29.3.1 Original Production
  - 29.3.2 Reselling
- 29.4 Materials and Supplies for Furniture Manufacturing
  - 29.4.1 Original Production
  - 29.4.2 Reselling
- 29.5 Materials and Supplies for Paper Manufacturing
  - 29.5.1 Original Production
  - 29.5.2 Reselling
- 29.6 Materials and Supplies for Printing Processes
  - 29.6.1 Original Production
  - 29.6.2 Reselling
- 29.7 Materials and Supplies for Petroleum and Coal Products Manufacturing
  - 29.7.1 Original Production
  - 29.7.2 Reselling
- 29.8 Materials and Supplies for Chemical Manufacturing
  - 29.8.1 Original Production
  - 29.8.2 Reselling
- 29.9 Materials and Supplies for Plastics and Rubber Manufacturing
  - 29.9.1 Original Production
  - 29.9.2 Reselling
- 29.10 Materials and Supplies for Stone, Clay, and Glass Products Manufacturing
  - 29.10.1 Original Production
  - 29.10.2 Reselling
- 29.11 Materials and Supplies for Primary Metals Manufacturing
  - 29.11.1 Original Production
  - 29.11.2 Reselling
- 29.12 Materials and Supplies for Fabricated Metal Production
  - 29.12.1 Original production
  - 29.12.2 Reselling

- 29.13 Materials and Supplies for Machinery Manufacturing
  - 29.13.1 Original Production
  - 29.13.2 Reselling
- 29.14 Materials and Supplies for Transportation Equipment Production
  - 29.14.1 Original Production
  - 29.14.2 Reselling
- 29.15 Materials and Supplies for Electrical Equipment, Appliances, and Component Production
  - 29.15.1 Original Production
  - 29.15.2 Reselling
- 29.16 Materials and Supplies for Agriculture, Hunting, and Fishing Industries
  - 29.16.1 Original Production
  - 29.16.2 Reselling
- 29.17 Materials and Supplies for Automotive Repair and Maintenance Industries
  - 29.17.1 Original Production
  - 29.17.2 Reselling
- 29.18 Materials and Supplies for Other Service Industries (detail TBD)
- 29.19 General Industry and Miscellaneous Materials and Supplies NEC
  - 29.19.1 Office Supplies
  - 29.19.2 Other General Materials and Supplies
- 30 Freight Transportation and Related Services (pt)
  - 30.1 Freight and Mail Transportation Services
    - 30.1.1 Truck
    - 30.1.2 Rail
    - 30.1.3 Water
    - 30.1.4 Air
    - 30.1.5 Intermodal
    - 30.1.6 Couriers and Messengers
    - 30.1.7 Nonresidential Postal Services
  - 30.2 Warehousing and Storage
  - 30.3 Pipeline Transportation
- 31 Product and Process Design and Testing Services
  - 31.1 Industrial Design Services
  - 31.2 Testing Services
- 32 Product and Process Research and Development Services
- 33 Advertising, Marketing, and Related Services
  - 33.1 Sale of Advertising Space
    - 33.1.1 Sale of Advertising Space in Newspapers

- 33.1.2 Sale Of Advertising Space in Periodicals
- 33.2 Marketing Services
  - 33.2.1 Market Research
  - 33.2.2 Special Event Production and/or Management
  - 33.2.3 Rental or Sale of Mailing Lists
  - 33.2.4 Directories
- 34 Publications for Trade, Professional, and Business
  - 34.1 Original Production/Publication
    - 34.1.1 Periodicals Business (including farming), Professional, and Academic
    - 34.1.2 Books Professional, Technical, and Scholarly
    - 34.1.3 Directories
    - 34.1.4 Databases and Other Collections of Information
  - 34.2 Reselling
    - 34.2.1 Periodicals
    - 34.2.2 Books
- 35 Contract Publishing and Related Services for Trade, Professional, and Business
  - 35.1 Contract Publishing Services
    - 35.1.1 Contract Publishing (excluding graphic design) Services, including bundled printing and distribution services
  - 35.2 Contract Printing Services
    - 35.2.1 Printing Services
    - 35.2.2 Printing with Distribution Services
  - 35.3 Contract Distribution Services
    - 35.3.1 Distribution Services
    - 35.4.1 Graphic Design Services
  - 35.5 Sale or Licensing of Publishing/Reproduction Rights
    - 35.5.1 Licensing of Publishing/Reproduction Rights
  - 35.6 Other Publishing Services
    - 35.6.1 Sale of Archived Material, newspapers
    - 35.6.2 Archival Research
    - 35.6.3 Training Services in Publishing
- 36 Broadcasting Services for Trade, Professional, and Business
- 37 Motion Picture and Video Services for Trade, Professional and Business
  - 37.1 Motion Picture and Video Production and Distribution
  - 37.2 Postproduction and Other Motion Picture and Video Services
- 38 Record and Sound Recording Services for Trade, Professional, and Business
  - 38.1 Record Production, Distribution, and Publishing Services
  - 38.2 Sound Recording Services

- 39 Management Consulting Services, excluding IT consulting
- 40 Financial and Insurance Services NEC for Trade, Professional, and Business
- 41 Accounting and Related Services for Trade, Professional and Business
  - 41.1 Accounting and Related Services
  - 41.2 Training Services, accounting
- 42 Legal and Related Services for Trade, Professional, and Business
  - 42.1 Legal Services
  - 42.2 Expert Witness Services (all types)
  - 42.3 Litigation Support Services (all types)
- 43 Contract Manufacturing Services, except printing (classified by primary industry user)
- 44 Other Nonresidential Products NEC
- 45 Public Administration