

Commodity Classification Systems

A Brief Examination of Relationships From the STCC Perspective

The Standard Transportation Commodity Codes (STCC) classification system was developed in the 1960's as a unique, comprehensive commodity system based on the Standard Industrial Classification (SIC) System. The STCC is maintained and published by the Association of American Railroads (AAR) and has been modified over the years to meet the needs of its user base; most notably, but not exclusively, the North American Freight Railroads.

A variety of other commodity classification systems also exist; each with its own user base, focus and maintenance process. For this discussion, it is necessary to understand some of the basic relationships between and among these commodity classification systems.

Each of the below cited commodity classification systems can be grouped into one of three categories: (1) systems based on the Standard Industrial Classification; (2) systems used by the Canadian federal government; and (3) systems based on the Harmonized Commodity Description and Coding System maintained by the World Trade Organization based in Brussels, Belgium.

STANDARD INDUSTRIAL CLASSIFICATION BASED SYSTEMS

Since its origination in the 1930's, the Standard Industrial Classification (SIC) system has been used to reflect information about industries or kinds of business in the U.S. economy. The SIC has traditionally been updated every 10 or 15 years to reflect new developments in the American economy. The current version of the SIC is for the year 1987. That revision identified a number of new industries among which were computer related services and products. Nonetheless, the 1987 revision left three quarters of all industries unchanged.

The objectives of the 1997 revision to the SIC are broad and will be used as the basis of this year's Commodity Flow Survey (CFS), a U.S. Government statistical report of commodities and their mode of transportation. Not only will the revised SIC identify new industries, but it will also reorganize the system according to a more consistent economic principle – **according to types of production activities performed** – rather than the mix of production-based and market-based categories heretofore used in the SIC. As an example, in 1987, SIC 2711 included newspapers, publishing, or publishing and printing. The revised SIC 51111 is for newspaper publishing and, 51112 is for periodical publishing. This reorganization will provide greater detail for the rapidly expanding service sector that accounts for most economic activity.

In 1992, the U.S. Office of Management & Budget (US-OMB) formed the U.S. Economic Classification Policy Committee (ECPC) who, along with Statistics Canada and Mexico's Instituto Nacional de Estadística, Geografía e Informática, redefined the SIC. This new system is named the North American Industry Classification System (NAICS) to reflect its continental application.

The SIC based Systems include the SIC, ISIC, NAICS and STCC as described below:

SIC - Standard Industrial Classification

- **Format:** 4-digit numeric codes
- **Groupings:** 10 sectors with codes represent 97 major industry groups broken into a 2-digit major heading, a 1-digit minor group and a 1-digit extension.
- **Maintenance:** The SIC is maintained by the US-OMB and updated periodically.
- **Historical information:** The SIC was developed in the 1930's for use in the classification of establishments by type of activity in which they are engaged for the four purposes of facilitating the collection, tabulation, presentation, and analysis of data relating to establishments, and for promoting uniformity and comparability in the presentation of statistical data collected by various agencies of the U.S. Government, state agencies, trade associations, and private research organizations. The SIC was intended to cover the entire field of economic activities including, but not limited to, agriculture, fishing, mining, manufacturing, and transportation.
- **Example:**

07	Agricultural Services
072	Crop Services
0721	Crop Planting, Cultivating, and Protecting

ISIC - International Standard Industrial Classification

- **Format:** The International Standard Industrial Classification (ISIC) are codes containing the statistical classification standard underlying all establishment-based international statistics classified by industry. The ISIC is used principally by developing countries.
- **Groupings:** 3 and 4 structural level hierarchical groupings
- **Maintenance:** The ISIC is maintained by the Statistics Division of the United Nations Industrial Development Organization (UNIDO).
- **Historical Information:** The database was established in 1979 to facilitate the work of UNIDO economists and researchers and to satisfy the data requirements of multinational and intercountry studies.

- **Example:**

313	Beverages
3131	Distilling, rectifying and blending spirits
313204	Wine

NAICS - North American Industry Classification System

- **Format:** 6-digit numeric code
- **Groupings:** NAICS groups the economy into 20 sectors. The first 5 digits of the code are based on the HS while the sixth identifies subdivisions of NAICS industries that accommodate user needs. The 6-digit U.S. code may differ from Canadian or Mexican codes, but at the 5-digit level they are standardized.
- **Population:** 1,174 industries applicable in the U.S. with 361 new industries not previously recognized separately.
- **Maintenance:** The NAICS is maintained by the US-OMB, Statistic Canada and Mexico's Nacional de Estadística (see below).
- **Other information:** The NAICS is a replacement system for the SIC with substantial structural improvements and identification of new industries. This revision of the SIC identifies a number of high tech industries, triples the number of classifications within computer-related services, and provides new industry categories. The NAICS provides a common industry definition for Canada, Mexico and the U.S. and will serve as the basis for the 1997 Commodity Flow Survey.
- **Example:**

Sector	31-33	Manufacturing
Sub-sector	334	Computer and electronic product manufacturing
Industry group	3346	Manufacturing and reproduction of magnetic and optical media
Industry	33461	Manufacturing and reproduction of magnetic and optical media
U.S. Industry	334611	Reproduction of software

STCC - Standard Transportation Commodity Codes

- **Format:** 7-digit numeric codes
- **Groupings:** Codes representing 38 commodity groupings
- **Population:** Over 10,000 codes
- **Maintenance:** STCC is maintained by the AAR and is updated monthly.

- **Historical information:** Generally based on the Standard Industrial Classification, the two have diverged over the years. Commodities are classified according to producing industry with the first 5 digits coinciding with an adaptation of the SIC published by the U.S. Office of Management & Budget September 30, 1963, as a mandatory reporting form for all regulated carriers. The 6th and 7th digits of the STCC give specific commodity identification.
- **Other information:** The STCC Technical Advisory Group is responsible for any additions, changes or expirations to the STCC System.
- **Example:**

01	Farm Products
01 1	Field Crops
01 12	Cotton, Raw
01 129	Raw Cotton, NEC
01 129 15	Cotton Bolls, Immature

CANADIAN CLASSIFICATION AND CODING SYSTEMS

Prior to 1988, Statistics Canada, a Canadian agency charged with reporting a variety of statistical information to the federal government, collected, sorted, tabulated and reported on the flow of product commodities using several classification systems. These systems were neither SIC based nor anchored to the Harmonized System (see below). With the development of the Harmonized System based Standard Classification of Transported Goods (SCTG), the two Canadian classification and coding systems reflected below are being phased out.

Canadian Classification and Coding Systems include the SCC and DOCC described below:

SCC - Standard Commodity Classification

- **Format:** 5-digit numeric codes
- **Groupings:** Codes represent 5 commodity groupings
- **Maintenance:** The SCC was maintained by Statistics Canada and updated periodically. Its use is being phased out.
- **Population:** Nearly 6,000 codes

- **Historical information:** The SCC was a former Statistics Canada commodity standard used to compile rail and truck data for reporting purposes. Rail and truck data were not grouped in the same way because truck data was based directly on the SCC whereas rail data was based on STCC. Truck data was collected by Statistics Canada according to the detail provided on shipping documents and grouped into a few hundred categories.

DOCC - Dominion of Canada Code

- **Format:** 3-digit codes
- **Groupings:** Codes are based on the SCC
- **Maintenance:** The SCC was maintained by Statistics Canada and updated periodically. Its use is being phased out.
- **Historical information:** The DOCC is a Statistics Canada commodity classification based on the SCC. It was originally used to monitor bridge traffic moving from Canada to the U.S. By using the DOCC and the SCC, Canadian railway commodity data could be compared to other modes of transportation, as well as to production, imports, and exports. The new Standard Classification of Goods (SCG) has made the DOCC obsolete.

HARMONIZED BASED COMMODITY CLASSIFICATION SYSTEMS

The Harmonized Commodity Description and Coding System (HS) is the predominant product coding system currently in use worldwide. The HS uses building blocks to organize detailed product classifications that have significance based on product shipment characteristics.

There are millions of trade transactions occurring each year. These transactions are classified under approximately 5,000 different products. Every item is assigned a unique identification code. Every item is part of a series of progressively broader product categories.

- **Format:**

2009 70 0010	Apple juice, unfermented, concentrated, frozen
2009 7	Apple juice, concentrated, frozen
2009	Fruit juice and vegetable juices
20	Preparations of vegetables, fruit, nuts, etc.

The Harmonized Systems include the HS, IHC, SCG, and SCTG as described below:

HS - Harmonized Commodity Description and Coding System

- **Format:** 6-digit numeric codes
- **Groupings:** First 4-digits are a combination of major and minor classification; the 5th and 6th digits refer to a specific commodity that falls within the scope of the major and minor classifications.
- **Population:** Over 5,000 commodity groupings
- **Maintenance:** The HS is maintained by the World Trade Organization based in Brussels, Belgium.
- **Other information:** Codes represent 22 major headings and 99 sub-headings.
- **Example:**

07	Edible vegetables and certain roots and tubers
0704	Cabbages, cauliflower, kohlrabi, kale and similar edible brassicas, fresh or chilled
0704.10	Cauliflower and headed broccoli

IHC - International Harmonized Code

- **Format:** 10-digit numeric codes
- **Groupings:** The first 6-digits are identical with the HS with the 7th through 10th digits **added for U.S. import/export purposes.**
- **Population:** Over 22,000 import and export commodities
- **Maintenance:** Department of Commerce, Foreign Trade Division of the US Census Bureau.
- **Other Information:** The 7th through 10th digits are subject to periodic change.
- **Example:**

07	Edible vegetables and certain roots and tubers
0704	Cabbages, cauliflower, kohlrabi, kale and similar edible brassicas, fresh or chilled
0704.10	Cauliflower and headed broccoli
0704.10.6000	Cauliflower and headed broccoli cut, sliced or otherwise reduced in size

SCG - Standard Classification of Goods

- **Format:** 8-digit numeric codes
- **Groupings:** The first 6-digits are from the HS with the 7th and 8th added for Canadian export/import purposes.
- **Population:** Over 18,000 commodity categories
- **Maintenance:** The SCG is maintained by Statistics Canada.
- **Other information:** The SCG is Canada's extension of the HS.
- **Example:**

07	Edible vegetables and certain roots and tubers
0704	Cabbages, cauliflower, kohlrabi, kale and similar edible brassicas, fresh or chilled
0704.10	Cauliflower and headed broccoli
0704.10.20	Cabbage fresh or chilled

SCTG - Standard Classification of Transported Goods

- **Format:** 4 hierarchical levels with first 2 based on the HS.
- **Groupings:** Each level is self-contained and each category within each level is mutually exclusive. Each grouping is designed to create statistically significant transportation categories.
- **Population:** 499 codes at the 5-digit level
- **Maintenance:** The SCTG is maintained by Statistics Canada.
- **Other information:** The SCTG is a U.S./Canadian initiative, designed to provide categories for the 1997 U.S. Commodity Flow Survey (CFS) as well as the integration of Canadian transport data. The specific goals addressed by the SCTG include the improvement of product categories used for collecting and reporting U.S. CFS data, the creation of integrated product categories for reporting Canadian transportation data, and the capability to compare U.S. and Canadian freight movement data.
- **Level Structure:**

First (2-digit)	41 codes	Analytical overview
Second (3-digit)	132 codes	US-Canadian product groups
Third (4-digit)	283 codes	Transportation characteristics
Fourth (5-digit)	499 codes	CFS collection level

CURRENT STATUS

The Standard Transportation Commodity Code database contains cross references to a number of other classification system codes. Currently, each active STCC, in a database maintained by the AAR, has at least one (1) valid associated International Harmonized Code (IHC). In many cases, due to the complexity of the specific STCC, multiple IHC's have been associated with a maximum of 10 codes to some STCC's included on the database. In those instances where more than 10 IHC's can be associated to a particular STCC, an "overflow" file has been created and distributed.

Before a new STCC is added to the database, a "paper" search is made for all IHC's at the 10 digit level that might be mapped to the proposed STCC. Once these IHC's have been identified, the AAR looks to Statistics Canada for concurrence, after which the information is added to an IHC table. Information from this table is then drawn upon for the creation of tapes to be sent to STCC customers. At present, IHC's are not published in the Standard Transportation Commodity Code 6001 publications.

The STCC Master database also contains cross references between STC Codes and other code and classification systems including the Standard Industrial Classification (SIC), the International Standard Industrial Classification (ISIC) and the Dominion of Canada Codes (DOCC). At present, codes in the SIC and ISIC data fields are automatically filled based on separate code tables. The code tables themselves are maintained on an as-needed basis by the AAR.

COMMODITY FLOW SURVEY

The Commodity Flow Survey (CFS) is a U.S. Department of Transportation document designed to provide information on the flow of goods and materials shipped by all modes, including intermodal movements, of transportation.

From 1963 to 1993, the STCC was the basis of the collection and publication of CFS data. Many changes have taken place that have made the STCC less useful for tracking domestic product movements across all modes of transportation, although it remains perfectly functional for tracking rail-only movements.

These changes include the de-regulation of trucking, the enactment of the North American Free Trade Agreement (NAFTA), the emergence of plastics and composite materials to replace metals and glass, and the rapid recent development of high-tech electronic goods. Because the CFS is a transportation information source, the CFS collects data about shipments moving on all modes. As a consequence, STCC classifications frequently provide inadequate detail for the identification of products that are significant to other than rail modes of transportation.

In 1997, a new CFS will be compiled by the U.S. Department of Transportation, Bureau of Transportation Statistics. As a basis for collection and publication, the CFS will use the new Standard Classification of Transportable Goods (SCTG), a U.S./Canadian classification system based on the HS and the NAICS (as described below).

The NAICS incorporates data from both the SIC and the STCC systems. The SCTG will be compatible with both the STCC and HS classification systems with additional usefulness for multi-modal analysis. The common thread between these various systems is the use of the HS.

PROJECTS DEFINED

In December of 1996, representatives from the AAR, RAILINC and Statistics Canada met to discuss and devise appropriate procedures that would more effectively bridge the STCC system to the SCTG using as a basis the mapping of STC Codes to HS. The following is a list of issues and potential solutions developed at those meetings:

1- Map all STC Codes to the 6-digit level of the HS rather than the 10-digit IHC level.

Why: This action decreases the amount of volatility inherent in the system at the 10-digit level while conforming to what is requested by Len Podgurney's EDI Rail Customs Task Force.

Result: This action may require a programmatic modification to the STCC database by stripping the last 4 digits of the IHC and replacing them with 0's. The result will be related to other classification systems.

Who: This modification will need to be done by an independent contractor, presently involved with the STCC database and who is working for RAILINC (AAR).

When: Completion for this action is 4th quarter of 1997.

2- Remove the DOCC field from the STCC Master database.

Why: The DOCC is being phased out by Statistics Canada in favor of the SCTG.

Result: Removal of the DOCC will streamline the Master database, while validating/updating the SIC and ISIC will re-synchronize the STCC with these classification systems.

Who: These actions will be jointly done by RAILINC and the Customer Operations Division of the Operations & Maintenance Department of the AAR.

When: Completion for this action is 4th quarter of 1997.

3- Rewrite selected existing STC Codes.

Why: To reflect easier interpretation of their intent and purpose.

Result: Creation of numerous new STC Codes as well as the rewording of others.

Who: A team from the AAR, Statistics Canada and the Volpe National Transportation Systems Center.

Other: Proposed additions/ changes to the STCC will follow the STCC-TAG update procedure.

When: This will be an ongoing action spanning 1997-98 since it requires adjudication from the STCC-TAG.

4- Continue to develop a strong working relationship between representatives of the AAR, U.S. Bureau of Customs, Statistics Canada and the Volpe National Transportation Systems Center.

Why: To ensure compatibility and accuracy within various classification/coding systems.

Result: Uniformity in correlation and bridging between the STCC, HS, and SCTG.

Who: Bill Finnin of the AAR, Donna Walter Neece of the Bureau of Customs, Keith Hannett and Andreas Trau of Statistics Canada and the Volpe National Transportation Systems Center.

When: Ongoing

5- Develop a cross-reference between STC Codes having a Hazardous Materials number (48's & 49's) and the SCTG.

Why: The SCTG does not identify specific categories of products as being hazardous, nor does it include a special grouping of its categories under the title of hazardous. This occurs because the HS does not include a "degree of hazard" as a classification criterion.

Result: The SCTG will have a bridge via the HS to STC Code's with 48 & 49 numbers.

Who: Basv Sen of the Volpe National Transportation Systems Center resource at the Volpe National Transportation Systems Center has been identified to do this work.

When: 3rd quarter 1997

6- Redefine the 435 EDI transaction set that is planned for use in sending both STCC and HS codes.

Why: The current and planned versions of the EDI transaction set 435 (version 3050 through 3070), segment N9, contains information related to STCC and the HS.

Result: Newly redefined EDI Transaction set will be installed in time for sending both STCC and HS codes.

When: At present, any changes to the 435 EDI transaction set would be included in the next version (4010) which would not be expected to be implemented until September 1998.

7- Replace current SIC codes with the new NAICS in the STCC database or add the NAICS without altering the existing SIC.

Why: The SIC is a 4-digit code and the NAICS is a 6-digit code, the structure of the STCC database and the 2,825 byte flat file layout will need to be changed.

Result: SIC codes will be replaced with new NAICS codes resulting in veracity between STCC's, HS's and NAICS.

Who: Representatives from the AAR and RAILINC will need to undertake this initiative.

When: Since the NAICS codes will not be available until late 1997, this effort should not be started until the 1st quarter of 1998.

Explanation of Relationships

The SIC (Standard Industrial Classification) was the basis for the STCC (Standard Transportation Commodity Code). These two classification and coding systems, together, will be used as a component of the NAICS (North American Industrial Classification System), which, in turn, will be used as the basis for the U.S. part of the 1997 CFS (Commodity Flow Survey).

Conversely, on the Canadian side, the DOCC (Dominion of Canada Code) was an initial building block for the SCC (Standard Commodity Classification) which was used to produce the SCG (Standard Classification of Goods). The SCG, using the HS/IHC (Harmonized Commodity Description and Coding System), and the SCTG (Standard Classification of Transportable Goods) will be used as the basis (see above).

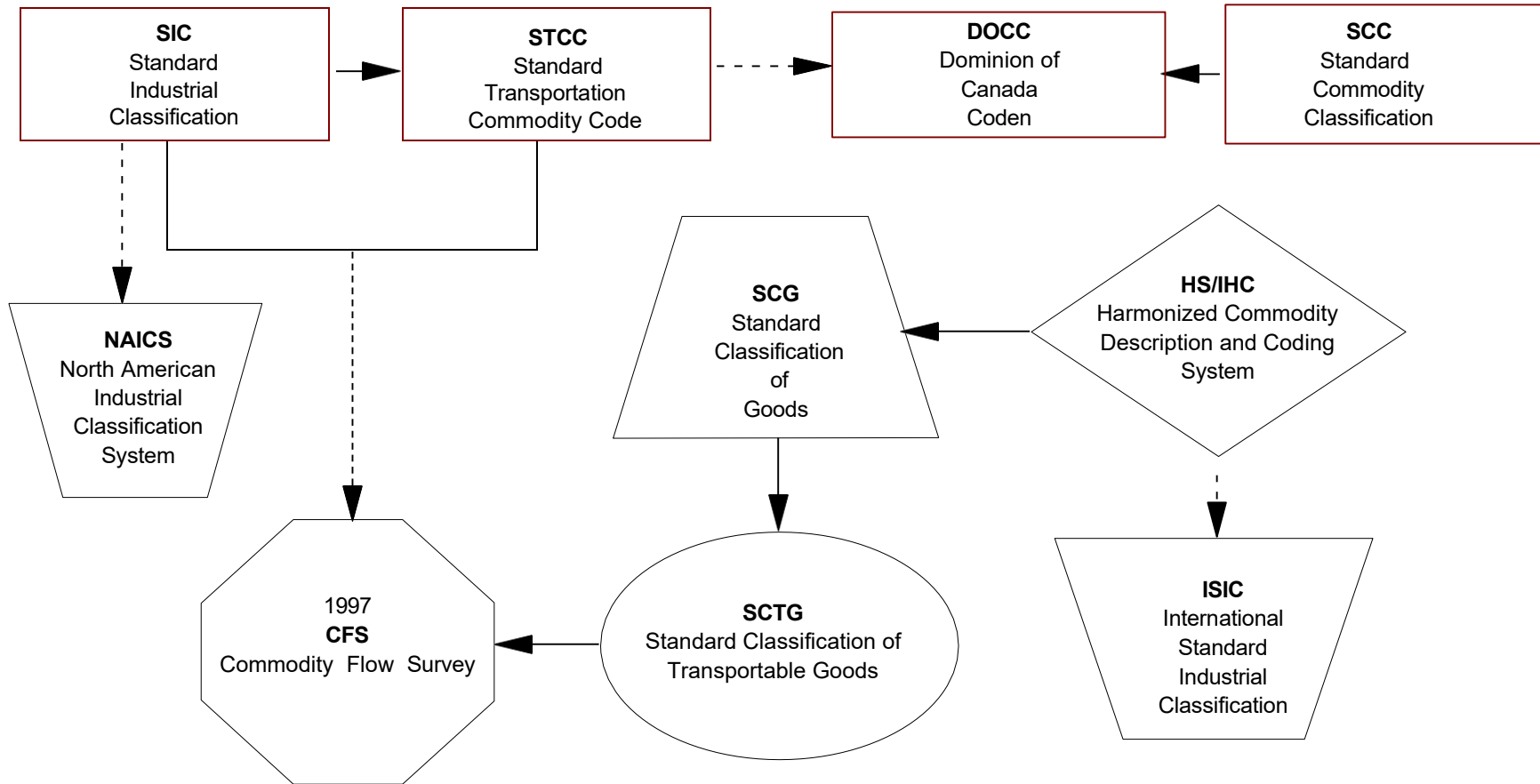
ATTACHMENTS

Attachment A, with its accompanying commentary, graphically illustrates the relationships among the various U.S. and Canadian commodity coding systems.

Attachment B is a tabular chart summarizing the level at which the various commodity coding systems group products.

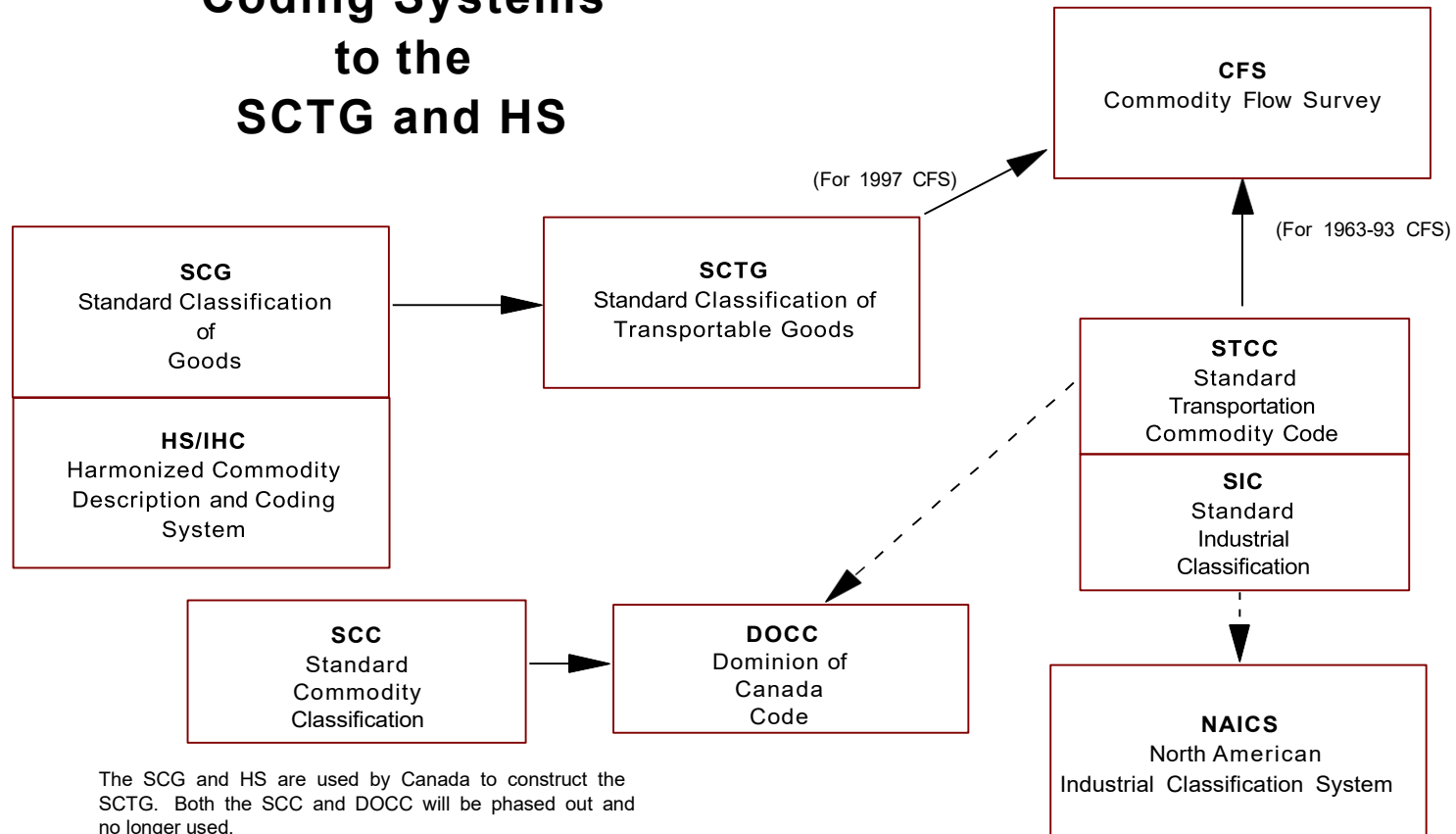
Attachment C is a chart showing the many acronyms referred to in this paper, their definitions, brief descriptions as to what organization compiles or uses the information or explanation of the acronym, and a list of “players” who may be contacted regarding a particular field of expertise.

Relationship Among US, Canadian and International Commodity Coding Systems



* Note: Dotted line indicates relationships that are less formal or explicit

Relationship between US/Canadian Coding Systems to the SCTG and HS



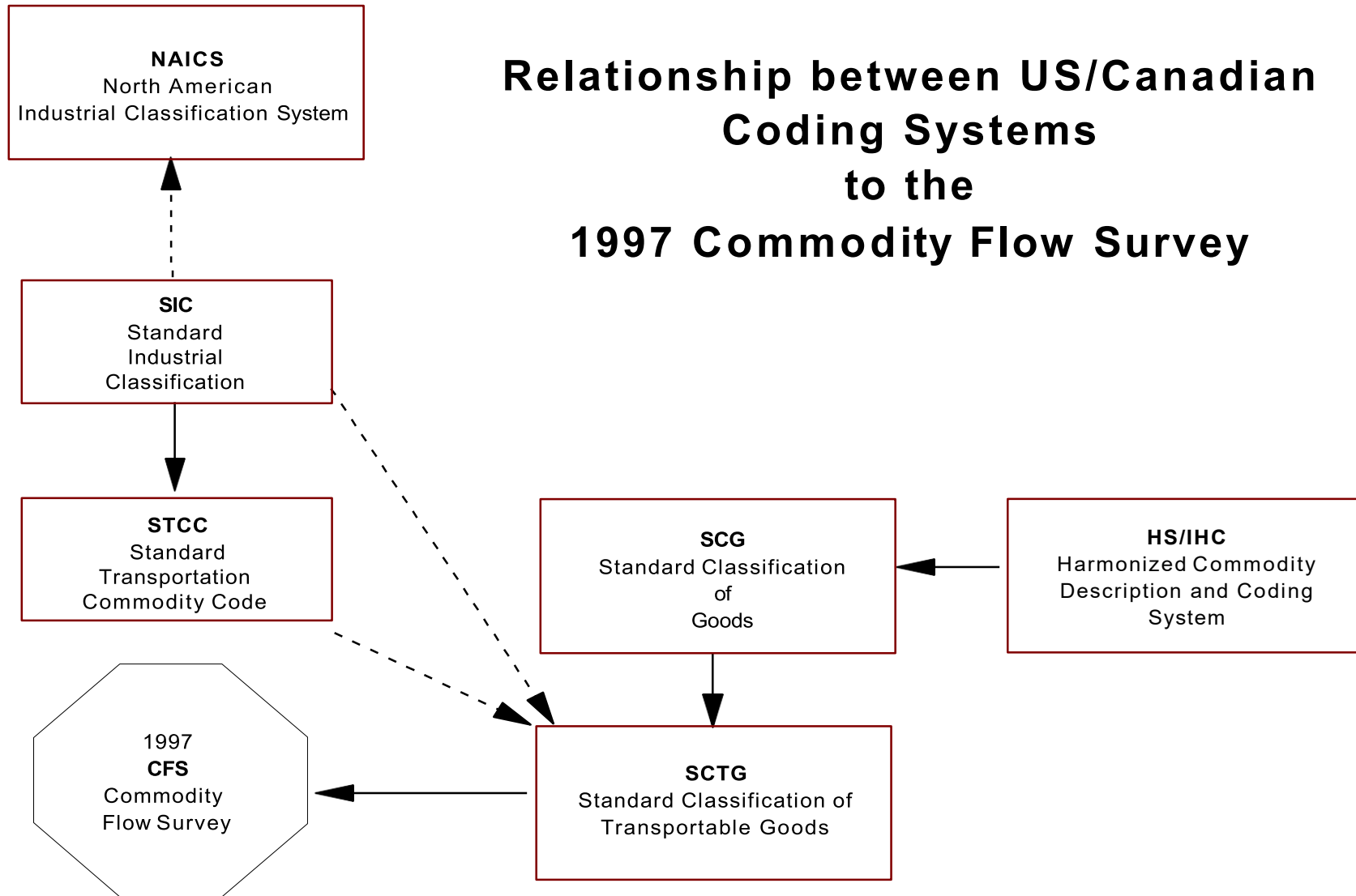
The SCG and HS are used by Canada to construct the SCTG. Both the SCC and DOCC will be phased out and no longer used.

The SIC (both U.S. and Canadian) has been merged into the new NAICS.

The SCTG, which is HS/IHC/SCG based, will serve as the classification for the 1997 Commodity Flow System.

*Note: Dotted line indicates relationships that are less formal or explicit

Relationship between US/Canadian Coding Systems to the 1997 Commodity Flow Survey



*Note: Dotted line indicates relationships that are less formal or explicit

MAJOR, MINOR AND SUB-GROUPS OF INFORMATION

CLASSIFICATION SYSTEMS	Major Grouping	Sub-major Grouping	Minor Grouping	Sub-minor Grouping	Specific Product
Standard Transportation Commodity Code (STCC)	Agricultural	Type of Ag.	Product Group	Prod. Group Division	Specific Product
	(Farm Products)	(Field Crops)	(Cotton, Raw)	(Raw Cotton, NEC)	(Cotton Bolls, immature)
Harmonized System (HS)	Specific type of Agricultural	Sub-group of Agricultural type	Sub-group of the sub-group		
	(Edible vegetables)	(Cabbages, cauliflower, etc.)	(Cauliflower and headed broccoli)		
International Harmonized Code (IHC)	Specific type of Agricultural	Sub-group of Agricultural type	Sub-group of the sub-group of Agricultural type	Specific Product	
	(Edible vegetables)	(Cabbages, cauliflower, etc.)	(Cauliflower and headed broccoli)	(Cauliflower and headed broccoli cut, sliced or otherwise reduced in size)	
Standard Industrial Classification (SIC)	Major Industry Group	Minor Industry Group	Sub-group of Minor Industry		
	(Agricultural Services)	(Crop Services)	(Crop Planting, Cultivating and Protecting)		
Standard Classification of Goods (SCG)	Specific type of Agricultural	Sub-group of Agricultural type	Sub-group of the sub-group of Agricultural type	Specific Product	
	(Edible vegetables and certain roots and tubers)	(Cabbages, cauliflower, etc.)	(Cauliflower and headed broccoli)	(Cabbage [brassica oleracea, capitata] fresh or chilled)	
Standard Classification of Transported Goods (SCTG)	HS based commodity groupings (41)	HS based significant product (132)	HS/SCG based Categories which reflect industry patterns and transportation characteristics (283)	HS/SCG based category/detail level (499)	

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