



# LEVERAGING E-COMMERCE PRODUCT DATA FOR SMARTER CARGO MANAGEMENT

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*A Recommendation Report for the International Trade Data System Board of Directors*

**April 2009**

ITDS Product Information Committee

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## SUMMARY

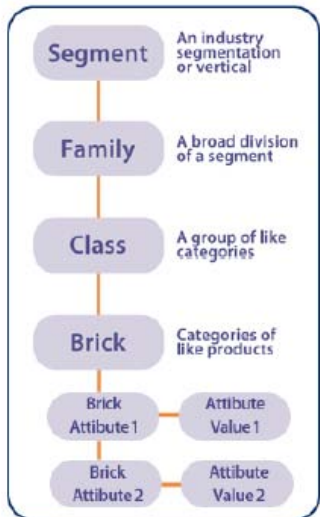
**Government agencies need granular product information to make fast, accurate decisions about cargo at US borders:** Federal government agencies admitting cargo into the United States need reliable information about specific products entering US borders. This information is critical to making accurate decisions about jurisdiction and the nature of each product to know if inspection is warranted and if so, what level of inspection each incoming product should receive. The DHS Customs and Border Protection (CBP) is interested in making this type of product information available to Participating Government Agencies (PGAs) in its Automated Commercial Environment (ACE) Information Technology system.

**HTS codes provide insufficient information about most products for accurate admissibility assessment:** Presently, incoming products are identified principally by a tariff code. These codes are compiled in the Harmonized Tariff Schedule of the United States (HTS) and reflect, for the most part, broad product differences that affect the level of duty to be assessed. Although the HTS is not intended to be a product characterization system, it does typically provide a high level break-out of product types. However, HTS codes are not designed to consistently delineate products by their essential characteristics. The key purpose of the HTS is accurate assessment of duties, not accurate characterization of products. Therefore, PGAs that rely on the HTS to categorize the products that they regulate often are unable to make completely informed decisions about product jurisdiction or risk level. As a result, PGAs may have to

redirect a product to another PGA for review when errors in jurisdiction are made, delaying the admissions process. Even when the appropriate PGAs are given advance notice about an incoming product, those PGAs often must make assumptions about a product's admissibility that may be incorrect, and will either hold that product for physical inspection or release the product without inspection. The availability of authoritative, granular product characterization to PGAs would expedite the admissions process by, in some cases, promptly clearing eligible or low-risk products. It would, at the least, improve PGA efficiency by focusing available inspection resources on products that are more likely to be inadmissible.

**Electronic commerce data used by businesses can be leveraged by government to create a "smarter" cargo admission process:** As businesses move towards an electronic commerce environment, suppliers need to be able to accurately identify, describe, and characterize their products electronically to their business partners. Today, three major systems have been developed and are being used by different business sectors to describe and characterize products moving in national and international trade. These are: the United Nations Standard Products and Services Code<sup>®</sup> (UNSPSC); the GS1 Global Product Classification (GPC); and eCI@ss. These "global product dictionaries," maintained by entities known as Dictionary Maintenance Organizations (DMOs), allow manufacturers and suppliers to describe and characterize their products using a multi-lingual, standardized, hierarchical framework (e.g., segment, family, class and brick) such as that in Figure 1. This framework allows suppliers to characterize products using a product class code designation and product attribute values. PGAs can use supplier-provided product

characterization data that conforms to the framework of these dictionaries to understand the essential characteristics of incoming products. With this information, PGAs can improve the accuracy of their jurisdiction and risk assessment determinations over those based solely on HTS code information.



**Figure 1: A typical product dictionary framework (Source: GS1)**

However, challenges remain. The capability of the product characterization dictionaries to effectively group products in meaningful ways for industry is still maturing. And additional attributes that are unique to the admissibility and jurisdiction interests of PGAs may need to be added to the dictionaries before the full potential of e-commerce product classification can be realized by PGAs. PGAs

will need to use the change request process that each of these dictionary maintenance organizations offers so that the dictionary defines the information most needed by PGAs to determine jurisdiction and admissibility.

Initially, PGAs can request that importers provide global product dictionary codes and attribute values for certain products of interest when entry information is submitted. Because these codes and values for up to seven or more attributes must be entered manually for each product in each

shipment, this process will not scale readily to cover broad numbers of commercial products.

A more efficient, longer-term solution would be to take advantage of product information published by manufacturers or suppliers in a global product catalog service. This service, created by the business community to support e-commerce functionality and known as the GS1 Global Data Synchronization Network (GDSN), would provide an efficient, trusted source of product information for PGAs. Although PGAs cannot expect ACE to establish a data sharing relationship with thousands of suppliers, ACE may be able to download data from a single source of product information managed by a non-profit third party.

Of course, a unique product reference number is needed to access product information in this global catalog. Because the business community has their own need for precise identification of products in the supply chain, it has created a system of globally unique product identification numbers. This identification number, referred to as the GS1 Global Trade Item Number (GTIN), would be needed by PGAs as the key to access granular product information from the GDSN global catalog. This information can then be used in CBP and PGA targeting and risk assessment systems to make better informed decisions about product jurisdiction and admissibility. Adopting a GTIN-based product identification system represents the key challenge and the key opportunity for PGAs and ACE to deliver smarter cargo management.

To address these opportunities and challenges, the International Trade Data System (ITDS) Product Information Committee

(PIC) offers the following recommendations to the ITDS Board of Directors:

## RECOMMENDATIONS

### **1. The ITDS Board or CBP should create a forum or “clearing house” where PGAs could coordinate the designation of a primary product dictionary for product sets of interest and coordinate on-going PGA change requests with dictionary maintenance organizations:**

Each of the three existing product characterization dictionaries has different strengths in different products sets. The ITDS Board or CBP should help PGAs establish an authoritative forum that would determine which global product dictionary would be most useful to the set of PGAs with common jurisdiction over a given product group. This PGA forum should coordinate and reconcile PGA interests and maintain and publicize a listing of which global dictionary will be used primarily by PGAs for a product set of interest. The designation of a “Primary” dictionary indicates that PGAs prefer product information that is defined in accordance with the primary dictionary. However, product information defined using other dictionaries, including other global or regional dictionaries may also be used to supplement or cross-check information in the primary dictionary. In cases where the descriptive ability of the primary dictionary fails to provide the full set of attributes sought by all PGAs, the PGAs should work through the PGA forum to propose change requests to a DMO to revise the dictionary to more effectively meet PGA needs.

**ACTION POINT:** Establish a PGA forum with the on-going responsibility for coordinating primary dictionary designations and change requests to DMOs.

**ACTION POINT:** Select one or more sample product sets that can be designated by HTS code range, and work with all the PGAs with jurisdiction over each product set to determine which dictionary should be the primary dictionary and what product information is needed by all PGAs. If any attributes or values are absent in the primary dictionary, the forum should submit and oversee a change request to the DMO requesting the addition of that product information.

### **2. Capture the Global Trade Item Number (GTIN) of products in ACE in advance of product arrival:**

GTINs, known best to US consumers in the form of the Universal Product Code (UPC), are used routinely by buyers and sellers to accurately identify the exact products and quantity of each to be shipped on purchase orders and shipping notices. This information can be obtained from the importer or supplier, ideally as an electronic file prior to shipment arrival, to report the GTIN and the number of cases of each product present in the shipment or in each shipping container. Obtaining the GTIN of incoming products will enable PGAs to access granular product characterization information that industry has published about these products.

For PGAs to efficiently use the GTIN to identify incoming products, the ACE system will need to incorporate new data fields for the GTIN and other related product information fields in the ACE database. These other data fields would be populated by the ACE system using the GTIN in a query to a

global catalog web service or by a global catalog data synchronization service.

Note that the GTIN does not replace the use of the HTS in ACE, but supplements the descriptive value of the HTS by identifying one specific product among the hundreds or thousands of products that have that same HTS code. The GTIN product reference can then be used to access more detailed information about this one product from the global catalog, provided information about this product has been published by the supplier.

**ACTION POINT:** Pilot a process to capture the GTINs of incoming products for one or more sample product sets. Initial pilots could occur inside or outside of ACE. PGAs should determine what regulatory actions would be needed to collect GTINs. Assess the most efficient way to capture GTINs in the future and how the collection of GTINs might be integrated into existing collection requirements.

**3. Establish a pilot process for synchronizing product information in ACE with the GS1 global catalog:** To support e-commerce, over 17,000 global suppliers are now publishing detailed information about their products for current and potential customers using the GS1 Global Data Synchronization Network (GDSN). This catalog can provide a variety of descriptive information about the product, such as the product name, brand name, product description, and manufacturer as shown in FIGURE 2. Additionally, the catalog can provide structured product characterization information in the form of a product characterization class code number and related product



**FIGURE 2: Sample product information available from an industry global catalog**

attributes. Integrating these product data into the ACE system and using well-established data synchronization processes to keep these data current will make granular product information for millions of products available to PGAs for use in jurisdiction and admissibility determinations.

**ACTION POINT:** Pilot the use of data synchronization or a web service to obtain product information for the GTINs of sample product sets from the GDSN. Initial pilots may be conducted outside of the ACE system by interested PGAs making ad hoc web queries to the GDSN. PGAs should determine whether a sufficient number of products from the sample product sets have been published in the GDSN to be useful in the admissions process.

#### **4. Use global catalog product information in PGA targeting logic to more accurately determine jurisdiction and risk profile for each product by GTIN:**

Automated PGA product targeting logic can be modified to evaluate the hierarchical product characterization class code of each GTIN and related product attributes of interest to a PGA. Product information from the global catalog can be evaluated by targeting systems for all products that have a GTIN or only for high-risk products as identified by an HTS code. Additionally, when a PGA determines categorically that a product is inadmissible, that product GTIN could be added to a “GTIN Prohibited Products List.” Importers could then access the Prohibited Products List on-line before they load products into containers or conveyances bound for the US to avoid processing delays at the border and the possible expense of re-exporting or destroying these products at US ports of entry. Similarly, PGAs could build a “GTIN High-Risk Products

List” that is a table of GTINs for products that have been documented as high risk by past targeting and inspection efforts. Incoming GTINs could be immediately validated against this list to provide advance notice of container holds to transportation agents days in advance of cargo arrival.

**ACTION POINT:** Pilot the use of GDSN product data for incoming product GTINs in PGA automated targeting systems to accelerate jurisdiction and admission decisions. Evaluate the feasibility and utility of a GTIN Prohibited Products List and a GTIN High-Risk Products List.

**5. Establish a communication plan with industry to explain the advantage of using electronic catalog information to facilitate cargo admission:** When PGAs use product information available from an industry-maintained global product catalog, determinations regarding jurisdiction and risk can be made with greater speed and accuracy than for those products that are not published in the catalog. However, PGAs do not intend to mandate the publication of product information by suppliers or the submission of GTINs by importers. Rather, suppliers and importers should find the cost of voluntarily providing this information to be offset by a more efficient e-commerce business process and expedited product admission at international borders. PGAs, through the PGA forum, will need to communicate to suppliers and importers how they intend to use global catalog product information and GTINs so that all suppliers and importers have the same opportunity to expedite the admissions process for their products. In short, the marketplace will promote the creation of catalog entries by suppliers and submission of GTINs from

importers when this information categorically expedites the admission process at international borders.

**ACTION POINT:** If pilot testing validates the value of using GTIN and related GDSN product information, the PGAs, through ITDS, should work with CBP to build these capabilities into ACE. The PGA forum would then build a communication plan to advise supply chain companies of how PGAs will use GTINs and GDSN product information, particularly the primary dictionary product characterization information, to streamline the cargo admissions process at US borders.

### **SOUND SOLUTIONS THAT ARE STILL MATURING**

The recommendations above are sound and make efficient use of business-to-business e-commerce solutions to bring a new level of granularity and effectiveness to the government product admissions process. However, the dictionaries and the catalog services referenced here are still actively growing and maturing, the oldest only 10 years old. Not all dictionaries have effective product characterization structures for all product sets. And although over 3.6 million products have been published in the GS1 global catalog and for some product sets more than 70 percent of the available products are likely already published, this total is probably still less than 20 percent of the entire product “universe.” Descriptions for millions of additional products will need to be published before characterization is routinely available to ACE and PGAs for most products of regulatory interest.

The business sector has developed these dictionary and catalog solutions to create basic e-commerce functionality and will continue to drive their adoption forward for their own benefit. Government leverage of these systems for government use in product admission and monitoring of incoming and outgoing products will only accelerate the speed of adoption, to the mutual benefit of all. At the same time, implementation of these emerging e-commerce systems by ACE will not immediately resolve all product admission challenges. But the functionality of this solution should grow stronger with each year of use and could serve as a model for other national governments that seek similar advantages in managing high volumes of international trade over the next decade.



## I. BACKGROUND

*What business problem is being addressed by this committee report?*

The International Trade Data System (ITDS) Product Information Committee (PIC) was established by charter (APPENDIX B) to advise the ITDS Board of Directors on a method to obtain more precise product characterization and description information for imported and exported goods. A method that will more clearly describe internationally traded goods will support more efficient and effective review, release, and statistical analysis of traded products.

The role of PGAs in releasing product varies with the agency. Some, like the Environmental Protection Agency (EPA), must determine if a product is legally admissible, and admission decisions tend to be unconditional once the identity of a product is known. Some, like the United States Department of Agriculture's Animal and Plant Health Inspection Service (USDA-APHIS) need to assess which products represent the greater risk of pest importation. Product information would be used by USDA-APHIS to evaluate which products should be targeted for follow-up physical inspections or require special chemical treatments. And some PGAs, like the USDA Food Safety Inspection Service (USDA-FSIS), need to physically inspect the condition of all incoming meat products. They will use granular product information to better anticipate the level of inspection that incoming products will require in accordance with risk factors such as fully cooked (ready-to-eat) versus uncooked product.

Regardless of their exact role in product admission, many PGAs with statutory responsibilities for the importation and exportation of products will benefit from having unambiguous, structured information about the products being traded. This information can be used to make automated decisions about the level of inspection necessary and to provide an accurate analysis of the various types of products that enter and depart the United States. Although the Harmonized Tariff Schedule of the United States (HTS) and other characterization systems currently used by government agencies are organized in accordance with the basic characteristics of the product, none comprehensively address the information needs of all PGAs for a broad set of products. In the case of the HTS, it is essentially designed for the assessment of duties. The current system does not provide sufficient detail about product characteristics to meet the more finite regulatory requirements of many Federal agencies, especially those related to public health and safety. In response, some Federal agencies have established stand-alone product codes for goods under their jurisdiction (e.g., the Food and Drug Administration Product Code), but government-unique codes have limitations in international trade.

Last year, the Food, Conservation, and Energy Act of 2008 amended the Lacey Act to make it unlawful to import certain plants and plant products without an import declaration. To manage product compliance under the Lacey Act, products need to be identified with more precision than just a tariff category. Therefore, PGAs need both internationally valid product characterization

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information and precise product identification to efficiently manage their responsibilities for cargo admission.

The recommendations of the committee are offered to create “smarter” cargo processing capability within the ACE system. ACE and its precursor systems began operating long before the advent of the Internet and today’s electronic commerce capabilities. If an automated system for monitoring product flow into and out of the US were to be built today for the first time, government or private industry would likely design it using existing e-commerce capabilities, including the global product identification numbers that originated in the early 1970’s. The recommendations offered by this committee will require a focused implementation effort to integrate e-commerce data, but these data flows will dramatically upgrade the PGAs’ ability to provide rich reports on product movements into and out of the US and most importantly, accurately determine agency jurisdiction and public health and safety risk profiles for incoming products. Also important, these recommendations promote an approach that can be used internationally by other governments, creating additional efficiencies for industry and world commerce. Successful implementation efforts from this effort should be shared and further refined with the World Customs Organization (WCO) and the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT).

To understand the core value of these proposals and their potential impact on product admission, consider the passenger admissions process. Imagine if the same process

for screening products at US borders today was applied to screening incoming passengers at US airports. Border agents would be making decisions about admitting passengers knowing only that an incoming flight had a certain number of people of each nationality on board, but without knowing the names of each person. Today Federal agents that admit cargo at borders often do not know the unique identity of individual products, only the tariff code that applies to the product. Tariff codes do provide some high level product characterization, similar to knowing a passenger’s nationality, but the purpose of tariff codes is the accurate assessment of duties on imports, and they are not conducive to systematically analyzing products for inherent risk or admissibility. Fortunately, suppliers today electronically publish structured product characterizations about their products because of their value for business-to-business e-commerce. And this emerging body of product characterization information can be integrated into ACE, either by the direct submission of product code and attribute information or the submission of the product’s “name” or Global Trade Item Number (GTIN) that can be used as a reference to this published characterization information. The submission of the GTIN will be the more efficient submission, since the GTIN is always a 14-digit number, but the submission of product characterization code and attribute information involves a variable number of data fields.

*What range of product information is included or excluded?*

PGAs are seeking more granular product information to make informed decisions about the release of incoming products into the United States. Information related to this decision can vary with each product shipment, such as the intended purpose for the import or its arrival date. Typically this type of transactional information is already available in the ACE system and is excluded from the scope of these recommendations. Other information, however, that is typically static for every product shipment, such as the global product identification number, product type, product name, and brand name, are not yet in the ACE system. The recommendations of this committee are intended to provide this static product description and characterization information to PGAs in a manner that will minimize the reporting burden on the supply chain and once proven, can be readily scaled to an international level through the WCO and the UN/CEFACT.

The committee quickly identified a number of critical concepts that must be commonly understood when discussing product information. There are three basic types of product information:

- **Product Identification** – information that uniquely designates a specific product from a single supplier (e.g., Global Trade Item Number (GTIN) or supplier part number;
- **Product Characterization** – information that denotes the key features of the product group (e.g., edible,

minimally processed beef without added ingredients); and

- **Product Description** – information that objectively describes a specific product (e.g., the length, width, and height of the shipping case).

Also, there are two services or roles that can be carried out by a third party involving product information:

- **A Dictionary** – a standard framework for defining a product set's distinguishing characteristics; and
- **A Catalog** – a repository of product information about specific products in the supply chain.

In short, a dictionary tells a supplier how to describe their product in a standardized way (what attributes and values can be used), and a catalog tells a buyer what dictionary product characterization values the supplier believes most accurately describe their product in the market place.

Other terms reviewed by the committee may be valuable in a more detailed, technical discussion of product information and are found in APPENDIX C.

## II. PGA PRODUCT INFORMATION REQUIREMENTS

*What product information is required by PGAs?*

Before reviewing any product dictionaries, all PGAs participating in the committee were asked to define the product information of value in managing the principal product sets of concern to them at US borders. TABLE 1 on the following pages shows the information of value for sample product sets as determined by the Consumer Product Safety Commission (CPSC), the EPA, the Fish and Wildlife Service (FWS), the USDA Agricultural Marketing Service (USDA-AMS), the USDA-APHIS, and the USDA-FSIS.

The specific information of interest to PGAs, of course, varies with each product set. But all properties either place that product in or out of the scope of jurisdiction or provide a critical piece of information in assessing a product's legal admissibility status, health risk, or safety risk. For example, USDA-AMS needs to know the botanical variety of table grapes to determine whether the grapes are legally subject to quality inspections under US marketing order regulations. And USDA-FSIS needs to know whether imported meat and poultry products are cooked or uncooked to assess their overall level of health risk to the consuming public.

For some product sets such as automotive vehicles and parts, industry has not made extensive use of international

product characterizations because product classification tends to be company specialized and often "sensitive" for high-value specialized parts. As one might expect, automotive products are not well described by any one of the three global dictionaries. In the case of automotive products, the National Highway Traffic Safety Administration (NHTSA) considered the use of international product characterizations but found that the existing HTS numbers are sufficient at this time for their admissibility determinations.

Another factor that becomes evident in the limited examples provided in TABLE 1 is the overlapping jurisdictional interests of the PGAs for the various product sets. Because of the diverse missions of PGAs, several PGAs typically have an interest in any one product set. And in these cases, PGAs typically have different interests in product properties to determine final jurisdiction and admissibility. A map that defines overlapping PGA jurisdictions, and ultimately the product properties for each product set, would help PGAs collaborate to establish clear and non-conflicting guidance to importers and suppliers for all products.

**TABLE 1 - Product Information of Interest to PGAs for Selected Product Sets**

Class(es) to Which Property Applies	Property Name	Definition	PGA
ANTIQUES, WORKS OF ART	SPECIES	The species of animal from which the component was derived ( <i>e.g., elephant, sea turtle</i> )	FWS
ATVs, SNOWMOBILES, AND OTHER OFF-ROAD VEHICLES	TYPE OF SEAT	The style of seat provided for the operator	CPSC
	TYPE OF CONTROL	The style of steering and speed controls provided for the operator	CPSC
	NUMBER OF WHEELS	The number of wheels on the product	CPSC
	TYPE OF ENGINE	The kind of engine used to power the product	CPSC/EPA
	AGE GRADE	The target age group that the vehicle is sized for	CPSC
CONSUMER CHEMICALS	TYPE OF CHEMICAL	The class of the chemical	CPSC
	AGE GRADE	The target age of the consumer	CPSC
	INTENDED USE	The type of use that the product is marketed for	CPSC
	CONTAINER TYPE	The kind of container that the product is sold in	CPSC
	CERTIFICATION	The third-party certifications that the product has	CPSC
COSMETICS, OILS, SOAPS, WAXES	SPECIES	The species of animal from which the product was derived	FWS/USDA-APHIS
	SOURCE	The source of the animal (wild or domesticated)	FWS/USDA-APHIS
DATES	SPECIES	The genus and species of plant that produced the fruit	USDA-AMS
DYES, COLORING	SPECIES	The species of animal from which the product was derived	FWS/USDA-APHIS
EDIBLE PRODUCTS FROM ANIMAL ORIGIN	SPECIES	The species of animal from which the product was derived	FWS/USDA-APHIS
	SOURCE	The source of the animal (wild or domesticated)	FWS
EDIBLE PRODUCTS FROM PLANT ORIGIN	SCIENTIFIC NAME	The genus and species of plant from which the product was derived	USDA-APHIS
	PROCESSING LEVEL	The degree to which the product has been further processed ( <i>e.g., fresh, whole, cut-up, frozen, dried, preserved, fully milled</i> )	USDA-APHIS
	CATEGORY	The portion of the plant used in the product ( <i>e.g., whole fruit, vegetative above-ground portion, underground portion, flower, seed/grain, nut, bean</i> )	USDA-APHIS
	END USE	The intended use of the product ( <i>e.g., for human food, animal feed, further processing, research, or pharmaceutical</i> )	USDA-APHIS

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Class(es) to Which Property Applies	Property Name	Definition	PGA
	PHYTOSANITARY TREATMENTS	The processes applied to the product to prevent pest introduction ( <i>e.g., fumigated, cold treated, or pre-cleared</i> )	USDA-APHIS
EGG PRODUCTS	MANUFACTURERS TREATMENT/COOKING PROCESS	The processes used by the supplier to preserve or transform the products into the commercially desired form.	USDA-FSIS/ USDA-APHIS
	PART OF EGG	The portion of the egg contained in the final product.	USDA-FSIS/ USDA-APHIS
	EDIBLE	Whether the egg is fit for human consumption	USDA-FSIS/ USDA-APHIS
	SOURCE	The source of the animal (wild or domesticated)	FWS/ USDA- APHIS
	SPECIES	The species of animal from which the product was derived	FWS/ USDA- APHIS
EGGS FOR PROCESSING	RESTRICTED	Dirty, stained, and/or cracked shell eggs for breaking and processing	USDA-AMS/ USDA-APHIS
	INCUBATOR REJECTS	Eggs that have been fumigated or subjected to incubation	USDA-AMS/ USDA-APHIS
	DENATURED STATUS	De-characterized to prevent use as human food	USDA-AMS/ USDA-APHIS
FISH	SPECIES	The species of fish from which the product was derived	FWS/ USDA- APHIS
	METHOD OF PREPARATION	For salomonid fish, type of preparation ( <i>eviscerated, uneviscerated, etc.</i> ) to determine injurious status	FWS
	SPECIES STATE OF ORIGIN	The U.S. state of origin of the species for exports	FWS
FRESH FRUITS	FRUIT SPECIES	The genus and species of plant that produced the fruit	USDA-AMS
FUELS	FUEL CATEGORY	The type of fuel ( <i>e.g., kerosene, naptha, aviation fuel, diesel fuel, gasoline</i> )	EPA
HAZARDOUS WASTE	TYPE OF HAZARDOUS WASTE	The category of waste product	EPA
HAZELNUTS, WALNUTS, PEANUTS	PROCESSING METHOD	Roasted or non-roasted	USDA-AMS
HIDES, SKINS, LEATHER GOODS, FUR GOODS	SPECIES	The species of animal from which the item was derived.	FWS/ USDA- APHIS
	SOURCE	Source of the animal (wild, domesticated)	FWS
LIVE ANIMALS	SPECIES	The species of animal	FWS/ USDA- APHIS
	SOURCE	Source of the animal ( <i>e.g. wild, domesticated</i> )	FWS

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Class(es) to Which Property Applies	Property Name	Definition	PGA
LIVE INSECTS AND WORMS	SPECIES	The species of insect or worm	USDA-APHIS
	SOURCE	Source of the insect or worm ( <i>e.g., wild, domesticated</i> )	USDA-APHIS
MICROORGANISMS (Bacterial, Viral, and Fungal)	SPECIES	The species of microorganism that the product was derived from	USDA-APHIS
	INFECTIOUS STATUS	Whether the product is considered capable of producing infections ( <i>e.g., infectious or non-infectious</i> )	USDA-APHIS
	INTENDED USE	The purpose for which the product is designed ( <i>e.g., human or animal use</i> )	USDA-APHIS
EDIBLE MEAT AND POULTRY	SPECIES	The species of animal that the product was derived from.	FWS/ USDA-APHIS/ USDA-FSIS
	LEVEL OF COOKING	The extent to which heat is used to preserve product quality and maintain wholesomeness.	USDA-FSIS
	REFRIGERATION STATE	The extent to which heat is removed to preserve product quality.	USDA-FSIS
	BONELESS CLAIM	The presence or absence of bone in the product.	USDA-FSIS
	NON-THERMAL PRESERVATION	Treatments other than those involving heat or refrigeration to preserve product quality and maintain wholesomeness.	USDA-FSIS
	SOURCE	The derivation of the product from either a system of animal husbandry or from natural populations.	FWS
	FORM	The basic content of the product in terms of whether it is muscle, bone, organ, fat, etc. The form of whole muscle products is also determined in part by the meat cut attribute definition.	USDA-FSIS
	SHAPE	The appearance of the product in terms of its outline as viewed from the front, side, and top.	USDA-FSIS
	PRIMARY ADDITIVE	The primary non-meat ingredient added to the product.	USDA-FSIS
	MECHANICAL PROCESSING	Treatments other than those involving heat to tenderize the product, separate meat from non-meat, or alter the product size and appearance.	USDA-FSIS
MUSICAL INSTRUMENTS	SPECIES	The species from which components are derived ( <i>i.e. elephant ivory piano keys, sea turtle inlay on guitars, mother-of-pearl inlay, leather drum covers</i> )	FWS
OZONE DEPLETING SUBSTANCES	TYPE OF SUBSTANCE	The chemical family that the product belongs to	EPA
PESTICIDAL DEVICES	TYPE OF DEVICE	Any instrument or mechanical contrivance (other than a firearm) which is intended for trapping, destroying, repelling, or mitigating any pest or any other form of plant or animal life (other than man and other than bacteria, virus, or other microorganism on or in living man or other living animals)	EPA

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Class(es) to Which Property Applies	Property Name	Definition	PGA
PESTICIDES	TYPE OF PESTICIDE	Any chemical substance or mixture of chemical substances intended for preventing, destroying, repelling, or mitigating any pest; any chemical substance or mixture of chemical substances intended for use as a plant regulator, defoliant, or desiccant; and any nitrogen stabilizer -	EPA
PET FOOD INGREDIENTS OF ANIMAL ORIGIN	SPECIES OF INGREDIENT	The species of animal that the product was derived from	USDA-APHIS
	INTENDED USE	The purpose for which the product is designed ( <i>e.g., human or animal use</i> )	USDA-APHIS
	MITIGATION TREATMENT	The process used to prevent the introduction of pests ( <i>e.g., time and temperature and pH chemical treatments</i> )	USDA-APHIS
	COUNTRY OF ORIGIN	The country that the product is	USDA-APHIS
PHARMACEUTICALS	SPECIES OF INGREDIENT	The species of animal/plant that the product is derived from	USDA-APHIS
	INTENDED USE	The purpose for which the product is designed ( <i>e.g., human or animal use</i> )	USDA-APHIS
	MITIGATION TREATMENT	The process used to prevent the introduction of pests ( <i>e.g., time and temperature and pH chemical treatments</i> )	USDA-APHIS
PLANT MATERIALS - INEDIBLE	SCIENTIFIC NAME	The genus and species that the product is derived from	USDA-APHIS
	CONDITION	Fresh materials ( <i>e.g., cut flowers</i> ) or dried materials ( <i>decorative use or timber industry material</i> )	USDA-APHIS
	END USE	For use indoor, outdoor, further manufacturing, research, propagative (for planting/increase – nursery stock & seeds for sowing, animal bedding,	USDA-APHIS
	PHYTOSANITARY MEASURES	The processes applied to the product to prevent pest introduction ( <i>e.g., fumigated, cold treated, or pre-cleared</i> )	USDA-APHIS
PROCESSED OLIVES	PROCESSING METHOD	Treatment method used to preserve product quality	USDA-AMS
PRUNES, RAISINS	COATED WITH FLAVORING	The type of coating used to flavor the product	USDA-AMS
SHELLFISH	SPECIES	The species of shellfish as defined in 50 CFR Part 14.	FWS
	IMMEDIATE USE AFTER IMPORT	The immediate use of the shellfish after import ( <i>i.e. human or animal consumption or grow-out</i> )	FWS
TABLE EGGS, EGG PRODUCTS, HATCHING EGGS, EGGS FOR PROCESSING	SPECIES	The genus and species of the birds that produced the eggs	USDA-AMS/ USDA-FSIS/FWS
	REFRIGERATION STATE	The extent to which heat is removed from the atmosphere of the transport and storage unit	USDA-AMS/ USDA-FSIS
TABLE GRAPES	VARIETY	The variety of plant that produced the grapes	USDA-AMS



LEVERAGING E-COMMERCE PRODUCT DATA FOR SMARTER CARGO MANAGEMENT

Class(es) to Which Property Applies	Property Name	Definition	PGA
TEXTILES, FABRICS, WEARING APPAREL	SPECIES	The species of animal from which the item was derived.	FWS
	SOURCE	Source of the animal (wild, domesticated)	FWS
TOXIC SUBSTANCES	TYPE OF TOXIC SUBSTANCE	Chemical substances subject to TSCA	EPA
TOYS	PLAY TYPE	Seven main categories as defined by "Age Determination Guidelines"	CPSC
	AGE GRADE	Six Age Grades the product is designed to be used	CPSC
	BATTERIES/ELECTRONICS	Whether the product involves the use of batteries or electronics	CPSC
	CERTIFICATION	Third-party certifications (If a limited number of these, each could be its own property)	CPSC
	SPECIES	The species of animal used in the toy ( <i>e.g., brine shrimp, frogs, turtles, insects</i> )	FWS
VEGETABLES	VEGETABLE SPECIES	The genus and species of the plant that produced the vegetable	USDA-AMS
VEHICLES	TYPE OF VEHICLE	The class of the vehicle	EPA
	TYPE OF ENGINE	The kind of engine used to power the vehicle	EPA
WATCHES, WATCHSTRAPS, CLOCKS	SPECIES	The species of animal from which the component was derived.	FWS

### III. RECOMMENDED GLOBAL PRODUCT DICTIONARIES

*What recognized international and regional product information systems are recommended for use?*

The committee found three comprehensive global product information systems, referred to as “dictionaries,” in use by commercial companies: the GS1 Global Product Classification (GPC), the United Nations Standard Product and Service Code (UNSPSC), and the eCI@ss. Because of their different origins and features, each of these dictionaries has different strengths in their ability to characterize different product sets. A summary of these different strengths, as assessed by the dictionary maintenance organizations (DMOs) themselves, is found in TABLE 2 below.

Because of these differences in dictionary strength and the diverse range of product sets that need to be assessed by PGAs, all three dictionaries should be reviewed by PGAs, but PGAs should work through a PGA forum to designate a primary dictionary for each product set of interest. This designation will provide industry with a focus for characterizing its products, and also allow PGAs to concentrate their resources on monitoring and revising one dictionary instead of two or three. Useful functionality in other dictionaries should be migrated through change requests to the designated primary dictionary whenever possible.

Product information systems that operate in specific regions of the globe such as the US Food and Drug Administration Product Codes do provide a useful view of product differences for specific product sets. However, because of the relatively narrow scope of product coverage and the general lack of international recognition and usage, regional systems are not recommended as part of a long-term solution. Instead, industry and government should work to identify and migrate useful characterizations from these regional systems into the appropriate global dictionaries through the DMO’s change request process.

*How should the PGAs work together to effectively use international product information systems?*

The ITDS Board should assist PGAs in establishing an authoritative PGA forum. Initially this forum could be sponsored by the ITDS Board, but other sponsors such as CBP may be needed once the mission of ITDS is complete. This forum will allow PGAs to coordinate designations of a primary dictionary for each product set and interact with dictionary maintenance organizations to refine and maintain a dictionary’s functionality for government use over time. PGAs should:

1. Communicate to industry and DMOs with a single voice regarding product characterization initiatives;
2. Coordinate their review of the impact of proposed change requests under consideration by DMOs;

3. Develop a definitive mapping of PGA jurisdiction by product set, as defined by HTS and ultimately product characterization codes;
4. Develop for each product set a single collection of product properties that meets the interests of all PGAs with product jurisdiction; and
5. Ensure the efficient use of PGA resources in the review and revision of dictionaries by pooling resources from smaller and larger PGAs whenever possible.

PGAs active in the forum will need to commit to:

1. Working through the PGA forum to coordinate all primary dictionary designations and any proposed change requests for DMOs; and
2. Assessing the impact of change requests proposed by the industry or by other PGAs in the forum on the PGA's mission; and
3. Providing resources to the forum as necessary to effectively support the product information interests of the PGA.

Although no one dictionary is consistently superior to all others for all product sets, the GS1 GPC is a useful starting point for product characterization because of its required use in the existing GS1 GDSN global catalog (discussed in Section IV) – suppliers are required to characterize each published product using the GPC. This consistent

characterization of products using the GPC adds special value for PGAs. However, for certain product sets, the UNSPSC and the eCI@ss dictionaries provide essential information not presently found in the GPC. Product characterization codes from the UNSPSC and eCI@ss can be published in the GDSN along with the GPC, so the strengths of all three global product dictionaries can be readily available to PGAs. Automated tools for cross referencing product codes from one dictionary to another now exist to facilitate supplier and PGA code cross-mapping from one dictionary to another. But even with an automated tool, only the product owner can validate and publish authoritative product characterization codes and values in the GDSN for a given product.

As part of the Committee's interview process with dictionary maintenance and global catalog organizations, each organization was asked to complete a Capabilities Profile Statement. These statements included a series of questions that addressed the organization's background, product coverage, industry adoption, change request process, legal restrictions, and other topics of interest to the Committee. Each organization's written response to these questions is included in this report as APPENDIX D through APPENDIX G to provide a complete record of the organization's capabilities and additional background about the organization and its services.

**TABLE 2- Relative Strengths of Global Dictionary Product Set Coverage as Rated by Dictionary Representatives**

HTS SECTION	PRODUCT SET	DICTIONARY COVERAGE (“S”=Strong; “M”=Moderate; “--” = No Coverage)		
		GS1 GPC	UNSPSC	eCl@ss
Section 1	Live Animals; Animal Products	M	M	M
Section 2	Vegetable Products	S	S	M
Section 3	Animal or Vegetable Fats, Oils, and Waxes	S	M	M
Section 4	Prepared Foodstuffs; Beverages, Spirits, Vinegar, And Tobacco	S	M	M
Section 5	Mineral Products	--	M	M
Section 6A	Chemical Products	--	M	S
Section 6B	Pharmaceutical Products	M	M	S
Section 7	Plastic and Rubber Products	--	M	S
Section 8	Leather, Fur, Travel Goods, and Handbag Products	M	M	M
Section 9	Wood, Cork, and Straw Products	M	M	M
Section 10	Wood Pulp, Paper, and Paperboard Products	M	M	S
Section 11	Textile Products	S	M	M
Section 12	Footwear, Headgear, and Umbrella Products	S	M	M
Section 13	Stone, Plaster, Cement, Asbestos, Mica Ceramic, and Glass Products	S	M	S
Section 14	Pearl, Precious or Semiprecious Stones, Precious metals, Imitation Jewelry, and Coin	M	M	--
Section 15	Base Metals and Base Metal Products	--	M	S
Section 16	Machinery, Mechanical Appliances, Electrical Equipment, Sound Recorder and Television Products	S	M	S
Section 17	Vehicles, Aircraft, Vessels and Transport Equipment	--	M	M
Section 18	Optical, Photographic, Cinematographic, Measuring, Checking, Precision, Medical Or Surgical Instruments; Clocks And Watches; and Musical Instruments	M	S/M	S
Section 19	Arms and Ammunition	M	M	--
Section 20	Furniture, Bedding, and Lamps, Toys, Games, and Sports Products	S	M	--
Section 21	Works of Art, Antiques, and Collector’s Pieces	S	M	--

*How well do the different dictionaries provide the information of interest to PGAs?*

Key product sets of interest to PGAs were reviewed and scored to assess how well the HTS code, UNSPSC, GPC, and eCl@ss provided the specific product information of interest to the PGA. For meat and poultry products, the GPC provided the richest set of information to USDA-FSIS. This alignment is due in part to USDA's involvement in recent change requests to revise the GPC meat and poultry product characterization codes to better meet supplier, retailer, and government needs and shows the potential of industry product codes to meet government interests.

The eCl@ss product dictionary appears to offer more comprehensive coverage of chemical substances than the two other global dictionaries, as validated by the EPA. For the Consumer Product Safety Commission (CPSC), the GPC with its strengths in consumer products, provides useful information of interest to CPSC about toys. And for USDA-AMS, only the UNSPSC currently provides the botanical variety that the agency needs to make decisions about regulatory jurisdiction. Detailed results showing the extent to which existing global dictionaries met the PGA's requirements are included in TABLE 3 on the next four pages.

The primary dictionary for each product set will need to be determined in concert by all PGAs with common jurisdictional interests, but general indications are that, in

their present state, the GPC is strongest with consumer-oriented products; UNSPSC is strongest with agricultural products; and eCl@ss is strongest with chemicals and heavy machinery products. When suppliers characterize their products using these dictionaries and publish that information in a global catalog, PGAs can use product GTINs to access this information. PGAs can then use this richer, detailed product information in their jurisdiction and targeting algorithms to make more precise, automated decisions about product admission than what is currently possible using only the HTS code.

When products are found to be inadmissible, they could be added to a "GTIN Prohibited Products List." This list would provide the GTIN of each product determined to be illegal for importation into the US and the PGA making that determination. Importers could be alerted at the time they provide manifest information to Customs whether any of the product GTINs they have submitted have already been determined to be illegal for importation. Importers could refer to an on-line copy of the Prohibited Products List even before loading products into containers or conveyances bound for the US to ensure that these products don't require expensive re-exportation or destruction once delivered to the US port of entry. Similarly, PGAs could maintain a "GTIN High-Risk Products List" that can be legally imported but that typically merit close inspection or special follow-up action by PGAs during the admission process.

**TABLE 3 - Relative Strengths of Global Dictionaries in Characterizing Products of Interest to PGAs**

		<b>USDA, FOOD SAFETY INSPECTION SERVICE FOR THE PRODUCT SET EDIBLE MEAT AND POULTRY</b>						
<b>INFORMATION DESIRED BY PGA:</b>		<b>Is It Meat?</b>	<b>What Species?</b>	<b>What State of Refrigeration?</b>	<b>Is It Boneless?</b>	<b>What Cut of Meat?</b>	<b>What Level of Cooking?</b>	<b>Is It Domestic or Wild Stock?</b>
UTILITY AS FOUND IN:	<b>HTS</b>	02XX.XX.XX	02■■.XX.■■	02■■.■■.XX	02XX.■■.XX	02XX.■■.■■	Not Defined	Not Defined
Reported for all products?		Y	Y	Y	N	N	N	N
Determined by inspection of single attribute?		Y	N	N	N	N	N	N
Strength of Characterization (Incomplete, Basic, Strong)		S	B	B	I	I	N	N
Remarks:		02 = chilled, frozen, or shelf stable edible meats	Species information typically in positions 2 and 3, but may also be in positions 7 and 8.	Chilled, frozen, or shelf-stable defined with various values in positions 3 through 6.	Bone-in or boneless inconsistently reported with various values in positions 5 and 6.	General part definitions such as shoulder, loin, high-quality cuts inconsistently reported in positions 5 through 8.		
UTILITY AS FOUND IN:	<b>GSI GPC</b>	5024XXXX	XXXXXX■■	State of Refrigeration	Boneless Claim	Meat Cuts	Level of Cooking	Source
Reported for all products?		Y	Y	Y	Y	Y	Y	Y
Determined by inspection of single attribute?		Y	Y	Y	Y	Y	Y	Y
Strength of Characterization (Incomplete, Basic, Strong)		S	S	S	S	S	S	S
Remarks:		All hierarchy codes starting with 5024 are edible meat and poultry products	Species is consistently reported in positions 7 and 8 of the hierarchy code and is part of the Brick definition.	Defined as Frozen, Chilled, and Shelf-Stable.	Defined as Yes and No.	Meat cut is defined in high accuracy for all species that have a United Nations cut identity standard. For other species, the Meat Form attribute provides an approximate indication of the products composition.	Separate codes for Raw/Uncooked, Blanched, Partially Cooked, and Fully Cooked.	Separate codes for Domesticated/Farm-Raised or Wild/wild-Caught
UTILITY AS FOUND IN:	<b>UNSPSC</b>	5011	5011XX■■	Not Defined	Not Defined	Not Defined	Not Defined	Not Defined
Reported for all products?		Y	Y	N	N	N	N	N
Determined by inspection of single attribute?		Y	Y	N	N	N	N	N
Strength of Characterization (Incomplete, Basic, Strong)		S	S	N	N	N	N	N
Remarks:		All hierarchy codes starting with 5011 are edible meat and poultry products	Species is consistently reported in positions 7 and 8 of the hierarchy code and is part of the Brick definition.					
UTILITY AS FOUND IN:	<b>eCI@ss</b>	1606 and 1614	XXXXXX■■	Not Defined	Not Defined	Not Defined	Not Defined	Not Defined
Reported for all products?		Y	Y	N	N	N	N	N
Determined by inspection of single attribute?		Y	Y	N	N	N	N	N
Strength of Characterization (Incomplete, Basic, Strong)		S	S	N	N	N	N	N
Remarks:		All hierarchy codes starting with 1606 or 1614 are edible meat and poultry products	Species is consistently reported in positions 7 and 8 of the hierarchy code and is part of the Brick definition.					

**ENVIRONMENTAL PROTECTION AGENCY  
FOR THE PRODUCT SET CHEMICALS  
INFORMATION DESIRED BY PGA: Is It a Chemical? What Class?**

UTILITY AS FOUND IN:	HTS	28, 29	28xx; 29xx
Reported for all products?		Y	Y
Determined by inspection of single attribute?		Y	N
Strength of Characterization (Incomplete, Basic, Strong)		S	S
Remarks:		Chemicals are found mostly in Chapters 28 & 29 of the HTSUS.	Many chemicals can be mapped to an HTS code, but the level of mapping is variable.
UTILITY AS FOUND IN:	GS1 GPC	Not Defined	Not Defined
Reported for all products?		N	N
Determined by inspection of single attribute?		N	N
Strength of Characterization (Incomplete, Basic, Strong)		I	I
Remarks:		No classes found for organic chemicals.	
UTILITY AS FOUND IN:	UNSPSC	123521XX	123521■■■
Reported for all products?		Y	Y
Determined by inspection of single attribute?		Y	Y
Strength of Characterization (Incomplete, Basic, Strong)		S	I
Remarks:		Organic derivatives and substituted compounds.	Separate classes for chemical families only, specific compounds not designated.
UTILITY AS FOUND IN:	eCl@ss	39XXXXXX	3908■■■■ or 3905■■■■■
Reported for all products?		Y	Y
Determined by inspection of single attribute?		Y	Y
Strength of Characterization (Incomplete, Basic, Strong)		S	S
Remarks:		Chapter 39 includes classes of organic chemicals.	Specific compounds can be mapped to a single class by their family and standard chemical name.

# LEVERAGING E-COMMERCE PRODUCT DATA FOR SMARTER CARGO MANAGEMENT

## CONSUMER PRODUCT SAFETY COMMISSION FOR THE PRODUCT SET TOYS

UTILITY AS FOUND IN:	HTS	95	95■■	Undefined	Undefined	Undefined	Does It Use Batteries or Electronics?	Are There Any Third-Party Certifications?
Reported for all products?	Y	Y	N	N	N	N	N	N
Determined by inspection of single attribute?	Y	Y	N	N	N	N	N	N
Strength of Characterization (Incomplete, Basic, Strong)	S	S	I	N	N	N	N	N
Remarks:	95 = toys, games, and sports equipment	9503, 9504, and 9505 specifies toys as separate from sporting goods equipment, but does not provide an adequate play type capability for product review	No reference to age groups	No reference to use of batteries or electronics	No reference to certifications			
UTILITY AS FOUND IN:	GS1 GPC	8601	8601■■	Consumer Lifestage	Powered	Undefined		
Reported for all products?	Y	Y	Y	Y	Y	N		
Determined by inspection of single attribute?	Y	Y	Y	Y	Y	N		
Strength of Characterization (Incomplete, Basic, Strong)	S	S	B	S	N			
Remarks:	8601 = Toys and Games (7101 = sporting equipment)	Detailed breakout of toy classes such as board games, dolls, costumes, musical tys, outdoor games, ride-on toys, etc.	Separate codes for < 3 years, 3-5 years, >5-10 years, >10-15 years, > 15 years, and All years	Each class is defined as Powered or Non-Powered as applicable; Powered classes include Power Source Attribute with values of Batteries or Main Electricity	No reference to certifications			
UTILITY AS FOUND IN:	UNSPSC	6014XXXX	601499XX	Not Defined	Not Defined	Not Defined		
Reported for all products?	Y	Y	N	N	N			
Determined by inspection of single attribute?	Y	Y	N	N	N			
Strength of Characterization (Incomplete, Basic, Strong)	S	S	N	N	N			
Remarks:	6014 = Toys and games	Generally defined as toys, games, active play equipment, children's blocks and building systems, and Dramatic play equipment, with specific designations for each general category .	No reference to age groups	No reference to the use of batteries or electronics	No reference to certifications			
UTILITY AS FOUND IN:	eCl@ss	Several Classes	Several Classes	Age and Material Attributes	Not Defined	Certifications		
Reported for all products?	Y	Y	Y	N	N			
Determined by inspection of single attribute?	N	N	Y	N	Y			
Strength of Characterization (Incomplete, Basic, Strong)	B	I	B	N	B			
Remarks:	Baby Toys (29140109) , parlour games (243408XX) are defined; Sporting equipment not found.	Baby Toys (21140109) , parlour games (243408XX) are defined; Sporting equipment not found.	Maximum age, Minimum age, and Material of Toy attributes.	No classes or attributes reference the use of batteries or electronics	The attribute Certification is provided for Parlour Games (243408XX) with 11 values such as Blue Angel, EN71, and CECC Mark of Conformity; Not provided for Baby toys			



**USDA, AGRICULTURAL MARKETING SERVICE  
FOR THE PRODUCT SET FRESH GRAPES  
INFORMATION DESIRED BY PGA: Are They Grapes? What Variety?**

UTILITY AS FOUND IN:	<b>HTS</b>	0806.10	Not Defined
Reported for all products?		Y	N
Determined by inspection of single attribute?		Y	N
Strength of Characterization (Incomplete, Basic, Strong)		B	N
Remarks:		0806.10 = Grapes, fresh	
UTILITY AS FOUND IN:	<b>GS1 GPC</b>	Type of Fruit	Not Defined
Reported for all products?		Y	N
Determined by inspection of single attribute?		Y	N
Strength of Characterization (Incomplete, Basic, Strong)		B	N
Remarks:		50101600 = Fruit, Unprepared/Unprocessed (Perishable) with Type of Fruit = Grapes. Wine grapes not distinguished from table grapes.	
UTILITY AS FOUND IN:	<b>UNSPSC</b>	503034XX	503144■■■
Reported for all products?		Y	Y
Determined by inspection of single attribute?		Y	Y
Strength of Characterization (Incomplete, Basic, Strong)		S	S
Remarks:		503034 = Table grapes, with separate codes for Wine and Raisin Grapes and organic and non-organic grapes. Class codes for 95 different cultivars of grapes.	
UTILITY AS FOUND IN:	<b>eCl@ss</b>	16-04-03-10	Not Defined
Reported for all products?		Y	N
Determined by inspection of single attribute?		Y	N
Strength of Characterization (Incomplete, Basic, Strong)		B	N
Remarks:		Class code for Grape; no separate codes for Table, Wine, or Raisin grapes. No attribute to define cultivars.	

## IV. USE OF A GLOBAL CATALOG TO ACCESS PRODUCT INFORMATION

*Where can government obtain authoritative product classification information for existing products?*

For efficiency, industry has supported the development of a single e-commerce global product catalog through the GS1 Global Data Synchronization Network (GDSN). This system allows sellers and buyers to align their master product data electronically so that e-commerce transactions can occur using a synchronized set of party and product information. The same product information that buyers use to make decisions about which products to purchase can also be used by government to resolve jurisdictional and admission decisions regarding products entering the US. To get access to this information, government will need to contract with a GDSN-certified “data pool” service provider such as 1SYNC or GXS to receive access to the product information published by 17,000 suppliers for about 3.6 million products identified by their GTIN. Data pool service providers are the “data sockets” that companies and government plug into in order to publish or consume data in the GDSN.

Using a GDSN-certified data pool service, government can subscribe to a variety of descriptive information about each published product, such as the product name, brand name, product description, and manufacturer as shown in FIGURE 2 on page 4. Additionally, the catalog can provide structured product characterization information in

the form of a product class number and related product attributes. Integrating this product data into the ACE system will make published product information for millions of products available to PGAs for product risk assessment and admissibility determination.

Although government typically seeks to encourage competition whenever it can and avoid endorsing any one solution over others, in the case of available global product catalog services, the GS1 GDSN is the only catalog of its kind. No other catalog attempts to provide support for a broad variety of industry segments. Because the GDSN is maintained by GS1, a non-profit, voluntary consensus standards body, and because a single global catalog is the most efficient solution for industry, government can use the GDSN without reservation about competition. In fact, the US government is already testing the ability of the GDSN to support supply chain management. Since 2007, the Department of Defense (DOD) and Veterans Administration have been expanding a GDSN data synchronization pilot with healthcare product suppliers to improve the acquisition and supply chain management of medical supplies. And the Army and Air Force Exchange Service and the DOD Defense Commissary are already using or planning to use the GDSN for supply chain efficiencies. However, when selecting a GDSN-certified data pool service provider, commercial options may be available. Therefore, when the government is ready to contract with a data pool service for access to the GDSN catalog data, that contract award may need to be conducted on a competitive basis.

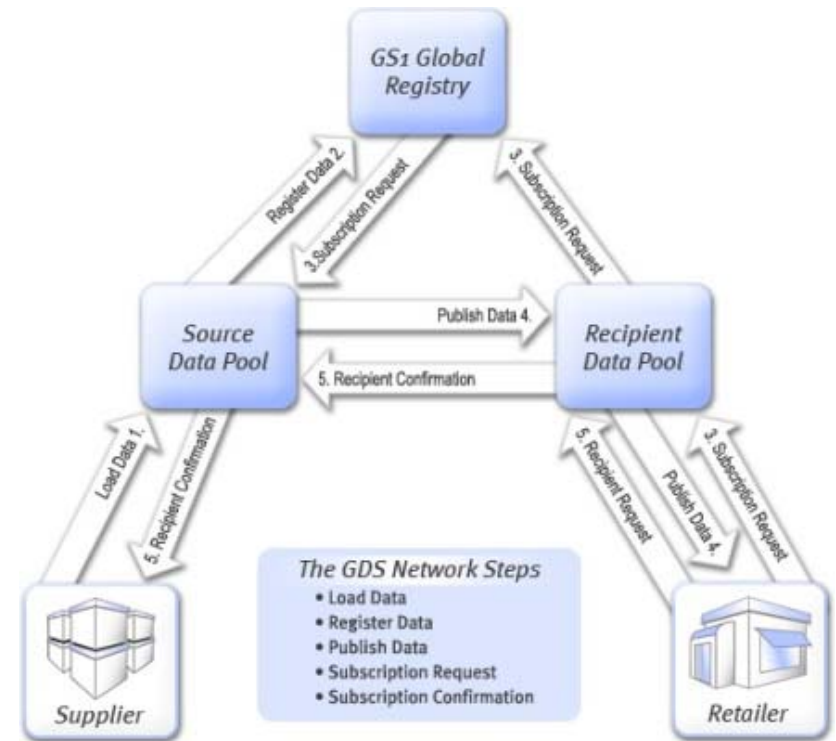
## LEVERAGING E-COMMERCE PRODUCT DATA FOR SMARTER CARGO MANAGEMENT

Once a government agency contracts with a GDSN-certified data pool service for global product catalog access, potentially hundreds of product data elements become available. However, only about 25 or fewer data elements will be of high value to government and will need to be downloaded. These elements will typically be generic data relevant for all product sets like product name, brand owner, product characterization code, and other general descriptive information. Some of the GDSN data elements likely to be of interest to PGAs, and ultimately to CBP, are the functional name, brand name, name of brand owner, trade item description, classification category code, additional classification agency name, additional classification category code, trade item country of origin, and dangerous goods hazardous code.

Because only the product “owner” can enter data values for the product into the catalog, all published data is authoritative, that is, established by a known party that has the best knowledge of the product. Furthermore, product owners have an inherent incentive to keep this information as accurate as possible. This product information is used by all existing and potential buyers. If products do not conform to published catalog information, buyers will quickly complain to the product owner about misleading catalog information and could seek price adjustments or to return the entire product shipment. Therefore, product owners have an on-going financial incentive to keep published product information as accurate as possible.

An overview of the information as it flows from suppliers to retailers through the GDSN-certified data pool services

and the GDSN registry is shown in FIGURE 3. Government and the ACE service would appear to the GDSN as another retailer, subscribing to product information of interest from its GDSN-certified data pool service.

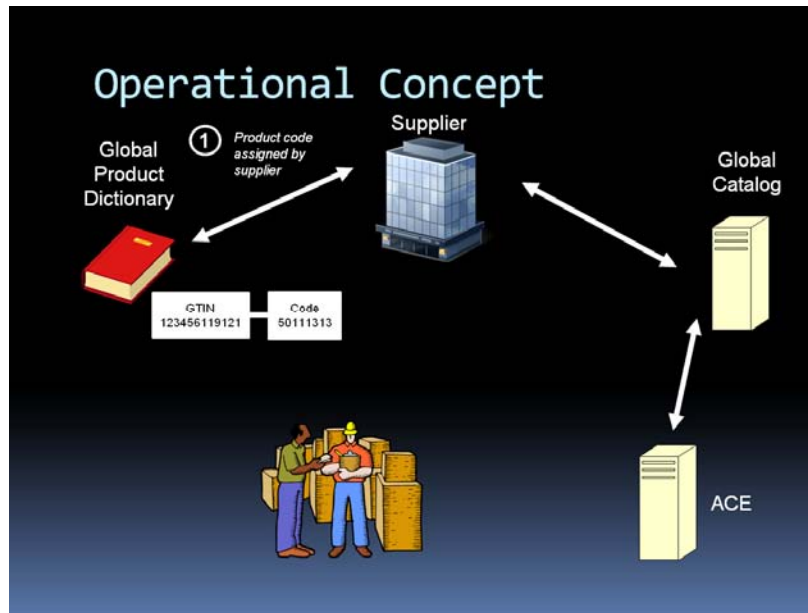


**FIGURE 3: Data flow in the Global Data Synchronization Network. ACE would function as another Retailer that consumes product information published by Suppliers.**

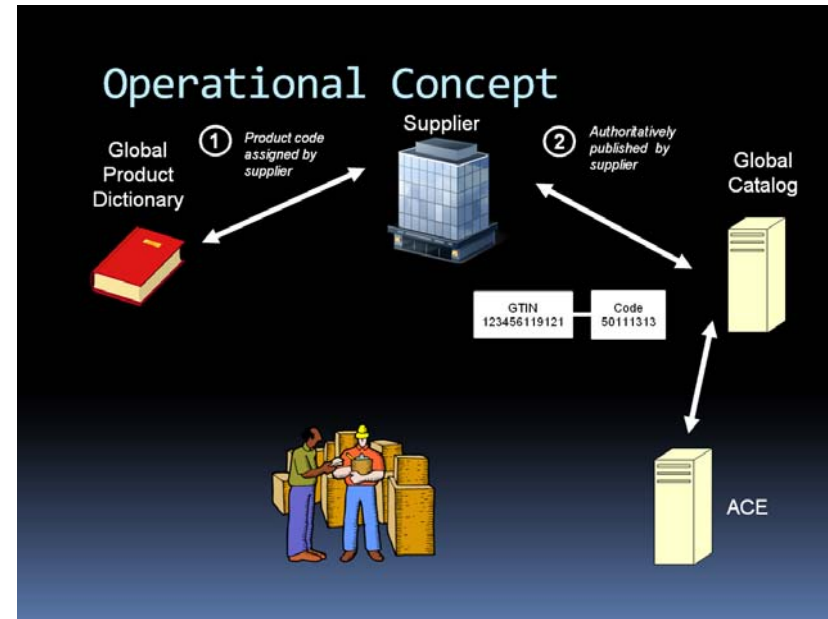
## V. RECOMMENDED DATA FLOWS AND SYSTEM INTERFACES

*How will the functionality of the product dictionaries and the global catalog fit together to support the cargo admissions process conducted by the PGAs?*

An overview of the operational sequence envisioned for integrating global product information into the cargo admissions process is shown below:

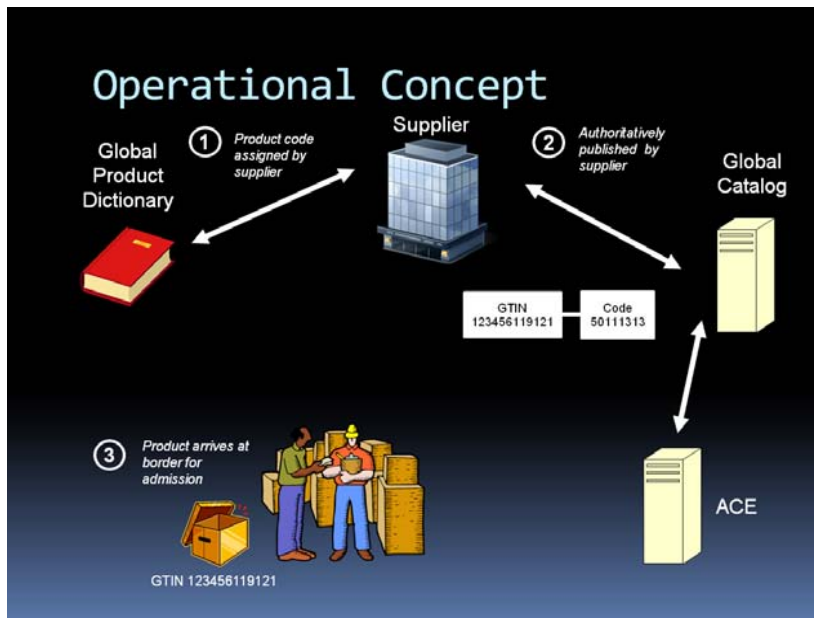


STEP 1: Supplier uses global product dictionaries to associate a product characterization code to the GTIN of their product. While the GTIN identifies the product, the code indicates the nature of the product.

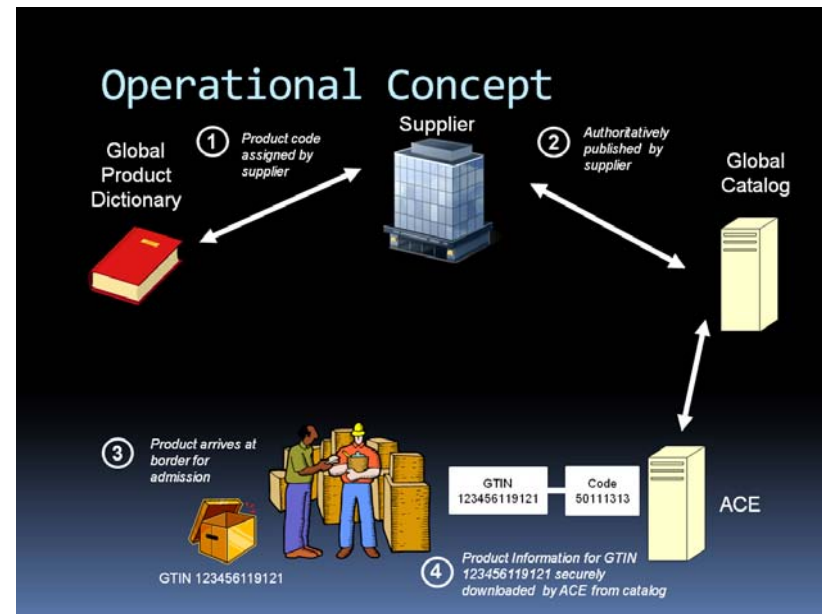


STEP 2: Supplier publishes GTIN, product characterization code, and other descriptive information to a global catalog.

# LEVERAGING E-COMMERCE PRODUCT DATA FOR SMARTER CARGO MANAGEMENT

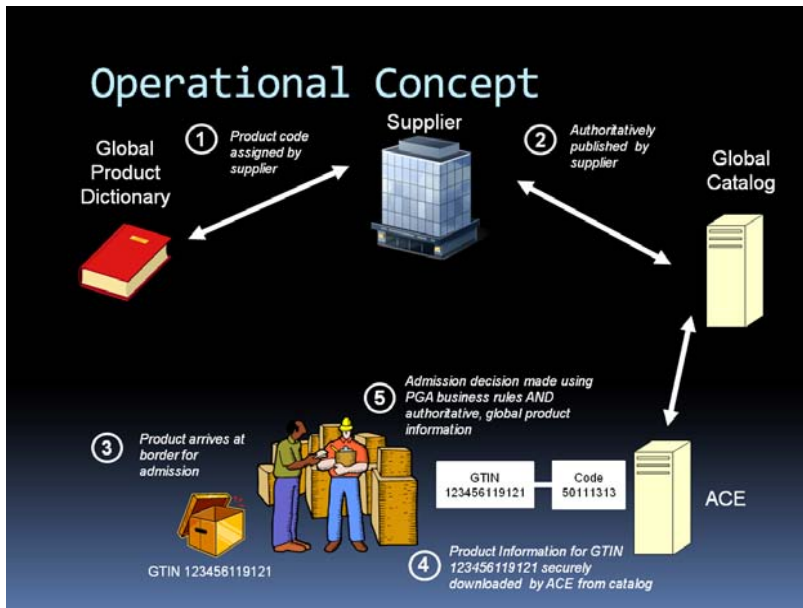


STEP 3: Importer provides CBP with product GTIN as part of other advance manifest information.

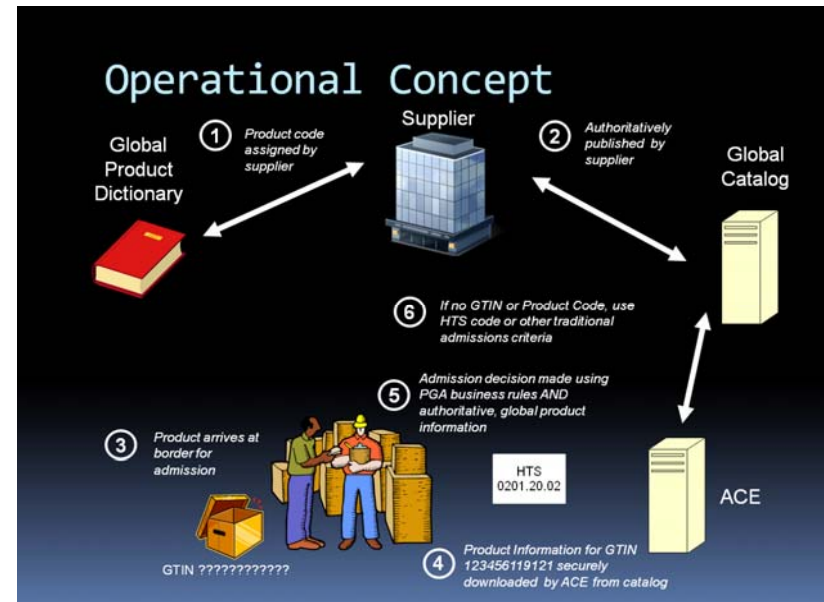


STEP 4: ACE uses the GTIN to look up authoritative product information such as the product characterization code in the global catalog.

# LEVERAGING E-COMMERCE PRODUCT DATA FOR SMARTER CARGO MANAGEMENT



STEP 5: Admission decisions are made by PGAs using product characterization code and other descriptive product information in the ACE system.



STEP 6: If GTIN or product information is not available, HTS and other traditional criteria are used to determine product admissibility.

## LEVERAGING E-COMMERCE PRODUCT DATA FOR SMARTER CARGO MANAGEMENT

*How will product information from the global catalog be electronically accessed or transferred to ACE for PGA use?*

PGAs can access product information from the global catalog in two ways. The first way is through data synchronization. To use this method of access, new data fields would be added to ACE for the product information in the global catalog of interest to PGAs. Those fields would then be updated automatically through machine-to-machine data transfer process known as global data synchronization. PGAs would identify the set of data fields in the GDSN that provides the most useful information to PGAs in making jurisdiction and admission decisions. A table in ACE would hold these data values and each product GTIN would represent one row in the table. PGAs would “subscribe” to products of interest by their GPC, UNSPSC, or eCI@ss product code. The GDSN-certified data pool would then use the synchronization process to send current product-owner-provided data to ACE for those products. As new products are added or information about the products is updated in the global catalog, the product information is updated automatically in the ACE data fields. The data in this ACE table could then be used in automated targeting logic by each PGA whenever incoming products are identified by GTIN.

The second way that PGAs could obtain product information from the global catalog is by using a web service. This service would support ad hoc queries from a PGA agent that seeks additional information about an incoming product identified by GTIN. The agent would

use a workstation with Internet access to securely access a GDSN-certified data pool web service and enter the GTIN of interest to the agent. The web service would return to the agent’s screen a variety of information about the product such as its international product characterization code, the country or countries of possible origin, name of the manufacturer, dangerous goods code, and HTS import code as determined by the supplier of the product. The information returned by the web service could be customized to specific needs of the PGAs and could even include images of the actual product.

A summary of the data flow using the data synchronization process is shown in FIGURE 4 below. The figure shows how product GTINs and global catalog information would be used by PGAs and the trade to proactively manage product admission into the United States.

LEVERAGING E-COMMERCE PRODUCT DATA FOR SMARTER CARGO MANAGEMENT

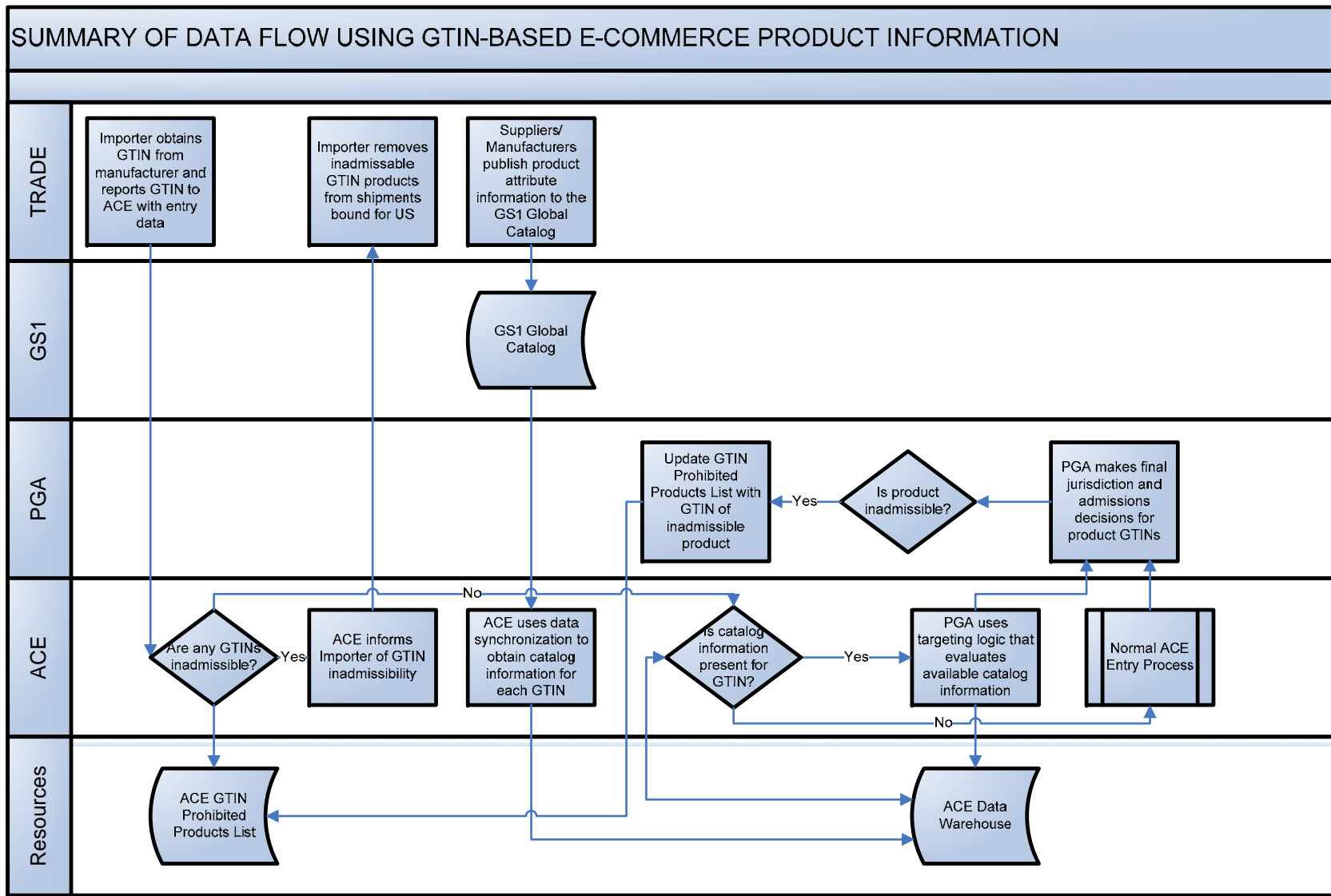


FIGURE 4: Data flow across the ACE and global catalog using GTIN-based e-commerce product information



## VI. FINANCIAL IMPACTS

*What one-time and recurring costs are expected for government to access product information in the global catalog?*

There is no cost to government or industry to use GTINs and international product characterization codes. The framework that specifies their syntax and use is available through public domain industry standards to industry and government. (Suppliers do pay a cost-recovery fee starting around \$150 to GS1 to register their company in order to issue GTINs.) However, there is a fee to use the information system that serves as the global catalog. Because a global catalog is an “on-line” information system that requires equipment and software to function, the cost of establishing and maintaining this system needs to be recovered from those who use it.

Typical global catalog users to date are commercial companies such as suppliers, distributors, and retailers that move product through the supply chain. Those companies that publish product information into the catalog and those that receive product information from the catalog pay an annual fee to support the catalog based on the company’s annual trading revenue.

Because PGAs do not buy or sell products and have not previously been a consumer of global catalog information, data pools will need to establish a reasonable rate for government that allows the data pool to recover the cost of supporting PGA access. Government use of global

catalogs enhances the value that the global catalog provides to commercial suppliers and retailers, in that products published in the catalog become eligible for expedited admission across international borders. Therefore, data pools and the GS1 GDSN service have a special incentive in accommodating the PGA’s access to the global catalog. A reliable estimate for the cost of PGA access can only be determined after pilots and further technical review of PGA requirements. However, if government access requirements are no different than those of the largest data-recipient companies, the annual cost of access would likely be the standard GS1 engagement fee for the US Government of \$40,000 annually.

Data pools also provide a basic level of integration support service and tool kits to assist companies in establishing the data synchronization process. Contractor services are also available at additional cost to provide more complete support for companies establishing data synchronization for the first time. However, large companies with IT staffs commonly handle the synchronization process without third-party assistance.

Other costs involved in receiving, storing, and using global catalog product data within the ACE and the Automated Targeting System (ATS) will need to be borne by the government. These costs would be those necessary for establishing the data tables to store the product information, for modifying the targeting logic to use available product information, and for creating new reports that provide PGAs with jurisdiction and risk profiles as well as listing of inadmissible and high risk GTINs.

## VII. REGULATORY IMPACTS

*What regulatory actions are necessary for government agencies to obtain access to the Global Trade Item Numbers of incoming product shipments?*

Government must know the GTINs of the incoming products to accurately assess risks and determine product jurisdiction. The GTINs of incoming commercial products are known to the buyer and seller, and are commonly available in electronic messages or on hard-copy documents that specify the case quantity of each GTIN in each shipment or container. Using GTIN information, the ACE system or a PGA agent could “look up” descriptive product information provided by the supplier in the global catalog and pass information to PGAs and CBP to be used in automated targeting logic or to cross-check shipment information such as the HTS code or the hazardous goods rating.

Individual PGAs could promulgate rulemaking actions that, for designated product sets, require importers to report the GTINs for product sets where a PGA has the legal authority to do so. However, segregating the GTINs for these product sets from all other product GTINs would be more difficult for importers than simply forwarding all GTINs in a shipment or container to the PGA. This type of exception processing – providing GTINs for some products but not others – will add additional cost and complexity to the entry process and is not recommended.

As an alternative to PGAs individually promulgating rules to obtain GTINs, CBP may have sufficient authority to require the submission of all product GTINs for each shipment or container in advance of arrival to better manage general product risk. Providing all the GTINs in a shipment or container to PGAs and CBP is simpler and less burdensome for importers than segregating out a subset of GTINs by product type. And there is lower risk for PGAs and CBP when they have knowledge of all GTINs in a shipment or container rather than just those that the importer believes are subject to PGA legal authorities. Ultimately, any legal requirement for importers to submit product characterization or GTIN information will need to be reviewed by legal counsel on a case by case basis. But knowing the GTINs of products in each container will provide special benefit to CBP, PGAs, and to shippers as well, by allowing CBP and PGAs to target only those containers with high risk product and allowing other containers to be promptly cleared.

Finally, because of this last point, importers may choose to voluntarily submit GTIN information for incoming shipments or containers. If PGAs can use GTIN information to minimize the number of holds on product containers and reduce the cost and time required to move products through ports of entry, the submission of GTINs will generate its own reward. If importers see a consistent economic return when they submit GTIN information, they will continue to do so without the need for regulatory action by PGAs or CBP.

*What regulatory actions are necessary for ACE to obtain access to the descriptive and characteristic product information in the Global Catalog?*

With the government's application for access to a GDSN-certified data pool service, the government will identify the data attributes of interest for potential download to ACE. Before any data is passed for the first time, the data pool service will advise all suppliers of the data attributes to be accessed by the US government and the government's intentions to use this information to expedite the movement of cargo across US borders. Other than applying as a subscription recipient and defining the exact attributes to be accessed, the government does not need to take any special legal action to acquire the product information.

To suppliers that seek the efficient processing and movement of products in the supply chain, the government's interest in accurate, authoritative product information is much like that of any other business partner in the supply chain. Government is acting like any other savvy business partner that seeks current, authoritative product information to support its decision making. Reputable suppliers will see nothing to fear, and only much to be gained by having governments use the best available product information to make accurate decisions about their products moving in international commerce. Although suppliers can always decline to authorize a government subscription request, doing so will deny them the opportunity to share in the benefits of an e-commerce leveraged cargo admission process.

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Douglas Bailey, PIC Chair

## APPENDICES:

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APPENDIX B – Product Information Committee Charter

APPENDIX C - ITDS Product Information Committee Vocabulary

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APPENDIX F – eCl@ss Capabilities Profile Statement

APPENDIX G – GS1 GDSN Capabilities Profile Statement

## APPENDIX A – Listing of Acronyms

AAFES	Army and Air Force Exchange Service
ACE	Automated Commercial Environment
ATS	Automated Targeting System
CBP	Customs and Border Protection
CPSC	Consumer Product Safety Commission
DECA	Defense Commissary
DHS	Department of Homeland Security
DMO	Dictionary Maintenance Organization
DOD	Department of Defense
EPA	Environmental Protection Agency
FWS	U.S. Fish and Wildlife Service
HTS	Harmonized Tariff Schedule
GDSN	Global Data Synchronization Network
GPC	Global Product Classification
GTIN	Global Trade Item Number
ISO	International Standards Organization
ITDS	International Trade Data System
PGA	Participating Government Agency
PIC	Product Information Committee
SKU	Stock Keeping Unit
UN/CEFACT	United Nations Centre for Trade Facilitation and Electronic Business
UNSPSC	United Nations Standard Products and Services Code
UPC	Universal Product Code
USDA	United States Department of Agriculture
USDA-AMS	USDA Agricultural Marketing Service
USDA-APHIS	USDA Animal and Plant Health Inspection Service
USDA-FSIS	USDA Food Safety Inspection Service
WCO	World Customs Organization

## APPENDIX B – Product Information Committee Charter

### CHARTER FOR THE ITDS PRODUCT INFORMATION COMMITTEE

July 2008

#### 1. OBJECTIVES

The International Trade Data System (ITDS) Product Information Committee (PIC) is established to advise the ITDS Board of Directors on a method to obtain more precise product classification and description information for imported and exported goods. A method that will more clearly describe internationally traded goods will support more efficient and effective review, release, and statistical analysis for traded products. It will also facilitate the development of electronic processing systems that will share information among government agencies.

#### 2. BACKGROUND AND SCOPE

To facilitate international trade, Federal agencies of the United States government that have statutory responsibilities for the importation and exportation of products need unambiguous, structured information about products being traded. This information is needed to make automated decisions about the level of inspection necessary and to provide a basis for accurate analysis of the various types of products that enter and depart the United States. Although the Harmonized Tariff Schedule (HTS) and other classification systems currently used by government agencies are organized in accordance with the basic characteristics of the product, none comprehensively address the information needs of all agencies. In the case of the HTS, it is essentially a system designed to ensure the accurate assessment of duties, taxes and fees. The current classification system does not provide sufficient detail about product characteristics to meet the more finite regulatory requirements of Federal agencies, especially those related to public health and safety.

#### 3. GUIDING PRINCIPLES

In all its actions and decisions, the committee shall strive to accomplish the following results:

1. Assist Participating Government Agencies (PGAs) in obtaining the necessary level of product information that will allow for the efficient and effective accomplishment of each PGA mission; and

2. Ensure that all recommended solutions, policies, and procedures are customer-focused and appropriately balanced to meet Federal government and commercial supply chain functional requirements and capabilities.

4. ORGANIZATION AND MEMBERSHIP

The voting members of the PIC will be comprised of one member selected by each Participating Government Agency (PGA). The PIC Chair may invite other interested parties to participate in PIC meetings to assist the members in the effective accomplishment of the committee's objectives.

5. OFFICERS

The PIC Chair shall be appointed by the ITDS Board of Directors and shall preside over all committee meetings as a non-voting member, except in those cases where a tie-breaking vote is needed. The PIC shall elect a Vice-Chair from the ranks of the voting members to assist the Chair in the performance of his or her duties. Election is by simple majority vote for a term of 12 months. Elected Vice-Chairs may serve consecutive terms.

6. RESPONSIBILITIES

*6.1 Responsibilities of PIC Members and Member Alternates*

PIC members and/or member alternates have responsibility to:

- Adequately prepare for, attend, and actively participate in all scheduled meetings.
- Be committed to performing tasks assigned by the PIC in a timely and professional manner.
- Vote as members, or as a member alternates when the member cannot be present, on all issues raised for a vote by the Chair.
- Possessing or providing for the requisite technical expertise necessary to assist the PIC in the review and assessment of systems and the development of implementation alternatives.

*6.2 Responsibilities of the PIC Chair*

The Chair shall preside over all PIC meetings and ensure that:

- All PIC meeting dates, agendas, and locations (including call-in numbers) are communicated with adequate lead time, typically one business week or more in advance;
- Meeting minutes are documented, circulated for comment, approved, and retained;
- Meeting facilities (room, conference phone, flip charts, projectors, etc.) are reserved;
- All members and advisors have a fair opportunity to raise and discuss issues of importance to the Committee;
- The perspectives of all members and advisors are considered in forging a consensus as to alternatives and recommendations; and
- PIC findings and recommendations are appropriately documented and communicated to the ITDS Board of Directors.

### 6.3 *Responsibilities of the PIC Vice-Chair*

The elected Vice-Chair shall assist the Chair in the performance of the above duties. The Vice-Chair shall perform the responsibilities of the Chair at PIC meetings when the Chairperson is not present

## 7. MEETINGS

The PIC will hold regular meetings as necessary to consider and advance the accomplishment of the committee's objectives. PIC members and/or member designates are expected to attend each meeting either in person or via teleconference. The Chair may invite additional parties with subject matter expertise to attend particular meetings.

### 7.1 *Frequency*

The PIC will establish a time on a designated week and day of the month for regular monthly meetings. Other meetings may be called for as agreed by the membership or as determined by the Chair. In the event of other meetings called for by the Chair, every effort shall be made to provide as much advance notice as possible to all members.

### 7.2 *Agendas for PIC Meetings*

Agenda items from members shall be sent to the Chair at least one week prior to a scheduled meeting. At PIC meetings, the Chair, in consultation with the PIC members and advisors, will further identify and prioritize items of business for the committee. The PIC will give priority to any business identified by the ITDS Board of Directors.



As recommendations and reports of the PIC are finalized, they will be scheduled for presentation and discussion at upcoming ITDS Board of Director meetings.

7.3 *Minutes*

The Chair will delegate responsibility for recording and retaining minutes of each meeting. The minutes will be electronically distributed as promptly as possible after each meeting.

7.4 *Voting*

The PIC will work to build complete consensus on all findings and recommendations. In the absence of consensus, a simple majority of the voting members present at the meeting must concur in order for a recommendation to be finalized by the PIC and presented to the ITDS Board.

8. DELIVERABLES

The committee's primary deliverables for the ITDS Board shall be its written recommendations on how to best provide structured product classification and description information for use by PGA's. The recommendations will include the business requirements to be addressed, the concept of operations and data flows for proposed solutions, and a description the roles and responsibilities of government, the industry, and the custodians of the product information systems. Consideration shall be given to the compatibility of proposed solutions with existing or planned international product information solutions such as those sponsored or likely to be supported by the World Customs Organization or the United Nations. Other deliverables related to the design, implementation, and use of structured product information may be assigned to the committee at any time by the ITDS Board of Directors.

9. MODIFICATIONS TO THE CHARTER

This PIC charter may be revised or amended should a clear and compelling reason for doing so arise. Modifications to the PIC charter may be proposed by the Chair or any PIC voting member by submitting the proposed modification to the Chair at least two weeks prior to the next PIC meeting for addition to the agenda for discussion at that meeting. Approval of the modification requires a favorable vote from at least three-fourths of the voting members present at that meeting where one-third or more of all voting members are present.

## LEVERAGING E-COMMERCE PRODUCT DATA FOR SMARTER CARGO MANAGEMENT

### 10. EFFECTIVE DATE

This PIC charter is effective immediately upon approval of the ITDS Board of Directors.

### 11. TERMINATION

The PIC operates under the authority of the ITDS Board of Directors. At such time that the PIC accomplishes its objectives and recommends to the Board that its business is complete, or should the operation of the PIC in the opinion of the Board no longer be effective in the accomplishment of the committee's objectives, the Board shall dissolve the PIC by vote at a regularly scheduled ITDS Board meeting.

*Approved by the ITDS Board on July 17, 2008*

## APPENDIX C - ITDS Product Information Committee Vocabulary

The committee established a standard vocabulary list to ensure that all members consistently understood the meaning of terminology used. Although this report avoids the use of technical jargon, the committee's list of key terminology is included here should a more technical discussion of the report's content be necessary. The source of all terminology definitions are the International Standards Organization (ISO) standards, primarily ISO/TS 22745, ISO 29002, and ISO 8000.

### BASIC TERMINOLOGY

#### **characteristic**

distinguishing feature

[ISO 9000:2005]

#### **concept**

unit of thought constituted by a unique set of necessary characteristics

#### **data**

re-interpretable representation of information in a formalized manner suitable for communication, interpretation, or processing

[ISO/IEC 2382-1:1993]

#### **data element**

unit of data for which the definition, identification, representation, and permissible values are specified by means of a set of attributes.

[ISO/IEC 11179-1:2004, 3.3.8]

#### **object**

anything perceivable or conceivable

#### **necessary characteristic**

characteristic that is always true of each object in the extension of a given concept

## DICTIONARY TERMINOLOGY

### **concept contributor**

organization that is the source for one or more terms, definitions or images associated with a concept

### **concept dictionary**

collection of concept dictionary entries that allows lookup by concept identifier

[ISO 29002-5]

### **concept dictionary entry**

description of a concept containing, at a minimum, an unambiguous identifier, a term, and a definition

NOTE The description could consist of just a term and definition, but it could also contain other information elements.

[ISO 29002-5]

### **concept documentation change request (CDCR)**

request to make a change to the terminology associated with a concept

NOTE Such a change could include adding a term, definition or image, marking a term, definition or image as deleted, or merging two concepts.

### **dictionary maintenance organization (DMO)**

organization responsible for maintaining and distributing an open technical dictionary

### **new concept request (NCR)**

request to add a concept to an open technical dictionary

### **open technical dictionary (dictionary/OTD)**

concept dictionary that conforms to ISO/TS 22745-1

### **product characterization attribute**

a property value pair that designates a value for a single characteristic

For example, Level of Cooking = Partially cooked

[Common PIC Committee term]

**product characterization code**

a numeric code, typically 8 digits in length, that designates a basic group of products that share a set of similar characteristics

For example, 16060101 = Beef, minimally processed

[Common PIC Committee term]

**property value pair**

instance of a specific value together with an identifier for a concept dictionary entry that defines a property

NOTE Adapted from ISO 8000-110.

**CATALOG TERMINOLOGY**

**identification guide (IG)**

data specification that is in the syntax specified in ISO/TS 22745-30 and that uses concept identifiers from an open technical dictionary

NOTE 1 An identification guide is typically maintained by an organization that receives data, e.g., a buyer or group of buyers.

NOTE 2 An identification guide is sometimes referred to as a "template of properties and rules".

**international code designator (ICD)**

The data element used to uniquely identify an organization identification scheme.

[ISO/IEC 6523-1:1998, 3.8]

**master data**

data held by an organization that describes the entities that are both independent and fundamental for that organization, and that it needs to reference in order to perform its transactions

NOTE 1 Master data typically includes records that describe customers, products, employees, materials, suppliers, services, shareholders, facilities, equipment, and rules and regulations.

NOTE 2 The determination of what is considered master data depends on the viewpoint of the organization.

NOTE 3 The term "entity" is used in the general sense, not as used in information modeling.

EXAMPLE A credit card transaction is related to two entities that are represented by master data. The first is the issuing bank's credit card account that is identified by the credit card number, where the master data contains information required by the issuing bank about that specific account. The second is the accepting bank's merchant account that is identified by the merchant number, where the master data contains information required by the accepting bank about that specific merchant.

[ISO 8000-102, 3.1.7]

### **global trade item number(GTIN)**

A 14-digit product identification number established and managed by GS1 and composed of the company prefix, followed by the item reference number of the product, followed by a Mod-10 checkdigit, that uniquely identifies a product in the international marketplace. Although a variety of barcode formats are approved for marking products and shipping containers, the most common one seen in the United States is the Universal Product Code, or UPC-A, as shown below:



[Common PIC Committee term]

### **stockkeeping unit (SKU)**

an alphanumeric designation unique to an inventory control system that identifies an inventory item

NOTE Terminology databases that are linked to inventory control systems and manufacturing logistical systems include SKUs and part numbers, which act as designations within the system representing the object in question. Hence they function much like terms and even take on the character of terms in common discourse and text creation.

EXAMPLE For the catalog entry: "PLAID FLANNEL PANTS #5193 Sizes 3, 4, 6, 7, 10, 12", "#5193-6" represents a SKU for the item: Style number #5193, size 6.

[ISO 12620:1999, A.2.1.17.1]

### **part number**

unique alphanumeric designation assigned to an object in a manufacturing system

NOTE Terminology databases that are linked to inventory control systems and manufacturing logistical systems include SKUs and part numbers, which function as designations within the system representing the object in question. Hence they function much like terms and even take on the character of terms in common discourse and text creation.

## LEVERAGING E-COMMERCE PRODUCT DATA FOR SMARTER CARGO MANAGEMENT

EXAMPLE Sample part numbers from a automotive power train manufacturing system, where each segment of the number represents a different classification level within the system:

clutch cover 1 110 036 00 a

driven disk flange 3 125 125 04 b

driven disk retainer plate 3 124 119 01 a

driven disk cover plate 3 122 234 00 c

diaphragm spring 4 220 100 00 g

[ISO 12620:1999, A.2.1.17.2]

## **APPENDIX D – UNSPSC Capabilities Profile Statement**

The document that follows was provided by UNSPSC representatives to respond to committee questions regarding their capabilities as a dictionary maintenance organization. It is included in this report as submitted to the committee to provide a complete record of the organization's capabilities and to provide additional background about the organization and its services.



PRODUCT INFORMATION COMMITTEE  
DICTIONARY CAPABILITIES PROFILE

**NAME OF DICTIONARY:** *United Nations Standard Products and Services Code (UNSPSC)*

**NAME OF DMO:** *GS1 US (1009 Lenox Drive, Lawrenceville, NJ 08648)*

*GS1 US manages UNSPSC on behalf of the United Nations Development Programme (UNDP)*

**CONTACT PERSON(S):** *Stephen R Arens*

[sarens@gs1us.org](mailto:sarens@gs1us.org) 609.620.4511

*Customer Service: info@unspsc.org*

[www.unspsc.org](http://www.unspsc.org)

**I. SCOPE OF PRODUCT COVERAGE:**

How long has the dictionary been in use?

**10 years**

What industry sectors use this dictionary as their first choice for defining essential product characteristics?

**Healthcare; Energy; Maintenance Repair and Operations; Information Technology; Telecommunications; Mining; Building + Construction; Power Generation, Electronic Components; Electrical; Medical Equipment, Office Supplies; Management and Business Services.**

**Automotive Aftermarket preparing wide scale enhancements and use of UNSPSC.**

**Selected governments i.e. Republic of South Korea, Scotland, Australia, HM Revenue and Customs, Honduras, Denmark, the Commonwealth of Pennsylvania, Delaware, Ohio, and others**

**The primary uses are by the procurement / purchasing and the catalog management departments of companies, organizations and governments**

Describe the strength of the dictionary in characterizing products using the separate page titled "Coverage by Product Set." Enter "S" for Strong, "M" for Moderate, and two dashes (--) for incomplete or no coverage. (See page 13)

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

### II. DEPTH OF PRODUCT CHARACTERIZATION:

What hierarchy is used to organize and locate product classes?

**UNSPSC has a four level hierarchy:**

**Segment**

**Family**

**Class**

**Commodity**

**The UNSPSC classification process embodies a "bottom-up" approach, e.g., Class, Family and Segment structure is based on accurate Commodity identification which best reflects marketplace realities.**

**(There is an optional fifth level called Business Function Identifiers (BFI) which the user can apply to items to identify the item or service's role in the organization i.e. retail, wholesaler, leased, maintenance or repair, etc.)**

Can each product class be represented by a short numeric product code?

**Each codeset item is represented by a unique 8 digit code.**

Does the dictionary support the use of attribute or property value pairs to further describe product classes?

**No**

Is there a limit on the number of product classes in a hierarchy?

**Segments: No limit (The 55 have been in place since the codeset's start)**

**Families – 99 per Segment**

**Classes – 99 per Family**

**Commodities – 99 per Class**

**(Under UNSPSC's 55 Segments the content limit is 53,366,445 items. If needed, current Segments could be sub-divided and new Segments proposed for addition which would increase the overall capacity.)**

The number of attributes supported?

**NA**

The number of values supported for a single attribute?

**NA**

### III. LEVEL OF DICTIONARY ADOPTION:

For what use does the industry typically use the dictionary – spend analysis, category management, product sourcing, etc.?

**UNSPSC is used for procurement, spend analysis, asset management, catalog organization, website organization.**

What languages/tongues does the dictionary support?

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

**English, French, Chinese (Simplified), Chinese (Mandarin), Portuguese, Hungarian, Japanese, Korean, Swedish, Norwegian, Danish, Spanish, Italian, German and Dutch.**

What indications of active industry adoption and use are there?

**UNSPSC Members are located in 45 countries. Recent download statistics indicate the codeset has been downloaded by users in over 175 countries. UNSPSC records over 25,000 download instances of the codeset each year.**

**UNSPSC is contacted by industry and trade groups seeking to collaborate with UNSPSC to enhance / expand codeset content to meet their industry's / members' needs as they implement the codeset. UNSPSC provides support where needed and works with the groups to support their needs.**

What level of use is seen for each region of the world?

**The following information is from a UNSPSC survey of users (April, 2007).**

- **North America – 49%**
- **Europe – 30%**
- **Asia / Australia / NZ – 10%**
- **India / Africa – 3%**
- **South America – 6%**
- **Middle East – 2%**

**(A list of UNSPSC Members by Country is attached.)**

Provide examples of how the dictionary is being used in international trade and what companies are using it.

**Most UNSPSC Members and Users use the codeset to support their procurement process and product information management needs; examples of UNSPSC Members are:**

<b>Textron</b>	<b>D&amp;B</b>	<b>Sprint Corporation</b>	<b>Hong Kong Trade Development</b>
<b>Monarch Paxar</b>	<b>Schlumberger</b>	<b>Agere Systems</b>	<b>Sub Zero / Wolf</b>
<b>Cleveland Clinic</b>	<b>American Express</b>	<b>Johnson &amp; Johnson</b>	<b>Hagemayer Australia</b>
<b>Dell</b>	<b>BHP Billiton</b>	<b>GHX Europe</b>	<b>Hoffman-LaRoche</b>
<b>Office Depot</b>	<b>Ray o Vac</b>	<b>Centerpoint Energy</b>	<b>Canadian Coast Guard</b>
<b>3M Sourcing</b>	<b>Egyptian International Trade</b>	<b>Caterpillar</b>	<b>Northrup Grumann</b>

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

<b>Masco</b>	<b>A.P.Moller</b>	<b>Carlson Companies</b>	<b>Barrick Gold</b>
<b>Dow Chemical</b>	<b>Sun Microsystems</b>	<b>Consol Energy</b>	<b>Pfizer</b>
<b>Roche Diagnostics</b>	<b>Trinidad Drilling</b>	<b>Petro-Canada</b>	<b>Government of India</b>
<b>State of Delaware</b>	<b>General Motors</b>	<b>Novo Nordisk</b>	<b>Milliken &amp; Co.</b>
<b>Hertz</b>	<b>Microsoft</b>	<b>Hagermayer UK</b>	<b>Ingersoll Rand</b>
<b>Government of Scotland</b>	<b>Wyndham worldwide</b>	<b>United States Steel</b>	<b>Georgia Pacific</b>
<b>IBM</b>	<b>Florida Crystals</b>	<b>MasterCard</b>	<b>HM Revenue &amp; Customs</b>
<b>Wolseley</b>	<b>Government of Panama</b>	<b>Republic of Korea</b>	<b>Government of Australia</b>
<b>Government of Denmark</b>	<b>Government of Canada</b>	<b>Government of Paraguay</b>	<b>Government of Honduras</b>

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

### **IV. LEVEL OF INDUSTRY SUPPORT:**

How many supporting and/or voting members does the DMO have?

***Across the 55 UNSPSC Segments there are 4265 Members representing 709 UNSPSC Member organizations including commercial firms, academic institutions, local and national governments, trade associations and standards organizations. 1049 Members have registered to vote in selected Segments.***

Typically what companies and industry sectors are the DMO's leaders and subject matter experts drawn from?

***Healthcare***

***Energy***

***Electrical***

***Government***

***Classification / Taxonomists***

***Consulting Organizations***

***Standards Organizations***

***Software / application providers***

What improvements or expansions are planned?

***The Automotive Aftermarket industry under the leadership of the Automotive Aftermarket Industry Association (AAIA) is planning major enhancements for various Segments utilized by the industry. The complete scope of the changes is TBD.***

***Under consideration is a new "Financial Instruments" Segment to address the growing needs of the financial, securities, leasing and banking industries.***

***Our intentions and strategy are to continue creating industry and government consensus on the "is" model level while collaborating with world class "is and has" models who are trying to develop to UNSPSC's level. UNSPSC is also researching and collaborating in the development of technological solutions that will reduce the cost and improve efficiency***

***The re-launch of UNSPSC's Steering Committee. Initial recruitment is underway and the hope is to have the new committee in place in Q1 2009. (The previous committee experienced a wave of retirements and career changes; since then the codeset has been overseen by an Advisory group consisting of Members, Taxonomists, and experts. Also UNSPSC utilizes web based survey and polling to monitor the needs of its Members and User communities.)***

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

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What is the business plan to sustain the organization's goals?

***UNSPSC's objective is to operate on a cost recovery basis; the UNSPSC team reviews the Membership fees and other revenue sources to ensure adequate resources and funding and makes adjust to support its needs.***

***UNSPSC does have access to GS1 US' resources for management, marketing, technology, Customer Service and financial services support which enables it to offer the codeset and supporting services at a minimal cost.***

***Expand support of other GS1 organizations to extend UNSPSC's global reach and use; while selected GS1 organizations i.e. GS1 France, GS1 Korea, GS1 Japan, GS1 Norway and others provide work with industries or companies in their country; UNSPSC plans to expand GS1 Member Organization support.***

***GS1 US is in the process of extending its UNSPSC management agreement with the United Nations Development Programme (UNDP) for another 5 years. (We do not see an issue with the renewal.)***

# ITDS PIC DICTIONARY CAPABILITIES PROFILE

## V. CHANGE REQUEST PROCESS:

Describe the Change Request (CR) Process?

**UNSPSC Change Requests can be entered only by UNSPSC Members. Change Requests can be Additions, Moves, Edits or Deletes. The UNSPSC Member describes the proposed Change, for example, an addition of a Commodity to the codeset, provides a definition and a supporting business case or statement for the change.**

**All Change Requests are reviewed prior to the voting period to ensure basic requirements are met and then placed into the voting queue. Twice a year, Members vote on the Change Requests (They can vote Approve, Approve with Reservations, or Not Approved.); votes are tabulated on a simple majority basis.**

**The "Approved" Change Requests are reviewed by UNSPSC's consulting Taxonomist to ensure adherence to UNSPSC's Guidelines and as a final quality assurance check; the items then are placed into the codeset and assigned a UNSPSC number.**

**There is also a process for "Segment Reviews" which usually involve many members of an industry (sometimes led by a trade association) when entire Segments are reviewed and updated to reflect changes in the industry and its products and services requirements. UNSPSC management needs to approve these Segment Reviews and may provide additional resources to coordinate them. (There are no Segment Reviews underway now.)**

**All Change Requests are entered, reviewed and voted on through an on-line system.**

How many CRs were submitted and processed in the past 12 months?

	<b>Submitted</b>	<b>Approved and Passed QA</b>	<b>Released</b>
<b>Version 10.1201</b>	<b>5,400</b>	<b>4,307</b>	<b>April, 2008</b>
<b>Version 11.0501</b>	<b>14,316</b>	<b>13,658</b>	<b>September, 2008</b>
<b>Total</b>	<b>19,716</b>	<b>17,965 (91%)</b>	

**The normal Change Request period is usually 500-800 Change Requests; these two periods were unusually high due to enhancements to Segment 50 (Food and Beverages and Tobacco Products)**

How many times in a year do you update the dictionary?

**Twice a year (Additional minor releases can be accommodated.)**

What are the eligibility requirements to submit a CR?

**UNSPSC Members can submit CRs**

May government entities submit CRs?

**Yes; UNSPSC has many government Members. Examples are DHS, the states of Ohio, Pennsylvania, Delaware, New York, New Mexico, California, Louisiana, Indiana, etc. Other government Members include Australia, HM Revenue and Customs Service, the Republic of Korea, Nicaragua, Honduras, and others.**

What are the eligibility requirements to vote on CRs?

**When completing the UNSPSC Membership application, the Member indicates the Segments they wish to vote in (There may be a limit to the number of Segments they are eligible for based on their Membership category.) Government Memberships are eligible to vote on many more Segments than Corporate Members due to the wide range of products and services they provide.**

How many vote on a typical CR?

**It varies; in some categories it maybe 10 to 40 Members; in others fewer.**

What is the average time to: Revise the definition for a commodity or attribute value;

**Three months from the close of the voting period.**

Add a new commodity attribute (if applicable); and Add a new commodity?

**Three months from the close of the voting period.**

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

### VI. LEGAL RESTRICTIONS ON USE:

Is all dictionary content in the public domain?

**Yes**

What agreements must an organization sign to use the dictionary?

**None required; but some prefer license agreement when integrating into software application. (UNSPSC works with these organizations to provide an acceptable document at no charge.)**

What limitations exist on the use of the content?

**Cannot be resold "as is." If additional information is added then it can be included in a product.**

Is the DMO a not-for-profit organization?

**Yes**

Does the DMO meet the definition of a voluntary consensus standards body as defined by OMB Circular A-119? A voluntary consensus standards body is defined by the following attributes: (i) Openness. (ii) Balance of interest. (iii) Due process. (vi) An appeals process. (v) Consensus, which is defined as general agreement, but not necessarily unanimity, and includes a process for attempting to resolve objections by interested parties, as long as all comments have been fairly considered, each objector is advised of the disposition of his or her objection(s) and the reasons why, and the consensus body members are given an opportunity to change their votes after reviewing the comments.

**Yes**

### VII. BARRIERS TO INDUSTRY PARTICIPATION:

What barriers might limit mid- or small-size companies from using the dictionary content?

**None we are aware of.**



## ITDS PIC DICTIONARY CAPABILITIES PROFILE

### VIII. ELECTRONIC ACCESS:

What electronic methods exist for accessing dictionary content (e.g., transfer of data files, web service real-time inquiries, etc.)?

***Users can research UNSPSC codes for free on the UNSPSC website; all they need to do is enter the text term and if there is a match the website will display the appropriate UNSPSC code number.***

***Also, if the User has a UNSPSC code number and needs the description they can enter the code number on the website and the system will return the appropriate description.***

***PDF versions of ALL versions and translations of the codeset are available at no charge on the UNSPSC website.***

***Excel versions of the codeset (without the Audit files) are available to non-Members for a nominal fee (Currently \$50.00); an automated order and download application is available on the UNSPSC website.***

***UNSPSC Members can access the Members Area of the website which contains Excel versions of the codeset with the Audit file for easy migration from one version to another.***

What data format can the dictionary content be provided in (e.g., XML, Excel spreadsheet, delimited file)?

***Excel***

How frequently could data files be obtained?

***As needed; there are no limits or restrictions on Member or User access.***

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

What security controls are used to safeguard data integrity and to protect against unauthorized electronic access?

**The Members Area is ID and Password protected.**

- **The site runs on a server which is secured behind a checkpoint firewall**
- **The firewall controls access to the server and only allows regular http and secure http connections to the site/server**
- **The database server resides on a different physical machine on a separate secure network.**
- **The connections between the database server and UNSPSC web server is also controlled and secured**
- **The site have a VeriSign data encryption security certificate for sensitive information that is transferred over the internet (e.g. Credit Card numbers etc)**
- **The server which the site runs on has all current security patches**
- **The site is also PCI (Payment Card industry) compliant.**

What ISO standards for formatting and transferring data (e.g., ISO 8000 and 22745) do you currently comply with or plan to comply with?

**ISO 8000 does not affect us as it would require that users map and represent the data in our ontology correctly to get certified. ISO 22745 will work alongside our code set as the product classes are more granular (in most cases) than commodities and can be mapped and used as an extension of our code set that includes attributes**

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

### IX. COST OF RECURRING ACCESS AND DATA TRANSFER:

What fees are charged to industry members to use the dictionary content? Please describe these fully and especially in terms of:

-Start up or "initializing" fees;

***UNSPSC Members are charged an annual fee based on Membership Level / Category. This Membership enables Members to propose and vote on Change Requests, access codesets with the Audit Files to assess Changes from one version to another, participate in Information Sharing Groups (new), receive the Members' newsletter and have preferred access for questions and inquiries.***

***Corporate Global: \$6,000***

***Corporate Plus: \$4,200***

***Corporate: \$2,200***

***Corporate Individual: \$300***

***Educational Institution: \$500***

***Government:***

***-State / National: \$1650***

***-Local: \$1100***

***Trade / Standards Organizations: \$ 0 (Non voting)***

***Educational Research: \$45 (Non voting)***

-Connectivity, system interface, or testing fees;

***None***

***-Fees that are assessed by file size or have volume boundaries;***

***None***

-Fees assessed by number of requests or access frequency;

***None***

-Any other fee or charge categories and their basis of operation.

***None***

-Monthly overhead or minimum usage fees; and

***None***

### X. DATA QUALITY:

What web site support tools, training, or other assistance is available to industry users who wish to define their products using the dictionary?

***A free on-demand webinar and supporting charts are available to interested parties.***

***UNSPSC Members receive the UNSPSC Guidelines for their use and reference.***

***The UNSPSC website contains a number of business / use cases and research papers describing use of the codeset.***

***The UNSPSC website lists a number of firms / organizations around the world which provide codeset support, services software.***

***UNSPSC has been piloting a "U.S.State Government Information Sharing Group" in 2008; the purpose is to provide a forum where state governments can share information, advice, experiences, and plans. It has also served as a CR development resource to identify Segments of the codeset which need enhancement to meet the needs of local governments.***

***In selected situations UNSPSC will provide complimentary consulting support to assist key new Members in implementing the codeset. (This is done at the discretion of management.)***

How can industry users be certain they are properly applying dictionary terms when defining their products?

***There are a number of service providers which do support the application and use of the codeset; they could perform quality checks for users or trade / industry groups could provide this as a service to their members.***

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

### SUMMARY:

What are the strengths of this dictionary?

**Global industry acceptance and use. Inclusion as an option in leading ERP systems i.e. SAP, Ariba, i2 and Oracle and in specialized software applications designed for spend analysis, the healthcare industry, procurement, etc.**

**Flexibility and interest in supporting the development of new applications and use of the codeset.**

**Affiliation with the United Nations Development Programme (UNDP)**

**A global network of users willing to share information with new / interested users.**

**10 years of acceptance and growth.**

**User Business Cases and research papers posted on the website for public access and use.**

**Periodic surveys of its Member and User communities to understand their industries, applications, direction, and Segments of interest. These web based surveys provide insights into the Member and Users which help guide future plans and development.**

**A global service provider community offering support and services for users of the codeset.**

**Trust in UNSPSC and GS1 US.**

What are the weaknesses?

**Some translations are lagging behind current versions but these are being addressed.**

**Some users need attributes but this is being addressed through collaboration with other codesets and resources.**

**General Remarks or Comments:**

**UNSPSC is supported by GS1 US Customer Service staff, marketing resources, financial and technology staffs. Also, global support is provided by selected GS1 organizations which work with local Members and Governments to promote the use of UNSPSC.**

# ITDS PIC DICTIONARY CAPABILITIES PROFILE

## COVERAGE BY PRODUCT SET

(See Section I)

<b>HTS SECTION</b>	<b>PRODUCT SET</b>	<b>COVERAGE</b> ( <i>"S"</i> =Strong; <i>"M"</i> =Moderate; <i>"-</i> " = No Coverage)
Section 1	<b>Live Animals; Animal Products</b>	M
Section 2	<b>Vegetable Products</b>	S
Section 3	<b>Animal or Vegetable Fats, Oils, and Waxes</b>	M
Section 4	<b>Prepared Foodstuffs; Beverages, Spirits, Vinegar, And Tobacco</b>	M
Section 5	<b>Mineral Products</b>	M
Section 6	<b>Chemical or Pharmaceutical Products</b>	M
Section 7	<b>Plastic and Rubber Products</b>	M
Section 8	<b>Leather, Fur, Travel Goods, and Handbag Products</b>	M
Section 9	<b>Wood, Cork, and Straw Products</b>	M
Section 10	<b>Wood Pulp, Paper, and Paperboard Products</b>	M
Section 11	<b>Textile Products</b>	M
Section 12	<b>Footwear, Headgear, and Umbrella Products</b>	M
Section 13	<b>Stone, Plaster, Cement, Asbestos, Mica Ceramic, and Glass Products</b>	M
Section 14	<b>Pearl, Precious or Semiprecious Stones, Precious metals, Imitation Jewelry, and Coin</b>	M
Section 15	<b>Base Metals and Base Metal Products</b>	M
Section 16	<b>Machinery, Mechanical Appliances, Electrical Equipment, Sound Recorder and Television Products</b>	M
Section 17	<b>Vehicles, Aircraft, Vessels and Transport Equipment</b>	M
Section 18	<b>Optical, Photographic, Cinematographic, Measuring, Checking, Precision, Medical Or Surgical Instruments; Clocks And Watches; and Musical Instruments</b>	S/M
Section 19	<b>Arms and Ammunition</b>	M
Section 20	<b>Furniture, Bedding, and Lamps, Toys, Games, and Sports Products</b>	M
Section 21	<b>Works of Art, Antiques, and Collector's Pieces</b>	M

## **APPENDIX E– GS1 GPC Capabilities Profile Statement**

The document that follows was provided by GS1 Global Product Classification (GPC) representatives to respond to committee questions regarding their capabilities as a dictionary maintenance organization. It is included in this report as submitted to the committee to provide a complete record of the organization’s capabilities and to provide additional background about the organization and its services.

**PRODUCT INFORMATION COMMITTEE  
DICTIONARY CAPABILITIES PROFILE**

**NAME OF DICTIONARY: GS1 Global Product Classification (GPC)**

**NAME OF DMO: GS1**

**CONTACT PERSON(S): Art Smith, GS1 Canada**

**I. SCOPE OF PRODUCT COVERAGE:**

How long has the dictionary been in use?

The GPC system of standard classification codes, business rules and attributes went live for initial use by the Food & Beverage sector in 2003.

What industry sectors use this dictionary as their first choice for defining essential product characteristics?

GPC was Sponsored and Developed by Global Retail Sector as one of the four building blocks to the Global Data Synchronization Network (GDSN) – Global Data Dictionary for Product & Location (GDD), Global Product Classification (GPC), Global Registry (GR) and Business Relationship Data Exchange.

- Food, Beverage, Tobacco
- Home Care, Health Care – Retail Pharmacy (including over the counter part of (Health Care), Pet Care, Pet Food, Baby Care, Beauty Personal Care and Hygiene
- Clothing, Footwear, Personal Accessories
- General Merchandise (Furniture & Furnishing, Kitchen Merchandise, Musical Instruments, Toys & Games, Stationery, Audio & Visual, Communication, Computing, Printed & Reference Materials, Sports & Well being, Arts & Crafts, Outdoor & Camping)
- Hardlines /
  - DIY (Lawn & Garden Supplies; Building Materials, Hardware; Tools & Equipment Hand; Safety & Storage; Electrical Supplies; Plumbing; Heat, Ventilation, Air Conditioning)
- Automotive Aftermarket
- Home Appliances

Describe the strength of the dictionary in characterizing products using the separate page titled "Coverage by Product Set." Enter "S" for Strong, "M" for Moderate, and two dashes (--) for incomplete or no coverage.

# ITDS PIC DICTIONARY CAPABILITIES PROFILE

## II. DEPTH OF PRODUCT CHARACTERIZATION:

What hierarchy is used to organize and locate product classes?

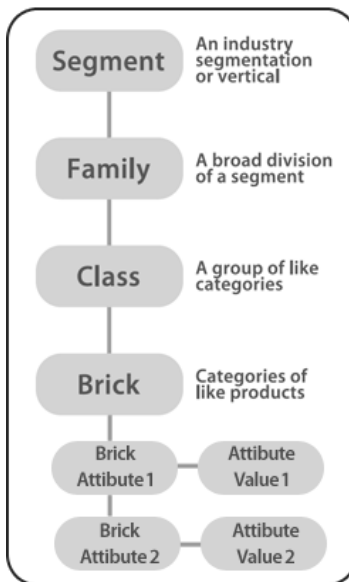
The Key Structural Component of the GPC is the Lowest Level called the Brick. The business rules and definitions of the GPC Brick have been designed to enable users to assign every product bought and sold to a unique GPC Brick.

In the world of buying and selling products, each buying organization and selling organization typically has its own proprietary Merchandise Hierarchy and schema for buying, merchandising, and selling products. The Brick designation (and its corresponding attributes) was designed to allow each organization to map the Brick into their respective internal proprietary Schema.

Having said that, the primary purpose of GPC is not a Hierarchy. In order to group the Bricks in standardized framework, GS1 users have defined the need for a 4-level hierarchy to identify all products from their segment (industry vertical) down to the category (brick) level. These levels include: Segment, Family, Class, Brick.

At the Brick level, additional attributes can be defined to provide further grouping capability. For example, in the still wine category, wines can be further grouped by colour.

Where necessary, standard values can be defined for individual attributes. Again, in the wine example, standard values for colour can be defined (red, white, rose).



The detailed product description characteristics are further defined with standardized attributes (GDD) in the specific product master data record.



## ITDS PIC DICTIONARY CAPABILITIES PROFILE

Can each product class be represented by a short numeric product code?

Yes, all bricks are represented by an 8 digit code.

Does the dictionary support the use of attribute or property value pairs to further describe product classes?

Yes. At the Brick level, the dictionary also supports the standard definition of product attributes and their (standard) associated values.

Is there a limit on the number of product classes in a hierarchy? The number of attributes supported? The number of values supported for a single attribute?

There is no limit on the number of product classes (bricks) or attributes or values that can be represented in the hierarchy. At this point in time, GS1 users have identified the need for a maximum of 7 attributes for a given brick code.

### **III. LEVEL OF DICTIONARY ADOPTION:**

For what use does the industry typically use the dictionary – spend analysis, category management, product sourcing, etc.?

The GS1 GPC is the common language of business that enables business around the world to map their internal product codes to a standard hierarchy. The primary use case for GPC was designed for Global Master Data Synchronization (GDSN). GDSN in turn was seen as the foundation for Global Supply Chain E-Commerce. The GPC standard hierarchy supports the following supply chain functions:

- GS1 Global Data Synchronization (GDSN)
- New product introduction
  - used by buyers and sellers to classify new products
  - used in conjunction with other GS1 identification keys (i.e. Global Trade Identification Number to identify products, Global Location Number to identify business entities and their locations)
- Product sourcing
- Category management
- Product Development
- Procurement (Auctioning, Ordering, Demand Forecasting)
- Market Research
- Global cross-referencing
- Global product characterization

What languages/tongues does the dictionary support?

English, French, Serbian, Japanese, and Hungarian (Spanish, German, and Russian are coming up)

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

What indications of active industry adoption and use are there? What level of use is seen for each region of the world?

Use of GPC codes is a mandatory data attribute for products being registered to the GS1 Global Product Registry. Currently, over 3 million products have been added to this Registry. The Registry is used by businesses throughout the world.

Provide examples of how the dictionary is being used in international trade and what companies are using it.

The foundational use of the dictionary is in support of the global exchange of product information, using (GS1) standard industry protocols. This business process is called Global Data Synchronization. It is used by the majority of multinational companies in Consumer Packaged Goods (CPG), retail, grocery, hardlines and general merchandise across five continents – currently over 15,000 companies – to manage the introduction of new items. All products must be characterized by a GPC code.

The product data needed to support Global Data Synchronization is being used by manufacturers, wholesalers, retailers and distributors.

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

### IV. LEVEL OF INDUSTRY SUPPORT:

How many supporting and/or voting members does the DMO have?

More broadly, GS1 is a member organization with a global membership in excess of 1 million user companies. GS1 serves users in 150 countries through a network of 108 local Member Organizations.

GS1 administers a Global Standards Maintenance Process (GSMP) across a broad range of standards . GS1 prides itself as a user-driven process.

- GS1 Identification Keys, (for example used to support 5 Billion Barcode Transactions per day around the world across 22 sectors)
- GS1 ECOM / EDI Transaction Standards ( working with X12 , Edifact)
- GS1 GDSN Standards (GDD, GR, GPC) for Global Data synchronization
- Electronic Product Code (EPC), Radio Frequency Tags, EPCglobal Network Standards to Support Global Real Time Tracking and Traceability

GPC is a part of the GSMP with discipline on standards maintenance procedures and voting processes. In the specific GPC Steering Committee that has a governance role, there are 15 voting members, and 50+ supporting members. There is also dedicated technical team that assesses each change request with recommendations.

Typically what companies and industry sectors are the DMO's leaders and subject matter experts drawn from?

Subject matter expertise is drawn from user companies in those sectors which are implementing the GPC standard and dictionary, such as CPG, retail, grocery, hardlines, and general merchandise by companies such as: Ahold, Best Buy, Carrefour, Wal-Mart, Target, J&J, P&G, Unilever, L'Oreal. Implementors may be from mature sectors such as food & beverage, or they may be from sectors preparing for implementation, such as Healthcare.

Currently 36 industry sectors have or are contributing to the GPC standard.

What improvements or expansions are planned?

Ongoing maintenance and expansion of GPC codes will continue in step with the needs of new and existing industry verticals. This includes the on-going mapping / alignment with the UNSPSC product classification system.

Presently the needs of the global medical-surgical industry are under review as a potential candidate for GPC. The Global Healthcare User Group (made up of 24 of the top 25 global suppliers) are evaluating 25 of the Global Classifications used around the world to determine a direction for the industry. No decision has been made on GPC engagement.

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

### **V. CHANGE REQUEST PROCESS:**

Describe the Change Request (CR) Process?

See Appendix 1

How many CRs were submitted and processed in the past 12 months?

1200+

How many times in a year do you update the dictionary?

Change Requests are processes ongoing. Formal publication of the GPC Standards occurs twice annually.

What are the eligibility requirements to submit a CR? May government entities submit CRs?

Any user may submit a CR. Companies are asked to get sponsorship from a GS1 member organization in their respective country. Government entities that are GS1 members may submit a CR.

What are the eligibility requirements to vote on CRs? How many vote on a typical CR?

There are 15 voting member votes (See Appendix 1)

There are two types of Change requests with different procedures attached – Simple Requests (language, minor definition enhancements, clarifications, Attribute value additions) and Complex Change request which must go through full evaluation process.

What is the average time to: Revise the definition for a commodity or attribute value;

Add a new commodity attribute (if applicable); and Add a new commodity?

Complex Change request on average- 30 days

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

### **VI. LEGAL RESTRICTIONS ON USE:**

Is all dictionary content in the public domain?

Yes. GS1 standards are open to all users.

What agreements must an organization sign to use the dictionary?

None. GS1 standards are open to all users.

What limitations exist on the use of the content?

None. GS1 standards are open to all users.

Is the DMO a not-for-profit organization?

Yes.

Does the DMO meet the definition of a voluntary consensus standards body as defined by OMB Circular A-119? A voluntary consensus standards body is defined by the following attributes: (i) Openness. (ii) Balance of interest. (iii) Due process. (iv) An appeals process. (v) Consensus, which is defined as general agreement, but not necessarily unanimity, and includes a process for attempting to resolve objections by interested parties, as long as all comments have been fairly considered, each objector is advised of the disposition of his or her objection(s) and the reasons why, and the consensus body members are given an opportunity to change their votes after reviewing the comments.

Yes.

### **VII. BARRIERS TO INDUSTRY PARTICIPATION:**

What barriers might limit mid- or small-size companies from using the dictionary content?

None. Access is open to all users, anywhere in the world. Local GS1 Member Organizations are in place to assist local users with implementation.

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

### **VIII. ELECTRONIC ACCESS:**

What electronic methods exist for accessing dictionary content (e.g., transfer of data files, web service real-time inquiries, etc.)?

A web browser service can be accessed from the GS1 global website. The browser provides User support in 5 languages and enables companies to search the entire product hierarchy.

A download facility enables Users to copy product hierarchy information into their local computers.

What data format can the dictionary content be provided in (e.g., XML, Excel spreadsheet, delimited file)?

The download facility supports XML, Excel, and Word formats

How frequently could data files be obtained?

On demand, any time; no restrictions.

What security controls are used to safeguard data integrity and to protect against unauthorized electronic access?

Update access is restricted to authorized GS1 staff. There is centralized governance with regards to rules compliance, electronic access on a public domain, etc. Visitors to the GS1 website are limited to read-only and download functions.

What ISO standards for formatting and transferring data (e.g, ISO 8000 and 22745) do you currently comply with or plan to comply with?

No current plans, but could be considered.

### **IX. COST OF RECURRING ACCESS AND DATA TRANSFER:**

What fees are charged to industry members to use the dictionary content? Please describe these fully and especially in terms of:

- Start up or "initializing" fees;
- Connectivity, system interface, or testing fees;
- Fees that are assessed by file size or have volume boundaries;
- Fees assessed by number of requests or access frequency;
- Monthly overhead or minimum usage fees; and
- Any other fee or charge categories and their basis of operation.

GS1 standards are open and royalty-free to Users around the globe.

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

### **X. DATA QUALITY:**

What web site support tools, training, or other assistance is available to industry users who wish to define their products using the dictionary?

Changes to the dictionary can only be affected through the GS1 Global Standards Management Process. See Appendix 1.

There are also other resources available such as:

Get started: <http://www.gs1.org/productssolutions/gdsn/gpc>

Resource library: <http://www.gs1.org/productssolutions/gdsn/gpc/library.html>

How can industry users be certain they are properly applying dictionary terms when defining their products?

GS1 GPC ruleset provides unique placement for product categorization; GS1 GDD provides product property description.

### **SUMMARY:**

#### **What are the strengths of this dictionary?**

- GS1 standards are open and available to Users globally
- The combined product categorization and nomenclature system
- All GS1 standards are developed through the direct involvement of users; a highly disciplined and robust open-governance process ensures data integrity
- The GPC standard is aligned with UNSPSC
- The dictionary is currently capable of supporting 36 industry verticals
- The dictionary is used in conjunction with GS1 global identification keys (Global Trade Item Number and Global Location Number)
- Global reach through a network of 108 GS1 Member Organisations
- Have leading position within identification standards / solutions market
- Credibility especially within retail sector, support from major businesses
- Positioned to provide the 'bridge' between trading partners

#### **What are the weaknesses?**

- The biggest weakness is that this standard is tied to the rollout success of GDSN. The full value of GPC will only occur when each product listed for sale is assigned to a GPC Brick. There are currently 40 global data catalogues (data pools) certified in the GDSN Network.
- Built up geographically and organically rather than strategically.
- GPC positioned as a technical solution to map products.

#### **General Remarks or Comments:**

GS1 GPC and GS1 GDD together represent a global categorization system and product description dictionary.

**ITDS PIC DICTIONARY CAPABILITIES PROFILE**

**COVERAGE BY PRODUCT SET**

*(See Section I)*

<b>HTS SECTION</b>	<b>PRODUCT SET</b>	<b>COVERAGE</b> <i>("S"=Strong; "M"=Moderate; "--" = No Coverage)</i>
Section 1	<b>Live Animals; Animal Products</b>	M
Section 2	<b>Vegetable Products</b>	S
Section 3	<b>Animal or Vegetable Fats, Oils, and Waxes</b>	S
Section 4	<b>Prepared Foodstuffs; Beverages, Spirits, Vinegar, And Tobacco</b>	S
Section 5	<b>Mineral Products</b>	--
Section 6	<b>Chemical or Pharmaceutical Products</b>	M(pharmacy)
Section 7	<b>Plastic and Rubber Products</b>	--
Section 8	<b>Leather, Fur, Travel Goods, and Handbag Products</b>	M
Section 9	<b>Wood, Cork, and Straw Products</b>	M
Section 10	<b>Wood Pulp, Paper, and Paperboard Products</b>	M
Section 11	<b>Textile Products</b>	S
Section 12	<b>Footwear, Headgear, and Umbrella Products</b>	S
Section 13	<b>Stone, Plaster, Cement, Asbestos, Mica Ceramic, and Glass Products</b>	S
Section 14	<b>Pearl, Precious or Semiprecious Stones, Precious metals, Imitation Jewelry, and Coin</b>	M
Section 15	<b>Base Metals and Base Metal Products</b>	--
Section 16	<b>Machinery, Mechanical Appliances, Electrical Equipment, Sound Recorder and Television Products</b>	S
Section 17	<b>Vehicles, Aircraft, Vessels and Transport Equipment</b>	--
Section 18	<b>Optical, Photographic, Cinematographic, Measuring, Checking, Precision, Medical Or Surgical Instruments; Clocks And Watches; and Musical Instruments</b>	M
Section 19	<b>Arms and Ammunition</b>	M
Section 20	<b>Furniture, Bedding, and Lamps, Toys, Games, and Sports Products</b>	S
Section 21	<b>Works of Art, Antiques, and Collector's Pieces</b>	S



# ITDS PIC DICTIONARY CAPABILITIES PROFILE

## Appendix 1

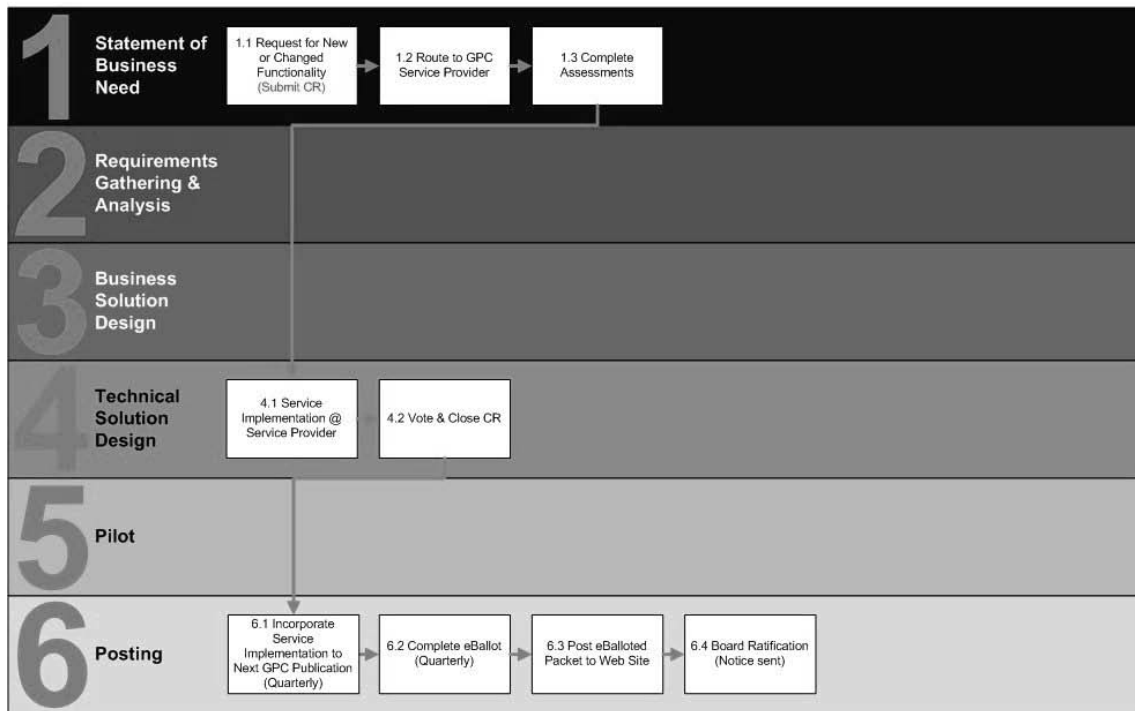
### GPC Change Request Process

Changes to the GPC standards are managed by means of a disciplined and open process. This process is managed by GS1 and is used to manage the full suite of GS1 supply chain standards. This change management process is called the GS1 Global Standards Management Process (GSMP).

Change Requests are considered by subject experts from member companies and consequently represent the needs of Users from all around the global.

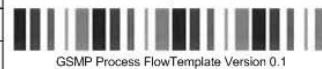
All change requests are recorded through a central GS1 website where they are analyzed and routed for detailed consideration. Changes to the GPC dictionary may be deemed simple or complex. A GPC Leadership Committee must approve all changes.

A simple change is one where a value is added to the dictionary to accommodate user needs but has no impact on its structure (ontology). GS1 generates a final version of the proposed resolution that is rules compliant and the GPC Leadership Committee considered it for sign-off. That final version is implemented in the GPC database and published at the following due publication (typically quarterly).



<b>Process Flow Name:</b>	GPC Simple Minor Change (Rules Compliant)		
<b>Process Flow Owner:</b>	Zoltan Patkai	<b>Version:</b>	0.2
<b>Process Flow Approver:</b>	Process Group	<b>Version Date:</b>	19-04-2006

**GSMP – PROCESS FLOWS**



A complex change is one where there is a fundamental change to the schema to accommodate user needs but has major impact on its structure (ontology). If the GPC Change Request (CR) is classified as a complex change then there are 2 process flows:

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

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Complex Major Change (Non-Rules Compliant or Rules Compliant); and  
Complex New Segment.

Complex Major Change (Non-Rules Compliant or Rules Compliant)

- Non-Rules Compliant major change requires GPC Leadership Committee sign-off typically involves complex and comprehensive modifications within the schema due to the level of severity the change it requires.
- Rules Compliant refers to all changes that fit the existing rules and principles of the schema, therefore change is legitimate and its implementation can be justified by its compliance to the schema rules

In both cases the following steps are followed:

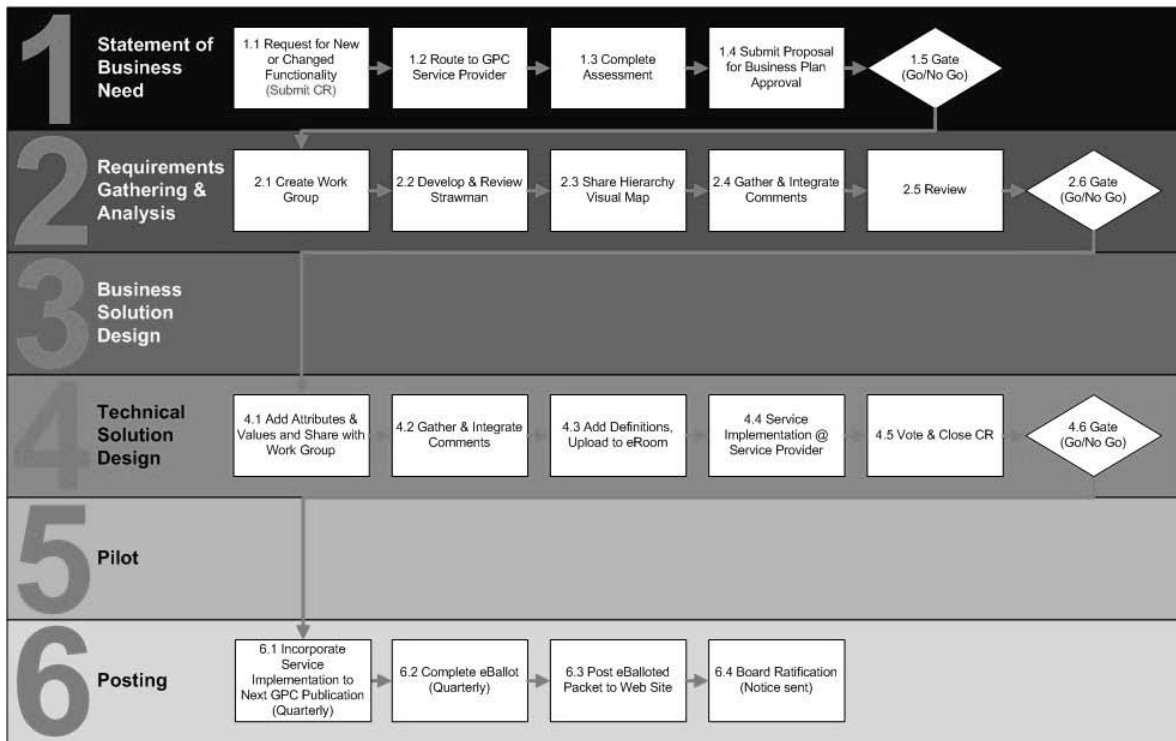
- Proposal for Business Plan approval
- Service implementation
- CR resolution incorporation into next publication release

Complex Major Change - New Segment

In GPC the new segments are developed in Work Groups and signed off and e-balloted by the GPC Leadership Committee. Key stages:

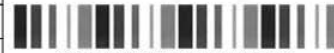
- Develop and review Straw man
- Share Hierarchy Visual Map followed by comments integration from the public review
- Add Attributes & Values to the Bricks followed by comments integration from the public review
- Add definitions
- Service Implementation
- GPC Leadership Committee eBallot
- Publication (quarterly)

# ITDS PIC DICTIONARY CAPABILITIES PROFILE



<b>Process Flow Name:</b>	GPC Complex (New Segment)		
<b>Process Flow Owner:</b>	Zoltan Patkai	<b>Version:</b>	0.2
<b>Process Flow Approver:</b>	Process Group	<b>Version Date:</b>	19-04-2006

**GSMP – PROCESS FLOWS**



GSMP Process FlowTemplate Version 0.1

## **APPENDIX F – eCI@ss Capabilities Profile Statement**

The document that follows was provided by eCI@ss representatives to respond to committee questions regarding their capabilities as a dictionary maintenance organization. It is included in this report as submitted to the committee to provide a complete record of the organization's capabilities and to provide additional background about the organization and its services.

**PRODUCT INFORMATION COMMITTEE  
 DICTIONARY CAPABILITIES PROFILE**

<b>NAME OF DICTIONARY:</b> eCI@ss
<b>NAME OF DMO:</b> eCI@ss e.V.
<b>CONTACT PERSON(S):</b> Thomas Einsporn, eCI@ss Head Office, Cologne, Germany
<p><b>I. SCOPE OF PRODUCT COVERAGE:</b></p> <p>How long has the dictionary been in use? <b>since 1998</b></p> <p>What industry sectors use this dictionary as their first choice for defining essential product characteristics? <b>all industries ( see pages 7 and 8)</b></p> <p>Describe the strength of the dictionary in characterizing products using the separate page titled "Coverage by Product Set." <i>Enter "S" for Strong, "M" for Moderate, and two dashes (-) for incomplete or no coverage. see below</i></p>
<p><b>II. DEPTH OF PRODUCT CHARACTERIZATION:</b></p> <p>What hierarchy is used to organize and locate product classes? <b>a 4-level hierarchy</b></p> <p>Can each product class be represented by a short numeric product code? <b>Yes</b></p> <p>Does the dictionary support the use of attribute or property value pairs to further describe product classes? <b>Yes</b></p> <p>Is there a limit on the number of product classes in a hierarchy? The number of attributes supported? The number of values supported for a single attribute? <b>99 subclasses to each class, otherwise no limits</b></p>
<p><b>III. LEVEL OF DICTIONARY ADOPTION:</b></p> <p>For what use does the industry typically use the dictionary – spend analysis, category management, product sourcing, etc.? <b>all eBusiness processes incl. catalogue, PDM, Enterprise Resource Planning, etc.</b></p> <p>What languages/tongues does the dictionary support? <b>English, German, French, Spanish, Italian, Chinese (Simple and Traditional), Turkish, Portuguese, Dutch, Czech, Russian, Korean, Thai, Japanese</b></p> <p>What indications of active industry adoption and use are there? What level of use is seen</p>

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

for each region of the world? **eCI@ss is already used in numerous countries. Downloads have been registered from over 75 countries worldwide. E.g. USA, Canada, France, Austria, Switzerland, United Kingdom, Belgium, Netherlands, Italy, Spain, Sweden, India, China and many more.**

Provide examples of how the dictionary is being used in international trade and what companies are using it. **In the international catalogue and product specifications exchange.**

### IV. LEVEL OF INDUSTRY SUPPORT:

How many supporting and/or voting members does the DMO have? **68 members**

Typically what companies and industry sectors are the DMO's leaders and subject matter experts drawn from? **International concerns such as afim, Evonik Industries, RWE, cognis, Siemens, hubwoo, Deutsche Bahn, IHS, Schneider Electric, Audi, Total, BASF, DSM, SAP, Wacker, eon**

What improvements or expansions are planned? **Development in further segments, internationalisation and standardisation of all eCI@ss contents**

What is the business plan to sustain the organization's goals?

### V. CHANGE REQUEST PROCESS:

Describe the Change Request (CR) Process? **Any registered user can submit CRs on a web interface platform**

How many CRs were submitted and processed in the past 12 months? **about 10,000**

How many times in a year do you update the dictionary? **twice a year**

What are the eligibility requirements to submit a CR? May government entities submit CRs? **Anybody can submit CRs**

What are the eligibility requirements to vote on CRs? How many vote on a typical CR? **You need to be member of an expert group. Voting depends on how many members the expert group consists of, usually 5-10 persons.**

What is the average time to: Revise the definition for a commodity or attribute value; Add a new commodity attribute (if applicable); and Add a new commodity? **6 months each**

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

### VI. LEGAL RESTRICTIONS ON USE:

Is all dictionary content in the public domain? **yes**

What agreements must an organization sign to use the dictionary? **the eCI@ss agreements, see webpage**

What limitations exist on the use of the content? **None**

Is the DMO a not-for-profit organization? **Yes**

Does the DMO meet the definition of a voluntary consensus standards body as defined by OMB Circular A-119? A voluntary consensus standards body is defined by the following attributes: (i) Openness. (ii) Balance of interest. (iii) Due process. (vi) An appeals process. (v) Consensus, which is defined as general agreement, but not necessarily unanimity, and includes a process for attempting to resolve objections by interested parties, as long as all comments have been fairly considered, each objector is advised of the disposition of his or her objection(s) and the reasons why, and the consensus body members are given an opportunity to change their votes after reviewing the comments.

**Yes**

### VII. BARRIERS TO INDUSTRY PARTICIPATION:

What barriers might limit mid- or small-size companies from using the dictionary content?

**Missing information about eBusiness and tools for the implementation of eCI@ss, missing of the general decision for electronic business operations**

### VIII. ELECTRONIC ACCESS:

What electronic methods exist for accessing dictionary content (e.g., transfer of data files, web service real-time inquiries, etc.)? **24h access via online web search, a download portal to achieve the standard**

What data format can the dictionary content be provided in (e.g., XML, Excel spreadsheet, delimited file)? **.csv-files, XML is planned for the future**

How frequently could data files be obtained? **downloadable 24 hrs a day**

What security controls are used to safeguard data integrity and to protect against unauthorized electronic access? **Change management rules in the online platform, quality checks in the head office and expert groups**

What ISO standards for formatting and transferring data (e.g, ISO 8000 and 22745) do you currently comply with or plan to comply with?

**ISO 13584, IEC 61360, ISO 8000**

## ITDS PIC DICTIONARY CAPABILITIES PROFILE

### IX. COST OF RECURRING ACCESS AND DATA TRANSFER:

What fees are charged to industry members to use the dictionary content? Please describe these fully and especially in terms of:

- Start up or "initializing" fees; **do not exist**
- Connectivity, system interface, or testing fees; **do not exist**
- Fees that are assessed by file size or have volume boundaries; **do not exist**
- Fees assessed by number of requests or access frequency; **do not exist**
- Monthly overhead or minimum usage fees; and **do not exist**
- Any other fee or charge categories and their basis of operation.

**Company fees for downloading the standard, depending on company size**

### X. DATA QUALITY:

What web site support tools, training, or other assistance is available to industry users who wish to define their products using the dictionary? **eCl@ss initiative consulting and eCl@ss cooperation partners in the industry who act as consultants**

How can industry users be certain they are properly applying dictionary terms when defining their products?



## ITDS PIC DICTIONARY CAPABILITIES PROFILE

### **SUMMARY:**

What are the strengths of this dictionary?

- ▶ **Standard data model based on ISO 13584 / IEC 61360, which ensures the automatic update of data, 14 language versions**
- ▶ **Free development by everyone who is interested via the eCI@ss ServicePortal**
- ▶ **Consideration of national and international standards – for classes, properties and values –**
- ▶ **World-wide availability of the standard for all participants in the market**
- ▶ **Consequent representation of the market by neutral description of products and services**
- ▶ **Transparent release management and stability of standard**
- ▶ **Suitable for an integral management of process data from the development to the disposal of a product,**
- ▶ **Possibility of collaboration for all interested parties who want to and can contribute**
- ▶ **Fast distribution in the economy**

What are the weaknesses?

**None, because the ISO compliant data model fulfils all requirements**

# ITDS PIC DICTIONARY CAPABILITIES PROFILE

## COVERAGE BY PRODUCT SET

*(See Section I)*

HTS SECTION	PRODUCT SET	COVERAGE <i>("S"=Strong; "M"=Moderate; "--" = No Coverage)</i>
Section 1	<b>Live Animals; Animal Products</b>	M
Section 2	<b>Vegetable Products</b>	M
Section 3	<b>Animal or Vegetable Fats, Oils, and Waxes</b>	M
Section 4	<b>Prepared Foodstuffs; Beverages, Spirits, Vinegar, And Tobacco</b>	M
Section 5	<b>Mineral Products</b>	M
Section 6	<b>Chemical or Pharmaceutical Products</b>	S
Section 7	<b>Plastic and Rubber Products</b>	S
Section 8	<b>Leather, Fur, Travel Goods, and Handbag Products</b>	M
Section 9	<b>Wood, Cork, and Straw Products</b>	M
Section 10	<b>Wood Pulp, Paper, and Paperboard Products</b>	S
Section 11	<b>Textile Products</b>	M
Section 12	<b>Footwear, Headgear, and Umbrella Products</b>	M
Section 13	<b>Stone, Plaster, Cement, Asbestos, Mica Ceramic, and Glass Products</b>	S
Section 14	<b>Pearl, Precious or Semiprecious Stones, Precious metals, Imitation Jewelry, and Coin</b>	--
Section 15	<b>Base Metals and Base Metal Products</b>	S
Section 16	<b>Machinery, Mechanical Appliances, Electrical Equipment, Sound Recorder and Television Products</b>	S
Section 17	<b>Vehicles, Aircraft, Vessels and Transport Equipment</b>	M
Section 18	<b>Optical, Photographic, Cinematographic, Measuring, Checking, Precision, Medical Or Surgical Instruments; Clocks And Watches; and Musical Instruments</b>	S
Section 19	<b>Arms and Ammunition</b>	--
Section 20A	<b>Furniture, Bedding, and Lamps</b>	--
Section 20B	<b>Toys, Games, and Sports Products</b>	--
Section 21	<b>Works of Art, Antiques, and Collector's Pieces</b>	--

# ITDS PIC DICTIONARY CAPABILITIES PROFILE

## ECL@SS PRODUCT SEGMENTS

*(See Section I)*

Segment	Contents
16	<b>Food , beverages, tobacco</b>
17	<b>Machine, device (for special applications)</b>
18	<b>Equipment f. mining, metallurgical plant, rolling mill a. foundry</b>
19	<b>Information, communication and media technology</b>
20	<b>Packing material</b>
21	<b>Manufacturing facilities, workshop equipment, tool</b>
22	<b>Construction technology</b>
23	<b>Machine element, fixing, mounting</b>
24	<b>Office products, facilities and technics, papeterie</b>
25	<b>Service</b>
26	<b>Energy, extraction product, secondary raw materials and residues</b>
27	<b>Electric engineering, automation, process control engineering</b>
28	<b>Automotive technology</b>
29	<b>Home economics, Home technology</b>
30	<b>Auxiliary supply, additive, cleaning agent</b>
31	<b>Polymers</b>
32	<b>Laboratory material, Labatory technology</b>
33	<b>Installation (complete)</b>
34	<b>Medicine, medical technology, life science</b>
35	<b>Semifinished products, materials</b>
36	<b>Machine, apparatus</b>
37	<b>Industrial piping</b>
38	<b>Inorganic chemicals</b>
39	<b>Organic chemicals</b>
40	<b>Occupational safety, accident prevention</b>
41	<b>Marketing</b>

## **APPENDIX G – GS1 GDSN Capabilities Profile Statement**

The document that follows was provided by GS1 Global Data Synchronization Network (GDSN) representatives to respond to committee questions regarding their capabilities as a global catalog. It is included in this report as submitted to the committee to provide a complete record of the organization's capabilities and to provide additional background about the organization and its services.



## PRODUCT INFORMATION COMMITTEE CATALOG CAPABILITIES PROFILE

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**NAME OF CATALOG: GLOBAL DATA SYNCHRONIZATION NETWORK**

**NAME OF SPONSOR: GS1**

**CONTACT PERSON(S): Robert Noe, GS1 US**

### **I. SCOPE OF PRODUCT COVERAGE:**

How long has the catalog been in use?

The GS1 Catalog has been in use since 1999, when it was launched under the name of UCCnet. Some of the significant milestones since then include the 2004 technology transformation that added network support for multiple worldwide competing Data Pools (now known as the Global Data Synchronization network); the merger with the Transora Data Pool and subsequent name change to 1SYNC in 2005; and the addition of our 5000<sup>th</sup> customer, in 2008. It has and continues to be a not-for-profit subsidiary of GS1 US (formerly the Uniform Code Council (UCC)) which was founded in 1973.

This catalog, now known as the Global Data Synchronization Network (GDSN) is based on the GS1 system of supply chain standards. GS1, formerly the Uniform Code Council and EANCOM, has been in existence for over 30 years helping companies increase supply chain efficiency through the use of standards for bar codes, RFID, product description, and business transaction communication. GS1's most widely used standard is the bar code found on retail products, which is electronically scanned to support billions of transactions daily around the world.

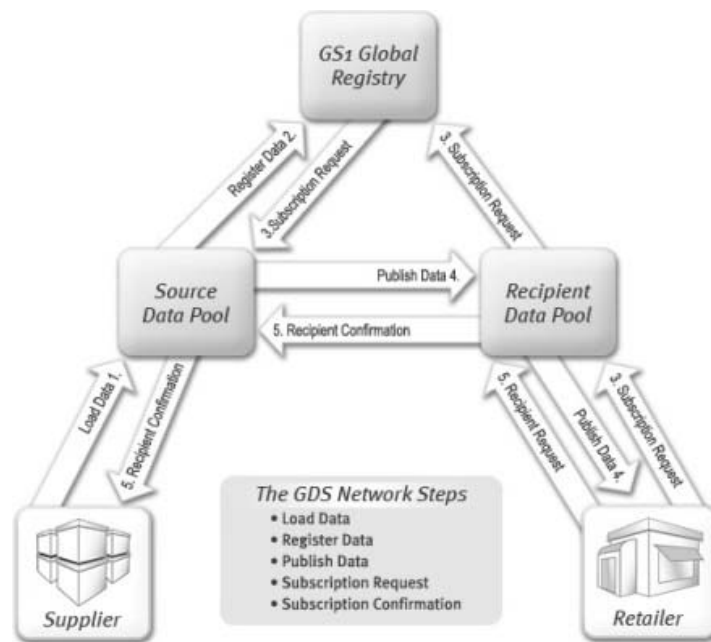
The Global Data Synchronization Network (GDSN) was created as an industry endorsed initiative to overcome product data inaccuracies and increase efficiencies among trading partners and their supply chains. GDSN is a network of certified data pools that enable product information to be captured and exchanged in a secure environment conforming to global standards. The standards body that governs the GDSN is GS1.

The GDSN enables the registration and publication of product information (e.g., descriptions, weight, dimensions, etc). Suppliers send this data to their chosen data pool. The data pool (e.g., 1SYNC) then checks the data for compliance to GS1 (EAN.UCC) standards and validates it with demand side partners via the

## ITDS PIC CATALOG CAPABILITIES PROFILE

GS1 Global Registry, ensuring that all trading partners are using identical, updated standards-compliant data.

Essentially, the GDSN facilitates the synchronization of Item data between supply-side and demand-side trading partners. Implementing GDSN standards-based electronic synchronization services forms a non-proprietary basis for collaborative capabilities among trading partners.



What industry sectors use this catalog as their first choice to publish product information?

- General Retail and Consumer Products
- Food and Beverage
- Tobacco
- Pet Care and Pet Food
- Baby Care
- Beauty Personal Care and Hygiene
- Clothing
- Footwear
- Personal Accessories
- General Merchandise (Furniture & Furnishing, Kitchen Merchandise,
- Musical Instruments
- Toys & Games
- Stationery
- Audio & Visual
- Communication,
- Computing

## ITDS PIC CATALOG CAPABILITIES PROFILE

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- Printed & Reference Materials
- Books and Periodicals
- Alcohol, Wine and Spirits
- Sports & Well being
- Arts & Crafts,
- Outdoor & Camping
- Hardlines / DIY (Lawn & Garden Supplies; Building Materials, Hardware; Tools & Equipment Hand; Safety & Storage; Electrical Supplies; Plumbing; Heat, Ventilation, Air Conditioning)
- Health Care – Retail Pharmacy (including over the counter part of Health Care), Medical Surgical (in pre-production trial now in anticipation of legislated FDA regulation requiring standardized product identification)
- Automotive Aftermarket
- Home Appliances

Describe the strength of the catalog in providing product classification information for different supply chains using the separate page titled "Coverage by Product Set." *Please enter "S" for Strong, "M" for Moderate, "L" for Limited, and two dashes (--) for incomplete or no coverage.*

### **SUPPORT FOR PRODUCT CHARACTERIZATION:**

What global product characterizations (GS1 GPC, eCI@ss, UNSPSC) are supported in the catalog?

The 1SYNC catalog currently supports the following product characterizations: GPC, UDEX, UNSPSC, ICC (Interim Class Codes), AMECE, CBL, CCG, EANFIN, IFDA (International Food Distributors Association), IFLS5, X4, EUDS (European Union Dairy Subsidy), GS1PL. The catalog has the capability to support additional product characterizations, as well as synchronize the right characterization based on the data recipient.

Does the catalog support the use of attribute or property value pairs for those dictionaries that use them (e.g., GPC and eCI@ss)?

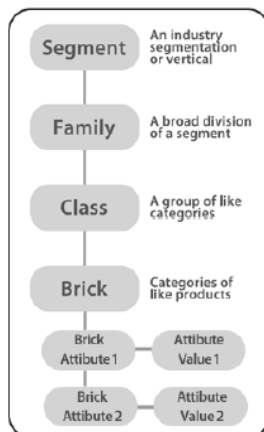
The Key Structural Component of GPC at the lowest level is the Brick. The business rules and definitions of the GPC Brick have been designed to enable users to assign every product bought and sold to a unique GPC Brick.

In the world of buying and selling products, each buying organization and selling organization typically has its own proprietary Merchandise Hierarchy and schema for buying, merchandising, and selling products. The Brick designation (and its corresponding attributes) was designed to allow each organization to map the Brick into their respective internal proprietary Schema. In order to group the Bricks in standardized framework, GS1 users have defined the need for a 4-level hierarchy to identify all products from their segment (industry

## ITDS PIC CATALOG CAPABILITIES PROFILE

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vertical) down to the category (brick) level. These levels include: Segment, Family, Class, Brick.



At the Brick level, additional attributes can be defined to provide further grouping capability and more detailed product description characteristics can be further defined with standardized attributes from the Global Data Dictionary (GDD) in the specific product master data record.

### LEVEL OF CATALOG ADOPTION:

What languages does the catalog support?

The languages the 1SYNC catalog supports include: English, Spanish, Dutch, French, German, and Portuguese. As the need arises, it has the capability to support additional languages, including special characters.

What indications of active industry adoption and use are there? What level of use is seen for each region of the world?

There is significant use of the GDSN by industry sectors in various areas of the world. Some of that use is well documented in some of the upcoming areas. Different sectors offer unique challenges for data synchronization. 1SYNC's cutting-edge technology, depth of services, standards advocacy, and customer support, work together to meet the specialized needs of suppliers and retailers. Our expertise as the leading provider of data synchronization solutions for trading communities allows us to create scalable and easy-to-use options for companies of all sizes.

Consumer Package Goods (CPG) was the first sector to enable data synchronization and, therefore, has the most implemented retailers and suppliers. Grocers of all sizes are now synchronizing data with their suppliers. Some of those already synchronizing data are: **Army and Air Force Exchange Service (AAFES)**, Carrefour, **DOD**, Metro, Fareway, McLane, Safeway, Walgreen, Best Buy, AHOLD, Schnucks Market, SUPERVALU, Target, Wakefern,



## ITDS PIC CATALOG CAPABILITIES PROFILE

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Wal-Mart, and Wegmans. **Defense Commisary (DECA)** is preparing to use GDSN.

The Alcohol Beverage Industry (ABI) is well on its way to standardizing electronic commerce through data synchronization. The ABI Electronic Commerce Council (ABI EC) believes data synchronization will be the launch pad for all future global industry initiatives.

1SYNC has been actively synchronizing data in the Hardlines industry for many years. From facilitating the creation and standardization of the necessary data attributes for the Hardlines industry, to working on standardizing retailer specific selling and marketing attributes in the Hardlines sector. 1SYNC clearly plays an important role in the advancement of the hardlines industry through work with leading retailers (Lowe's, Home Depot, Ace Hardware), and manufacturers (Black and Decker, GE, Georgia Pacific, etc).

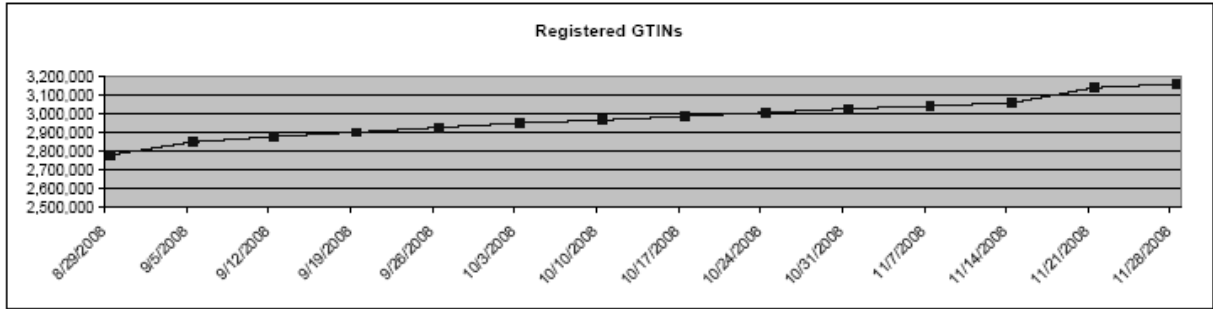
Leaders in the \$300 billion school and office products industry have realized that data synchronization can improve their speed to market and increase supply chain efficiency. Several major players in this industry have been instrumental in developing the standards for the office vertical. 1SYNC has worked with office supply retailers like Office Depot and suppliers like Sauder, 3M, BIC and others to develop a process by which these trading partners can exchange item information within the Global Data Synchronization Network.

There has never been more of an immediate need for proven data synchronization in healthcare than there is today. Hospitals today report that up to 20% of their supply chain costs are due to overhead associated with clearing up confusion caused by non-standardized product data across their operation. The same product can have different product numbers, different names, and different spellings for the manufacturer making it difficult to order products and apply the correct discounts from their Group Purchasing Organization (GPO) contracts. Even ordering quantities can be confusing where an item ordered as an "each" could be a dozen items or a box full of items.

Provide examples of how the catalog is being used in international trade and what companies are using it.

GDSN is being used around the world by end users and their suppliers. Today there are almost 3.2 million Global Trade Item Number (GTINS) registered with 17 Certified Data Pools across the globe, and that number continues to grow.

# ITDS PIC CATALOG CAPABILITIES PROFILE



Today there are 159 global retailers and 17,579 global suppliers actively engaged in sending and receiving item specific data across the GDSN.

GS1 Global Registry Statistics  
Detailed Report as of November 28, 2008



	TOTALS	1SYNC <sup>1</sup>	SA2 Worldsinc (Agentrics) <sup>2</sup> (Sinfos) <sup>3</sup>	GXS	GS1 UK	GS1 Columbia (CABASnet) <sup>4</sup>	Big Hammer	Commport
Active Data Pools	17	1	1	1	1	1	1	1
Trading Partner GLNs	17,756	6,823	1,394	12	85	4,984	659	99
Retailers	159	102	19	2	1	17	1	1
Suppliers	17,597	6,721	1,375	10	84	4,967	658	98
Subscriptions Sent	605,480	535,337	1,770	4,295	13	970	62,349	108
Subscriptions Matched	532,538	426,845	537	96	49	308	103,255	145
Subscriptions Matched by Item	5,758,530	5,072,091	121,682	226	984	246,300	160,640	27,767
Recipient DP Subscription Matches	5,758,530	2,978,787	924,925	669,743	532	90,137	54,365	66,758
Registered Items (GTINs)	3,160,484	2,546,729	64,114	113	652	163,928	148,258	19,261
GTINs Coded with GPC	2,144,561							

<sup>1</sup> 1SYNC Includes activity for: Transora, GS1 Netherlands (GS1 DAS), Canada

<sup>2,3</sup> SA2 Worldsinc includes activity for US, Switzerland, Germany, Austria, Russia, and Poland

<sup>4</sup> Cabasnet includes activity for: Peru, Columbia, Costa Rica, El Salvador, Honduras, Nicaragua, and Guatemala

For more information, visit [www.gs1.org/gdsn](http://www.gs1.org/gdsn)

# ITDS PIC CATALOG CAPABILITIES PROFILE

	TOTALS	GS1 France (Paragon)	GS1 Hong Kong	GS1 Taiwan	GS1 Slovakia (E-Katalog)	GS1 Spain (AECOC)	GS1 Malta (MEMA) <sup>5</sup>	GS1 Australia (GS1net Australiasia) <sup>6</sup>
Active Data Pools	17	1	1	1	1	1	1	1
Trading Partner GLNs	17,756	38	8	2	50	282	3	1,573
Retailers	159	5	1	0	0	4	0	5
Suppliers	17,597	33	7	2	50	278	3	1,568
Subscriptions Sent	605,480	65	1	0	0	282	0	275
Subscriptions Matched	532,538	16	66	224	12	233	1	319
Subscriptions Matched by Item	5,758,530	380	68	903	26	32,504	9	48,906
Recipient DP Subscription Matches	5,758,530	26,943	1	0	0	307,193	0	327,786
Registered Items (GTINs)	3,160,484	193	85	453	101	37,442	9	109,653
GTINs Coded with GPC	2,144,561							

<sup>5</sup> MEMA includes activity for: Malta, Egypt, Jordan, Lebanon, Saudi Arabia, Syria, Tunisia, United Arab Emirates, and Morocco

<sup>6</sup> GS1net Australiasia includes activity for: Australia and New Zealand

## LEVEL OF INDUSTRY SUPPORT FOR THE CATALOG:

How many supporting members does the catalog sponsor organization have?

GS1 is a fully integrated global organization, with 108 Member Organizations serving over one million companies doing business across 150 countries. GS1 US [*formerly the Uniform Code Council (UCC)*] is the Member Organization of GS1 that serves users in the United States of America. As such, it is the national implementation organization of the GS1 System in the United States. GS1 US currently serves over 260,000 U.S. member companies.

The GS1 System is the most widely used supply chain standards system in the world. Utilized in over thirty sectors and industries including healthcare, fast moving consumer goods (FMCG), transport, defense, and many others, <http://www.gs1.org/productssolutions/barcodes/overview/> the GS1 System has provided benefits to companies and consumers around the world for over thirty years.

The principles of GS1 Identification Number allocation ensure non-significant, secure and globally unique numbers that can be used by all trading partners, independent of industry sector or location. In order to do that, GS1 Member Organizations assign *GS1 Company Prefix* to each user company in their region. The *GS1 Company Prefix* provides the foundation for generating all of the GS1 Identification Numbers. GS1 Member Organizations also support users with

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rules, guidelines, best practices, etc. for assigning individual numbers pursuant to the GS1 allocation rules and standards.

Each GS1 user assigns/generates their own Identification Numbers based on their GS1 *Company Prefix* and the GS1 standards and allocation rules. Users can generate identification numbers manually, or use number generator software. *(Numerous vendors both in and outside the USA provide software for generating GS1 Identification Numbers for end users pursuant to GS1 standards and allocation rules.)*

Typically what companies and industry sectors are the catalog's leaders and subject matter experts drawn from?

Subject matter expertise is drawn from user companies in those sectors which are implementing the GDSN, such as CPG, retail, grocery, hardlines, and general merchandise by companies such as: Ahold, Best Buy, Carrefour, Wal-Mart, Target, J&J, P&G, Unilever, L'Oreal. Implementors may be from sectors such as food & beverage, or they may be from sectors preparing for implementation, such as Healthcare.

What improvements or expansions are planned?

There are currently expansion plans underway in several key business segments, the foremost of which is healthcare, then also in Foodservice, Wine and Spirits, Maintenance Repair and Operations, Mechanical Supply. Digital Asset Management has completed its proof of concept and is beginning implementation.

What is the business plan to sustain the organization's goals?

Meet the needs of our members and continue to move commerce forward. GS1 is developing support for selling and marketing attributes that will support B2C more effectively

### **CHANGE REQUEST PROCESS:**

Describe the Change Request (CR) Process?

The standards development process of the GSMP begins with a request for a new solution or a request to change an existing standard. The process consists of six steps followed from Change Request Submission to Publication of the Standard through GSMP:

1. Statement of Business Need
2. Requirements Gathering & Analysis
3. Business Solution Design (BSD)
4. Technical Solution Design (TSD)
5. Pilot

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### 6. Posting

Organizationally, the GSMP has Oversight Bodies, BCS Groups, Business Requirements Groups (BRGs), Work Groups (WG), and a Technology Centre. Oversight Bodies are involved in governance of the GSMP and consist of the following committees:

- GS1 Management Board: responsible for determining the global strategy for GS1, and
- ratifying changes to new or existing GS1 System standards).
- GS1 Board Committee for Standards (BCS): provides strategic guidance to GSMP; assesses progress of Initiatives and ratifies Process Group Work Orders (WO), and PCN recommendations.
- Data Accuracy – Develops and maintains GDSN Package Measurement Rules & Tolerance related Change Requests

BRG related Work Groups are teams of participants formed for the purpose of working on Complex Change Requests or GSMP Initiatives included in the GS1 Business Plan and specified in a Business Case Document (BCD) and detailed in a Project Description Document (PDD). The relationship with the BRG is specific to the standards areas being developed. BRGs facilitate work groups by populating them with members who then liaise between these working bodies. The Technology Centre is the umbrella group of the technology experts responsible for coordination across the different development activities and is composed of the following groups:

- eCom Technology Group (eTG)
- BarCodes & Identification Technology Group (BTG)
- Technical Development Teams (TDT)
- Modelling & GDD
- eCom

What are the eligibility requirements to vote on CRs?

(From Section 3.3.3 of the GSMP Manual )

Voting privileges within all GSMP groups are reserved to members that are employed by a member company in good standing of a GS1 Member Organization (MO), GS1 Global Office, or a GS1 Member Organization. GDSN Inc. certified Data Pools are eligible to vote within the GDSN BRG and its Work Groups. Solution providers are not eligible to vote within any GSMP group.

How many CRs were submitted and processed in the past 12 months?

Over 200

What are the eligibility requirements to submit a CR? May government entities submit CRs?

Anyone including governments can submit a CR

What are the eligibility requirements to vote on CRs?

### **Membership & Voting**

The Global Standards Management Process is open and transparent. Users can become involved in the GSMP as a member (with voting rights) or as a participant (without voting rights). Anyone can submit a request to modify an existing standard or to create a new one and then may take an active role in the development of a solution, or act as an observer as the GSMP does the work. There are six primary design objectives for BRG/WG membership and voting inside GSMP:

1. Facilitate BRG/Work Group decision making process
2. Adequately represent Specific Supply Chain Expertise (Retailer, Supplier, etc.)
3. Ensure adequate implementation commitment to approve a standard
4. Ensure continuity to protect legacy implementations built on existing standards
5. Provide transparency and simplicity in voting
6. Ensure minimum participation thresholds are met

#### **3.3.1. Membership Rules**

■ Anyone can participate in a BRG/WG by filling out an online membership application form through the GS1 Community Room and selecting the specific BRG/Work Group desired. BRG/WG members must have process expertise specific to the scope of work.

■ There will be a 30-day enrolment period to apply to be a BRG/WG member as specified on the GSMP Call-to-Action.

The number of BRG/WG members is unlimited and there are no regional composition requirements.

■ Membership applications are submitted via the **GS1 Community Room** website. The application must include support from the company that employs them and one GS1 Member Organization (MO). Upon receipt by the BRG/WG Process Manager, membership changes will be noted in the minutes of the next BRG/WG session (call or meeting) and maintained in the GS1 Community Room Roster.

How many vote on a typical CR?

Voting numbers can vary dramatically from one CR to another. However, there is a minimum requirement (from Section 3.3.3 of the GSMP Manual): A minimum of twelve parties committed to support the development and implementation of a standard is required for an eBallot to be legitimate. Of the twelve, a minimum threshold of two parties from either side of the trading partner relationship along with two MOs is necessary. In the case of GDSN standards, a GDSN Certified Data Pool is considered as an MO.

### **LEGAL RESTRICTIONS ON USE:**

What agreements must an organization sign to use the catalog?

An organization must sign a membership agreement to have access to the GDSN. Membership agreements run yearly and fees are based off of a rate card that matrixes an organization total traded product revenue value with a price/fee.

What limitations exist on the use of the content?

GDSN is a permission based network, trading partners jointly agree to the transmittal and usage of the data as applicable to their relationship.

Is the catalog sponsor organization a not-for-profit corporation?

GS1 US™ is a not-for-profit organization dedicated to the adoption and implementation of standards-based, global supply chain solutions. Under its auspices, GS1 US operates three wholly owned subsidiaries, 1SYNC™, EPCglobal US™, and RosettaNet. GS1 US also manages the United Nations Standard Products and Services Code (UNSPSC®) for the United Nations Development Program. EPCglobal Inc™ is a joint venture of the GS1 US and GS1. GS1 US-based solutions, including business processes, XML standards, EDI transaction sets, and the bar code identification standards of the GS1 System are currently used by more than one million member companies worldwide.

### **BARRIERS TO INDUSTRY PARTICIPATION:**

What barriers might limit mid- or small-size companies from using the catalog to publish their product descriptions?

There are no barriers restricting companies use by size. Data entry tools are available, and have been developed by 1SYNC to allow companies of any size to publish their product data. Today product information can be manually loaded through the 1SYNC product Data Driver, can be loaded through a flat file conversion, or can be loaded machine to machine for more sophisticated users. There are a large number of small to mid-size companies around the world using the Global Data Synchronization Network (GDSN).

### **ELECTRONIC ACCESS:**

What electronic methods exist for accessing catalog content (e.g., transfer of data files, web service real-time inquiries, etc.)?

A web browser service can be accessed from the GS1 global website. The browser provides User support in 5 languages and enables companies to search the entire product hierarchy. A download facility enables Users to copy product hierarchy information into their local computers via XML file transfer, or a flat

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file download. Trade Item Application Program Interface (API) will be available in 2009.

Could a synchronization process or web services be used to maintain current product characterization information for all products with a Global Trade Item Number?

Yes, all of our customers are using a synchronization process to receive new items, as well as changes to existing items.

What data format can the catalog content be provided in (e.g., XML, Excel spreadsheet, delimited file)?

The download facility supports XML, Excel, and flat file formats.

If there is no real-time query support, how frequently could updates on products be obtained?

On Demand - Real time query support is provided through the user interface.

What services do you provide to supply chain companies to support the integration of published catalog information into their information systems? Data synchronization success requires experienced support for both suppliers and retailers. 1SYNC has a variety of services based on our implementations of thousands of items for thousands of suppliers and retailers. These services include:

### **Customer Support**

1SYNC provides 24-hour customer support for our community.

### **Education and Training**

Our education and training program includes overviews of industry concepts, best practices, and hands-on training utilizing our solutions.

### **Implementation Support**

1SYNC utilizes a methodology for supplier enablement developed through implementing more items, in more geographies, than any other Data Pool.

### **Supplier Enablement**

The Supplier Enablement program supports supplier adoption through a combination marketing, education, and training program for companies of all sizes.

### **Standards Expertise**

1SYNC has full-time experts devoted to understanding, guiding, and advocating customers in the creation and implementation of GSMP standards.

What security controls are used to safeguard data integrity and to protect against unauthorized electronic access?

There are 3 levels of security for the 1SYNC applications. An outer layer of security manages whether the user will be passed to web server security, and



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from there it gets routed to application server security. 1SYNC also takes part in 3<sup>rd</sup> party security audits.

What ISO standards (e.g., ISO 22745) for data formatting and data exchange do you currently comply with or plan to comply with?

GS1 plays an active role in a number of ISO groups with ISO/IEC/JTC1/SC31 being the most important. ISO/IEC JTC1/SC31 is focused on Automatic Identification and Data Capture (AIDC). The secretariat for ISO/IEC JTC1/SC31 is provided by GS1 US (through the American National Standard Institute) and many GS1 Member Organizations take part in this process at all levels

### **COST OF RECURRING ACCESS AND DATA TRANSFER:**

What fees are charged to industry members to enter, update, or retrieve product information from the catalog? Please describe these fully and especially in terms of:

- Start up or "initializing" fees;
- Connectivity, system interface, or testing fees;
- Fees that are assessed by file size or have volume boundaries;
- Fees assessed by number of requests or access frequency;
- Monthly overhead or minimum usage fees; and
- Any other fee or charge categories and their basis of operation.

As a neutral, Not For Profit organization committed to enhancing the collaborative processes through which companies trade, and dedicated to improving and streamlining the supply chain, participating companies become members and are subject to membership fees that are based on that company's annual overall traded revenue.

Annual Sales (In Millions of U.S.\$)	1SYNC Fees
<= 1	\$ 600
>1 to 5	\$ 1,175
>5 to 10	\$ 1,675
>10 to 15	\$ 2,150
>15 to 20	\$ 2,575
>20 to 25	\$ 3,250
>25 to 50	\$ 4,375
>50 to 75	\$ 7,250
>75 to 100	\$ 10,125
>100 to 500	\$ 13,875

Note: Dated 12/30/2008 and subject to change

### DATA QUALITY:

What web site support tools, training, or other assistance is available to catalog users?

- Training – Customized training on industry standards for product identification, product measurement, additional product attribute definition and bar-code printing. Training is available both in-person and over the internet.
- Data Quality Starter Kit Workshop – Two day on-site training and consulting workshop covering data error root cause analysis, master data management processes, industry product data standards, building a business case for product data quality and the industry data quality framework.
- Documentation – Documents which are available on the web site include: Package Measurement Standards, Package Measurement Standards Implementation Guide, Item Identification Standards (GTIN Allocation Rules), Item Identification “Rules of Thumb”, Product Attribute Dictionary, Industry Data Quality Framework (data quality management system), Supplier Data Quality Case Studies
- UConnect Conference / Supply Chain 101 – Largest annual conference dedicated to advancing the field of product data information exchange. Supply Chain 101 is a full day of basic instruction for suppliers and retailers

### Other Assistance

- Product data audit services – Our trained professionals capture accurate product information including product dimensions, weight and label information. Accurate data is provided to the user electronically.
- Supplier Certification – Suppliers’ product data is audited and validated against physical product samples (to be launched 1H 2009).
- Integration to third-party data cleansing services – Suppliers can publish data to cleansing services such as GXS Product Data Quality services (formerly known as UDEX).
- Technology: data quality is assured through multiple technology features in 1SYNC and GDSN, including automated data validations, broadcast and synchronization capability to instantly communicate error corrections to multiple recipients, and control of product data by brand owners through the use of a tool called Brand Identity.

How can industry users be certain they are properly applying catalog data product information values when describing their products?

Suppliers receive validation errors automatically during data loading and maintenance on an ongoing basis. Additionally suppliers and/or retailers can request periodic data audits to ensure they are providing accurate data. In 2009 supplier certification will be available help suppliers ensure they are providing accurate data as well as ensure data recipients that the data is of high quality.

**SUMMARY:** Over the past several years the GDSN has effectively facilitated the continuous exchange of standardized product information between trading partners across the globe. Developed based on the universally accepted GS1 System of standards the GDSN has demonstrated that it is both scalable and flexible and works successfully across geographical borders and industry sectors. The GDSN provides a faster and more cost-effective flow of information. The operational benefits include: an efficient and sustainable supply chain that contributes to maximizing product availability with the electronic flow of information.

### **What are the strengths of this catalog?**

The strengths of this catalog are centered on the high level of global usage and the fact that it is based on the most widely accepted and used system of supply chain standards in the world. Other strengths include:

- The combined product categorization and nomenclature system
- All GS1 standards are developed through the direct involvement of users; a highly disciplined and robust open-governance process ensures data integrity
- The GPC standard is aligned with UNSPSC
- The dictionary is currently capable of supporting 36 industry verticals
- The dictionary is used in conjunction with GS1 global identification keys (Global Trade Item Number and Global Location Number)
- Global reach through a network of 108 GS1 Member Organizations
- Have leading position within identification standards / solutions market
- Credibility especially within retail sector, support from major businesses
- Positioned to provide the 'bridge' between trading partners

### **What are the weaknesses?**

As a standards organization based on collaborative efforts put forth by and for the members, there can be instances where new activity efforts can become time consuming while the members work to reach consensus and achieve the best possible outcome for all involved companies. It is felt, however, that this investment in time up front results in a standard that is more likely to be adopted than would be otherwise.

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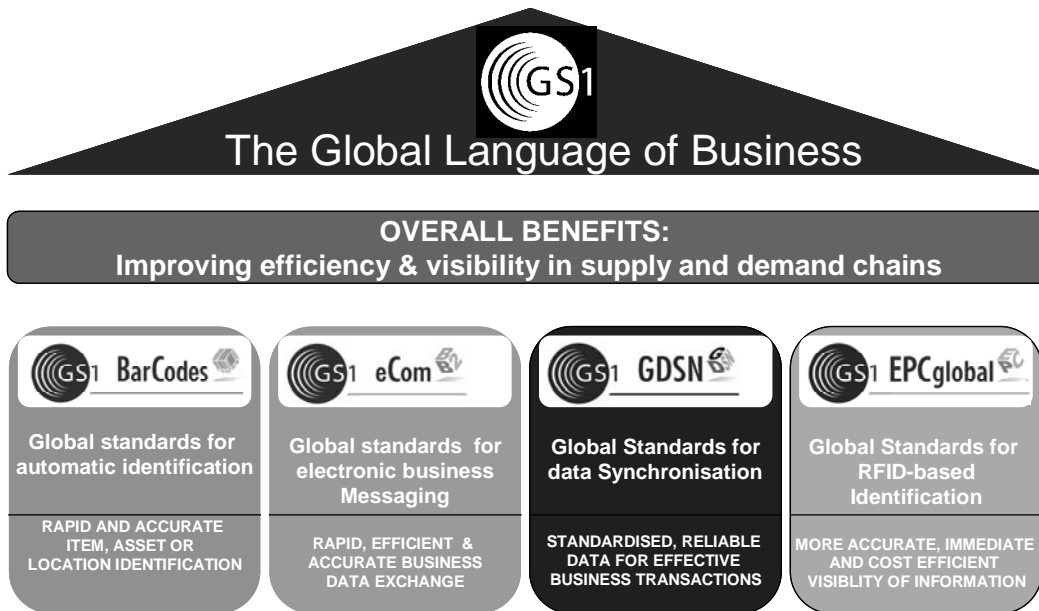
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Current coverage in bulk materials and industrial machinery is limited today, but can be accomplished in the same way coverage for many other industries has been added.

### General Remarks or Comments:

GS1 administers a Global Standards Maintenance Process (GSMP) across a broad range of standards. GS1 prides itself as a user-driven process organization supporting:

- GS1 Identification Keys, (for example used to support 5 Billion Barcode Transactions per day around the world across 22 sectors)
- GS1 ECOM / EDI Transaction Standards ( working with X12 , Edifact)
- GS1 GDSN Standards (GDD, GR, GPC) for Global Data synchronization
- Electronic Product Code (EPC), Radio Frequency Tags, EPCglobal Network
- Standards to Support Global Real Time Tracking and Traceability



GS1, GPC, and GDD together represent a global categorization system and product description dictionary of information that can be shared by trading partners through the GDSN. Additionally, 1SYNC GDSN supports several other widely used catalogs as described earlier, and can support additional descriptive information as required.

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In order to optimize information across the supply chain, all levels of packaging from individual unit to case should be marked, regardless of whether it is sold commercially. Experience has shown that identifying and marking all levels of packaging provides a much greater level of information, especially useful for recalls and tracking. To that end, the GS1 System provides Identification Numbers for logistics units (i.e., pallets; containers; etc.), packaging levels (i.e., boxes; cases; etc.), and individual items (i.e., unit of dose).

1SYNC's Data Pool solutions provide advanced functionality and the ability for trading partners to synchronize product and company data globally. The 1SYNC Data Pool is Global Data Synchronization Network (GDSN)-certified and adheres to the GS1 system standards.

With increased requests from retailers to synchronize higher value information — suppliers need a Global Data Synchronization Network (GDSN)-compliant Source Data Pool that meets all of their needs. Only 1SYNC has advanced solutions enabling the synchronization of higher value information — maximizing the Return on Investment (ROI) for suppliers. 1SYNC's Source Data Pool solution has four modules:

### **Item Management**

1SYNC's Item Management module is a GS1 standards-compliant global master repository for item information that is current with the Global Standards Management Process (GSMP) global data synchronization standards and certification requirements.

### **Price & Promotion Management**

Price & Promotion Management is the master repository for price and promotion data and also includes authorization and party (Global Location Number/GLN) relationship-specific functionality.

### **1SYNC Brand Identity**

The 1SYNC Brand Identity solution enables the protection, validation, and ongoing monitoring of brand owner-specific attributes throughout a company's data synchronization network.

### **New Item Introduction Management**

This module is integrated with our Item Management module, so most of the attributes are auto-populated — improving data accuracy and speeding items to the store shelf

### **Retail Specific Solution**

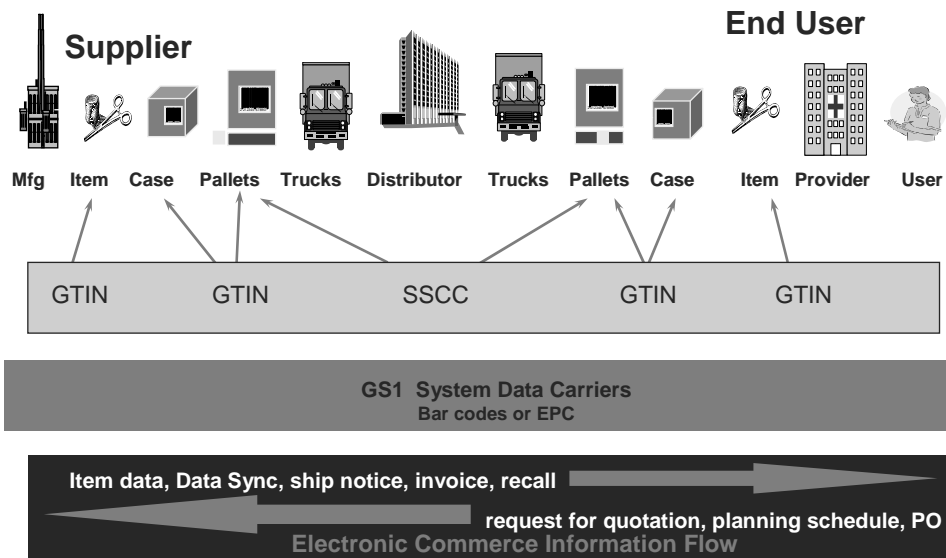
This module enables 1SYNC customers to store and synchronize attributes that are specific to an end user.

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The GS1 System supports six global Identification Numbers. Each GS1 Identification Number supports a distinct type of supply chain item (i.e., trade item, service, location, logistic unit, returnable container, etc.) and provides a link between the item and information pertaining to it.

<b>GS1 Identification Number</b>	<b>Title</b>	<b>Type of Supply Chain Information</b>
<b>GTIN</b>	<b>Global Trade Item Number</b>	<i>trade items (products and services)</i>
<b>GLN</b>	<b>Global Location Number</b>	<i>locations &amp; trading partners</i>
<b>SSCC</b>	<b>Serial Shipping Container Code</b>	<i>logistics units</i>
<b>GIAI</b>	<b>Global Individual Asset Identifier</b>	<i>individual assets</i>
<b>GRAI</b>	<b>Global Returnable Asset Identifier</b>	<i>returnable assets</i>
<b>GSRN</b>	<b>Global Service Relation Number</b>	<i>service relationships</i>

### GS1: Product Identification through the Supply Chain



ATTACHMENTS

GSMP –

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### TRADING PARTNER COMPANY LIST –



<b>HTS SECTION</b>	<b>PRODUCT SET</b>	<b>COVERAGE</b> <i>("S"=Strong; "M"=Moderate; "L" = Limited "- " = No Coverage)</i>
Section 1	<b>Live Animals; Animal Products</b>	-
Section 2	<b>Vegetable Products</b>	S
Section 3	<b>Animal or Vegetable Fats, Oils, and Waxes</b>	S
Section 4	<b>Prepared Foodstuffs; Beverages, Spirits, Vinegar, And Tobacco</b>	S
Section 5	<b>Mineral Products</b>	-
Section 6	<b>Chemical or Pharmaceutical Products</b>	M
Section 7	<b>Plastic and Rubber Products</b>	M
Section 8	<b>Leather, Fur, Travel Goods, and Handbag Products</b>	S
Section 9	<b>Wood, Cork, and Straw Products</b>	M
Section 10	<b>Wood Pulp, Paper, and Paperboard Products</b>	M
Section 11	<b>Textile Products</b>	S
Section 12	<b>Footwear, Headgear, and Umbrella Products</b>	S
Section 13	<b>Stone, Plaster, Cement, Asbestos, Mica Ceramic, and Glass Products</b>	M
Section 14	<b>Pearl, Precious or Semiprecious Stones, Precious metals, Imitation Jewelry, and Coin</b>	M

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Section 15	<b>Base Metals and Base Metal Products</b>	-
Section 16	<b>Machinery, Mechanical Appliances, Electrical Equipment, Sound Recorder and Television Products</b>	S
Section 17	<b>Vehicles, Aircraft, Vessels and Transport Equipment</b>	S
Section 18	<b>Optical, Photographic, Cinematographic, Measuring, Checking, Precision, Medical Or Surgical Instruments; Clocks And Watches; and Musical Instruments</b>	M
Section 19	<b>Arms and Ammunition</b>	M
Section 20	<b>Furniture, Bedding, Lamps, Toys, Games, and Sports Products</b>	S
Section 21	<b>Works of Art, Antiques, and Collector's Pieces</b>	M