The Global Language of Business

# Global Product Classification (GPC) Development & Implementation Guide

Reference document which provides an overview of GPC along with its fundamentals & principles, rules, and relationship to GDSN

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## Log of Changes

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# Table of Contents

# 1 Introduction

The purpose of the Global Product Classification (GPC) Development & Implementation Guide is to provide a reference document for GPC development and implementation. It provides an overview of GPC along with its fundamentals & principles, rules, and the relationship to GDSN.

# 2 GPC Overview

GS1 Global Product Classification (GPC) is a system that gives both sides of a trading partner relationship a common language for grouping products in the same way. It ensures that products are classified correctly and uniformly, everywhere in the world. The term “product” as used throughout this guide refers mainly to physical products; however GPC is expanding into services as well.

**The business objectives of GPC are to:**

- Support buying programs by allowing buyers to pre-select groups of applicable products
- Provide a common language for category management, thus speeding up reaction to consumer needs
- Be a key enabler of the Global Data Synchronisation Network
- To be a pivotal classification system between the information exchange parties

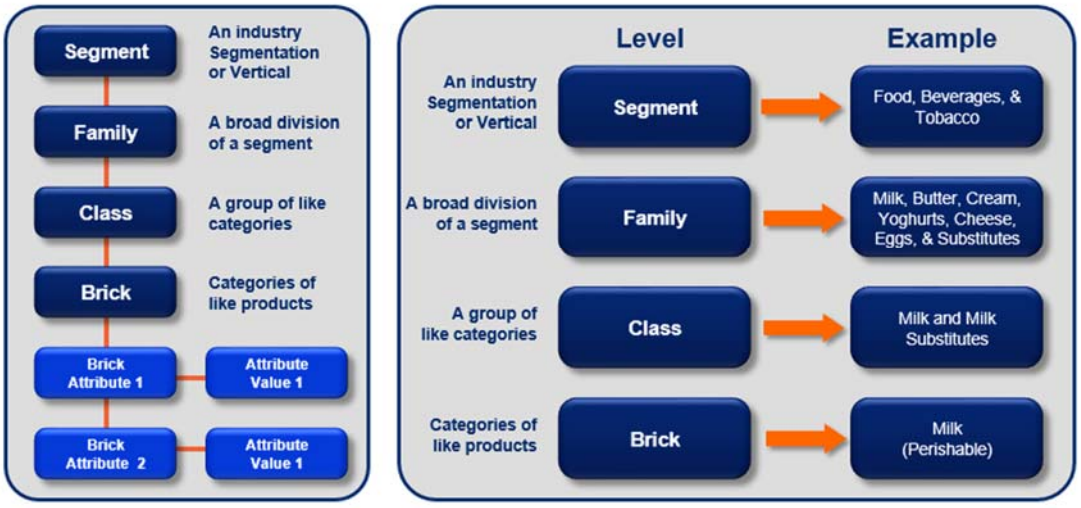
## 2.1 How it Works

GPC is a rules-based, four-tier classification system for grouping products. The four tiers are Segment, Family, Class, and Brick (with attributes and attribute values). A Brick identifies a category incorporating products (Global Trade Item Numbers (GTINs)) that serve a common purpose, are of a similar form and material, and share the same set of category attributes.

## 2.2 GPC Foundations

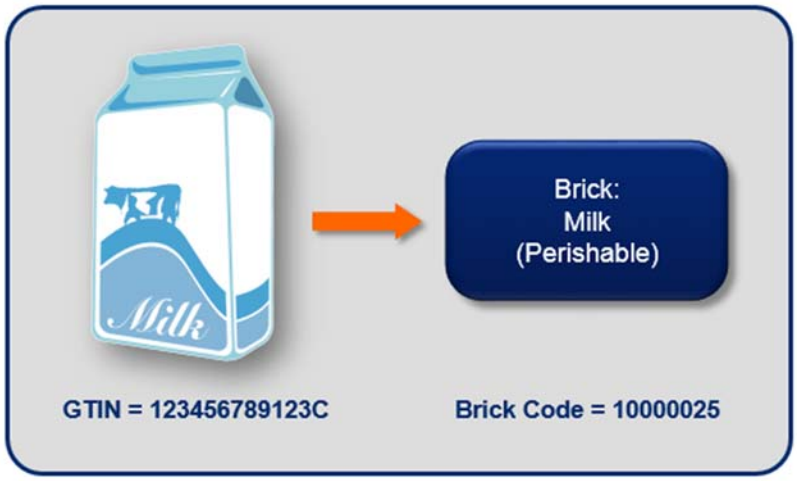
The foundation of GPC is called a "Brick". GPC bricks define categories of similar products. Using the GPC brick as part of GDSN ensures the correct recognition of the product category across the extended supply chain, from seller to buyer. Bricks can be further characterised by Brick Attributes and Attribute Values.

**Figure 2-1** GPC Foundation and Hierarchy



**Important**: Each Global Trade Item Number (GTIN) can be assigned only one Brick.

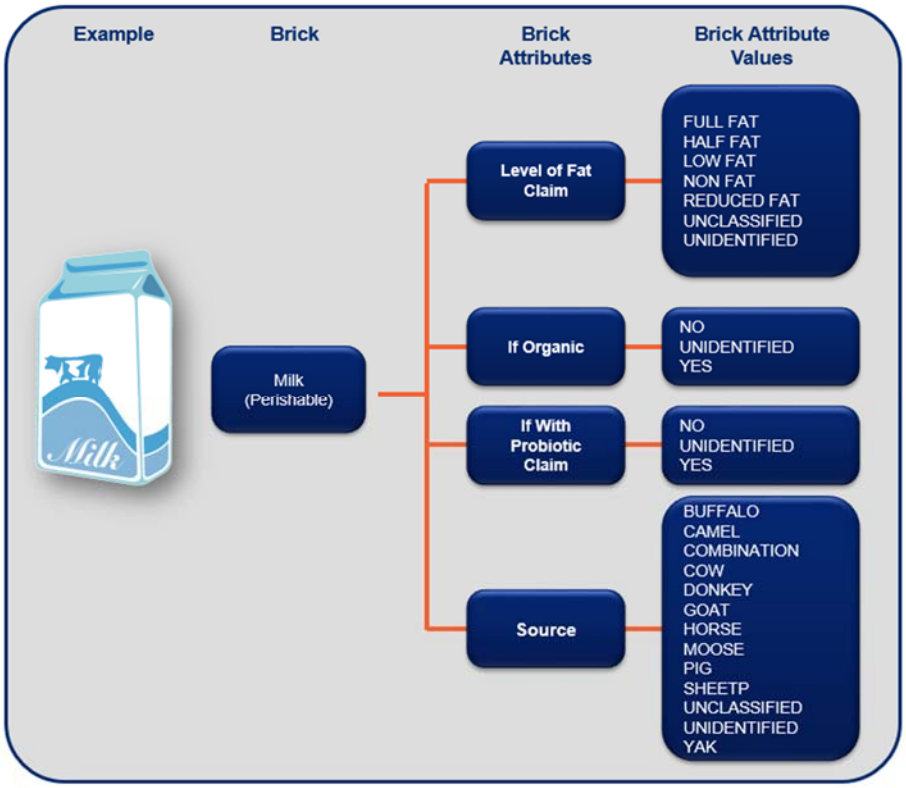
**Figure 2-2** GTIN / Brick Assignment




### Using Attributes

Bricks can be further characterised using attributes where necessary.

**Figure 2-3** GPC Brick Attributes



## 2.3 GPC Schema

The aim of the GPC Schema is to establish a flexible product classification schema, based on a comprehensive set of rules. GPC incorporates generic building blocks that transcend different business practises and multi-cultural barriers. It serves business-to-business needs for the functions of search, viewing, publication or subscription and data synchronisation through product group alignment.

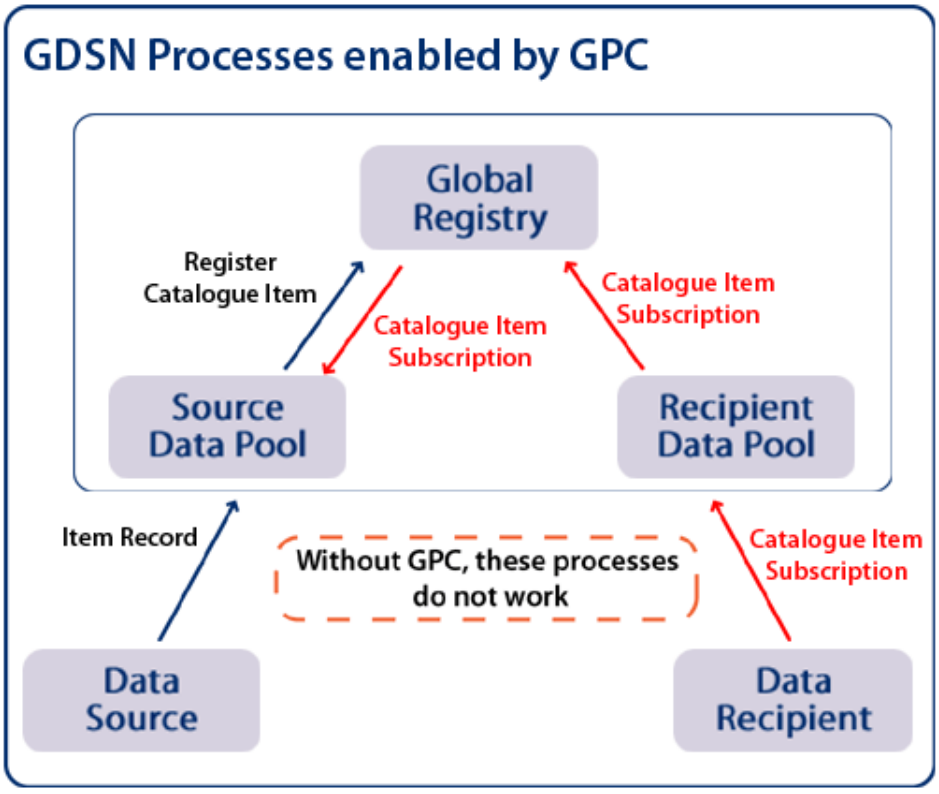
## 2.4 What is the Role of GPC in GDSN?

GPC gives buyers and sellers a common language to group products the same way globally to ensure effective data synchronisation in the Global Data Synchronisation Network (GDSN).

**GPC enables the following processes:**

- Item Registration
- Subscription
- Validation
- Search
- Publication/Subscription Match

**Figure 2-4** GDSN Process enabled by GPC Brick Attributes



# 3 GPC Fundamentals & Principles

## 3.1 General Principles

1. Modularity and Flexibility of the classification structure in order to meet industry objectives.
2. The logical grouping of bricks. The logic behind the schema should be transparent.
3. All categorized information must be universally applicable, i.e. the terminology used in the schema should not be culturally or nationally biased.
4. The schema is initially published in Oxford English with an explanatory glossary, which helps to clarify specific terms.
5. Schema should facilitate the collection of relevant classification information, and allow it to be presented in a view acceptable by the industry.
6. The schema can cover all products in the supply chain.
7. Any changes to the classification schema will be communicated in a delta report.

## 3.2 Schema Principles

1. The GPC schema provides an optional four-tier hierarchy; segment, family, class and brick (GPC bricks may be used independently without the hierarchy). The hierarchy should be easy to understand/follow and balanced in order to facilitate search.
2. Each level of the schema is determined by rules and/or principles, and also industry decision. However, the rules applied differ depending on the hierarchy level.
3. The business rules apply to all levels or entities of the schema.
4. Each brick may be assigned one or more attributes; in turn each brick attribute has a set of associated mutually-exclusive brick attribute values.

## 3.3 Generic Business Rules

1. Application of clear and consistent structuring.
2. Use of non-culturally biased terms and spellings.
3. Application of a standardised naming convention.
4. Ensuring that each segment, family, class and brick has the necessary coverage and scope, with the ability to add appropriate new values as identified.
5. Avoid ambiguity by using clear and concise definitions.
6. Provide a generic and standardised schema by ensuring that all products are uniquely placed.
7. A brick must, as far as is practical, contain products that can be characterised by the same set of attribute types relevant to the product. These attributes must meet the GPC attribute rules, and be part of the global standards. Where it is deemed not practical, the split of the product sets will be determined by industry input in accordance to GPC rules.
8. Products that are grouped and sold together (excluding kits) will be classified as variety packs. This applies to the segment, family and class level of the hierarchy. Variety Packs should only be created where necessary.
9. The schema will allow for the creation of a class-specific brick to capture products that cannot be immediately placed into an existing brick or products that the industry determines should not be broken out. These bricks are called ‘Others’.
10. Group products based on what they physically are and not on their intended use.

## 3.4 Hierarchy Principles

1. Resulting bricks must be grouped coherently and logically.
2. Categorised information must be recognised globally.
3. Hierarchy groupings must be relevant and suitable for all search functionalities.
4. Hierarchy classification must be flexible.
5. The hierarchy should be created describing the characteristics of products (what they are) and not which channel / vertical they will be sold in or by intended use (how they are used). This will ensure products that are available in different channels / verticals can be classified and identified easily.

## 3.5 Brick Principles

The rules below are the comprehensive lists that have been used for bricks across verticals. These rules are not 'general' in the sense that they are not appropriate for all segments. They should be used where they are relevant. It should be ensured that these guidelines are applied in all relevant segments.

- Broad area of differentiation
- Broad area of application
- Products serve a common purpose and use
- Processed to products using Similar Methods
- Products are of a similar form and material
- Split between powered vs. manual products
- Replacement parts will be classified in one brick per class
- Storage and Preservation
- Variety Packs
- Other
- Application & Function
- Number of Bricks must be manageable
- Share the same attribute types
- Brick names should be broad and stable over time

**Note**: To identify the appropriate rules by vertical and their explanation, please refer to *Section 10*.

## 3.6 Attribute Principles

1. Globally applicable, hence not biased towards a region, culture or country
2. Relevant, recognised and understandable to users and industry (What benefit is it providing?)
3. Unique (intention, format, technicalities), objective and mutually exclusive – Includes both attributes and their values
4. Non-legislation specific. It is a piece of information required globally, but will be governed / legislated for locally (i.e. If Organic, Food Quality/Food Assurance Claims etc.)
5. High-level attribute - Would a user require or expect to search, subscribe or publish information through this view? The best method for collection is not necessarily how the User would publish (i.e., the ideal method of collection may require more granularity)
6. Single, comprehensive, and mutually exclusive code list
7. No ambiguity in any terms/words used
8. All GPC Attributes will be described to show what information they are seeking to identify. No Brick Variant will be used

# 4 GPC Rules

## 4.1 Rules for Assessing GPC Attributes

A clear and unambiguous understanding of classification is critical for the development and maintenance of a coherent classification system. Within the fields of electronic catalogues and data synchronisation there is confusion due to differences in terminology (e.g., property = attribute) or different understandings of concepts like identification, description, and classification. Typical terms that can cause misunderstanding when not precisely defined include ontology, taxonomy, classification system, data dictionary, vocabulary, thesaurus, characteristics, property, attribute, and feature.

Recommendations below relating to these terms and definitions do not imply that the other terms and definitions are erroneous or inferior. This section seeks to establish a consistent vocabulary for supporting the GPC, and recognises that other terms may be equally valid in the same or a slightly different context.

### 4.1.1 Overview

In a typical product catalogue there are fields that:

1. **Identify with keys:**
   - A product with a GTIN (Which product am I selling?)
   - Manufacturer / vendor / supplier with a GLN (Who am I?)
   - Target Market where a GTIN is for sale (TM) (Where do I sell my product?)
2. **Further describe a product with Item attribute fields:**
   - Brand Name
   - Dimensions (height, length, width etc.)
   - Weight (net weight, gross weight etc.)
   - Technical features
   - Marketing features
   - Price
3. **Classify products**
   - Using GPC Brick Code as a key where each GTIN should be assigned to a GPC Brick code (What is the product group my individual product belongs to?)
     Classification provides further properties of the product group (Brick) with Brick Attributes and Brick Attribute Values

     **Note**: There should be NO FUNCTIONAL OVERLAP between Trade Item Attribute values and GPC Brick Attribute Values. Although both may pertain to the same product property, the Trade Item Attribute describes the product (e.g., Organic Code = “100% Organic”) while the GPC Brick Attribute classifies that product using that same product property (e.g., If Organic = “Yes”).

   - GTIN as a single product key is linked with GPC Brick code as a category (product group) level key.
   - Trade Item Attribute can be used to define as many technical or marketing features as industry wishes without any theoretical limit. However, Brick Attributes must be applicable to all products assigned to that brick.
   - Trade Item Attribute are not to be confused with GPC Brick Attributes. The goal of a Trade Item Attribute is to describe the product as a commercial offering. The goal of a GPC Brick Attribute

is to establish a flexible global classification schema based on a comprehensive rule set that serves business-to-business needs for the functions of search, view, publication, subscription, mapping, and data synchronisation.

- Trade Item Attributes may support more than one value, whereas a GPC Brick supports one and only one value.

### 4.1.2 Attributes Identification, Description, Classification

#### Identification Codes

Identification codes are the keys used to unambiguously identify a single specific item (in general). A common example is product identification using the GTIN. The one-to-one correspondence between the GTIN and the single product is very useful for recording and linking records of single products.

#### Description

The identification keys alone are not sufficient enough to provide the necessary details of the individual products. A set of data describes the specifications and structure of each single product. This is performed by a single product description where values are assigned to trade item attributes for each product.

#### Product Group Description

Product group characterization is assigning a product to a defined product category that groups similar products together based on common properties. Products are assigned to categories using a unique GPC brick code.

**Note**: Product description and product characterization both use properties, but with a different goal (description accurately denotes the properties of the product, while characterization denotes the properties of the category to which that product is assigned).

For each Brick, associated Brick Attributes and Brick Attribute Values are used to more granularly characterize products assigned to that Brick.

#### Classification

With classification, similar products are assigned to a defined product category. This is achieved by assigning a brick code to each product. Similar groups are members of yet a more general higher level category, and so on. This hierarchy can be navigated from top to bottom or bottom to top. The relationship of a single product to each hierarchy level is an information signal that is necessary for Item Discovery, Spend Analysis, and Product Awareness. In other words, both classification categories, represented by brick codes, and a hierarchical tree structure are useful for effectively searching and finding products and services with similar properties, which allows the source of expenditures to be tracked and potential trading partners to find products of interest to their buyers.

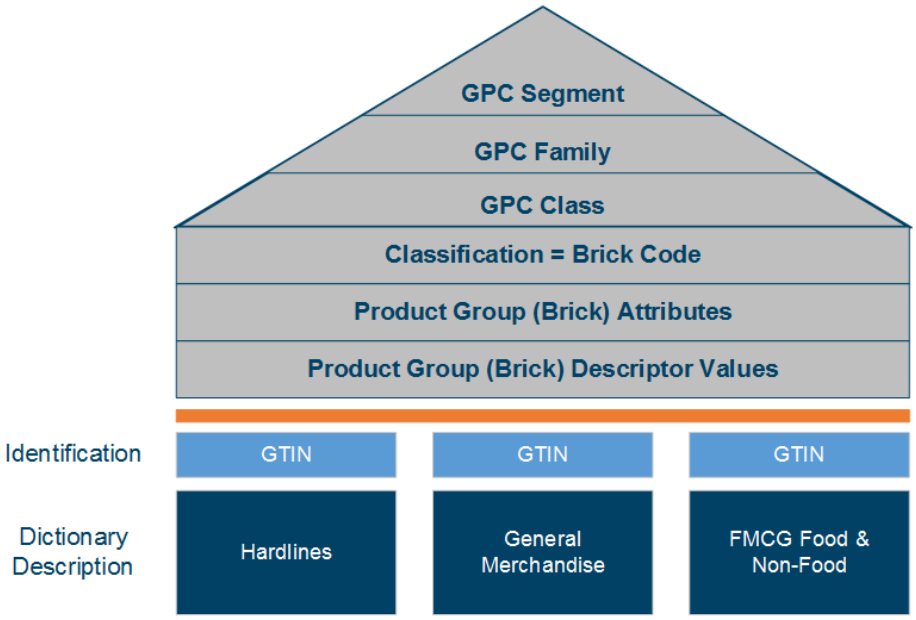
### 4.1.3 Commonalities and Differences

The upper part of *Figure 4-1* (above the orange line) illustrates the product classification components.

- GPC Brick Code is the key to defining the essential characteristics of a product by assigning it to a product category
- Brick Attributes and Brick Attribute Values provide additional granularity by further defining smaller subgroups within the Brick.
- Segment, Family and Class are hierarchal elements that are used to group together common bricks.
- The lower part of *Figure 4-1* (below the orange line) highlights the individual product level data.

- GTIN identifies the single product
- GS1 Dictionary Description (GS1 GDD) describes the different individual product characteristics of a Trade Item.
- Item Attributes can be broken down to
  - Basic Data (like Brand Name, Dimensions, and Weight etc.)
  - Descriptive (like Colour, Product Description, Variant etc.)
  - Other (like manufacturer's internal (not public) data)

**Figure 4-1** Commonalities and Differences




### GPC is part of the GS1 standard package for Global Data Synchronisation Network (GDSN)

The GS1 standard package enables consistent use of the GS1 standards globally. The use of specific keys and their associated data carriers are supported by allocation rules, Bar Code or Radio Frequency Identification specifications and other regulations.

In a trading relationship, buyers and sellers can distinguish themselves (WHO) and their locations (WHERE) with the Global Location Number (GLN) key. They can identify their products (WHAT) with the Global Trade Identification Number (GTIN) key. The Target Market (TM) key determines the geographical area where the products are to be sold. The GPC Brick code key identifies the product group to which the individual product belongs.

### Single Product Identification and Description versus Product Group Classification

GTIN acts as a single product identification key and uniquely identifies a single product. There is a one-to-one relationship between the single product and the GTIN. Therefore identification codes can neither be aggregated nor used for reporting or category analysis purposes and do not allow comparisons among different manufacturers. In a typical catalogue, suppliers identify the GTIN, GLN and also describe products with additional components called Trade Item Attributes.

Product Group keys (GPC Brick Code) are classification keys and are used to group similar products into common categories. A key property of classifications is that such groups can be clustered (bottom up)

with others to create a hierarchy, i.e., any group within a classification can be divided into smaller groups based on common characteristics (top down).

Classification with GPC is the act of saying: "This product belongs to this Brick, this Brick has hierarchy components (Segment, Family and Class), and this Brick can be further described with a Brick Attribute set and the associated Brick Attribute Values".

GPC is a structure for product classification (taxonomy), not individual product identification (GTIN) or description (dictionary). In other words, GPC provides a way to abstract rather than describe an individual product (which is handled by the trade item attributes).

**Differences between Single Product and Category (Product Group) components**

| | | SINGLE PRODUCT | CATEGORY (PRODUCT GROUP) |
|---|---|---|---|
| IDENTIFICATION KEY | **Key Name** | **GTIN** | **GPC Brick Code** |
| | **Key Size and Type** | 14 digit, non-negative integer | 8 digit, non-negative integer |
| | **Business Objective** | Single Product Identification<br>Tracking, tracing<br>Recall<br>Record keeping | Category (Product Group) Identification<br>Finding groups of products, Route items ,<br>Comparison, benchmarking<br>Enable trade processes, GDSN |
| | **Purpose** | Unambiguously identifies an individual product. | Unambiguously identifies the category incorporating products that share the same set of characteristics |
| | **Codes** | One-to-one relationship between GTIN and the product. Codes have no other meaning. GTIN is linked to the GPC Brick Code i.e. Each GTIN can only be assigned to one Brick code | Linked to the other hierarchy elements of which the Brick is a member together with Segment, Family and Class. |
| | **Property** | Uniqueness | Uniqueness |
| DESCRIPTION ATTRIBUTE | **Purpose** | Use the trade item attributes to describe products for trading partners. | Use brick codes and the associated Brick Attribute and Brick Attribute Values to characterize products for trading partners |
| | **Property** | Trade Item Attributes<br>(Typically 30-50 Attributes per GTIN)<br>Not classification attributes<br>Global or Global / local or Local<br>Neutral or category specific<br>Across industries<br>Can be free text<br>Can be legislation specific<br>Can be external code<br>Mandatory / optional / dependent<br>Not necessarily glossary | GPC Brick Attributes<br>(Typically no more than 25 Attributes per Brick)<br>No overlap with trade item attributes<br>Global always (not Target Market specific)<br>Category specific only<br>Relevant to a specific industry; unique, objective, and mutually exclusive<br>Non-legislation specific<br>8 digit non-negative integer code<br>Proactive glossary definitions |

### 4.1.4 GPC Structure

#### GPC General Principles:

- Modularity and flexibility of the classification.
- Logical grouping of bricks. The logic behind the schema is transparent

- Universally applicable and not culturally biased.
- Initially published in Oxford English.
- Facilitate the collection of relevant classification information acceptable by the industry.

**Schema Principles:**

- The GPC schema provides an optional 4-tier hierarchy – Segment, Family, Class and Brick.
- Each level of the schema is determined by rules and/or principles, and also industry decision. However the rules applied differ depending on the level – Segment, Family, Class, Brick, Brick Attributes and Brick Attribute Values.
- The business rules apply to any level or entity of the schema
- Each Brick can be assigned 1 or more Brick Attributes; in turn each Brick Attribute has a set of associated Brick Attribute Values.

**GPC Coding:**

- All numbers are 8 digit, non-negative integers
- Unique codes for identifying each product at a brick level
- Constant (deleted bricks are not reassigned)
- Brick codes always start with '1'
- Brick Attribute codes always start with '2'
- Brick Attribute Value codes always start with '3'
- Temporary GPC Brick Code: '99999999'

  This brick code is used for products that cannot be classified within the GS1 Global Product Classification schema. It serves as a temporary holding place for products, which cannot be classified within the current segments of the schema due to its current evolution. It excludes all products that can be classified within the published GS1 Global Product Classification Schema.

**Note**: Users are strongly advised to cease using the temporary Brick code as soon as the necessary classification becomes available.

### 4.1.5 Brick Attribute vs. Trade Item Attribute

**What is an attribute?**

In the Product Description world, Attribute is a term reflecting the data elements of a data model. An attribute is a specification feature or characteristic that describes recognisably the physical, compositional, or structural properties of a particular product (single product attribute) or a product group (Brick Attribute).

**Classification (Brick) Attribute**

For each Brick the associated Brick Attributes and Brick Attribute Values describe the Brick to provide granularity.

**What are the components of the Brick Attributes?**

- Brick Attribute – a question with regards to the Brick.
- Brick Attribute Value – a pick list

For example:

If Organic (Is the product group claiming to be organic or not?).

- **'Yes'** (the product group is claiming to be organic),
- **'No'** (the product group is not claiming to be organic) or
- **'Unidentified'** (It cannot be determined as to whether the product group is claiming to be organic or not.)

#### Trade Item Data Model

Use the specified attributes relating to a single product as a communication template for trading partners. The goal is to build data sets for all kind of products.

The single product attribute is a characteristic of the product that is used to describe the commercial offer to the retailer. Trade Item Data Model establishes a framework that is applicable to any parties within the supply chain (i.e. supplier, retailers, exchange, etc. across the globe, to communicate the necessary data elements relating to an item, thus supporting the core business requirements in the global trading environment). The Trade Item data model has 'placeholders / fields' for communicating the relevant classification schema (properties) that relates to the product concerned. However, the schema is a separate entity to that of the item model, the relationship is that the product's Brick and subsequent Brick Attributes are communicated in this framework.

### 4.1.6 Brick Attribute Rules

- Brick Attributes must be globally applicable and not biased towards a region, culture or country.
- Brick Attributes must be recognised, understandable and relevant to the industry, in terms of product classification.
- Brick Attributes must be unique (intention, format, technicalities), objective and mutually exclusive – includes both Brick Attribute and their Brick Attribute Value choices.
- Brick Attributes must be based on objective logic, and must not be subjective or emotive – An example of a non-classification attribute would be a marketing view (e.g., Indulgence).
- Brick Attributes must not relate to global, regional or local legislation requirements. It is a piece of information required globally, but will be governed / legislated locally (e.g., If Organic, Food Quality / Food Assurance Claims).
- Brick Attributes must be standardised in terms of naming.
- High-level attribute. The best method for collection is not necessarily how the user would publish(i.e., the ideal method of collection may require more granularity)
- Single, comprehensive and exhaustive code list
- No ambiguity in any terms / words used
- All Brick Attributes and Brick Attribute Values will be defined to show what information they are seeking to identify
- No Brick variant will be used
- 2 classification systems can be linked
- Brick Attributes should refer to high-level classification (Brick) attributes of product groups rather than describing the individual product concerned – an example of a non-classification attribute would be Brand, as it relates specifically to an individual or small group of products.

### 4.1.7 Brick Attribute Values

- Normalised value pick list. Only one Brick Attribute Value per Brick Attribute could be populated per each Brick.
- Brick Attributes must contain a default value in cases of limited information or non-applicability – unclassified and unidentified.
- Brick Attributes must possess a single comprehensive and exhaustive code list.
- Brick Attribute Values must be managed and maintained by the Service Provider and where necessary the GPC Standards Maintenance Group (SMG).
- Brick Attribute Values should be mutually exclusive and values must be uniquely defined.
- There should be no abbreviations within Brick Attribute Values.
- Brick Attribute Values should be in alphabetical order and created on the basis of key words.
- Contentious terms or words used as a value or within a value must be added to the glossary, along with a concise definition.

### 4.1.8 Trade Item Model Attribute

- Single product attributes can be globally, regionally or locally applicable and in some cases will be biased towards a region, culture or country.
- Single product attributes can be applicable to all industries (core) or applicable to one or more industries (extension).
- Single product attributes may be recognisable and understandable to selected users. However, it must be relevant to the industry, in terms of data synchronisation and apparent legacy harmonisation/normalisation. To support the core business requirements in the global trading environment.
- Single product attributes can be subjective and emotive. For example, Brand in some cases is a subjective attribute.
- Single product attributes can be in a free text format; each individual user determines value population for the field, a code list is not used in these cases.
- Single product attributes typically relate to legislative requirements of a specific region or country, which may or may not be relevant to a given user.
- Single product attributes may refer to more than one code list (i.e., colour description or Dangerous Goods).
- Single product attributes are intended to describe an individual product rather than a generic grouping or range of products, as is done by classification.

### 4.1.9 Trade Item Attribute Values

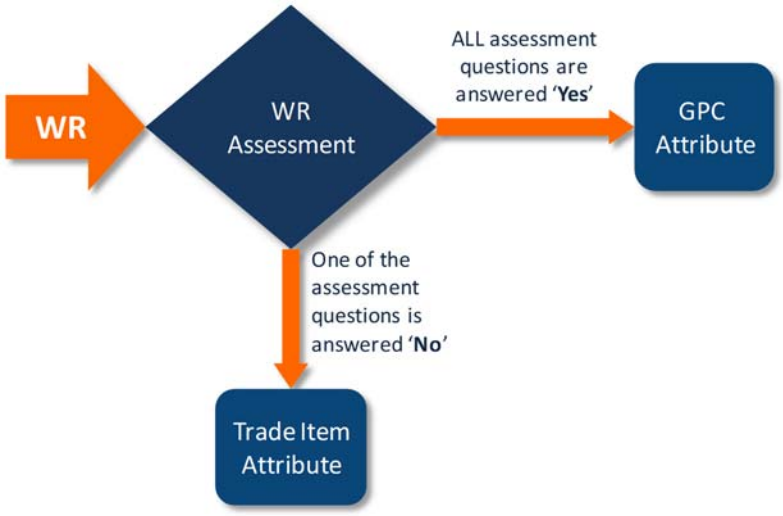
- Various types from free text to codes and dates
- Single product attribute values may not be mutually exclusive
- Single product attributes do not have default values if an answer cannot be given to a specific single product attribute, whereas within classification there is the option of unclassified and unidentified as Brick Attribute Values.
- Single product attribute value may be in certain cases managed and maintained by another standards organisation (e.g., ISO).

### 4.1.10 Work Request (WR) Assessment

When a GS1 Work Request (WR) (*Section 5.3*) involving an attribute is received, it is evaluated as to whether the attribute is a part of the Trade Item or part of the GPC Brick. A specific set of rules determines this split. A series of questions is applied to each GPC WR with the following results:

- If '**Yes**' is answered to **ALL** of the questions – the request is processed as a GPC Attribute which is contained in the GPC Schema and Online Browser. These WRs are routed to the GPC SMG.
- If '**No'** is answered to any **ONE** of the questions – the request is processed as a Trade Item Attribute which is contained in the GS1 Global Data Dictionary (GDD). These WRs are sent to Central Operations where they are routed to the appropriate SMG.

**Figure 4-2** Attribute Assessment




#### Attribute Assessment Questions:

1. **Globally applicable?** Attributes that are regional or local need to be supported by the Item Model.
2. **Relevant to users and industry?** Attributes must be recognized, understandable and relevant to the industry, in terms of product classification.
3. **Unique, objective and mutually exclusive?** The attributes must be unique in terms of intention and result, whereas and there is room for overlap and misinterpretation. Attributes also must be based on objective logic rather than based of subjectivity or emotion.
4. **Non-legislation specific?** The attributes within classification must not bear any relationship to that of legal requirements; if they do must be placed within the Item Model.
5. **High-level attributes?** The attributes intention and result within classification should be based on high level attributes and groupings that are a key criterion that a user would search, view and publish products.

   Can it be part of a single, comprehensive and exhaustive code list? The attributes within classification must have a single, comprehensive and mutually exclusive code list / pick list of values that provide an answer to the question being asked. Duplicate values within the same attribute are prohibited; the same applies to abbreviated values. Each code list must contain either unclassified (value known but not defined in code list) or unidentified (value unknown) and, if applicable, both. The code list is to be managed and maintained by the GPC Service Provider.

**Table 4-1** Attribute Assessment Example:

| GPC Attribute -or- Trade Item Attribute | Global? | Category Specific? | Granularity Relevant to the Industry? | Unique, Objective, Mutually Exclusive? | Non-legislation Specific? | Coded? | Code Value Pick List? |
|---|---|---|---|---|---|---|---|
| Brand Name | N | N | Y | N | Y | N | N |
| Trade Item Description | N | N | Y | N | Y | N | N |
| Height | Y | Y | Y | Y | Y | N | N |
| GTIN | Y | N | Y | Y | Y | Y | Y |
| GLN | Y | N | Y | Y | Y | Y | Y |
| Colour Description | N | N | N | Y | Y | Y | Y |
| **Colour of Wine** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** |
| Country of Origin | Y | N | N | Y | Y | Y | Y |
| **Origin of Wine** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** |
| Catalogue Price | N | N | Y | Y | Y | N | N |
| Organic Trade Item Code | N | Y | Y | N | N | Y | Y |
| **If Organic?** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** | **Y** |

### According to Table 4-1, the Trade Item attributes are:

**Brand Name & Trade Item Description:**
Not necessarily Global
Not necessarily Category Specific
Not unique (in terms of intention, format and technicalities)
Not coded
No code value pick list
No glossary exist

**Height:**
Not coded
No coded value pick list
No glossary

**GTIN and GLN:**
Not category specific
No glossary

**Colour Description:**
Not necessarily Global
Not necessarily Category Specific
Not necessarily unique (in terms of intention, format and technicalities)

| | |
|---|---|
| **Brand Name & Trade Item Description:** | Not necessarily Global<br>Not necessarily Category Specific<br>Not unique (in terms of intention, format and technicalities)<br>Not coded<br>No code value pick list<br>No glossary exist |
| **Catalogue Price:** | Not necessarily Global<br>Not necessarily Category Specific<br>Not coded<br>No code value pick list<br>No glossary |
| **Organic Trade Item Code:** | Not necessarily Global<br>Not unique (in terms of intention, format and technicalities)<br>It can be legislation specific<br>No glossary |

**According to Table 4-1, the GPC Brick Attributes are:**

| | |
|---|---|
| **Colour of Wine** | Global |
| **Origin of Wine** | Category Specific |
| **If Organic** | Granularity Relevant to the Industry<br>Unique (in terms of intention, format and technicalities), objective and mutually exclusive<br>Non-legislation specific<br>Coded with 8-digit non-negative integer codes<br>They all have 8-digit non-negative integer coded value pick list<br>Contentious terms of words used based upon a glossary |

## 4.2 Rules for GPC Database

### 4.2.1 Schema Structure

The GPC schema is structured in a hierarchical format where the higher levels have control or precedence over the lower levels. Hierarchical structures are a one-to-many relationships; each level having one or more levels below it except the lowest level. Conversely, lower levels are aggregated into the level above.

The GPC schema has 4 levels in its hierarchy (Segment, Family, Class and Brick) providing a coherent, logical and intuitive grouping that can be used to classify comparable products in a global environment. Each level is governed by business rules and/or principles and is intended to aid search functionality by using standard naming conventions, non-culturally biased terms and spellings and ensuring unique placement of products within the schema. Each node within the schema is designated with a Code and Description pair. The Code provides a unique reference while the Description aids human readability. Either the Code or Description can be used for searching, filtering or referencing.

The lowest level in the hierarchy, a Brick, has a level beneath it called a Brick Attribute to which Brick Attribute Values are allocated. Brick Attributes or Values are not included in the hierarchy, as they cannot be aggregated to higher levels. Brick Attributes are only relevant to the Brick they are assigned to. Brick Attribute Values are only relevant to the Brick Attribute they are assigned to.

**Figure 4-3** Brick Attribute Example

<table>
<tr><td colspan="16">S(1)</td><td>S(n)</td></tr>
<tr><td colspan="8">F(1)</td><td colspan="8">F(n)</td><td></td></tr>
<tr><td colspan="4">C(1)</td><td colspan="4">C(n)</td><td colspan="4">C(1)</td><td colspan="4">C(n)</td><td></td></tr>
<tr><td colspan="2">B(1)</td><td colspan="2">B(n)</td><td colspan="2">B(1)</td><td colspan="2">B(n)</td><td colspan="2">B(1)</td><td colspan="2">B(n)</td><td colspan="2">B(1)</td><td colspan="2">B(n)</td><td></td></tr>
<tr><td>BA(1)</td><td>BA(n)</td><td>BA(1)</td><td>BA(n)</td><td>BA(1)</td><td>BA(n)</td><td>BA(1)</td><td>BA(n)</td><td>BA(1)</td><td>BA(n)</td><td>BA(1)</td><td>BA(n)</td><td>BA(1)</td><td>BA(n)</td><td>BA(1)</td><td>BA(n)</td><td></td></tr>
<tr><td>BAV(1..n)</td><td>BAV(1..n)</td><td>BAV(1..n)</td><td>BAV(1..n)</td><td>BAV(1..n)</td><td>BAV(1..n)</td><td>BAV(1..n)</td><td>BAV(1..n)</td><td>BAV(1..n)</td><td>BAV(1..n)</td><td>BAV(1..n)</td><td>BAV(1..n)</td><td>BAV(1..n)</td><td>BAV(1..n)</td><td>BAV(1..n)</td><td>BAV(1..n)</td><td></td></tr>
</table>

S = Segment, F = Family, C = Class, B = Brick, BA = Brick Attribute, BAV = Brick Attribute Value

### 4.2.2 Hierarchies

In order to understand the definitions for each level it is necessary to begin with Brick Attributes and then understand how these relate to the lowest level of the hierarchical structure, the Brick.

Brick Attribute and Brick Attribute Values – Classification is a structured method of assigning category (product group) information detail to items contained within a Brick. Each Brick Attribute is designed to represent a particular category feature of the products assigned to the same Brick. Brick Attribute may be assigned to more than one Brick. Each Brick Attribute will have a set of unique, objective and mutually exclusive Brick Attribute Values associated with it.

- **Brick** – The fourth, lowest and most detailed level of the hierarchy is a logical grouping of similar products that conform to the Brick business rules. A Brick code is a classification key which contains a group of products that; serve a common purpose; are processed to similar methods; are used and applied in a similar manner; are of a similar form and material and, as far as practical, contain products that can be characterised by the same set of Brick Attributes relevant to the product. Thus, very specific groupings of products can be identified by the combination of a Brick and a collection of Brick Attributes with specific Brick Attribute Values.
- **Class** – The third level of the hierarchy is a logical grouping of Bricks sharing similar characteristics. The Bricks contained in a Class are a logical and coherent aggregation.
- **Family** – The second level of the hierarchy is a logical grouping of Classes sharing similar characteristics. The Classes contained in a Family are a logical and coherent aggregation.
- **Segment** – The first and highest level of the hierarchy is a logical grouping of Families sharing similar characteristics The Families contained in a Segment are a logical and coherent aggregation.

Very specific groupings of products can thus be identified by the combination of a Brick and a collection of Brick Attributes with specific Brick Attribute Values. For example, the grouping of products in *Figure 4-4* is quite different to the grouping of products in *Figure 4-5*, yet both can be aggregated into the same Class, Family, and Segment.

**Figure 4-4** Product Grouping (Example 1)

| **Segment** | **Food / Beverage / Tobacco** | | | | | | |
|---|---|---|---|---|---|---|---|
| **Family** | **Beverages** | | | | | | |
| **Class** | **Coffee / Tea / Substitutes** | | | | | | |
| **Brick** | **Coffee – Instant or Coffee Substitutes – Instant** | | | | | | |
| Brick Attribute | Botanical Variety | Formation | If Decaffeinated | If Organic | Origin of Coffee | Roast of Coffee | Type of Creamer/Whitener |
| Brick Attribute Values | CHICORY | GRANULES | NO | NO | COLUMBIA - HUILA | DARK | NONE |

**Figure 4-5** Product Grouping (Example 2)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Segment** | **Food / Beverage / Tobacco** | | | | | | |
| **Family** | **Beverages** | | | | | | |
| **Class** | **Coffee / Tea / Substitutes** | | | | | | |
| **Brick** | **Coffee – Instant or Coffee Substitutes – Instant** | | | | | | |
| Brick Attribute | Botanical Variety | Formation | If Decaffeinated | If Organic | Origin of Coffee | Roast of Coffee | Type of Creamer/Whitener |
| Brick Attribute Values | ARABICA | GRANULES | YES | NO | KENY – MOUNT KENYA | UNROASTED | NONE |

In a different example, Beer may be considered a "Beverage" and therefore found in the ***Beverages*** Family, but it is quite different than Coffee. Therefore, all types of Beer are grouped in a ***Beer*** Brick, which will be aggregated with other Alcoholic Beverages (such as Cider and Perry), into the ***Alcoholic Beverages*** Class.

### 4.2.3 Brick Attribute and Brick Attribute Value Assumptions

Every Brick Attribute has an associated Brick Attribute Value list. Brick Attribute and Brick Attribute Values should be considered as a bonded pair. For every Brick Attribute a Brick Attribute Value is required to complete the pairing. Therefore, Brick Attribute Value lists must accommodate a wide coverage of possibilities. However, in some cases it may not be possible to complete a confirmed or exact Attribute/Value pairing. For this reason, two special Brick Attribute Values are commonly assigned to every Brick Attribute to ensure an appropriate Attribute /Value pairing can be completed.

- **Brick Attribute Value UNCLASSIFIED** – This term indicates that it is possible to code a more specific Value for the Brick Attribute but at the time of classification an appropriate value from the values list could not be selected. If a user cannot identify a value to make the Attribute/Value pairing specific and correct to the product being classified, the user may code this value instead of coding a potentially incorrect value. The use of this Brick Attribute Value also suggests it may change in the future once the information required to select a more specific value becomes available. Initial attempts at coding Brick Attribute's may use this Brick Attribute Value until greater certainty about specific values is obtained. It should generally be used as a last resort.

  Short definition: Describes those products which cannot be assigned a specific Brick Attribute Value for a specific Brick Attribute, as the appropriate value is not present in the code list.

- **Brick Attribute Value UNIDENTIFIED** – This term is used to describe those products which cannot be assigned an attribute value for a specific attribute type, as the information required to do this is not present or obtainable, or cannot be determined given the existing product information.

  Short definition: Describes those products that cannot be further classified at a more granular level that is required to identify a specific Attribute Value for an Attribute Type.

#### Example

*Figure 4-6* identifies a Brick used to classify Instant Coffee. Generally, it is possible to identify a specific Brick Attribute Value for the Brick Attribute "Formation." However, in this example the user selected UNIDENTIFIED until information comes to hand that enables the user to make a correct and specific selection. This suggests that at a future time the user will reclassify the item with a more specific value from the existing code list, perhaps GRANULES. The user has selected UNCLASSIFIED for the Brick Attributes "Type of Creamer/Whitener" as classification is not possible because no creamer or whitener is present.

**Figure 4-6** Brick used to classify Instant Coffee

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Segment** | **Food / Beverage / Tobacco** | | | | | | |
| **Family** | **Beverages** | | | | | | |
| **Class** | **Coffee / Tea / Substitutes** | | | | | | |
| **Brick** | **Coffee – Instant or Coffee Substitutes – Instant** | | | | | | |
| Brick Attribute | Botanical Variety | Formation | If Decaffeinated | If Organic | Origin of Coffee | Roast of Coffee | Type of Creamer/Whitener |
| Brick Attribute Values | ARABICA | UNIDENTIFIED | YES | NO | KENY – MOUNT KENYA | UNROASTED | UNCLASSIFIED |

## 4.3 Rules for GPC Titles

| Rule | Description |
|---|---|
| Structure/Word order: | ▪ The title should be constructed with “blocks” of words in their plural form to help define a group of products e.g. Bread or Treatments<br>▪ The title should be constructed using nouns, verbs and adjectives<br>▪ Priority words should be nouns naming the product type (1 “block” of priority words is recommended)<br>▪ Qualifier words should be verbs and adjectives providing further descriptive breakdown of the product type, such as: Usage, Application, Form, Method of Storage, or Powered / Non Powered. There should be a maximum of three blocks of qualifier words<br>▪ Abbreviations should be avoided<br>▪ All words should be defined in UK English<br>▪ Each priority or qualifier word should start with a capital letter<br>▪ Priority or qualifier words should be in alphabetical listing where relevant<br>▪ Each word should be descriptive as possible to aid search and browse |
| Separating blocks of words: | Use the hyphen “–“ or ASCII character code 150 to split priority words from qualifier words e.g. block1 – block2<br>▪ There should be a space before and after the hyphen to differentiate between normal hyphenated words<br>▪ The short hyphen/dash (as used in normally hyphenated words) should not be used “-“ or ASCII character code 45<br>▪ The long hyphen should not be used “—” or ASCII character code 151<br>If there are 3 qualifiers use another hyphen to split the first qualifier from the second qualifier e.g. block1 – block2 – block3 (block4)<br>If there are 2 qualifiers use the curved bracket/parentheses “(“and“)” or ASCII character code 40 and 41 to split the first qualifier from the second qualifier e.g. block1 – block2 (block3)<br>▪ There should be a space before the opening bracket<br>▪ There should always be an opening bracket and a closing bracket<br>▪ There should be no spaces between the brackets and words contained<br>▪ The angle brackets “<”, “>”or ASCII character codes 60 and 62 should not be used<br>▪ The square brackets “[“, “]”, or ASCII character codes 91 and 93 should not be used<br>▪ The braces brackets “{“, “}” or ASCII character codes 123 and 125 should not be used<br>**Exceptions:**<br>▪ Frozen, Perishable and Shelf Stable qualifier should always appear in brackets e.g. Sandwiches/Filled Rolls/Wraps (Frozen)<br>▪ Powered or Non Powered qualifier should always appear in brackets e.g. Air Fresheners (Non Powered)<br>▪ Disposable or Non Disposable qualifier should always appear in brackets e.g. Baby Diapers (Disposable)<br>▪ Segment qualifiers should always appear in brackets e.g. Seat Cushions (Automotive) |

| Rule | Description |
|---|---|
| The forward oblique "/" should be used to connect/link words | ▪ The purpose of the oblique is to indicate an "and" and an "and/or" link<br>▪ There should be no spaces on either side of the oblique<br>▪ The backward oblique "\" should not be used<br>▪ The ampersand "&" should not be used<br>▪ The comma "," should not be used |
| Abbreviations should be avoided – however when required: | ▪ Abbreviations should not use the period (.) or ASCII character code 46 to separate or end abbreviations<br>▪ All letters contained in the abbreviation should be Upper case<br>▪ There should be no spaces in the abbreviation e.g. LED |
| Normal Hyphen usage | ▪ The short hyphen/dash "-" or ASCII character code 45 should be used<br>▪ There should be no space on either side of the hyphen<br>▪ Words before the hyphen should start with an upper case letter<br>▪ Words after the hyphen should start with a lower case letter e.g. In-car |
| Prefixes | ▪ Words prefixed with "Anti", "Pre" or "Post" should use a hyphen. The word following the hyphen should begin with a lower case letter e.g. Pre-recorded<br>▪ Words prefixed with "Non" should not use a hyphen. The words should be separated by a space and each word should begin with a capital letter e.g. Non Bound |
| Symbols | Only the symbols defined in the above rules are permitted for use. All other symbols are not permitted e.g. "!", "?", "£", "$", "%", "*" etc. The following ASCII character codes are not permitted:<br>▪ 33 through 39<br>▪ 42 through 46<br>▪ 58 through 64<br>▪ 91 through 96<br>▪ 123 through 149<br>▪ 151 through 255 |
| Other titles | ▪ The Brick title should be a construct of the Brick priority word(s) with the word "Other" appended<br>▪ The appendix should have no separator e.g. First Aid Other<br>**Note:** These Bricks may be removed at a later date |
| Variety Pack titles | ▪ The Brick title should be a construct of the Class title with the words "Variety Packs" appended<br>▪ The appendix should have no separator. As "Variety Packs" can occur in higher levels of the hierarchy (e.g. Class, Family, Segment) it is desirable to not have any symbols present in the titles at these levels.<br>▪ When the Class title already has the words "Variety Packs" appended then the Brick title will be the same as the Class title e.g. Door Hardware Variety Packs |
| Accessories / Replacement Parts | ▪ The Brick title should be a construct of the Class title with the words "Accessories/Replacement Parts appended<br>▪ The appendix should use the hyphen separator e.g. Oral Hygiene – Replacement Parts |

### Variety Pack Syntax

1. When the Class title does not have "Variety Pack" appended
   Brick title = [Class title] "Variety Packs"
2. When the Class title does have "Variety Pack" appended
   Brick title = [Class title]
3. Accessories/Replacement Parts titles – Brick title = [Class title] "Accessories/Replacement Parts"
4. All remaining titles refer to the Valid Formats table

### Summary of Valid Title Formats

There are 4 valid formats (excluding the Rule exceptions):

1. Priority Words
1. Priority Words – Qualifier words
2. Priority Words – Qualifier words (Qualifier words)
3. Priority Words – Qualifier words – Qualifier words (Qualifier words)

## 4.4 Rules for GPC Codes

This section defines the rules governing GPC codes.

| Level | Length | Syntax | Example |
|---|---|---|---|
| Segment codes | 8 | Two digit code followed by six zeros | 10000000 |
| Family codes | 8 | preceded with the Segment code | 10200000 |
| Class codes | 8 | preceded with the Segment and Family code | 10203000 |
| Brick codes | 8 | preceded with a “1” | 10000123 |
| Attribute Type codes | 8 | preceded with a “2” | 20000123 |
| Attribute Value codes | 8 | preceded with a “3” | 30000123 |

| Step | Action/Description/Rule |
|---|---|
| **Allocation** | Codes are allocated sequentially at each level. The database selects the next available code for the level being created. Once the parent hierarchy has been determined the database then builds the complete code.<br>For example, a new Class is created [40] and it is associated with a Family [20] and a Segment [10]. Therefore, the complete code for the new Class can be expressed as 10204000. |
| **Level Modifications** | Codes are impacted by level Modifications, Additions and Deletions. Modifications fall into two categories of severity; Major and Minor. Depending on the form of change an appropriate rule will be applied (see below). |
| **Level Addition** | e.g. a new Brick is added.<br>The user must identify the parent hierarchy. With this information the database automatically selects the next consecutive number not previously allocated from the range at the appropriate level and either builds the complete code and/or formats the code as per the Format rules above. |
| **Level Deletion** | e.g. a Brick is deleted.<br>The user indicates a code is to be deleted. In the database the code is flagged as “unavailable” for future publications. In this way the code will never be lost and as such it cannot be reallocated. |
| **Impact by Change**<br>**Minor Modification** | e.g. a Brick description is amended to correct a spelling mistake.<br>There will be no change to the code. |
| **Impact by Change**<br>**Major modification** | e.g. a Brick is redefined warranting the Brick to be split.<br>If a level is split there are two options that could apply. The option selected is dependent on the severity and impact of change.<br>A less severe example would be a Brick split into two Bricks that simply splits the products contained. In this example the rule applied would be, the existing level remains (and may be renamed) and new levels are added as required. The products requiring reclassification would be moved to their new levels whilst leaving some of the original products in the source level.<br>A more severe example would be new Bricks being built up from existing Bricks or parts of Bricks and would require the reclassification of all of the products contained in the source Bricks. In this example the rule applied would be, new levels are added as required, all products in the source level are reclassified and moved leaving the source level empty, then the source level is deleted.<br>Added and deleted levels would follow the Addition and Deletion rules as stated above. |
| **Reuse** | Brick Codes are not reused. Once a code is allocated it becomes unavailable for reissue. Deleted codes are not deleted from the database, but flagged as “deactivated.” |

## 4.5 Rules for Managing Redundant GPC Attributes

A brick must, as far as is practical, contain products that can be characterised by the same set of attribute types relevant to the product. These attributes must meet the GPC attribute rules, and be part of the global standards. Where it is deemed not practical the split will be considered based on industry input.

- During the development of a schema, a collection of attributes will be identified for each brick. These attributes will conform to the attribute rules.
- During the development of a schema, the industry providing the feedback in the context of attribute redundancy may want to consider the following;
  - Industry need – must be useable and required
  - Rules compliance
  - Size and scope – consider impact such as mapping, subscriptions, etc.

A balance needs to be struck in context of the above. Ultimately, industry need takes precedence and may accept an agreeable level of attribute redundancy.

When making this decision the industry may want to consider the type of attributes that could be used in order to prevent a change to the schema:

- **Boolean** attributes can provide absolute clarity without adversely impacting the brick definition.

  For example: 'Yes/No' or in other words 'it is' or 'it isn't.' There is no 'in between' and there is no ambiguity.
- **Non-Boolean** attributes may not provide absolute clarity and therefore may be more applicable in a more granular brick.

This industry should consider the impact of defining bricks at a more granular level in an attempt to eliminate attribute redundancy. The industry should remember the GPC Principle that "the number of bricks should be manageable."

### For Example:

A singular brick titled 'Clothing' has an attribute titled 'If Maternity". Obviously this attribute is not applicable to Men's clothing. There are two options for resolution:

- **Option 1:** Accept the status quo recognising that for every piece of clothing the attribute 'If Maternity' must have a value of 'Yes' or 'No.'

  In this option every piece of non-women's clothing would be coded with the value 'No.' There is no doubt or confusion when assigning the value as it is either 'Yes' or 'No.'

  The schema remains smaller in scope and can be easily understood and applied in the industry.
- **Option 2:** Split the singular brick 'Clothing' into the various alternatives to ensure attribute clarity. Possibilities are;
  - 'Clothing Women's'
  - 'Clothing Men's'
  - 'Clothing Unisex'
  - Others?

  In this option the collections of attributes would have to be re-assessed for each new brick and in this instance 'If Maternity' would only be applied to 'Clothing Women's.' The likelihood is that most of the attributes will essentially be the same across the bricks.

  The schema has increased in scope and complexity as now only certain attribute are applicable to certain bricks, but absolute clarity may be achieved.

## 4.6 Rules for Managing Contested GPC Hierarchies

The parentage of a Brick can become contested when more than one parent hierarchy is possible. This may become apparent during development of a sector or through evolution of the products contained within the Brick. Anyone can alert the GPC Standards Management Group (SMG) to a contested hierarchy.

The GPC SMG investigates how the contested Brick should be weighted in terms of primary application (e.g.: place the Brick Shoeshine in the Footwear hierarchy instead of the Homecare hierarchy).

All contesting the Brick hierarchy must agree with the primary application.

| **Segment** | Homecare | Automotive |
|---|---|---|
| **Family** | … | … |
| **Class** | … | … |
| **Brick** | Widgets | Widgets |
| **Usage** | 20% | 80% |

In this example it has been agreed Widgets are predominantly used and searched for in the Automotive hierarchy. Therefore the Automotive hierarchy assumes ownership of the Brick Widgets.

If the primary application becomes not practical or consensual agreement cannot be reached, it may be possible to separate it into a Cross hierarchy e.g. Cross Segment, Cross Family, Cross Class, 'Widgets' as a Brick to be used across categories.

In this instance, the GPC SMG needs to provide their decision and sign off.

| **Segment** | Homecare | Automotive | Cross Segment |
|---|---|---|---|
| **Family** | … | … | … |
| **Class** | … | … | … |
| **Brick** | Widgets removed | Widgets removed | Widgets |
| **Usage** | | | 100% |

In this example it has been suggested Widgets are removed from both Homecare and Automotive hierarchies and placed in a Cross Segment hierarchy.

The Service Provider prepares supporting documents with assistance from the Sub Group members including the discussion around primary application and a recommendation.

The GPC SMG assesses the documentation and recommendation and provides sign off advocating one of the two possible solutions;

1. Designate a primary application and associated hierarchy or
2. Provide consent to include the disputed Brick into a new or existing Cross Segment hierarchy.

The decision of the GPC SMG is documented and distributed between the Sub Groups by the Service Provider. Impacted GPC Sub Teams implement the decision of GPC SMG accordingly.

## 4.7 Rules for GPC Prepared / Processed Classification

The rationale for determining if products are prepared or processed depends on whether they have undergone a significant change in terms of physical state prior to sale through a manufacturing process that may include cooking, drying, reforming (ground), curing, and combination with additional ingredients.

### 4.7.1 Prepared and Processed Products

**Any product that has been:**

- **Cooked** – process of preparation through heating
- **Dried** – process of removal of moisture required for bacterial growth, usually via evaporation
- **Reformed** – process whereby the product has been made into another shape e.g. a burger constructed of ground beef.
- **Smoked** – process of exposure for long periods of time to the smoke from a (usually wood) fire. Includes hot and cold smoking.
- **Salted/Curing** – process of curing through reduction of water using salt, sugar or a combination of both, or soaking in a curing solution consisting of water, salt and/or nitrate and/or sugar.
- **Added Ingredients** – Products that have the additional ingredients other than a sauce or seasonings, i.e. vegetables, rice, pasta, etc. These would be classified within the 'Grain Based Products', 'Dough Based Products' & 'Vegetable Based Products'.

**Note:** Although most products that are raw will be unprocessed, raw products that are ground and reformed (i.e. ground or minced beef) are classified as processed and prepared. Also note that products which have not been subject to any manufacturing process other than being boned, sliced, or diced are classified as Unprepared/Unprocessed

**Examples, by family, of typical prepared/processed products are:**

- **Fruit** –stewed apples, dried apricots, etc.
- **Vegetables** –roasted vegetables, dried onion, canned plum tomatoes (have been cooked), etc.
- **Meat, Poultry & Game** –roasted chicken breast, cooked beef in a red wine sauce,
- **Fish** –tuna steak in brine (as it has been cooked), dried cod, fish fingers (must be reformed), sushi (as it has been smoked) etc.
- **Shellfish** –cooked shrimps, boiled lobster, crab in brine, etc.
- **Nuts & Seeds** –roasted hazelnuts, salted peanuts, dried walnuts etc.
- **Aquatic Invertebrates** –sautéed squid, fried octopus, etc.
- **Aquatic Plants** –dried seaweed, cooked carrageen moss,

### 4.7.2 Unprepared & Unprocessed

The rationale for determining if products are unprepared and unprocessed depends on whether they are sold in their natural state or have undergone only rudimentary change; e.g. cleaned, trimmed, chopped, peeled or immersed in its own natural juice or water. These products can have the addition of flavouring, which does not alter its natural state, e.g. herbs, spices, seasoning, etc., though the addition of these must not be responsible for any physical change to the product. This includes products that are:

- Uncooked
- Not Dried
- Not Reformed
- Not Smoked
- Not Salted/Sugared/Cured

**Note:** The addition of seasonings, coatings, sauces, and fillings is permitted for any product that is otherwise an unprepared and unprocessed product

**Examples of unprepared and unprocessed products with additional ingredients are:**

- Raw Chicken in a red wine sauce (excluding vegetables, rice, pasta, etc.)
- Sliced raw fish seasoned with salt/pepper.
- Raw pork coated in breadcrumbs, batter, etc.
- Products immersed in brine or vinegar – brine is seen as a preservation agent not as preparation and that the product is in its natural state or just gone through rudimentary changes i.e. chopped, sliced, peeled, etc.

**Product factors which are excluded from unprepared/unprocessed:**

- Products that are cooked, dried, smoked, salted, cured, sugared, reformed, etc.
- Products that have the additional ingredients other than a sauce or seasonings, i.e. vegetables, rice, pasta, etc. These would be classified within the 'Grain Based Products, Dough Based Products, Dairy Based, Egg Based, Dairy/Egg Based Products & Vegetable Based Products' bricks.

**Examples, by family, of typical unprepared/unprocessed products are:**

- **Fruit** –chopped pineapple, fresh strawberries, blackcurrants in a fruit coulis, etc.
- **Vegetables** –raw peeled carrot batons/sticks, sliced potatoes with a sauce, mange tout in its natural state, etc.
- **Meat, Poultry & Game** –sliced raw turkey, raw beef with bone removed, raw chicken breast in a sauce, raw peppered steak, etc.
- **Fish** –raw salmon steaks, cod in batter (excludes reformed cod), etc.
- **Shellfish** –prawns in their natural state, etc.
- **Nuts & Seeds** –natural brazil nuts, etc.
- **Aquatic Invertebrates** –raw octopus in sauce, diced raw squid, etc.
- **Aquatic Plants** –raw dulse, sliced raw nori, etc.

## 4.8 Rules for GPC Horticulture Classification

The GPC Horticulture structure is based on Botanical taxonomy, the most common and widely accepted way to classify living beings: Genus and Species. The structure is based on globally-applicable taxonomical principles and aligned with other international standards such as the ***International Society for Horticultural Science's Commission on Nomenclature and Cultivar Registration***. Cultivars are currently NOT included because they are already defined and governed by the ***International Society for Horticultural Science (ISHS)*** and too detailed and numerous for classification purposes.

Since GPC is intended to classify widely traded flowers and plants, as a guideline, new Bricks should only be granted for new genus-species combinations if they contribute more 0,5 % to the world turnover within their GPC respective Family. For smaller Genus-Species combinations, a catch-all brick is included within every Family. This restriction is necessary as there are currently thousands of Genus-Species combinations, however it still allows GPC to support more than 98% of globally traded flowers and plants. All new Horticulture classification requests will be checked against these guidelines, however, proper consideration will be given to a requester's turnover/market share needs.

In addition, GPC technical issues require the Live Plants family to be divided into two sections:

- Genus A thru G
- Genus H thru Z

# 5 GPC Development & Maintenance

GPC standards are developed by the community through the GPC Standards Maintenance Group (SMG). Consistent with the Global Standards Management Process (GSMP), GPC Work Requests are submitted by the community to initiate the change.

## 5.1 Roles and Responsibilities

| Role | Responsibility |
|---|---|
| GPC Service Provider | Responsible for the assessment of GPC Work Requests, development of the GPC schema and the publishing of each GPC release. |
| GPC Standards Development Leader (SDL) | Facilitates GPC SMG meetings and is the overall project manager for all GPC Work Request (WR) development and deployment. |
| GPC Product Manager | Responsible for the strategy, roadmap, and feature definition of GPC. Also engages with specific industries (via Industry User Groups) in order to understand their needs for standards, services & solutions for the improvement of industry processes. |
| GPC SMG | The GPC Standards Maintenance Group (SMG) is comprised of GPC industry experts. This group is responsible for GPC governance and decision making. |
| Board Committee for Standards (BCS) | Advisory body whose primary role is to ensure that the GSMP process is followed. |

## 5.2 Work Request Assessment

When a Work Request (WR) is received, it is evaluated as to whether the request is a part of the Trade Item (delivered via the Global Data Dictionary), or a part of GPC (Bricks and/or Attributes).A specific set of rules determines this split. A series of questions is applied to each WR. Refer to *Section 4.1* for detailed information on the rules for accessing GPC Attributes and *Section 4.1.10* for the specific assessment questions.

## 5.3 Work Request (WR) Paths

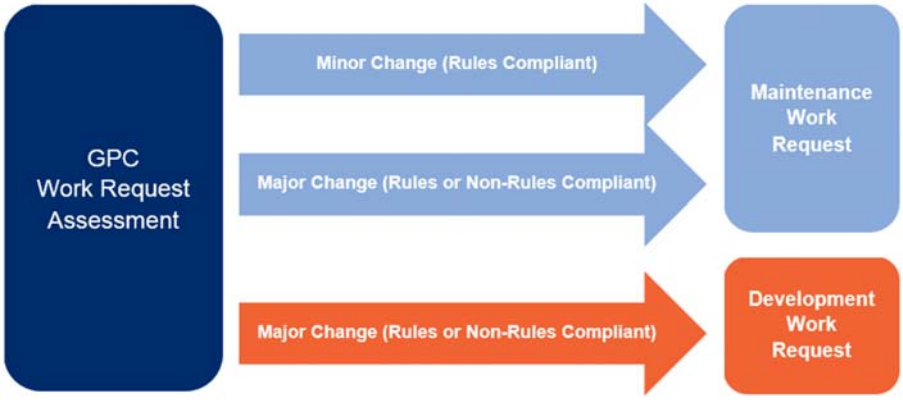
GPC Work Requests primarily are characterized as a **Maintenance Change** - a value is added to the schema or the schema evolves to accommodate user needs but has no impact on its structure (ontology).

- Minor Change (Rules Compliant, e.g., adding a new attribute value)
- Major Change (Rules or Non-Rules Compliant; e.g., splitting an existing brick into two bricks)

In the rare instance that there is a proposed fundamental change to the schema or the schema evolves to accommodate user needs with major impact on its structure (ontology), it would be characterized as a **Development Change**

Upon receiving a Work Request, the GPC SMG designates it as either “Maintenance” or “Development”. Work Request

**Figure 5-1** GPC Work Request Path




## 5.4 Work Request (WR) Review Criteria

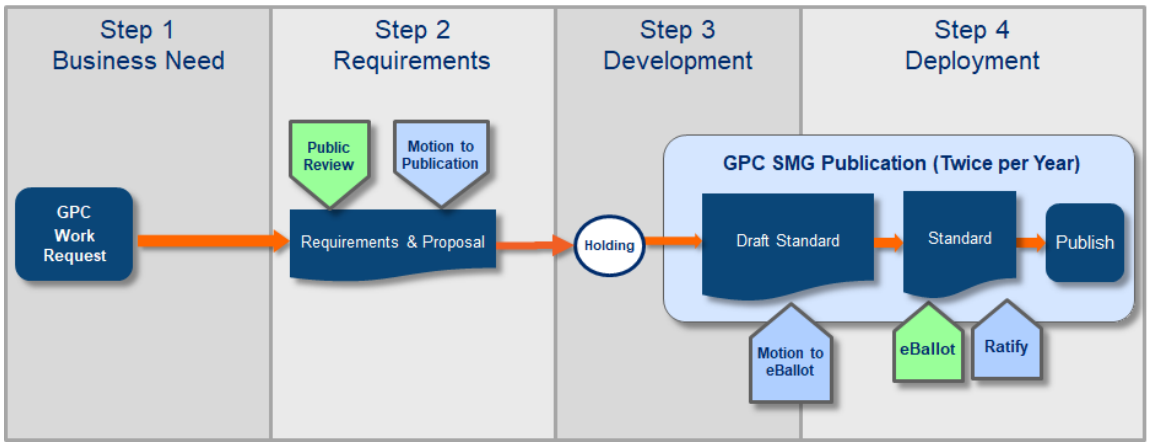
Each WR submitted to the GPC SMG is reviewed to determine its level of compliance with the following criteria. Those that satisfy all criteria shall be advanced for publication. Those that do not will be referred back to the submitting party for further clarification and/or WR revision.

1. Are all proposed hierarchy elements global in nature or are they dependent on regional definitions or references?
2. Do all proposed Brick Attribute provide exhaustive, mutually exclusive value lists?
3. Do products likely to be assigned to a Brick, as far as practical, share the same brick attributes?
4. Do all Brick Attributes represent a single characteristic, or are more than one characteristics present that can be “decomposed”?
5. Are all Brick Attributes and Brick Attribute Values precisely and unambiguously defined?
6. Do code and value names conform to the GPC rules for titles (Section 4)?
7. Is the number of Bricks and Brick Attributes manageable and aligned with industry use?

## 5.5 Change Management

GPC Development and Maintenance follows the GS1 GSMP standards processes.

**Figure 5-2** GPC Development and Maintenance Process



### 5.5.1 Step 1: Business Need

Once the Work Request is received, evaluated, and designated as affecting GPC, it is routed directly to the next step, Step 2: Requirements.

#### 5.5.1.1 Step 2: Requirements

**Responsible:** GPC Service Provider, GPC SDL, GPC Product Manager, and GPC SMG

**Inputs:** GPC Work Request (WR)*

**Process**:

1. The **GPC Service Provider** and **GPC Product Manager** asses the WR requirements.
2. The **GPC SDL** presents the WR Requirements and Proposal to the GPC SMG for review. Upon approval from the GPC SMG, the WR goes through a Community Review (14 days minimum).

**Outputs:** Approved GPC Requirements and GPC Work Request Proposal

* GPC WRs should be accompanied by the GPC WR Excel Template.

#### 5.5.1.2 Step 3: Development

**Responsible:** GPC Service Provider

**Inputs:** Approved GPC Requirements and GPC WR Proposal

**Process**:

1. The **GPC Service Provider** updates the GPC Schema in the GPC Tool, using the approved GPC WR Proposal(s).
2. The **GPC Service Provider** creates output files ready for eBallot
3. The updated GPC Schema remains in a holding pattern until deployment.

**Outputs:** Updated GPC Schema and associated output files (Summary of Consolidated Updates)

#### 5.5.1.3 Step 4: Deployment

**Responsible:** GPC Service Provider and GPC SDL

**Inputs:** Summary of Consolidated Updates to GPC Schema

**Process**:

1. The **GPC SDL** places the GPC Schema files in eBallot
2. The **GPC SDL** (working with GSMP Operations) processes the GPC Schema files for Ratification.
3. The **GPC Service Provider** (working with the GO Webmaster) publishes schema in two formats:
   - GPC Schema (Excel and XML format)
   - GPC Browser (HTML Browser-based format)

**Outputs:** Published GPC Schema

# 6 Creating and Submitting a GPC Work Request

This section describes the best practices for creating and submitting a GPC Work Request (WR).

- GPC WRs are submitted through the GSMP WR system at: *http://wr.gs1.org/*
- The WR must be compliant with the GPC Submission Criteria (section *5.4*)
- When submitting a GPC WR, it is recommended to use the ***GPC WR Submittal Spreadsheet*** to provide detailed information the new or modified classification. When filling out the spreadsheet, each GPC Code should contain the following information:
  - **Code** - For existing codes please include the assigned number (i.e. 10002609)
  - **Description** - A name that briefly describes the code (i.e. Basin/Sink Pedestals)

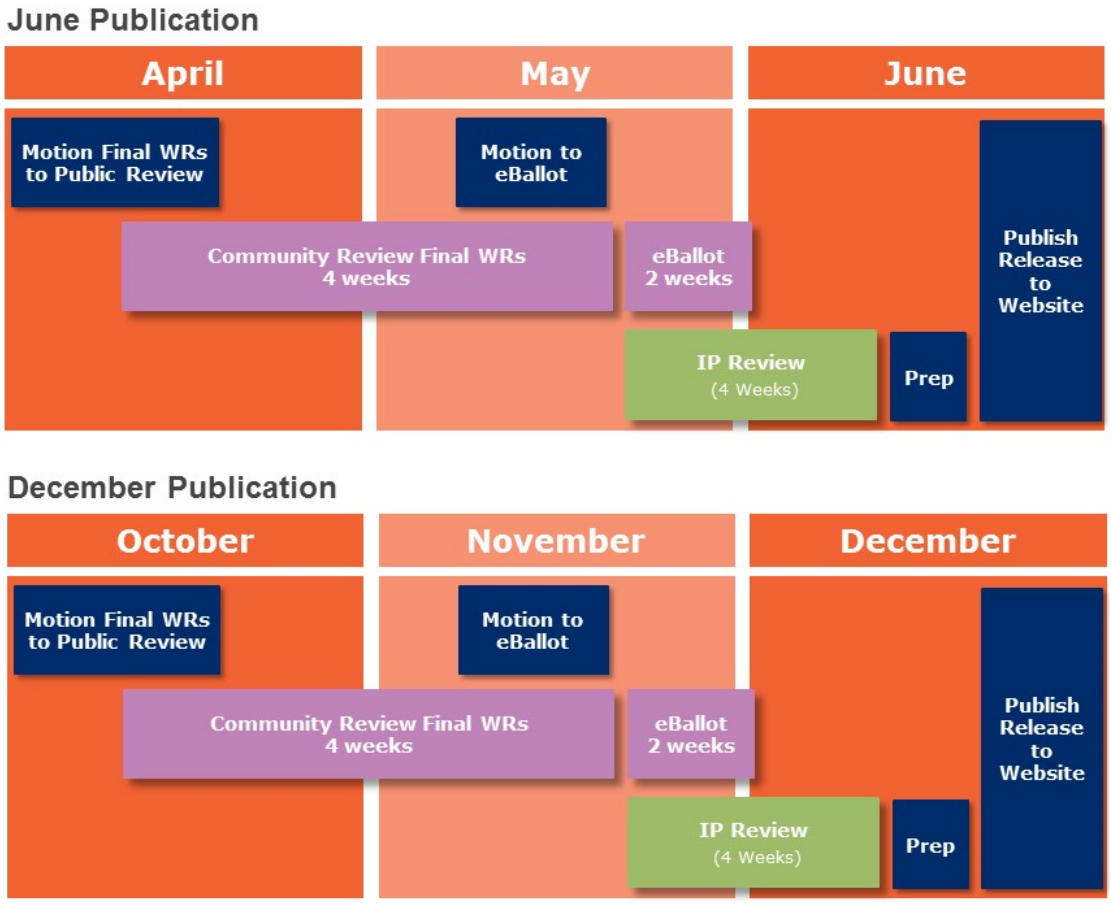
- **Definition** - A more in depth definition that describes the code, products included, excluded, etc. (i.e., includes any products that can be described/observed as a supporting base or stand, upon which a basin/sink rests. Typically they are an open backed column which is secured to the floor and any plumbing will fit inside the open space, so it cannot be seen when looking from the front at the pedestal Includes products such as open back marble columns and metal stands. Excludes products such as Basins/Sinks sold individually and Basins/Sinks and Pedestals sold in combination as a complete sink unit.)

# 7 GPC Publication

GPC has adopted a publication methodology which targets both GDSN Data Pools and the General Trading Partner Community. To facilitate these two audiences, GPC is published in 2 different formats:

- **GPC Standards**– a series of documents, spreadsheets, and XML files bundled an individual .zip files and organized in the GS1 Website by Segment - http://www.gs1.org/access-gpc-standards
- **GPC Browser** – A GPC Specific Web-based database that allows for web browsing of the GPC Publication Schedule http://www.gs1.org/gpc/browser

GPC uses a "Consolidated Release" strategy to publish the GPC Schema twice per year, one in June and one in December. This strategy is similar to the release methodology used in eCOM and GDSN maintenance releases.




The official (normative) GPC information is published in Oxford English. Both the schema and the browser information are translated to other languages as well. In any case, the English publication is the reference material. The latest GPC publication to be incorporated into GDSN network is also available from the Website.

## 7.1 Translations

Oxford English is the reference language for all GS1 standards including GPC. To support GPC adoption around the world, GS1 GO hosts and supports MO representatives who provide GPC translations through the "GPC Translations Tool". Translated versions of GPC can be accessed by the public on the GPC Website via the GPC Browser (*https://www.gs1.org/gpc/browser*) along with the official Oxford English version.

**Note**: Allowing access to the tool for translation and publication is an exceptional and strong advantage of GPC versus other classification systems

### How are GPC translations published and managed?

To address the need for centrally managed translations and to encourage the deployment of GPC, a tool was developed to enable GS1 MO access to GPC online. This "GPC Translations Tool" facilitates translations in local languages and the delivery of translated GPC information efficiently.

Once an MO agrees to be a translator, GS1 GO will setup a user account and provide instructions on how to provide the translation. Once the translated is complete, it is published to the online browser on the GS1 website. MOs are free to generate additional XLS / XML / Reporting files and distribute or charge for them as they see fit. It is the sole responsibility of the MO to ensure that the translated information is accurate.

# 8 GPC Implementation and Integration in GDSN

## 8.1 Implementation into the GDSN

This process also addresses the steps whereby a Trading Partner, or a Solution Partner on behalf of a trading partner, cannot find an appropriate GPC code.

A GPC Brick Code MUST be supplied as it is mandatory in the network for a product to be registered.

- The network will validate codes against the production list of valid GPC brick codes in the GDSN.
- Valid codes include any published GPC code or "8 nines" (99999999) which is a temporary code for Bricks that either have not been developed or for new products that do not fit with the current schema
- The network will not/cannot validate if the code used is valid in context (i.e. this Brick code is valid for this product)

The type of code assigned depends on the relationship between the trading partners (TP) and solutions providers (SP)

- The TP will make every attempt to find the correct code
- If the correct code cannot be found, they must use "8 nines" until an appropriate code is made available
- The next step would be to submit a WR, monitor the progress, and once an appropriate code is made available, update their system
- The GPC schema can only evolve when WRs are received. Every WR is processed individually so categories can evolve separately at any time. This is the driving force behind GPC's publication release strategy which prohibits version numbers. Each publication is date stamped.

**Note**: Updates to codes, once a product has been registered, are dependent on the TP/SP implementing changes promptly after they are defined and published in the Delta reports. GDSN has a process for implementing GPC updates within the network. This means that GPC Brick Codes will not be implemented into GDSN as soon as they are released, but as per the publication cycle, usually within 5 to 6 months of publication.

## 8.2 Integration into the GDSN

Upon completion of a GPC publication (twice per year) the GPC Service Provider sends the GDSN two files;

- **XML Schema** – A complete snapshot of all active nodes in all published standards in the GPC Schema at the point of publication. The purpose of this document is to provide a complete and correct view of what is contained in the GPC Schema at the point of publication.
- **XML Delta** – An XML document that contains all of the changes between the current and previous publications. The purpose of this document is to enable automatic changes/updates to GPC data contained in the GDSN.

GDSN will integrate/process the XML Delta document. The XML Delta identifies changes to the GPC Schema by identifying the type of change using change codes and the level of change:

- **Additions:** The introduction of a new code. For every addition the GDSN will add the new codes to their database.
- **Modifications:** When the code has NOT changed but the textual description or definition HAS changed. GPC Codes are not re-used. If the Brick impacted has a significant definition change the normal process is to add new codes and delete old codes. For every modification, the GDSN will update the descriptions of the codes impacted in their database.
- **Marked for Deletion:** Codes that are marked for deletion are removed from the GPC schema publication; however; the codes should not be used to code any items in GDSN until a decision is made to implement the version in GDSN. This is step one of the two-step process to delete GPC Codes. One of the activities that is completed by the GS1 Global Registry as part of this process is to produce a data pool by data pool report of all items and subscriptions that currently use the GPC codes that have been identified as 'marked for deletion'. The intention is to use the period between releases to correct the items or delete the impacted subscriptions. The GPC codes that are marked for deletion become the list of codes that become 'physical deletions' in the next integration in GDSN.
- **GPC update in GDSN:** For every GPC release, there can be deletions. Those deletions become critical to manage in the systems, when the GPC release is implemented in GS1 Global Registry (GR). GPC brick codes that are deleted will be also deleted in GS1 Global Registry when it is implemented. As a result, deleted GPC Codes will not be able to pass anymore in GS1 GR if they still are using codes marked as deleted.

## 8.3 Brick Code Details

- **A** = Add (New Data)
- **D** = Deletion (Data removed from the Database)
- **M** = Modification

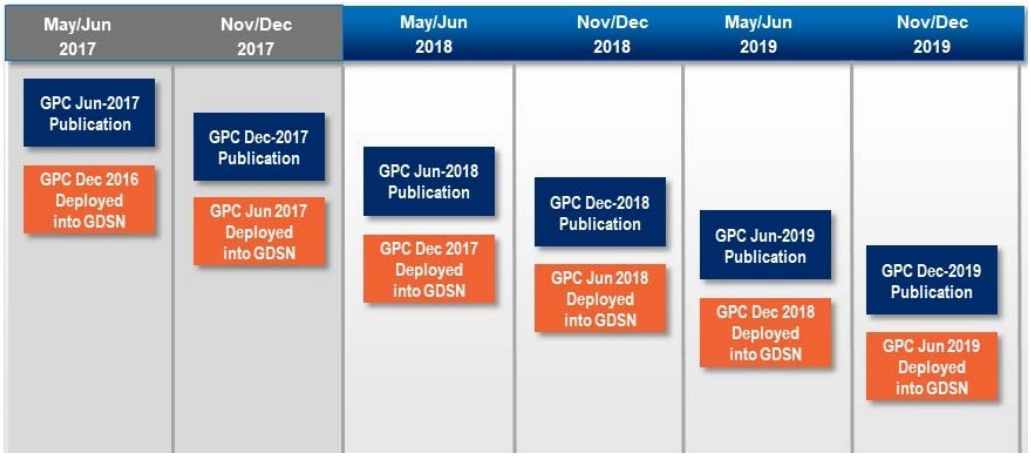
The following three possible values only apply to the brick in the delta:

- **AM** = Add Move = Brick has been added to a segment and moved (AM) from the initial segment. It indicates that a brick has changed its place in the hierarchy, but has not been subject to any change.
- **AMM** = Add Move Modify = Brick has been moved and modified (i.e. the brick has changed its place in the hierarchy and its name and/or definition has been changed)
- **DM** = Delete Move = Brick has been deleted from one place in the hierarchy then added to another place in the hierarchy. It has a counterpart - DM will have an AM or AMM.

| ABREVIATION | MEANING | DATA CREATED | PRE EXISTING DATA |
|---|---|---|---|
| A | ADD | X | |
| D | DELETE | | X |
| M | MODIFICATION | | X |
| AM | ADD MOVE | | X |
| AMM | ADD MOVE MODIFY | | X |
| DM | DELETE MOVE | | X |

## 8.4 GPC-GDSN Deployment Timeline

The following timeline shows the typical progression of GPC publications from publication through implementation into the GDSN.




# 9 GPC Related Documentation

| Document | Description, Audience, and Location |
|---|---|
| GPC Publication (Schema) | **Description:** Global Product Classification (GPC) is a mandatory standard for GDSN that enables global search and reference, category analysis and global data synchronisation.<br>**Target Audience:** GS1 MOs, Data Pools, Implementers, Software Developers<br>**Format:** Excel and XML<br>**Location**: *http://www.gs1.org/gpc* |
| GPC Browser | **Description:** The GPC browser allows you to browse all components (Segment, Family, Class, Brick, Brick Attributes and Brick Attribute Values) of the current GPC schemas.<br>**Target Audience:** GS1 MOs, Data Pools, Implementers, Software Developers<br>**Format:** HTML Browser<br>**Location:** *http://www.gs1.org/1/productssolutions/gdsn/gpc/browser/* |
| GPC Basics | **Description:** GPC Basics provides users with an overview of GPC<br>**Target Audience:** GS1 MOs, Data Pools, Implementers<br>**Format:** Web page and PDF<br>**Location**: *http://www.gs1.org/gpc* |
| GPC Get Started | **Description**: shows users in 9 simple steps how to access the GPC schemas online, identify the GPC Brick and extract all relevant information:<br>**Target Audience**: Biz Exec; GS1 MOs, Data Pools , Implementers<br>**Format**: Web page<br>**Location**: GPC Website - *https://www.gs1.org/gpc-get-started* |
| GPC FAQ | **Description**: GPC Questions and answers<br>**Target Audience**: Business /Executive Users / GS1 MOs<br>**Format**: HTML<br>**Location**: *http://ocp.gs1.org/sites/faq/Pages/topic.aspx?t=GPC* |
| GPC Community Room | **Description**: work in progress GPC related documents<br>**Target Audience**: Implementers, Software Developers<br>**Format**: various<br>**Location**: *http://xchange.gs1.org/cr/gsmp/smg/gsmpgpcsmg/Pages/Home-wg.aspx* |

# 10 Appendix: GPC Rule Examples

| Rule | Definition | Example |
|---|---|---|
| **Broad Area of Differentiation** | Products differ at a broad level | Within Home Appliances Major Domestic – Appliances are split out at a high level from Small Domestic Appliances which is a broad area of differentiation. |
| **Broad Area of Application** | Products have a differing area of application | Within Home Appliances, Major Domestic Appliances; such as those used for cooking are split out at a lower level into Hob, Oven, Cooker, etc. as their applications differ from each other. As even though they are grouped together according to common purpose an additional split needs to be made for area of application. |
| **Common Purpose and Use** | Deciphers the more specific function of the products included in an individual group. The common purpose & usage assists in stipulating a more precise use of the product. | Within Home Appliances, Major Domestic Appliances; such as those used for cooking are split out from those used for cooling as their common purpose is totally different. |
| **Processed to Similar Methods** | Products have been processed to similar methods | Processed or prepared is determined as; has gone through further manufacturing processes e.g. reformed, cooked, dried, salted, etc., however these products can also be coated, in sauce, stuffed or filled.<br>Unprocessed or unprepared is determined as; has not been cooked, dried, reformed, smoked or slated/cured, however can be coated, in sauce, stuffed or filled. |
| **Used and Applied Similarly** | Products are used and/or applied similarly | In FMCG, products are often grouped according to how they are used or applied. Cosmetics are split out according to whether or not they are used on the body, face, nails, etc. |
| **Similar Form & Material** | Products are of a similar form or material | The form of a product would sometimes depend on the preservation method e.g. fresh milk is liquid, shelf stable milks can be dehydrated, etc. However, products made from different materials will require a different attribute set which will therefore determine a split. |
| **Powered vs. Non-Powered** | Products use an external power source or are operated manually | Powered saws such as chainsaws are split from hand saws as a different attribute set would be required. |
| **Replacement Parts** | Products which are solely used as replacement parts to other products currently existing within the class | Powered toothbrush heads which cannot be used alone and are used as replacement parts to powered toothbrushes. |
| **Storage / Preservation** | Products are stored and preserved in similar manner | The split of a collection of dairy products results from this rule. Bricks must be set up by storage preservation type; Perishable (can be/must be refrigerated), Frozen (are frozen) and Shelf Stable (have been treated or packaged so as to extend consumable life). |
| **Variety Packs** | Products which are sold together and comprise products contained in separate bricks, classes, families, and segments. | Products such as Wine and Cheese combination which are often packaged together at Christmas or gin sold with tonic, which may or may not be packaged together. Product with come free with other purchases are not included in this principle. |
| **Other** | Products which cannot currently be catered for within the existing GPC schema. | Products are placed here if there is no holding place form them within the existing GPC schema. Whilst a proposal for change is submitted this brick within the likely class can be used as a temporary holding group. |
| **Application / Function** | In case products may have special application / function, which need additional consideration. | General Tools within Hardlines splits tools at a high level based on whether or not they are powered or manual tools. Before the rule is specifically covering this area was introduced. This would have bene seen as a special application / function rule. This is something which particularly drives a split of this type of product. |