Improving Efficiencies In Supply Chain Logistics Using GS1 Standards

MITI Workshop on ASEAN Single Window
18 June 2013
ABOUT GS1

GS1: What we do

GS1 designs and implements a global system of supply chain standards. GS1 is the largest global supply chain standards setter in the world.

Global, neutral, multi-sector standards  Not for profit, user-driven organisation with 1.5 million members  111 local offices providing local support and expertise, serving 150 countries
GS1 STANDARDS ADDRESS CORE NEEDS

- Efficiency
- Reduce Cost
- Enhance Security
- Safety
- Anti Counterfeit
- Visibility
- Collaboration
- Sustainability
- Optimize Assets
- Transparency
- Recall
- Global Standards
GS1 Standards for identifying, capturing, and sharing information—about products, business locations, and more—make it possible for companies to speak the same language, connect with each other, and move their business forward.
GS1 Standards

IDENTIFY: GS1 Standards for Identification

GLN Global Location Number  GTIN Global Trade Item Number  SCC Serial Shipping Container Code  GRAI Global Returnable Asset Identifier  GIAI Global Individual Asset Identifier  GSRN Global Service Relation Number

CAPTURE: GS1 Standards for Barcodes & EPC/RFID

GS1 BARCODES

EAN/UPC  GS1-128  ITF-14  GS1 DataBar  GS1 DataMatrix  GS1 QR Code  GS1 Composite Barcode

GS1 EPC/RFID

EPC HF Gen 2  EPC UHF Gen 2

SHARE: GS1 Standards for Data Exchange

MASTER DATA Global Data Synchronisation Network (GDSN)  TRANSACTIONAL DATA eCom (EDI)  Event Data EPC Information Services (EPCIS)

INTEROPERABILITY

ITEM MASTER DATA  LOCATION DATA  ITEM/SHIIPMENT TRACKING  TRACEABILITY  PRODUCT RECALL/WITHDRAWAL  PEDIGREE  PURCHASE ORDER/DESPATCH ADVICE/INVOICE

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IDENTIFY: GS1 Standards for Identification

Used to uniquely distinguish all products (trade items), logistic units, locations, assets across the supply chain from manufacturer to consumer.

COMPANY & LOCATION
Global Location Number (GLN)

PRODUCT
Global Trade Item Number (GTIN)
Serialised Global Trade Item Number (SGTIN)

LOGISTICS & SHIPPING
Serial Shipping Container Code (SSCC)
Global Shipment Identification Number (GSIN)
Global Identification Number for Consignment (GiNC)

ASSETS
Global Individual Asset Identifier (GIAI)
Global Returnable Asset Identifier (GRAI)

SERVICES & MORE
Global Service Relation Number (GSRN)
Global Document Type Identifier (GDTI)
Global Coupon Number (GCN)
GS1 Barcodes and EPC/RFID are data carriers for GS1 identifiers; but can also accommodate different needs such as batch/lot information and expiry dates.
SHARE: GS1 Standards for Data Exchange

Interoperability, made possible by identification standards, data capture standards, and interface standards for electronic communication, allows product information to flow through the supply chain.

### MASTER DATA

**GDSN**  
Global Data Synchronisation Network

The GDSN connects trading partners to the GS1 Global Registry* via GS1-certified Data Pools, enabling automated electronic sharing of standardised, up-to-date, accurate, product information.

### TRANSACTIONAL DATA

**eCom**  
Electronic Communication

GS1 eCom standards provide clear guidelines for Electronic Data Interchange (EDI), enabling electronic sharing of accurate business transaction information between trading partners.

### EVENT DATA

**EPCIS**  
Electronic Product Code Information Services

EPCIS is the standard for immediate sharing of information about critical events between trading partners. It provides evidence of what is occurring in the supply chain, and observations of the what, when, where, and why.

### WHAT GOES INTO IT

**GTIN, GLN**  
Brand Owner Identification

**Product Descriptions**

**Global Product Classification (GPC)**

**Target Market**

**GTIN, GLN, SSCC, GSIN, GINC, GDTI, GRAI, GIAI**

**Purchase Order**

**Despatch Advice**

**Transport Instruction**

**Invoice**

**Payment**

**What**

**Where**

**When**

**Why**

**SGTIN**

**GLN**

**SSCC**

**GIAl**

**GRAI**

**GSRN**

**GDTI**
GS1 In Action – Cross Border Visibility

Sharing Visibility Information

Export
Export Forwarder
Export Customs
Import Customs
Import Forwarder
Importer

Sharing Visibility information, Cargo status, History

EPCIS

Capturing Visibility Information and Automation

Factories and Warehouse
Export CheckPoints
Import CheckPoints
Retailers and Warehouses
INDUSTRY SECTOR
25 industries use the GS1 system

- Agriculture
- Alcohol Beverages
- Apparel
- Audio / Video
- Automotive
- Chemicals
- Computer Hardware and Software
- Cosmetics and Fragrances
- Electrical Supplies and Equipment
- Electronics
- Financial Services - Banking
- Food and Beverage
- Foodservice
- Fresh Meats, Poultry, Seafood Deli
- Furniture
- General Merchandise
- Healthcare / Supplies
- Healthcare Medical / Surgical
- Healthcare / OTC
- Hobbies and Crafts
- Home Accessories
- Home Furnishings
- Home Improvement / DIY
- Jewelry
- Lawn and Garden
- Maintenance Repair and Operations
- Pet Foods and Supplies
- Produce
- Public Sector / Government
- Publishing
- Raw Materials
- Shoes
- Sporting Goods
- Telecommunications
- Toys and Games
The state of international trade

- In 2011, **24 million shipments of FDA-regulated goods** passed through the United States’ 300 ports*

- With multiple global classification standards in place, **today’s inspection process is time consuming, costly, and often manual**

- **But there is a solution…**

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*“Pathway to Global Product Safety and Quality,” U.S. Food and Drug Administration, Special Report, 2011*
Imagine Two Ports . . .

- 30% of line entries released in advance of arrival
- 42% targeted as potentially high risk
- About 5% of product exams yield non-compliant products
- 85% released in advance of arrival
- 4% targeted as potentially high risk
- Conducts fewer exams and finds more non-compliant products than other ports
Why Use e-Commerce Data?

• Based on global, voluntary consensus standards in public domain;
• Broadly used by industry sectors;
• Provides globally unique identification for products in the supply chain;
• Provides structured, internationally recognized, multilingual product categorization and description; and
• Uses commonly available technology.
The International Trade Data System (ITDS) is the US forum for single window of trade implementation that includes all US agencies with border responsibilities for cross-border trade.

The ITDS Product Information Committee (PIC) was established to recommend and implement new strategies to improve product visibility. PIC work is summarized in three reports.

CREATE A GLOBAL LANGUAGE
IDENTIFY PRODUCTS BY BRAND & MODEL
LEVERAGE PRODUCT CATALOGS
1) Create a global language

- Use global classification codes to create a **standardized, global language** for product categories
  - GS1 Global Product Classification (GPC) codes
  - United Nations Standard Products and Services Code® (UNSPSC®)

- Importers and governments can classify products using these standards to:
  - **Improve product visibility**
  - Speed up the supply chain
  - Accurately determine jurisdiction and risk profile for each product
Use Globally Unique Product Identification

Whenever possible, use Global Trade Item Numbers (GTIN) to manage product in each entry line.

- **Company Prefix**: 7
- **Item Reference**: 12345
- **Check Digit**: 9
2) Identify products by BRAND & model

Use GS1 Global Trade Item Numbers (GTINs) to identify incoming products by brand owner and model

- Governments and customs agents can more accurately distinguish low-risk from high-risk products
- Targeting systems can reuse the previous admission history for that model, saving time and energy
3) Leverage product catalogs

Governments can download global product data from existing e-commerce catalogs that comply with GS1 Global Data Synchronization Network™ (GDSN®) standards.
Use Global Classification Codes

Use international product classification codes and descriptors to accurately determine jurisdiction and risk profile for each product in entry.

http://www.gs1.org/gsmp/kc/gpc

http://www.unspsc.org
Using Global Codes in Catalogs

1. Product supplier authoritatively publishes product information.

2. Government receives published product information from catalog.

3. Importer places the GTIN for the product in the entry record and sends to Customs.

4. Government matches GTIN with catalog info and makes admission decision, ideally in advance, using rich global data from catalog.

5. If catalog data indicate low risk product, government can release without inspection; if high-risk, can better plan for inspection efforts.

- GTIN = 123456119121
- GPC = 10005143
- Entry # Line N
- 10005143 = Dolls/Soft Toys (Powered);
  - Consumer Lifestage = >3 YEARS & UP;
  - Power Source = BATTERY;
  - Target Gender = FEMALE;
  - Type of Doll/Soft Toy = BABY DOLL

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Better product admissions

USING GS1 STANDARDS FOR BETTER PRODUCT ADMISSIONS

1. Product supplier assigns GTIN and defines product characteristics using GPC.
2. Product supplier authoritatively publishes product information.
3. Government downloads published product information from GDSN.
4. Importer places the GTIN for the product in the entry record and sends to Customs.
5. Government matches GTIN with GDSN info and makes admission decision, ideally in advance, using rich global data from GDSN.
6. If GDSN data indicate low risk product, government can release without inspection; if high risk, government is more equipped to plan for inspection efforts.

GTIN=123456119121
GPC=10005143
GPC Descriptors

10005143=Dolls/Soft Toys (Powered);
Consumer Lifestage = >3 years and up;
Power Source = Battery;
Target Gender = Female;
Type of Doll/Soft Toy = Teddy Bear.
The value of e-commerce standards

The ITDS Product Information Committee conducted a series of pilot studies to explore the value of e-commerce standards.

TOYS AND GAMES
CUT FLOWERS
MEAT AND POULTRY
Toys and games

Use of Global Trade Item Numbers (GTINs) and Global Product Classification (GPC) codes reduced the volume of consumer products subject to examination of toy and game products by 80% or more*

Cut flowers

Use of GS1 Standards reduced inspection time of cut flower product paperwork by 50%*

Meat and poultry

Reducing product classification errors on three export certificates per year would save a typical major meat and poultry exporter approximately $15,000*

fewer errors on 3 certificates $15,000 savings

GS1 in Transport & Logistics and Customs

Efficiency, interoperability and security of supply chain and customs. Improving visibility and speed up customs clearance.

- **CASSANDRA** (Common assessment and analysis of risk in global supply chains - with UK, NL Customs): Container Security and Visibility, Risk Assessment management. EPCIS for data sharing and risk assessment (using existing systems and tools not only RFID)

- **APEC/ABAC**: Exploring supply chain visibility, including customs clearance. Pilot on-going. EPCIS for data sharing and risk assessment.

- **Customs Malaysia**: Container tracking and automatic customs clearance, with EPC/RFID and EPCIS => 47 minutes saved per container (9x less than manual process)

- **GS1 Taiwan – Directorate General of Customs**: Container-tracking with EPC/RFID, using eSeal in port management => 48,000 h of inspection + over USD $3 million saved per year
GS1 – WCO Collaboration
Anti-Counterfeiting

- GS1 has a long-time working relationship with the WCO since both organisations are committed to enabling a secure, efficient global supply chain.

- In 2007, a MoU between GS1 and WCO was signed in recognition of the wide range of business interest shared by our organisations.

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>Unique Consignment Reference (UCR)</td>
</tr>
<tr>
<td>2005 - 2006</td>
<td>SSCC as UCR Pilot Project</td>
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<tr>
<td>2007</td>
<td>Memorandum of Understanding (MoU)</td>
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<tr>
<td>2006 - 2009</td>
<td>EPCglobal pilot initiatives</td>
</tr>
<tr>
<td>2010</td>
<td>Global Shipment Identification Number (GSIN)</td>
</tr>
<tr>
<td>TODAY</td>
<td>Cooperation Agreement on Anti-counterfeiting</td>
</tr>
</tbody>
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Current status

- Customs authorities are at the front line in the fight against counterfeiting and account for **70% of seizures in the world**

- In 2011, WCO successfully rolled out the Interface Public-Members (IPM) tool, a **global anti-counterfeiting database**

- Customs on the ground **search manually** in IPM by entering **free text** on brand and/or product **as key**

- Most companies involved are **sensitive/high-risk products** e.g. pharmaceutical, high-value products

- **New feature to use mobile devices** to connect to **trusted electronic product catalogues** by scanning the industry standard GS1 Barcodes found on products launched in April 2013
IPM V1

Launched in July 2010, IPM's PC version enables right holders to manually complete information in the product database.

IPM V2

Launched in April 2013, IPM Version 2 offers new features such as the possibility to use mobile devices to connect to trusted electronic product catalogues by scanning the industry standard GS1 barcodes found on products. The embedded unique product identifier in the barcode will facilitate access to new sources for trusted product information and connect to product authentication services.

IPM V3

Expected in the first semester of 2014, IPM Version 3 will not only allow Customs officers to control physical products but will also provide them with enhanced traceability of the international supply chains.
IPM CONNECTION FLOW

The new version of IPM enables Customs officers to easily access information provided by multiple databases simply by scanning barcodes found on products and packaging, helping them distinguish genuine from fake products.

The query in IPM is done simply by scanning a barcode or typing text.

A single screen provides all of the information necessary for the Customs officer’s analysis of the suspected product.

The product database contains operational information enabling Customs officers to identify genuine from fake products: retail description, image and video, example of genuine/fake, packaging information, vendor, previous access and right holder contact details.

The Electronic Party Information Registry (EPIR), with 2 million registered businesses in over 160 countries, can identify the registered owner of the unique product identifier embedded in the barcode.

GS1’s global network of electronic product catalogues (Global Data Synchronization Network - GDSN) with over 11 million unique product identifiers will help retrieve specific product identification information related to the unique product identifier (available in Q3 of 2013).

An authentication query is made to GS1’s Object Naming Service (DNS) to identify any registered authentication systems or service providers and certified.
GS1 : A partner you can trust

GS1 and ISO share the same values and the same beliefs in the vital importance of neutral global standards. Our teams work with ISO to:

• Promote recognition of GS1 standards by ISO
• Participate actively in specific ISO developments
• Submit relevant GS1 standards to ISO
• Adopt ISO standards as appropriate
GS1 : A partner you can trust

More than 20 ISO standards refer to GS1

- JTC 1/SC31 - Automatic ID & Data Capture Techniques
- ISO/TC 34/SC 17 - Food safety
- ISO/TC 46 - Information and Documentation
- ISO/TC 122 - Packaging
- ISO/TC 154 - Processes, data elements and documents
- ISO/TC 215 - Health informatics
- ISO/TC 240 - Product recall
- ISO/TC 247 - Fraud countermeasures and controls
VIDEO

Optimizing intermodal transport by combining GS1 Standards and the e-Freight Framework
Thank you

www.gs1my.org