



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





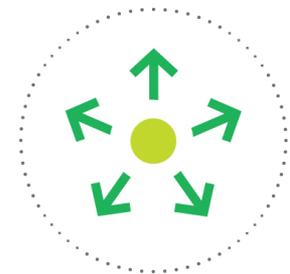
GS1 Standards



IDENTIFY

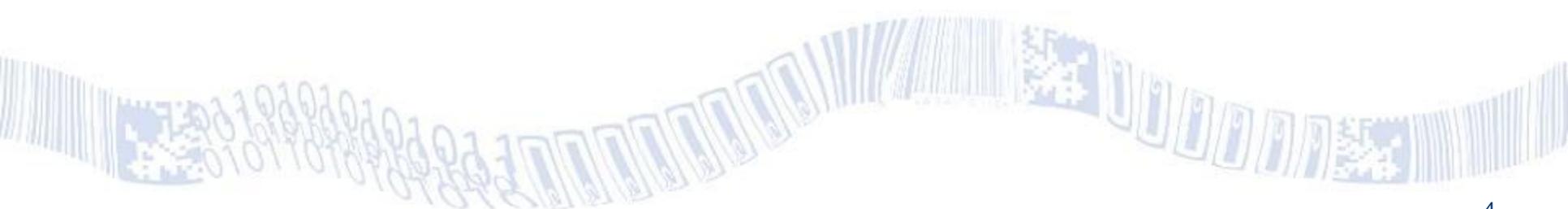


CAPTURE



SHARE

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.



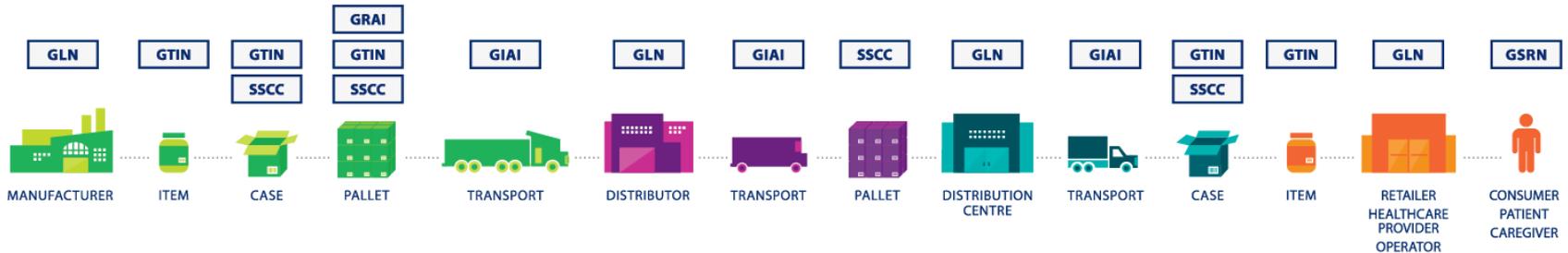


GS1 Standards



IDENTIFY: GS1 Standards for Identification

GLN Global Location Number **GTIN** Global Trade Item Number **SSCC** 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



9 501101 021037

GS1-128



(00) 3 9501100 000001001 9

ITF-14



06501101021037

GS1 DataBar



(01) 0 9501101 02103 7

GS1 DataMatrix



GS1 QR Code



GS1 Composite Barcode



95011028

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)



ITEM MASTER DATA

LOCATION DATA

ITEM/SHIPMENT TRACKING

TRACEABILITY

PRODUCT RECALL/WITHDRAWAL

PEDIGREE

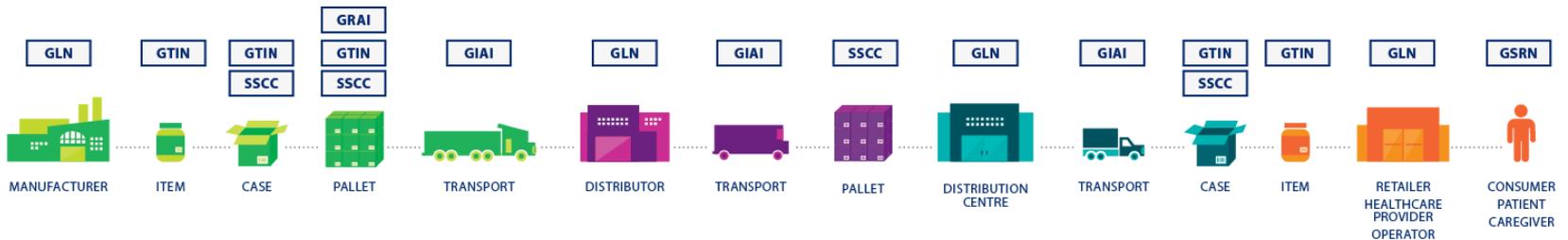
PURCHASE ORDER/DESPATCH ADVICE/INVOICE



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)



CAPTURE: GS1 Standards for Barcodes & EPC/RFID



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.

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

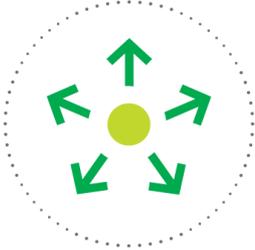


EPC UHF Gen 2





SHARE: GS1 Standards for Data Exchange



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.

WHAT GOES INTO IT

- GTIN, GLN
- Brand Owner Identification
- Product Descriptions
- Global Product Classification (GPC)
- Target Market

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.

WHAT GOES INTO IT

- GTIN, GLN, SSCC, GSIN, GINC, GDTI, GRAI, GIAI
- Purchase Order
- Despatch Advice
- Transport Instruction
- Invoice
- Payment

EVENT DATA

EPCIS
Electronic Product Code Information Services

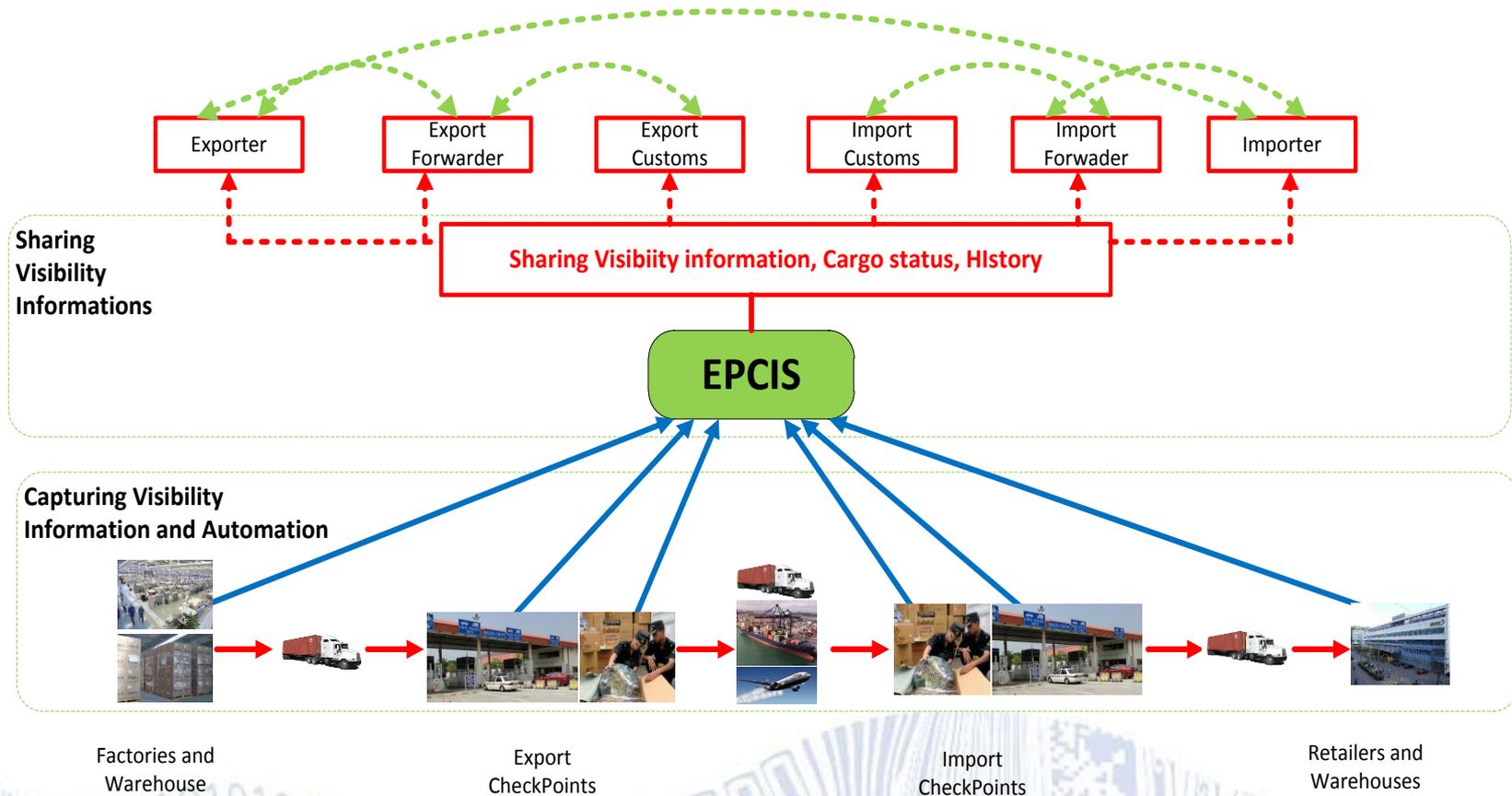
EPCIS is the standard for immediate sharing of information about critical events between trading partners. It provides evidence of what is occurring in the supply chain, and observations of the *what, when, where, and why*.

WHAT GOES INTO IT

- | | |
|-------|-------|
| What | SGTIN |
| Where | GLN |
| When | SSCC |
| Why | GIAI |
| | GRAI |
| | GSRN |
| | GDTI |



GS1 In Action – Cross Border Visibility



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...**



*"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





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





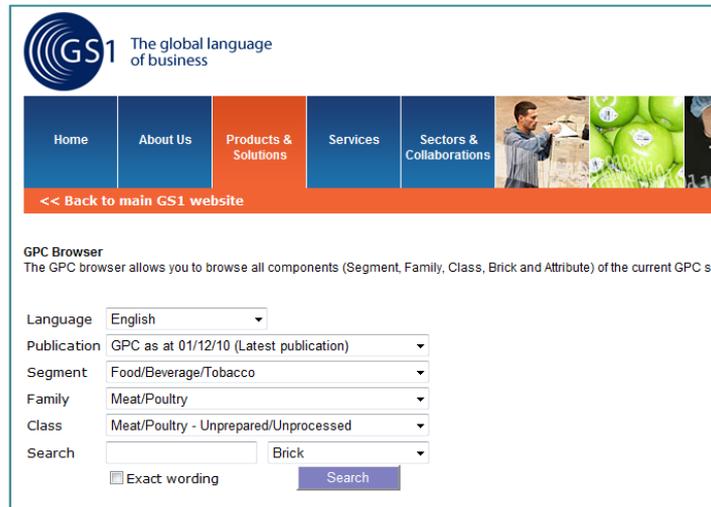
3) Leverage product catalogs

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



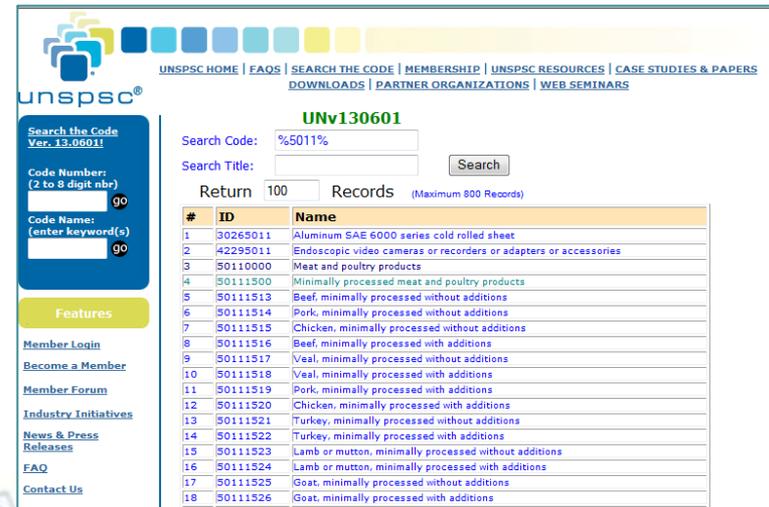
Use Global Classification Codes

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



The screenshot shows the GS1 GPC Browser interface. At the top, it says "The global language of business". Below that are navigation tabs: Home, About Us, Products & Solutions, Services, and Sectors & Collaborations. A search bar is visible with the text "Search the Code Ver. 13.06011". Below the search bar are dropdown menus for "Code Numbers (2 to 8 digit nbr)", "Code Names (enter keyword(s))", "Language" (set to English), "Publication" (set to GPC as at 01/12/10), "Segment" (set to Food/Beverage/Tobacco), "Family" (set to Meat/Poultry), and "Class" (set to Meat/Poultry - Unprepared/Unprocessed). There is also a "Search" button and a checkbox for "Exact wording".

<http://www.gs1.org/gsmf/kc/gpc>



The screenshot shows the UNSPSC website search results for the code "UNv130601". The search code is "%5011%" and the search title is empty. The results are displayed in a table with columns for "#", "ID", and "Name".

#	ID	Name
1	30265011	Aluminum SAE 6000 series cold rolled sheet
2	42295011	Endoscopic video cameras or recorders or adapters or accessories
3	50110000	Meat and poultry products
4	50111500	Minimally processed meat and poultry products
5	50111513	Beef, minimally processed without additions
6	50111514	Pork, minimally processed without additions
7	50111515	Chicken, minimally processed without additions
8	50111516	Beef, minimally processed with additions
9	50111517	Veal, minimally processed without additions
10	50111518	Veal, minimally processed with additions
11	50111519	Pork, minimally processed with additions
12	50111520	Chicken, minimally processed with additions
13	50111521	Turkey, minimally processed without additions
14	50111522	Turkey, minimally processed with additions
15	50111523	Lamb or mutton, minimally processed without additions
16	50111524	Lamb or mutton, minimally processed with additions
17	50111525	Goat, minimally processed without additions
18	50111526	Goat, minimally processed with additions

<http://www.unspsc.org>



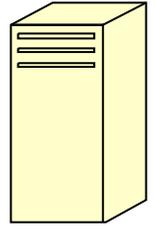
Using Global Codes in Catalogs

Product Supplier



① Product supplier authoritatively publishes product information

Global Catalog "Cloud"



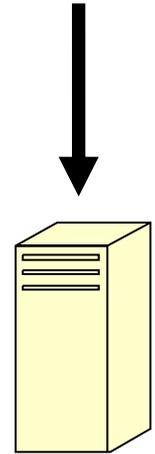
Importer



GTIN= 123456119121	GPC = 10005143	GPC DESCRIPTORS
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③ Importer places the GTIN for the product in the entry record and sends to Customs

② Government receives published product information from catalog



Customs Data

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



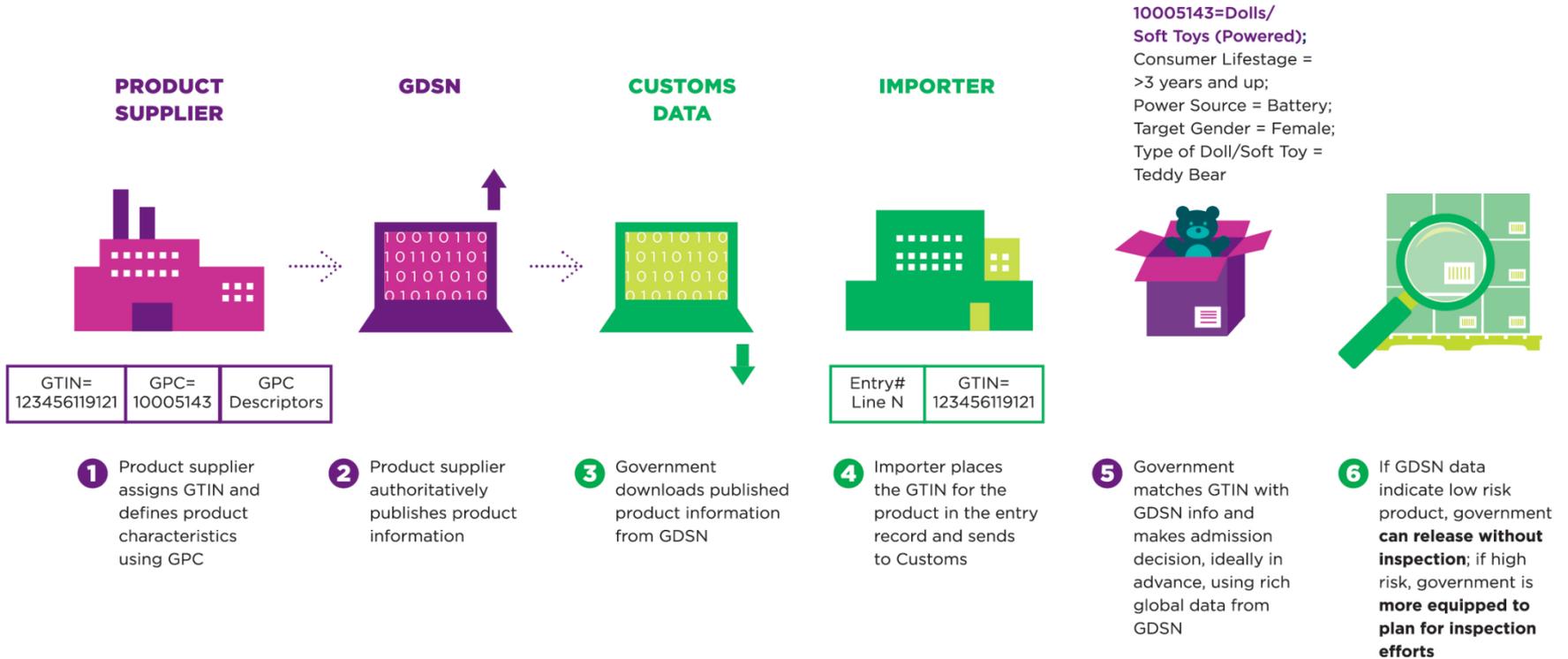
Government Agency Inspection

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**

Better product admissions

USING GS1 STANDARDS FOR BETTER PRODUCT ADMISSIONS

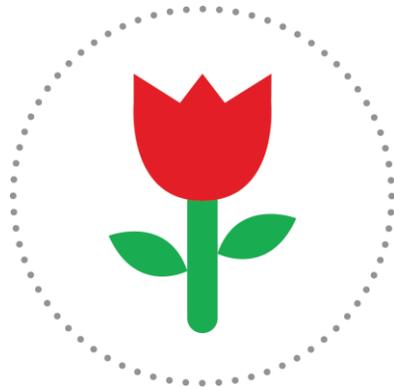


The value of e-commerce standards

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*

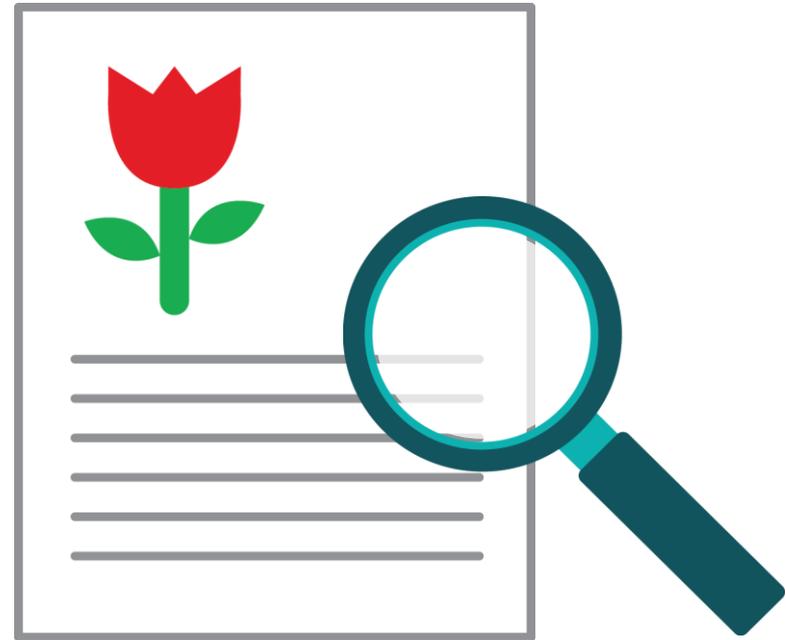


*"The Business Case for Using e-Commerce Data to Manage Product Admissions at International Borders," ITDS Product Information Committee, December 2011

Cut flowers

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

50%
reduction

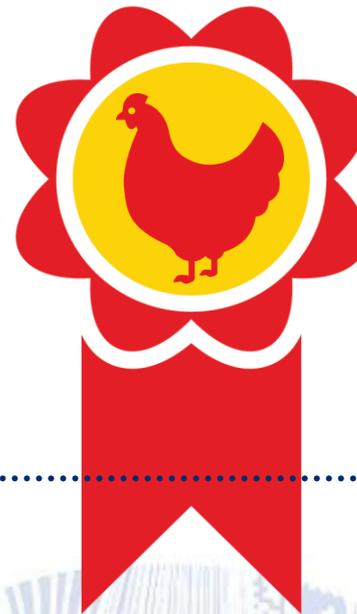


**"The Business Case for Using e-Commerce Data to Manage Product Admissions at International Borders," ITDS Product Information Committee, December 2011*

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**

*"The Business Case for Using e-Commerce Data to Manage Product Admissions at International Borders," ITDS Product Information Committee, December 2011



GS1 IN VARIOUS SECTORS

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.



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 VERSIONS

2011



IPM v1

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



2013



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.



2014



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



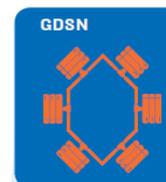
A single screen provides all of the information necessary for the Customs officer's analysis of the suspected product



The product database contains operational information enabling Customs officers to identify genuine from fake products: technical description, image and video, examples of genuine/fake, packaging information, routes, previous cases and right holder's contact details.



The Electronic Party Information Registry (GEPiR), with 2 million registered businesses in over 150 countries, can identify the registered owner of the unique product identifier embedded in the barcodes.



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 routed to GS1's Object Naming Service (ONS) to identify any registered authentication systems or services declared and registered.





GS1 : A partner you can trust

**GS1
standards
are ISO-
compliant**

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

