



Data Synchronisation & Product Classification in Healthcare





Managing master data in Healthcare

Inaccurate or bad data add risk and cost



The Healthcare supply chain ... simplified



Manufacturer



Healthcare provider



Distributor, wholesaler, GPO, ...



Patient

Managing data in the Healthcare supply chain



- No standardised location and product identification / information
- Inadequate infrastructure to share data among supply chain partners

Inaccurate or bad data at many points in the supply chain



No standardised product identification

Same product – different numbers

For example*:

3M product with reference # 8630

Same product in different databases of distributors:

| | |
|----------------|------------|
| •Allegiance | M8630 |
| •Owens & Minor | 4509008630 |
| •BBMC-Colonial | 045098630 |
| •BBMC-Durr | 081048 |
| •Kreisers | MINN8630 |
| •Midwest | TM-8630 |
| •Pacific | 3/M8630 |
| •UnitedUMS | 001880 |

Different products – same number

For example:

Part Number 10313 in Premier Inc.

Product Item Master refers to

- Medtronic's - "NEEDLE CARDIOPLEGIA ADULT 16GA 5/8IN TIP 10IN"
- Hantover's - "CARTRIDGE REPLACEMENT STUNNER YELLOW F/CALVES/HEAVY HOGS"
- Chattanooga Group's - "ACCESSORY TRACTION REPLACEMENT STRAP XL FOR HALTER THORACIC RESTRAINT"
- HF Scientific's - "TEST KIT WATER FREE CHLORINE DPD 25ML SAMPLE PHOTOMETRIC 1000/PK"



No standardised product information

- Inconsistent item descriptions
- Inconsistent packaging data
 - Order 20 cases, receive 20 boxes
 - No uniform Unit of Measure standard

| <u>Unit of Measure</u> | <u>Description</u> | <u>Unit of Measure</u> | <u>Description</u> |
|------------------------|--------------------|------------------------|--------------------|
| BD | BOARD FOOT | LOT | LOT |
| BDFT | BOARD FOOT | LOTS | LOT (MULTI) |
| BN | BUNDLE | LY | LINEAR YARD |
| BO | BOLT | LYRS | LINEAR YARD |
| BOLT | BOLT | NU | NUT |
| BR | BARREL | NUTS | NUT |
| BRRL | BARREL | OZ | OUNCE |
| BX | BOXES | OZS | OUNCES |
| BXES | BOXES | PA | PAD |
| CO | COIL | PADS | PAD |
| COIL | COIL | PI | PINT |
| CR | CARBOY | PINT | PINT |
| CRBY | CARBOY | PK | PACKAGE |
| CS | CASE | PKGS | PACKAGE |
| CSES | CASE | PL | PAIL |
| CT | CARTON | PLS | PAILS |
| CTON | CARTON | PR | PAIR |
| DR | DRUM | PRS | PAIR |
| DRUM | DRUM | QR | QUIRE |
| DZ | DOZEN | QRES | QUIRE |
| DZEN | DOZEN | QT | QUART |
| EA | EACH | QTS | QUART |
| EACH | EACH | RE | REAM |
| FE | FEET | REAM | REAM |



No standardised location identification

| Manufacturer | Manufacturer | |
|---|--------------------------------------|-----------|
| SOUTHLAND TECHNOLOGY 3M | 3M 800-327-5380 | 3M C/O ED |
| 3M CO PHOTO PRODUCTS DIV | 3M CO | 3M C/O FL |
| 3M DIAGNOSTIC SYSTEMS INC | 3M DENTAL 800-237-1650 | 3M C/O GC |
| 3M ELECTRICAL SPECIALTIES DIV | 3M ESPE DENTAL DIVISION 800-364-3577 | 3M C/O HC |
| 3M HEALTH | 3M ESPE UNITED STATES | 3M C/O IN |
| 3M HEALTH CARE CDI | 3M ESPE | 3M C/O JA |
| 3M HEARING COMPONENTS | 3M HEALTH CARE 800-521-2818 | 3M C/O LL |
| 3M INDUSTRIAL TAPES LTD | 3M HEALTHCARE PRODUCT | 3M C/O NA |
| 3M MEDICAL DEVICE DIV | 3M HEALTHCARE | 3M C/O NC |
| 3M MEDICAL IMAGING SYSTEMS DIV | 3M MEDSURGE | 3M C/O OA |
| 3M MEDICAL PRODUCTS DIV | 3M MINNESOTA MINING MFG OFFICE | 3M C/O RE |
| 3M MEDICAL-SURGICAL DIV | 3M MINNESOTA MINNING & MFG.CO. | 3M C/O SA |
| 3M MEDICAL/SURG | 3M OCC. HEALTH AND ENV. SAFETY DIV | 3M C/O SC |
| 3M PHARMACEUTICS AND MEDICAL S | 3M OCC. HEALTH AND ENV. SAFETY DIV. | 3M C/O TH |
| 3M-MEDICAL/SURGICAL | 3M SARNS/CDI | 3M C/O TH |
| 3M/ OCCUPATIONAL AND SAFETY DIV | 3M SURGICAL | 3M C/O TH |
| 3M - MINNESOTA MINING & CO | 3M UNITEK 800-423-4588 | 3M C/O TI |
| | 3M UNITEK | 3M C/O W |
| 3M FEDERAL GOVERNMENT | THREE M/ ESPE | 3M C/O W |
| 3M FEDERAL SYSTEMS DEPARTMENT | 3M COMPANY C/O WAHL CORP. | 3M COMM |
| 3M HEALTH CARE SYSTEMS | MINNESOTA SCIENTIF | 3M COMM |
| 3M HEALTHCARE \$250 MINIMUM ORDER | CORPORATE ALLIANCE 3M CUSTOMER SERV | 3M COMP |
| 3M HEALTHCARE(MINNISOTA MINNING) | 3 M HEALTHCARE | 3M COMP |
| 3M MEDICAL - CREDIT CARD | 3 M UNITEK CORP | 3M COMP |
| 3M MEDICAL PRODUCTS | 3-M | 3M COMP |
| 3M OCC. HEALTH AND ENV. SAFETY DIVISION | 3-M COMPANY | 3M COMP |
| 3M OCCUPATIONAL AND SAFETY DIV | 3-M COMPANY-C/O O | 3M COMP |
| 3M SAFETY DIVISION | 3-M COMPANY-C/O OEM PRODUCTS | 3M CONS |
| 3M-DENTAL PRODUCTS DIVISION | 3-M PHARMACEUTICALS | 3M CONS |
| 3M-HEALTH CARE | 33M HEALTHCARE | 3M CORP |
| 3M DENTAL PRODUCTS DIV. | 3M | 3M DENT/ |
| 3M UNITEK CORPORATION | 3M PUERTO RICO | 3M DENT/ |
| 3M UNITEK DENTAL PRODUCTS | 3M SPECIALITY CHEMICAL | 3M DEUT/ |
| 3M BIOLOGICAL | 3M % SAN-MAR | 3M HEALT |
| 3M ESPE DENTAL PRODUCTS | 3M (CRJ7242) | 3M HEALT |
| 3M HEALTH CARE (MED/SURG PRODS) | 3M - MINNESOTA MI | 3M HEALT |
| 3M C/O CHECKPOINT METO | 3M - MINNESOTA MINING & MFG.CO | 3M HEALT |

Multiple manufacturer names

Order with whom?



Data errors in Healthcare US Department of Defense Study

| Data error | % of total | Manu- facturer | Distributor | GPO | Healthcare provider |
|--|-------------------|---------------------------|--------------------|---------------|--------------------------------|
| Missing Middle Levels of Packaging | | 15-20% | 1-4% | 20-25% | 15-25% |
| Hard “Packaging Quantity” Errors | | 1% | 1% | 2% | 2-5% |
| Unit of Measure Confusion/Misuse | | 2-6% | 1-3% | 2-5% | Unknown |
| Missing Packaging—not Middle Level | | 3-8% | 3-8% | 3-7% | 5% |
| Manufacturer Name Problems | | NA | 2-5% | 1-4% | 30% |
| Obsolete Products | | 1-4% | 2-5% | 1-8% | 5-15% |
| Missing Product Brand Names | | 2-5% | 5-10% | 5-10% | 20-25% |
| Incomplete Item Descriptions | | 5-15% | 3-12% | 5-15% | 10-20% |
| Wrong Customer Unit Prices | | Unknown | 1-2% | NA | 1-2% |
| Customer Paid More Than Lowest Contract Price | | NA | Unknown | NA | 3-6% |



Healthcare Bad data add cost and risk

- **Inaccurate and inconsistent data in the Healthcare supply chain add billions of \$ in costs**
 - Supply chain information inefficiencies
 - Inaccurate data in transactions
 - Purchase orders and invoices with errors
 - Manual work-around processes to correct errors
- **Inaccurate and inconsistent data add risk to patient safety**
 - Disruptions may result in the inavailability of products to treat a patient





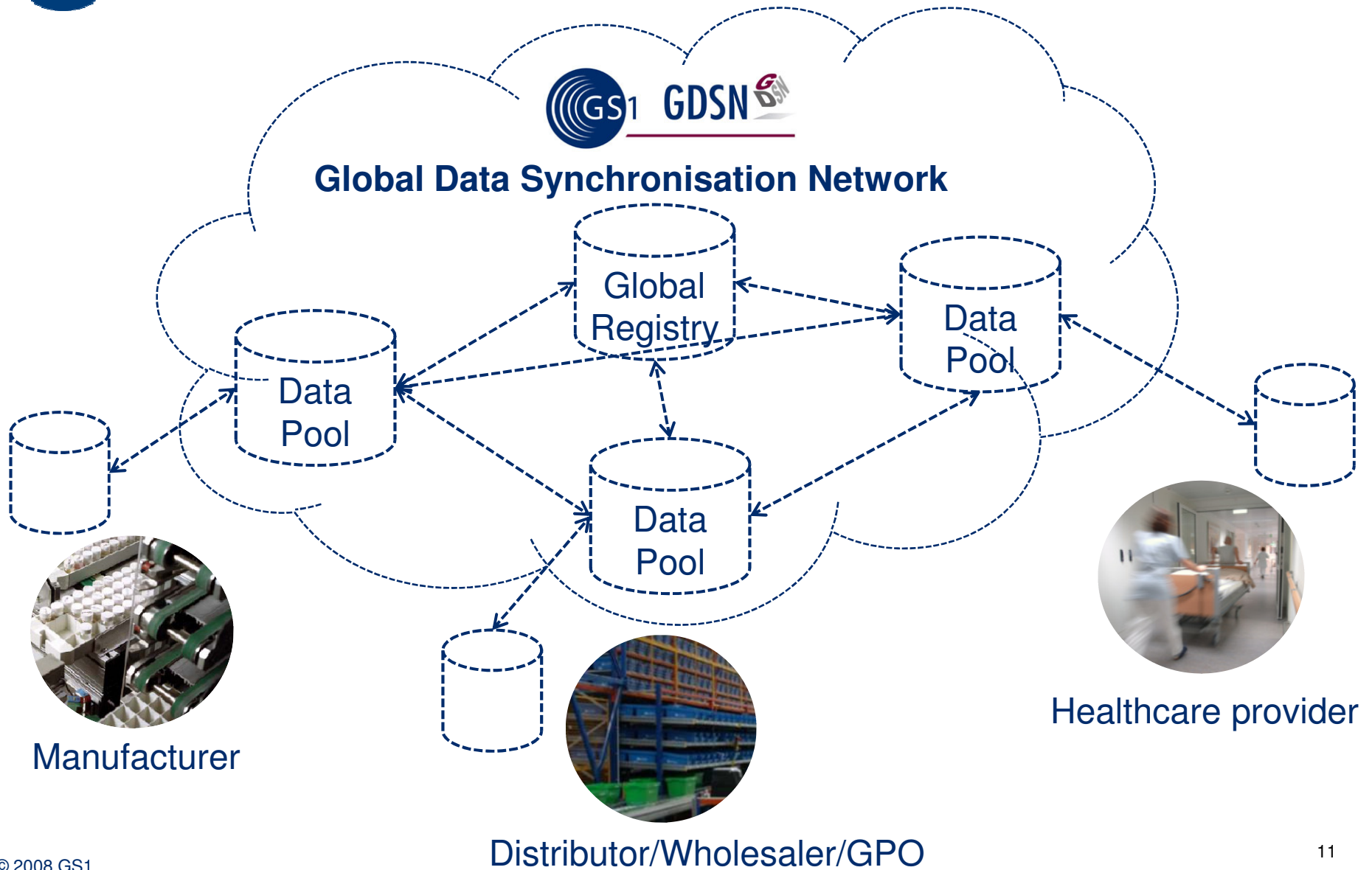
Synchronising data in Healthcare

GS1 GDSN

Global Data Synchronisation Network



GS1 Healthcare Global Data Synchronisation



Healthcare A global network

Data pool

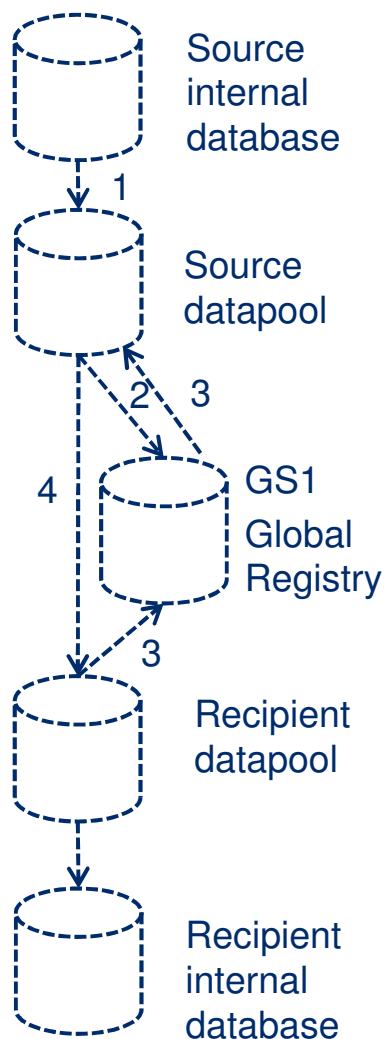
- GDSN-Certified
- Electronic catalogues of standardised master data
- Ensure the confidentiality and integrity of user information
- Are fully interoperable

Global registry

- GDSN's "information directory"
- Details who has subscribed to trade item or party data
- Guarantees the uniqueness of the registered items and parties



GS1 Healthcare How GDSN works



1. Load Data

- The seller registers product and company information in its data pool

2. Register Data

- A small subset of this data is sent to the GS1 Global Registry

3. Request Subscription

- The buyer, through its own data pool, subscribes to receive a seller's information

4. Publish Data

- The seller's data pool publishes the requested information to the buyer's data pool

5. Confirm & Inform

- The buyer sends a confirmation to the seller via each company's data pool, which informs the supplier of the action taken by the retailer using the information



GDSN data attributes

Mandatory and optional attributes supported in GDSN





Healthcare GDSN data attributes

25 mandatory attributes

- 8 mandatory attributes required to register products in the GS1 Global Registry
- 17 mandatory attributes to operate in the GDSN

200+ optional attributes

- Trading partners decide whether to exchange additional information
- There are currently 203 optional GDSN attributes which support healthcare specific needs





Mandatory attributes GS1 Global Registry

| | Mandatory attributes | Description |
|---|--------------------------------|--|
| 1 | GLN of source Data Pool | The data pool that serves as the entry point into the GDSN and connection to other certified data pools. |
| 2 | GLN of data source | Global Location Number of the source of the information published in the Global Registry. Typically the manufacturer. |
| 3 | GTIN | The Global Trade Item Number of the product (drugs, medical device, non medical supply (e.g. light bulbs). |
| 4 | Target Market Country Code | The country where the product is intended to be sold. |
| 5 | Target Market Subdivision Code | The code for country sub-division definition used to indicate the geo-political subdivision of the target market. |
| 6 | GPC | The Global Product Classification is the GS1 classification system used in the Global Registry. The GPC identifies a category for the product (GTIN) registered. |
| 7 | State | The status of the product registered. The four states are: Registered , Cancelled, In Progress, and Discontinued. |
| 8 | Date | May have a combination of the following dates: cancel, deletion, discontinued, last changed, or registration date. |



Mandatory attributes GDSN

| | Mandatory attributes | Description |
|----|-----------------------------------|---|
| 9 | GLN of manufacturer | Entity that provides the global data synchronization network with Master Data. |
| 10 | Hierarchy level per GS1 code list | Describes the hierarchical level of the trade item. TradeItemUnitIndicator is mandatory. Examples: "CASE" , "PALLET". For listing refer to Appendix A. |
| 11 | Brand name | The recognisable name used by a brand owner to uniquely identify a line of trade item or services. |
| 12 | Description | Describes use of the product or service by the consumer. Should help clarify the product classification associated with the GTIN. |
| 13 | Base Unit? (Y/N) | An indicator identifying the trade item as the base unit level of the trade item hierarchy. This is y/n (Boolean) where y indicates the trade item is a base unit. |
| 14 | Consumer Unit? (Y/N) | Identifies whether the current hierarchy level of a trade item is intended for a ultimate consumption. For retail, this trade item will be scanned at point of sale. At retail, this data is commonly used to select which GTINs should be used for shelf planning and for front end POS databases. This value reflects the intention of the Information Provider which may not necessarily be reflected by the retailer. |

Mandatory attributes GDSN

| | Mandatory attributes | Description |
|----|-----------------------------|---|
| 15 | Despatch Unit? (Y/N) | An indicator identifying that the information provider considers the trade item as a despatch (shipping) unit. This may be relationship dependent based on channel of trade or other point to point agreement. |
| 16 | Invoice Unit? (Y/N) | An indicator identifying that the information provider will include this trade item on their billing or invoice. This may be relationship dependent based on channel of trade or other point to point agreement. |
| 17 | Orderable Unit? (Y/N) | An indicator identifying that the information provider considers this trade item to be at a hierarchy level where they will accept orders from customers. This may be different from what the information provider identifies as a despatch unit. This may be a relationship dependent based on channel of trade or other point to point agreement. |
| 18 | Variable Measure? (Y/N) | Indicates that an article is not a fixed quantity, but that the quantity is variable. Can be weight, length, volume. trade item is used or traded in continuous rather than discrete quantities. |
| 19 | Returnable packaging? (Y/N) | Trade item has returnable packaging. Attribute applies to returnable packaging with or without deposit. |

Mandatory attributes GDSN

| | Mandatory attributes | Description |
|----|---------------------------------|---|
| 20 | Batch/Lot Number? (Y/N) | hasBatchNumber: Indication whether the base trade item is batch or lot number requested by law, not batch or lot number requested by law but batch or lot number allocated, or not batch or lot number allocated. A batch or lot number is a manufacturer assigned code used to identify a trade item's trade item on batch or lot. Differs from Serial Number which is a manufacturer assigned code during the trade item on cycle to identify a unique trade item. |
| 21 | Non-sold item returnable? (Y/N) | isNonSoldTradeItemReturnable: Indicates that the buyer can return the articles that are not sold. Used, for example; with magazines and bread. This is a y/n (Boolean) where y equals right of return. This is at least relevant to General Merchandise, Publishing industries and for some FMCG trade item. |
| 22 | Marked Recyclable? (Y/N) | isTradeItemMarkedAsRecyclable: Trade item has a recyclable indication marked on it. This may be a symbol from one of many regional agencies. |

Mandatory attributes GDSN

| | Mandatory attributes | Description |
|----|----------------------|--|
| 23 | Height & UoM | The measurement of the height of the trade item. The vertical dimension from the lowest extremity to the highest extremity, including packaging. At a pallet level the trade item Height will include the height of the pallet itself. Business Rules: Measurements are relative to how the customer normally views the trade item. Needs to be associated with a valid UoM. |
| 24 | Width & UoM | The measurement from left to right of the trade item. Measurements are relative to how the customer normally views the trade item. Needs to be associated with a valid UoM. |
| 25 | Depth & UoM | The measurement from front to back of the trade item. Measurements are relative to how the customer normally views the trade item. Needs to be associated with a valid UoM. |



Work Team activities

Update June 2008

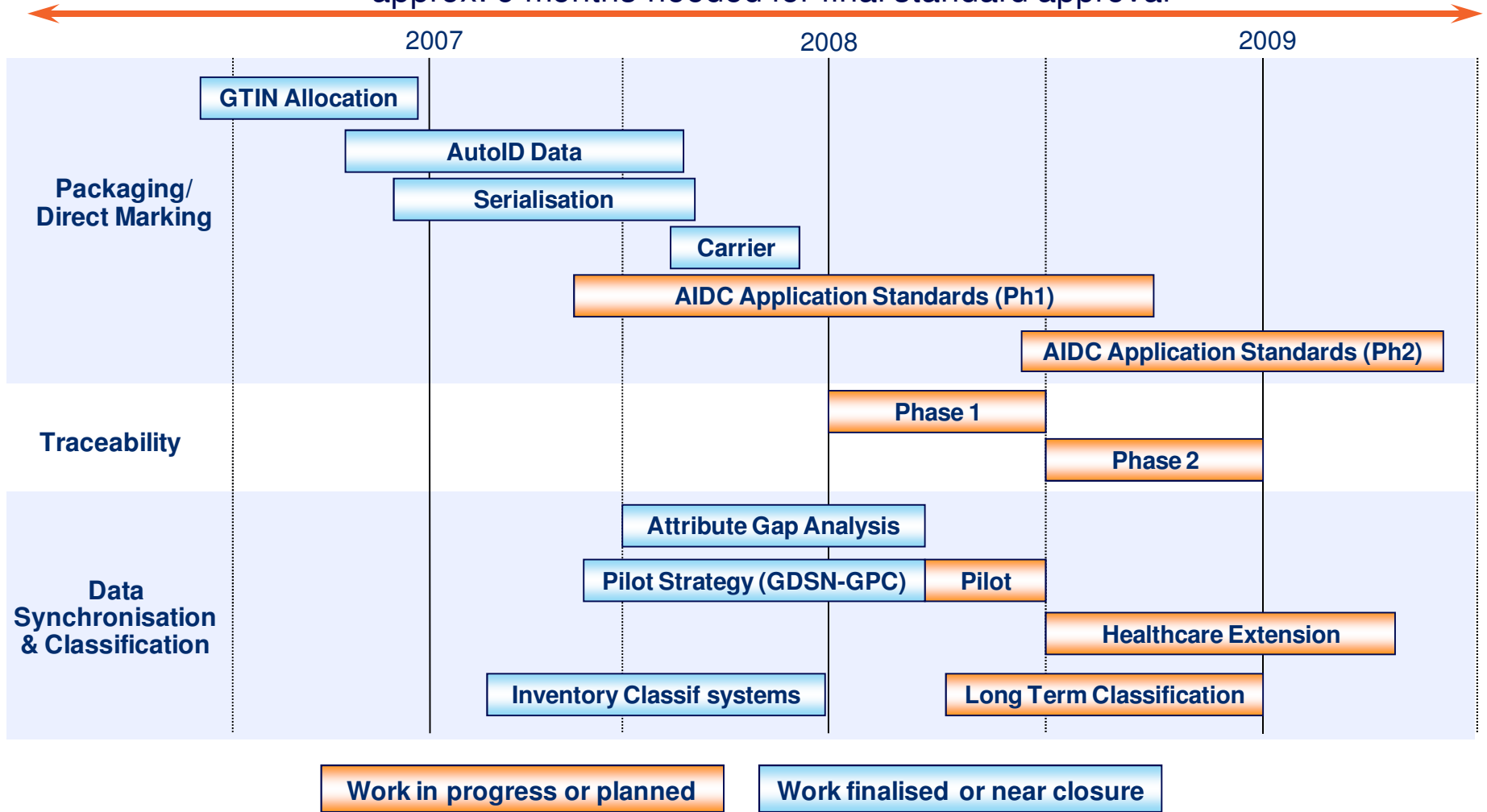




Healthcare

Roadmap towards Global Standards

Schedule for deliverables to the GS1 Global Standards Management Process
– approx. 6 months needed for final standard approval



Healthcare Work Team goals



Data Synchronisation - Goal

- Determine to what degree the GDSN can be used in the healthcare supply chain
- Identify areas of improvements to the GDSN standard

Product Classification - Goal

- Assess the need for product classification in healthcare as required to operate the GDSN



Healthcare GDSN Healthcare Update



Data Synchronisation

- Completed an initial gap analysis. Almost 300 healthcare requirements have been reviewed
 - 228 requirements are supported by the current GDSN standard
 - 27 new requirements need to be defined by the users and added to the GDSN standard
 - 38 were duplicates or not needed and therefore eliminated

Product Classification

- Completed inventory of classification systems in use across the world
 - Approximately 35 different classification and nomenclature systems in use in various parts of the world
- Completed a classification strategy to use GPC in the global pilot
- Working on a long term recommendation

Global Healthcare Pilot

- Local pilots completed in the US and Australia
- Agreement reached on a global GDSN pilot strategy
- Global GDSN pilot completed



GDSN Pilots



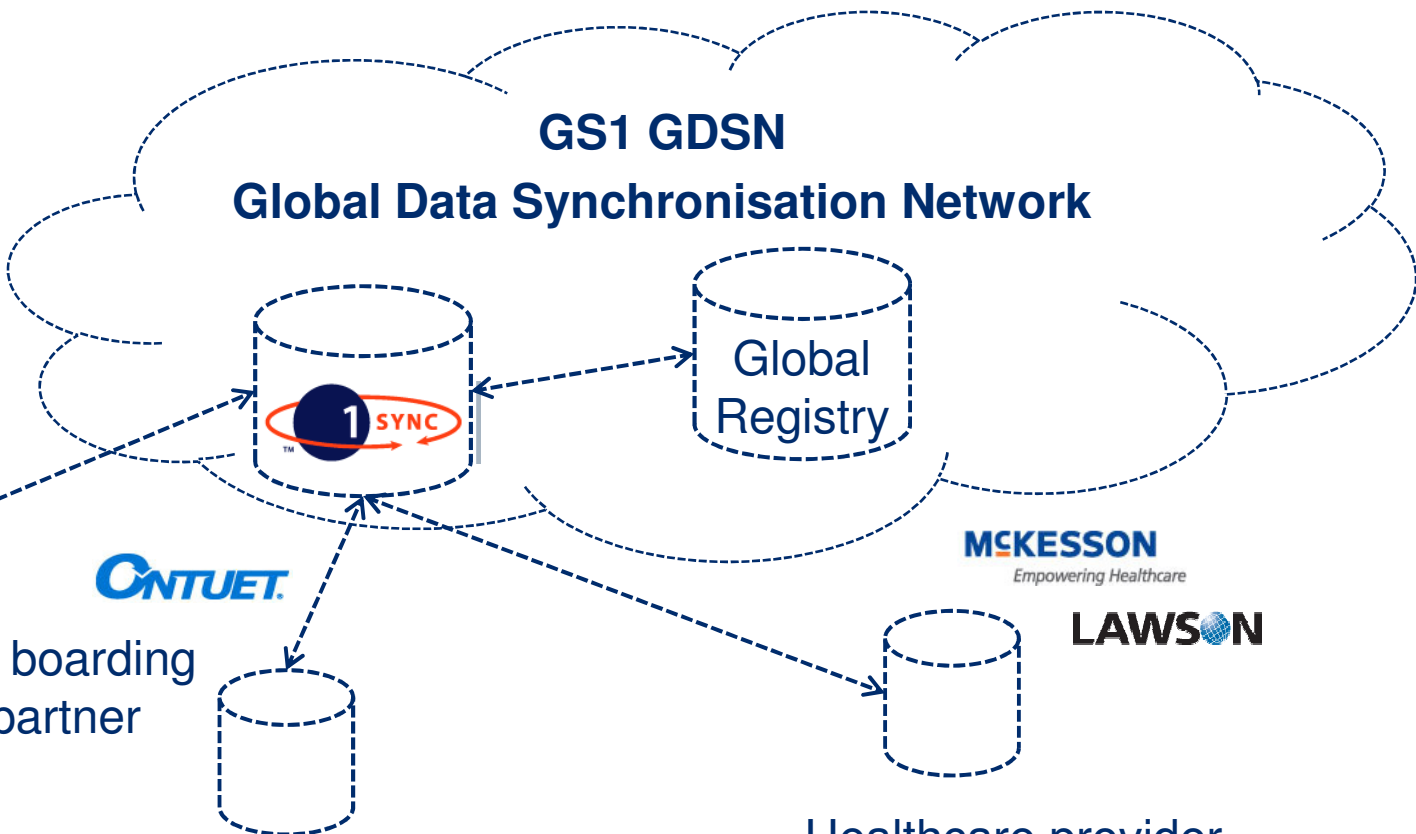


Healthcare About the DoD/VA Pilot

- **DoD/VA Data synchronisation programme**
 - Objective : to improve the healthcare supply chain and reduce costs
 - The US Department of Defense launched a product data synchronization program in 2003
 - The US Department of Veteran Affairs also joined the programme
- **DoD/VA Pilot**
 - Goal: test the suitability of GS1 GDSN as a potential industry PDU (Product Data Utility)



GS1 Healthcare Participants DoD/VA Pilot



Manufacturer



Distributor/Wholesaler/GPO



Healthcare provider





Healthcare Results DoD/VA Pilot

- **Opportunities identified to save costs**
 - Better contract price available
 - Saved \$18.7M so far at 30 + hospitals
- **Opportunities identified to increase DoD eCommerce**
 - Moved \$7.766M to eCommerce services
- **Created robust DoD & VA Med Surg product data bank of 1 million + records**
 - Accurate master records for 93% (\$407M) of DoD buys
 - Joint DoD & VA access to pricing, packaging, product ID
- **Created active collaboration with Healthcare Industry**
 - Ongoing pilots with manufacturers and PV distributors
 - PDU as goal within Healthcare Standards Organizations



Healthcare Lessons learnts pilot participants

- **GPO**
 - Can consume GDSN data with minor changes to current system
 - Minor enhancements required to deliver GDSN data using existing delivery system
 - Well positioned to provide standards-based integration approaches beyond current delivery mechanism
- **Software Provider**
 - Internal business systems have many of the fields, technology and processes to get started with data synchronization
 - Long term, they will need to be further adapted for new processes driven by the GDSN
 - Processes exist for managing GDSN communication outside of ERP
- **Hospital**
 - Can use data for spend analyses
 - Project significant savings in reconciliation of GPO and distributor item files



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