USAID GLOBAL HEALTH SUPPLY CHAIN PROGRAM
Procurement and Supply Management

PRODUCT MASTER DATA MANAGEMENT REFERENCE GUIDE TOOLKIT

Version 1.0

February 2020

USAID FROM THE AMERICAN PEOPLE

PEPFAR U.S. President's Emergency Plan for AIDS Relief

USAID FROM THE AMERICAN PEOPLE CDC U.S. President's Malaria Initiative

The USAID Global Health Supply Chain Program-Procurement and Supply Management (GHSC-PSM) project is funded under USAID Contract No. AID-OAA-I-15-0004. GHSC-PSM connects technical solutions and proven commercial processes to promote efficient and cost-effective health supply chains worldwide. Our goal is to ensure uninterrupted supplies of health commodities to save lives and create a healthier future for all. The project purchases and delivers health commodities, offers comprehensive technical assistance to strengthen national supply chain systems, and provides global supply chain leadership.

GHSC-PSM is implemented by Chemonics International, in collaboration with Arbola Inc., Axios International Inc., IDA Foundation, IBM, IntraHealth International, Kuehne + Nagel Inc., McKinsey & Company, Panagora Group, Population Services International, SGS Nederland B.V., and University Research Co., LLC. To learn more, visit ghsupplychain.org

Contents

Executive Summary **2**
ANNEX 1: DATA GOVERNANCE TOOLS **3**
Annex 1.1. Governance Terms of Reference Template 3
Annex 1.2. Illustrative PMDM Governance Roles and Responsibilities Matrix 5
Annex 1.3. RACI Matrix Template 7
Annex 1.4 Illustrative PMDM Implementation Roadmap 9
Annex 1.5 Illustrative Standard Operating Procedure (SOP) for New Product Introduction 10
ANNEX 2. DATA ARCHITECTURE TOOLS **12**
Annex 2.1 Illustrative Product Master Data Attributes 12
Annex 2.2 Sample Logical Product Master Data Reference Model 16
ANNEX 3: DATA QUALITY MANAGEMENT TOOLS **17**
Annex 3.1 Data Quality Strategy Outline 17
Annex 3.2 Illustrative Data Quality Assessment Scorecard 18
Annex 3.3 Illustrative Trade Item Physical Inspection Protocol 19

Executive Summary

This Toolkit serves as an annex to the Product Master Data Management Reference Guide. It contains practical examples, tools, and templates to support users in implementing the information provided in the reference guide. Tools are provided for the first three components.

Table 1. PMDM Reference Guide Summary

DATA GOVERNANCE	A set of business processes that manages actions, methods, timing and responsibilities for supporting master data within an organization.
Subcomponents	Data Governance Organization; Data Governance Strategy; Data Governance Operations
Tools	Governance Terms of Reference Template; Illustrative Governance Roles and Responsibilities Matrix; Responsible, Accountable, Consulted, Informed (RACI) Matrix Template; Illustrative PMDM Implementation Roadmap; Illustrative Standard Operation Procedure (SOP) for New Product Introductions
DATA ARCHITECTURE	Models, policies, rules and standards that define how data are stored, managed and used in an information system
Subcomponents	Master Data Terminology Strategy; Data Reference Model
Tools	Illustrative Product Master Data Attributes; Sample Logical Produce Master Data Reference Model
DATA QUALITY	A series of documented, periodically reviewed procedures implemented to maintain and support the production of good-quality data
Subcomponents	Data Quality Strategy; Data Quality Audits; Data Validation Rules and Reasonability Checks
Tools	Data Quality Strategy Outline; Illustrative Data Quality Assessment Scorecard; Illustrative Trade Item Physical Inspection Protocol
DATA STORAGE AND OPERATIONS	The technical infrastructure needed to create the foundation for the integration and interoperability of the PMDM
Subcomponents	Data Operations and Configuration Management; Data Lifecycle Management; Data Auditing, Logging and Reporting
DATA SECURITY	A set of business processes governing the assurance of secure, up-to-date and correct data
Subcomponents	Privacy, Access Control and Authentication; Data-Sharing Agreements
DATA INTEGRATION AND INTEROPERABILITY (DI&I)	Requirements and management standards required to stand up technology that will need to be acquired or licensed for managing PMDM information assets
Subcomponents	DI&I Platform Architectural Approach; DI&I Architectural Standards; DI&I Integration & Data Sharing; DI&I Historical Data, Archiving and Retention

ANNEX 1: DATA GOVERNANCE TOOLS

Annex 1.1. Governance Terms of Reference Template

Governance Terms of Reference Template	
Description	Defines the purpose and governance structure for the PMDM program. The TOR allows for the proper review, approval, and monitoring of the overall program through a clear set of policies and standards.
Phase	Strategy and Design
Responsible	PMDM Data Governance Steering Committee

Product Master Data Management (PMDM)
Data Governance Steering Committee

TERMS OF REFERENCE

Purpose
The purpose of the PMDM Data Governance Steering Committee (herein referred to as the Steering Committee) is to establish the organization, strategy, and operations associated with product master data management for (**name of the organization, sector, or country)**.

The Steering Committee consists of several members that direct PMDM data governance across the entire organization and ensures that the policies and procedures developed for PMDM are adhered to. The Steering Committee has the authority to approve budgets and prioritize projects. Representation from external entities such as technical solution providers and standards development organizations will fluctuate based on participation in existing and new data governance initiatives or programs.

Objectives
The primary objective of the Steering Committee is to support master data within the organization, which will ensure confidentiality, integrity, and availability to product data by identifying data owner and provides transparency to how data is managed, who generates it and who consumes it. It will contribute to the foundation for supply chain business processes for (**name of the organization, sector, or country)**.

Responsibilities
- To lead development of the PMDM strategy, including the data dictionary and business glossary
- To define what success looks like for the program and the key performance indicators (KPIs) to demonstrate success
- To appoint relevant PMDM data governance roles including Executive Sponsor, Chairperson, Secretariat, Data Owner(s), Data Custodian(s) and Data Steward(s)
- To establish decision-making authority, roles and responsibilities, and accountability designations to various roles

- To define the PMDM roadmap for implementation
- To develop and approve standard operating procedures (SOPs) for implementation
- To monitor, measure, and report on implementation against defined plans and metrics

Membership
Membership of PMDM Data Governance Steering Committee shall be based on organizational / departmental representation with a designated focal person who is expected to participate actively in the activities of the group. The group shall be composed of representatives for the following organizations / departments:

Organization / Department	Role
	Executive Sponsor
	Chairperson
	Secretariat
	Member
	Member
	Member

Subject matter experts may be invited to participate on an as needed basis.

Meetings
The Steering Committee commits to meeting to meet at least **(bi-weekly, monthly, quarterly**), and on an ad hoc basis as requested by the Executive Sponsor.

Communications
Members may communicate face-to-face or by utilizing communication technologies/ applications. Meetings should be followed with a written report that notes any decisions, recommendations or discoveries. This report must be communicated to the agency.

Periodic Review
There will be annual reviews of this TOR to make changes to any aspects in its operations, membership or structure.

Terms of Reference Approval
This Terms of Reference has been reviewed and approved on **(insert date)**.

Executive Sponsor
Name _____
Title _____
Dept / Org _____

Chairperson
Name _____
Title _____
Dept / Org _____

Secretariat
Name _____
Title _____
Dept / Org _____

Annex 1.2. Illustrative PMDM Governance Roles and Responsibilities Matrix

Illustrative PMDM Governance Roles and Responsibilities Matrix[1][2][3]	
Description	Outlines the primary roles and responsibilities within the PMDM program and to identify and document the designated individuals responsible for filling those roles
Phase	Transition
Responsible	PMDM Data Governance Steering Committee

Role	Description of Role	Responsible Individual(s)	Responsibilities
Executive Sponsor	The Executive Sponsor is the owner of the PMDM program. This role is typically designated to an individual from the department, organization, or function that is expected to benefit the most from the PMDM program and has decision-making authority on strategic priorities and resource allocation.		– Accountable for the overall PMDM program – Defines what success looks like for the PMDM program – Creates awareness of and advocates for the importance of PMDM across the organization – Approves policy-level decisions regarding the priorities and implementation of the program – Advocates for and allocates budget and financing for the PMDM program – Holds the Steering Committee accountable for timelines and outcomes
Data Governance Steering Committee	The PMDM Data Governance Steering Committee directs the data governance process across the entire organization and ensures that the policies and procedures developed for data are followed. The Steering Committee should include representation from all lines of business that use or are impacted by product master data.		– Sets and communicates overall strategy for the PMDM program and specific outcomes – Champion the work of the Data Steward(s) – Eliminates barriers to communication and implementation across business units – Bears accountability for implementation in respective lines of business – Ensures that decisions that need to be taken are clear and communicated in a timely fashion – Supports to analyze and resolve tactical problems as they arise and facilitates conflict resolution

[1] Capability Maturity Model Integration (CMMI), CMMI Institute / ISACA (https://cmmiinstitute.com/)

[2] Data Management Book of Knowledge, DAMA International (https://dama.org/)

[3] https://www.getgoverned.com/single-post/2018/04/17/Data-Governance-Organization-Roles-and-Responsibilities

Data Owner(s)	The Data Owner(s) is the person(s) accountable for product master data within the organization or across an enterprise. They are responsible to ensure that the product master data is governed across systems and lines of business. Data Owners typically have some business and IT expertise.	– Reviews and approves approach, outcomes, and activities – Provides input into business and technical requirements related to the data – Ensures business glossary, data dictionary, and terminology services meet business requirements – Accountable to lines of business for data quality – Works to resolve data issues across business units – Second level review for any issues identifies by Data Stewards
Data Steward(s)	The Data Steward(s) are responsible for day-to-day data management of product master data. They are SMEs who understand and communicate the meaning of the product master data. The number of Data Steward(s) depends upon the level of complexity and the structure of the organization. Data Stewards typically have pharmaceutical and health information expertise.	– Serves as a SME for all aspects of product master data – Monitors and identifies any data quality issues – Detects conflicts in the data use, including the recognition of an end-of-life scenario for data – Maintains documentation on the sources of the various types is data – Interacts with data sourced through the GS1 Global Data Synchronization Network as well as maintain data from other external sources – Understands validations, rules, and constraints of data and continually maintain, improve and make recommendations or changes in the application of standards. – Manages queries/issues related to data, providing answers or validating the accuracy, completeness or use of data within a business context – Acts as a liaison between various functional departments responsible for providing an information management infrastructure, and information users
Data Custodian(s)	The Data Custodian(s) is the person(s) who has technical control over the product master data asset database (i.e. PIM application).	– Maintains technical environment and database structure – Manages data quality through validation rules to identify and address anomalies in product master data – Ensures proper access controls and authorization schemes to protect the data and meet the requirements of the system – Audits data structures, profiles, and cleanses data to maintain integrity and the consistency with the data model, including ensuring strict adherence to change management principles – Ensures adherence to the defined product master data lifecycle, including archiving and retention

Annex 1.3. RACI Matrix Template

RACI Matrix Template	
Description	Describes the participation required by various roles[4] in completing tasks and deliverables for the PMDM program.
Phase	Transition
Responsible	PMDM Data Governance Steering Committee

R	**RESPONSIBLE** The individual(s) who do the work to complete the task. There must be at least one individual designated as responsible, although others may assist in executing the work required
A	**ACCOUNTABLE** The accountable individual who is ultimately answerable for correct and thorough completion of the task, who ensures the prerequisites are met, and who delegates the work to those responsible.
C	**CONSULTED** The individuals whose opinions are sought for input into the work prior to its completion, typically subject matter experts. There is two-way communication required between the individual who is responsible and the individual(s) who are consulted.
I	**INFORMED** The individual(s) who are kept up-to-date on progress, often only on completion of the task or deliverables

	ROLE				
TASK	Executive Sponsor	Steering Committee	Data Owners(s)	Data Custodians(s)	Data Steward(s)
Data Governance					
Develop TOR for Data Governance Steering Committee	A	R	C	C	I
Establish roles and responsibilities	A	C	I	R	R
Develop data dictionary and business glossary	A	C	I	R	R
…					

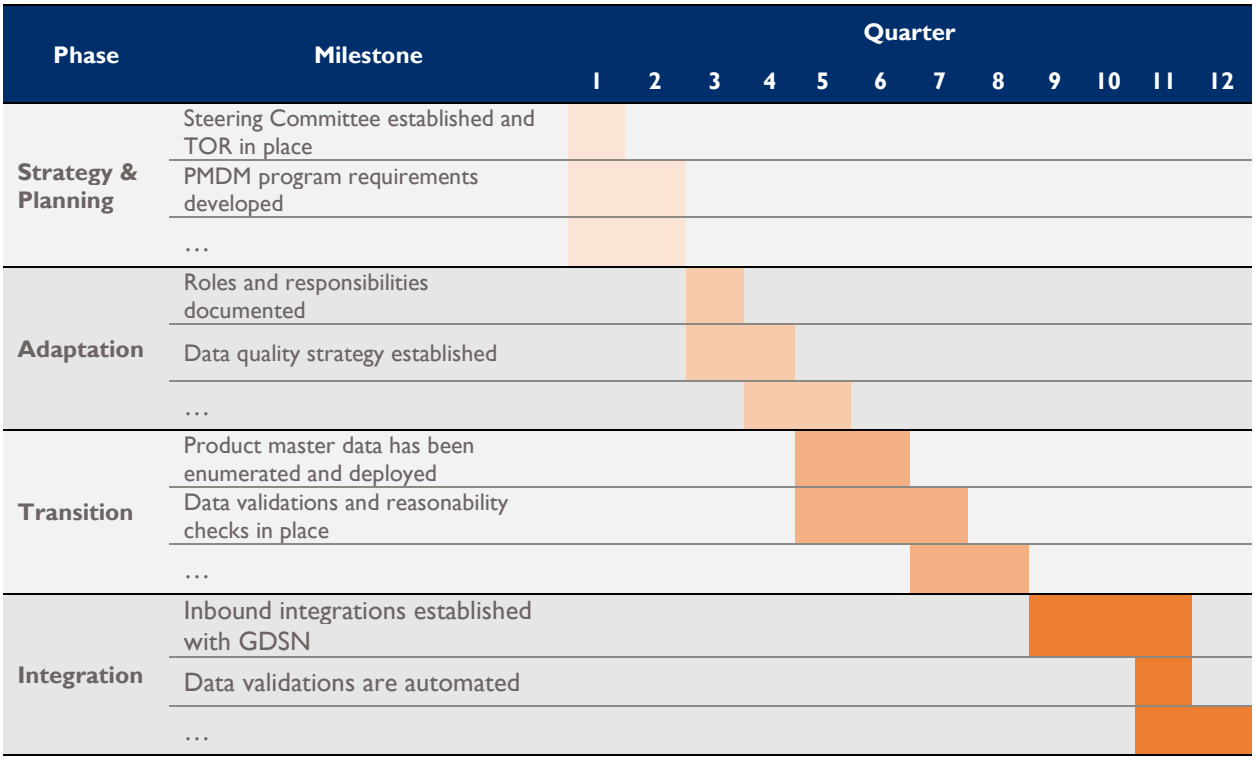
[4]Smith, Michael; Erwin, James (2005). Role & Responsibility Charting (RACI) (PDF). Project Management Forum.

Data Architecture					
Determine product master data attributes	I	C	R, A	I	C
Document terminology services	I	C	R, A	I	R
Design product master data reference model	I	C	A	R	C
…					
Data Quality					
Develop DQ Strategy	I	A	R	C	C
Establish DQ Metrics	I	A, R	R	C	C
Develop DQ Scorecard	I	A	R	C	R
…					

Annex 1.4 Illustrative PMDM Implementation Roadmap

Illustrative PMDM Implementation Roadmap	
Description	Documents a high-level overview of the PMDM program phasing and key milestone presented against an established timeline.
Phase	Strategy and Design
Responsible	PMDM Data Governance Steering Committee

PMDM Implementation Roadmap



Annex 1.5 Illustrative Standard Operating Procedure (SOP) for New Product Introduction

Illustrative SOP for New Product Introduction	
Description	SOPs are a written step-by-step instruction that describes how to perform a routine activity. This illustrative SOP covers, at a high-level, some steps that may be taken to introduce a new product, trade item and/or trade item packaging level.
Phase	Transition
Responsible	Data Owner(s), Data Steward(s)

Standard Operating Procedure (SOP) for New Product Introduction

Document
SOP New Product Introduction

Action(s)
1. Adding a new product
2. Adding a new trade item
3. Adding a new trade item unit packaging level

Procedure

1.0 ADDING A NEW PRODUCT

1.1 Ensure the product being added is not already listed in the master data file. If the product has an alternate name(s) (e.g. Epinephrine is also known as Adrenaline), check against these names to avoid duplication.

1.2 An internal product key should be generated for the new product such that it is unique and follows the naming convention for the existing product keys in the master data file.

1.3 Populate the product description using a pre-determined nomenclature.

1.4 Populate the remaining attribute fields, as possible, with available data. Not all attributes will be relevant for all product types. Code lists should be used for those attributes where a code list is available. For additional information on data attributes, please see Annex 2.1.

2.0 ADDING A NEW TRADE ITEM

2.1 Ensure the trade item being added is not already listed in the file. If the trade item has an alternate name(s) (e.g. Epinephrine is also known as Adrenaline), check against these names to avoid duplication.

2.2 An internal trade item key should be generated for the new trade item such that it is unique and follows the naming convention for the existing trade item keys in the master data file.

2.3 All trade items should have an attribute field to record the trade item's associated product key. Populate this field with the product key for the item's associated product (e.g. for "Abacavir 60 mg Dispersible Tablet, Bottle, 60 Tablet [Cipla]", the associated product is "Abacavir 60 mg Dispersible Tablet"), This can be found by searching for the item's associated product in the master data file for product data and referencing the product key. If an item's associated product has not yet been added to the product data file, do so before proceeding with adding the new item.

2.4 Populate the trade item description using a pre-determined nomenclature.

2.5 Populate the remaining attribute fields, as possible, with available data. Not all attributes will be relevant for all trade item types. Code lists should be used for those attributes where a code list is available. For additional information on data attributes, please see Annex 2.1.

3.0 ADDING A NEW TRADE ITEM PACKAGING LEVEL

3.1 Ensure the trade item packaging level being added is not already listed in the file. If the item has an alternate name(s) (e.g. Epinephrine is also known as Adrenaline), check against these names to avoid duplication.

3.2 An internal trade item packaging key should be generated for the new trade item packaging level such that it is unique and follows the naming convention for the existing trade item packaging level keys in the master data file. The GTIN for the trade item packaging level should also be populated, if available.

3.3 All trade item packaging levels should have an attribute field to record the trade item packaging level's associated trade item. Populate this field with the trade item key for the trade item packaging level's associated trade item (e.g. for the trade item packaging level "Efavirenz 600 mg Tablet, Bottle, 30 Tablet, Pallet [Strides]", the associated trade item is "Efavirenz 600 mg Tablet, Bottle, 30 Tablet [Strides]"). This can be found by searching for the trade item packaging level's associated trade item in the master data file for trade item data and referencing the trade item key. If a trade item packaging level's associated trade item has not yet been added to the trade item data file, do so before proceeding with adding the new trade item packaging level.

3.4 Trade item packaging level data files should provide an attribute field for capturing the trade item packaging level key for the "child" of the trade item packaging level being entered (e.g. for "Efavirenz 600 mg Tablet, Bottle, 30 Tablet, Pallet [Mylan]", the child is "Efavirenz 600 mg Tablet, Bottle, 30 Tablet, Case [Mylan]"). If applicable, populate this field with the trade item packaging level key of child trade item packaging level, the trade item packaging level one level below that which is being entered.

3.5 Populate the trade item packaging level description using a pre-determined nomenclature. Typically this can be done by using the description of the trade item packaging level's associated trade item and adding in the specific packaging level (e.g. for the case level of the trade item "Efavirenz 600 mg Tablet, Bottle, 30 Tablet [Mylan]", the trade item packaging level description would be "Efavirenz 600 mg Tablet, Bottle, 30 Tablet, Case [Mylan]").

3.6 Populate the remaining attribute fields, as possible, with available data. Not all attributes will be relevant for all trade item packaging level types. Codes lists should be used for those attributes where a code list is available. For additional information on data attributes, please see Annex 2.1.

ANNEX 2. DATA ARCHITECTURE TOOLS

Annex 2.1 Illustrative Product Master Data Attributes

Illustrative Product Master Data Attributes	
Description	Characteristics of a product, trade item, or packaging level that distinguish it from other similar commodities. The attributes included within demonstrate which characteristics are unique at each level of hierarchy.
Phase	Transition
Responsible	Data Owner(s)

Common Name	GDSN Tag	Definition / Guidance	Code List?
PRODUCT LEVEL INFORMATION Characteristics that are unique to an object at the conceptual product level.			
Product Key	productKey	Unique, system-generated number which identifies a product. This is used as the primary key.	N
Generic Name	genericName	Generic name of a pharmaceutical from the WHO INN system. Not applicable to non-medical consumables.	N
Product Form	productForm	Product form is the description of the physical form of a medication that identifies the form of the pharmaceutical item (e.g. "Film Coated Tablet", "Powder for Oral Suspension", etc.).	N
Product Description	productDescription	A short textual description associated with the product. This attribute is recommended to be a concatenation of the "genericName", "strength", and "productForm" attributes.	N
Strength	strength	Used to define the strength of each ingredient in a trade item or unit volume of non-food and beverage trade items.	N
Active Ingredient	activeIngredient	The ingredient(s) in a pharmaceutical that is biologically active and responsible for its effects.	N
Dosage Form	dosageForm	Dosage form is the standardized categorization of the product form.	Y
Route of Administration	routeOfAdministration	The method(s) of administering the product. In pharmacology and toxicology, a route of administration is the path by which a drug, fluid, or other substance is brought into contact with the body.	Y

Common Name	GDSN Tag	Definition / Guidance	Code List?
UNSPSC Code	unspscCode	United Nations Standard Products and Services Code. UNSPSC is a 4-level taxonomy of products and services for use in eCommerce.	N
GPC Code	gpcCode	Code specifying a product category according to the GS1 Global Product Classification (GPC) standard.	N
ATC Code	atcCode_CODE	Anatomical Therapeutic Chemical/Defined Daily Dose pharmaceutical classification structure number.	N
TRADE ITEM LEVEL INFORMATION Characteristics that are unique to an object at the trade item level. It is important to maintain a link between the "child" trade item and the "parent" product.			
Item Key	itemKey	Unique, system-generated number which identifies an item. This is used as the primary key.	N
Product Key	productKey	The unique, system-generated number which identifies the "parent" product of a given "child" trade item.	N
Trade Item Description	tradeItemDescription	A short textual description associated with the item.	N
Packaging		The packaging for a given pharmaceutical item (e.g. Bottle, Blister).	N
Content		A description of the contents of a given item (e.g. 60 Tablet, 2 mL Vial). This field is recommended to be a concatenation of the "Pack Measure" and "Pack Count" fields.	N
Pack Measure	packMeasure	The counting measure for a given item pack.	N
Pack Count	packCount	The number of pack measures per pack.	N
Unit Measure	unitMeasure	Identifies the base unit of measure for a given item.	N
Unit Count	unitCount	The number of units per pack.	N
Unit Size	unitSize	This field describes the size per unit for volume/mass-specific pharmaceuticals (e.g. 250 mL for vials). For non-volume/mass-specific items, this field should be nulled.	N
Brand Name	brandName	Item name used by the enterprise that manufactures this item.	N
Brand Owner	brandOwner	The name of the brand owner of the trade item.	N
Brand Owner Location	brandOwnerLocation	The address associated with the organization that owns the brand.	N
Brand Owner GLN	brandOwnerGLN	The Global Location Number used to identify the organization that owns the brand.	N
Manufacturer Name	manufacturerName	Legal name of the item manufacturer.	N
Manufacturer Short Name	manuShort	A short textual description of the item's manufacturer for reference in the item description.	N
Manufacturer Location	manufacturerLocation	The address associated with the manufacturing site.	N
Manufacturer GLN	manufacturerGLN	The Global Location Number used to identify the organization that manufactures the trade item.	N

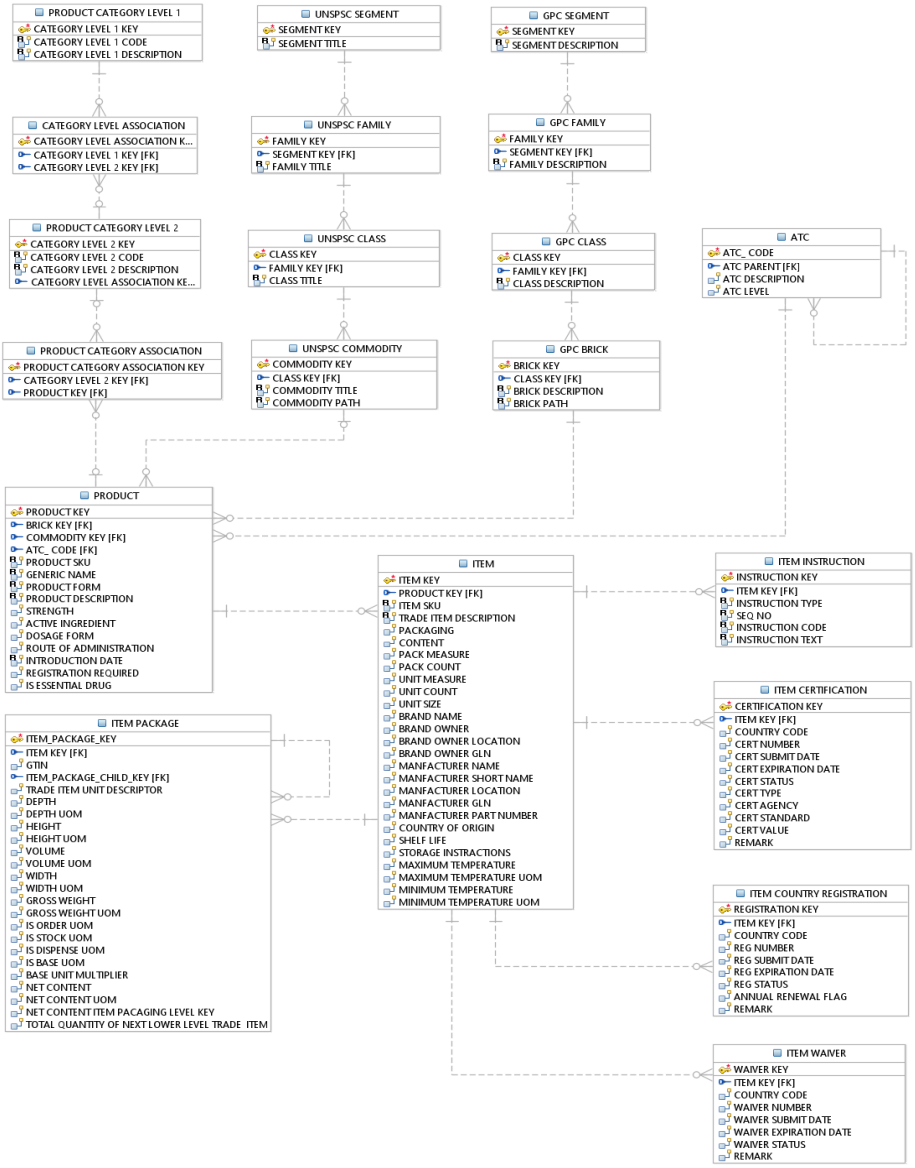
Common Name	GDSN Tag	Definition / Guidance	Code List?
Manufacturer Part Number	manufacturerPartNUM	Unique part number assigned by the manufacturer.	N
Country of Origin	countryOfOrigin	Two letter ISO country code for the country where a product is manufactured.	Y
Shelf Life	shelfLifeDays	The period of days, guaranteed by the Manufacturer, before the expiration date of the product, based on the production.	N
Storage Instructions	storageInstructions	Expresses in text the consumer storage instructions of a product which are normally held on the label or accompanying the product. This information may or may not be labeled on the pack.	N
Maximum Temperature	maxTemperature	Maximum temperature the item can be exposed to.	N
Maximum Temperature Unit of Measure	maxTemperatureUOM	Unit of Measure for the Maximum Temperature measurement.	Y
Minimum Temperature	minimumTemperature	Minimum temperature the item can be exposed to.	N
Minimum Temperature Unit of Measure	minTemperatureUOM	Unit of Measure for the Minimum Temperature measurement.	Y
TRADE ITEM PACKAGING LEVEL INFORMATION Characteristics that are unique to an object at the trade item packaging level (i.e. those that are unique at a given level of the packaging hierarchy such as the each, inner pack, case, pallet).			
Item Packaging Level Key	itemPackagingLevelKey	Unique, system-generated number which identifies a specific item packaging level.	N
Item Key	itemKey	The unique, system-generated number which identifies the "parent" trade item of a given "child" trade item packaging level.	N
Child Key	childItemPackagingLevelKey	Unique trade item packaging level key of the child trade item for a higher-level trade item (parent) in a product hierarchy.	N
GTIN	globalTradeItemNumber	The Global Trade Item Number is the standard 14-digit number used to identify all trade items in GDSN.	N
Trade Item Unit Descriptor	tradeItemUnitDescriptor	Describes the hierarchical level of the trade item (e.g. each, inner pack, case, pallet).	Y
Depth	depth	Length/Depth of the item.	N
Depth Unit of Measure	depthUOM	Unit of Measure for the Length/Depth measurement.	Y
Height	Height	The vertical dimension from the lowest extremity to the highest extremity.	N

Common Name	GDSN Tag	Definition / Guidance	Code List?
Height Unit of Measure	heightUOM	Unit of measure for the height measurement	Y
Volume	volume	The dimensions of an imaginary cube which can be drawn around the trade item as defined in the formula of H X W X D. This only applies to In-box dimensions. Level of Hierarchy applied to- All.	N
Volume Unit of Measure	volumeUOM	Unit of measure for the volume measurement	Y
Width	width	The measurement of the extent of something from side to side. Width is the measurement from left to right.	N
Width Unit of Measure	width_UOM	Unit of measure for the width measurement	Y
Gross Weight	grossWeight	Used to identify the gross weight of the trade item. The gross weight includes all packaging materials of the trade item. At pallet level the trade item, grossWeight includes the weight of the pallet itself.	N
Gross Weight Unit of Measure	grossWeightUOM	Unit of measure for the gross weight measurement.	Y
Is Ordering Unit of Measure	isOrderUOM	Identifies if this unit level is the level on which ordering is managed for a given trade item.	Y
Is Stock Unit of Measure	isStockUOM	Identifies if this unit level is the level on which stock keeping is managed for a given trade item.	Y
Is Dispense Unit of Measure	isDispenseUOM	Identifies if this unit level is the level at which dispensing is managed for a given trade item.	Y
Is Base Unit	isBaseUnit	Identifies if this unit level is the base level for a given trade item hierarchy.	Y
Base Unit Multiplier	baseUnitMult	Identifies the number of base units included at this packaging level (e.g. a case of 20 bottles, for an item where a bottle is the base unit, would have a base unit multiplier of 20).	N
Net Content	netContent	Identifies the amount/number of netContentUOM contained in a package at the given packaging level.	N
Net Content UOM	netContentUOM	Identifies the unit of measure for the netContent. Valid values found in the provided code list.	Y
Net Content Item Packaging Level Key	netContentKey	Identifies the internal item packaging level identification key for the packaging level identified as the counting unit for the netContent.	N
Total Quantity of Next Lower Level Trade Item	totalQuantityOfNext LowerLevelTradeItem	This represents the total quantity of next lower level trade items that this trade item contains.	N

Annex 2.2 Sample Logical Product Master Data Reference Model

Sample Logical Product Master Data Reference Model

Description	A visual representation of the relationships between identification codes, hierarchies, attributes, and definitions that will be implemented through the PIM application.
Phase	Transition
Responsible	Data Custodian(s)



ANNEX 3: DATA QUALITY MANAGEMENT TOOLS

Annex 3.1 Data Quality Strategy Outline

DQA Strategy Outline	
Description	A planned framework for implementing a DQA program.
Phase	Transition
Responsible	Data Owner(s), Data Steward(s)

Data Quality Strategy OUTLINE

Acronyms

Introduction
- Goals and objectives of DQ program
- Purpose, target audience and application
- Definitions

Data Sets and Elements
- Definition of DQ metrics and conformance levels
- Performance KPIs

Data Quality Roles and Responsibilities
- Data Owner(s), Data Steward(s) and Data Custodian(s)
- Stakeholders to be informed of current state and changes to data

Data Repository
- Where data resides
- How data is accessed
- External and Internal systems that need to interact with data

Execution
- Protocol for maintaining and updating product data
- Data change management protocol
- Schedule for DQ audits
- Scorecard management process
- Reporting & internal and external feedback mechanism

Annex 3.2 Illustrative Data Quality Assessment Scorecard

Illustrative DQA Scorecard[5]	
Description	A dashboard that aggregates data quality metrics against set conformance levels. It is recommended to set a scorecard baseline and benchmarks and capture metrics on a routine basis (e.g. monthly, quarterly). Note that criteria will change based on the priorities as defined by the Data Owner(s)
Phase	Adaption
Responsible	Data Owner(s), Data Steward(s)

Illustrative DQA Scorecard

No.	Criteria	Score	Weight	Adjusted Score	Notes and Observations
1	GTINs are assigned at each unique trade item packaging level	3	4	12	
2	Trade item descriptions are unique	4	5	20	
3	Trade items are linked to products	5	5	25	
4	Product descriptions are unique	4	5	20	
5	Products are mapped to UNSPSC (or other classification)	2	3	6	
6	Attributes are compliant with protocols in data dictionary	3	4	12	
TOTAL		75 / 130 or 57.7%			

Scoring Criteria

5	100% alignment with metric
4	75-99% alignment with metric
3	50-74% alignment with metric
2	25-49% alignment with metric
1	0-24% alignment with metric

[5] Adapted from GS1 Australia. (n.d.). Data quality in focus. Retrieved from https://www.gs1au.org/download/gs1au-scorecard-healthcare-data-quality-program-self-assessment.xlsx/file

Annex 3.3 Illustrative Trade Item Physical Inspection Protocol

Illustrative Trade Item Physical Inspection Protocol	
Description	Employed to verify data accuracy and completeness by comparing the physical characteristic of a trade item with the master data in the PIM application.
Phase	Adaption
Responsible	Data Owner(s), Data Steward(s)

Step	Activity	Sub-Activity	Tasks
1	Convene inspection team		– Identify individuals on inspection team, ensuring representation from relevant lines of business – Ensure common understanding of inspection objectives – Provide training and materials on relevant concepts to inspection (e.g. GS1 AIDC standards)
2	Establish scope of inspection	Determine scope	– Identify product categories and packaging levels – Determine attributes for validation – Determine public and/or private sector – Identify locations for inspection (e.g. geographic representation, retail / facilities / warehouses – Aggregate existing product data for product scope from PIM application for validation – Establish inspection schedule – Validate with Data Governance Steering Committee and lines of business
		Determine sample criteria	– Determine number of trade items to sample from each product category – Confirm sample sizes sought across locations – Establish confidence rate (usually 95% and 10% confidence interval (margin of error) is applied)
		Validate metrics	– Review data quality metrics – Ensure definitions in metrics align with scope of trade item inspection – Determine scoring criteria for inspection data capture
		Secure approvals	– Secure approvals from sponsors and leadership on inspection objectives, scope and schedule
		Inform stakeholders	– Disseminate information regarding inspection to stakeholders who need to be informed of activity

Step	Activity	Sub-Activity	Tasks
3	Secure inspection equipment and documentation	Identify and source equipment	– Determine what equipment is required for inspection (i.e. cameras, rulers/tape measures, barcode scanners and/or smart phones) – Procure equipment (if necessary) – Ensure required equipment is calibrated or verified at specified intervals, against international measurement standards
		Share required documentation	– Review previous trade item inspection reports for anomalies to flag areas for validation – Disseminated trade item inspection audit sheets to inspectors
4	Execute trade item inspection		– Execute inspection in accordance with established protocols – Ensure consistent documentation of inspection results through the process – Record KPI physical measurements of a product against the data published to the defined data source (data pool, internal systems, etc.)
5	Document and report out on inspection results	Validate findings	– Compare physical observations against product master data currently available in PIM application – Identify and address anomalies in data; escalate as necessary – Aggregate data and analyze against established data metrics
		Disseminate findings to stakeholders	– Summarize inspection scope, processes, and results – Document and share trade-item level and aggregate data – Provide recommendations and next steps