

SOLUTION ENABLEMENT

Product MDM for Retail

Release 10.0-MP3 (October 2020)

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Product MDM for Retail

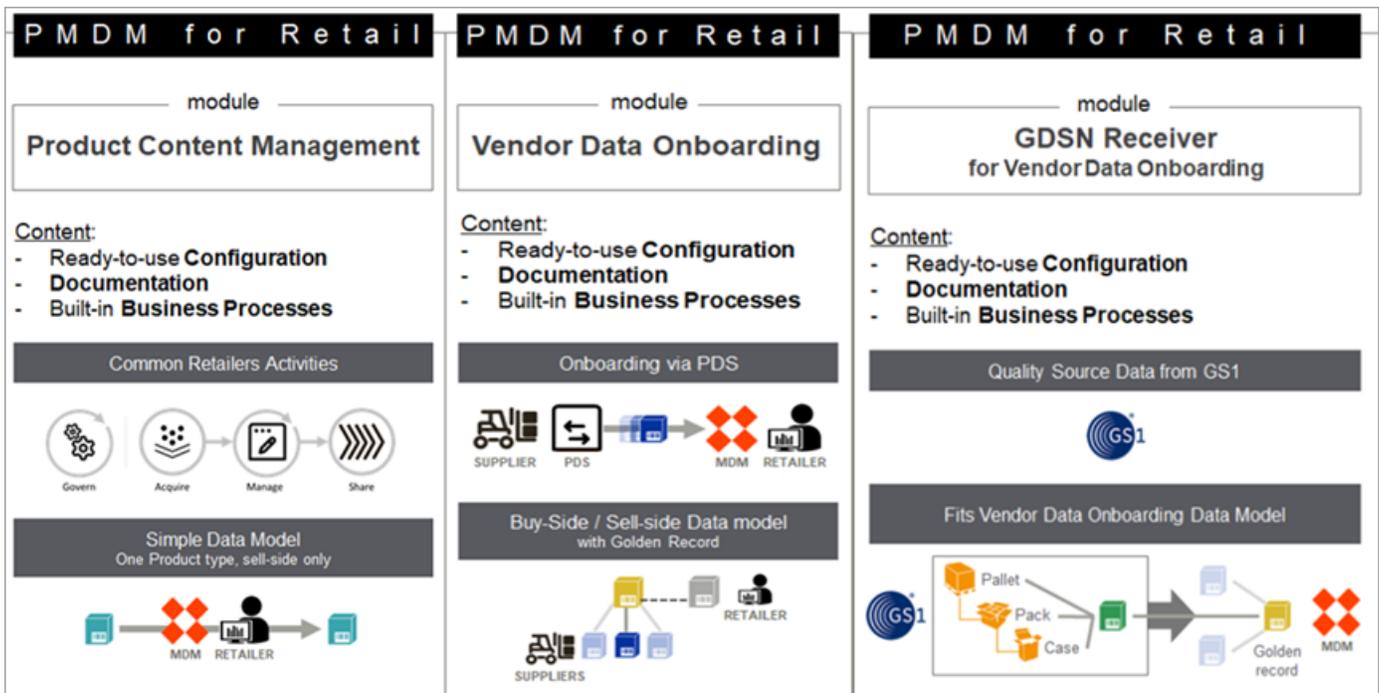
'PMDM for Retail' are starter packs or “modules” that allow you to bootstrap your PMDM project. These are ready-to-use solutions, based on the most commonly observed features in the market, and they can be customized to meet your requirements.

Each pack contains:

- A workable configuration (data model, WebUI, workflows, business rules, IEP, etc.)
- Documentation

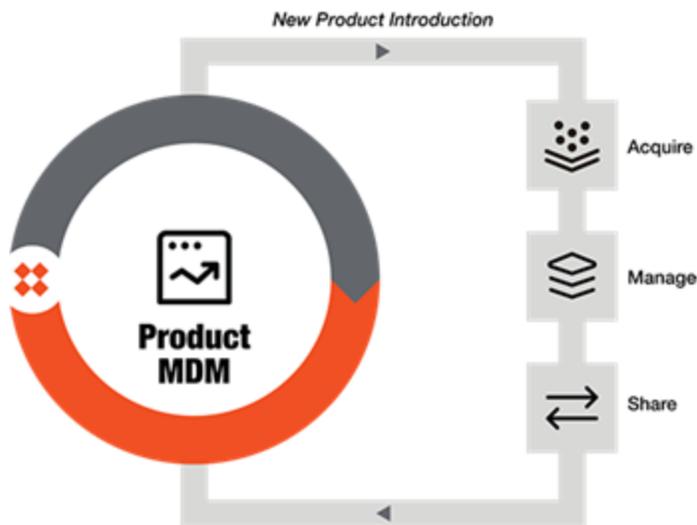
There are several packs or “modules”, each covering different use cases:

- Product Content Management (PCM) module
- Vendor Data Onboarding (VDO) module
- GDSN module, working in conjunction with VDO module



Each business is different—your processes, your products, your organization. Implementing a PMDM (Stibo Systems’ Product Master Data Management solution) raises a lot of questions and can seem challenging.

As PMDM multi-domain specialists, Stibo Systems has studied customers' business processes and configurations and has identified patterns that frequently occur in the retail industry.



PMDM for Retail Getting Started

PMDM for Retail is organized as modules. This allows you to start with just a few modules / components, and as your PMDM solution grows, additional modules / components can be added. PMDM for Retail modules are off-the-shelf, ready-to-use, yet customizable configurations.

The following topics are the first that you should read to understand the basics of PMDM for Retail:

- Product MDM Modules
- PMDM for Retail Key Concepts
- PMDM for Retail Products and Product Data
- Product Data Lifecycle

Module - Product Content Management

The following topics explain the setup of and activities managed by the 'Product Content Management' module included in PMDM for Retail as displayed in the image above:

- General Presentation of the Product Content Management Module
- Initial Setup for Product Content Management Module
- Product Content Management 'Govern' Activity
- Product Content Management 'Acquire' Activity
- Product Content Management 'Manage' Activity
- Product Content Management 'Share' Activity

Module - Vendor Data Onboarding

The following topics explain the setup of and activities managed by the 'Vendor Data Onboarding' module:

- General Presentation of the Vendor Data Onboarding Module
- Vendor Data Onboarding Data Model
- Vendor Data Onboarding - Processes

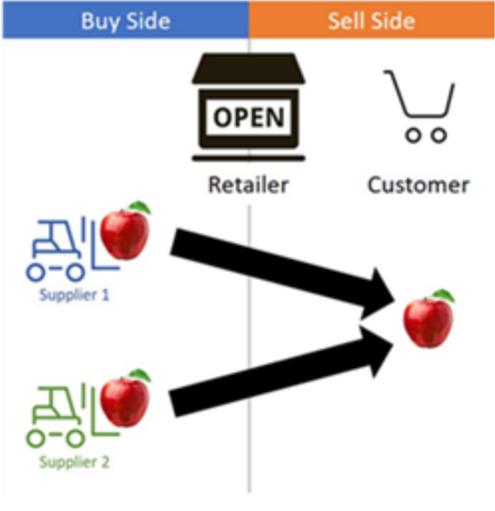
Module - GDSN Receiver for Vendor Data Onboarding

- Module - GDSN Receiver for PMDM for Retail

Product MDM Modules

The following modules are available in PMDM for Retail:

- **Product Content Management** is a 1:1 product data flow where the purchased product is exactly the same as the sold product. There are no separate objects and no supplier data onboarding.
- **Vendor Data Management** is an n:1 product data flow where there can be multiple supplier-side products for one retailer-side product (buy-side / sell-side).

| | Product Content Management | Vendor Data Onboarding |
|---------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product data model | <p>1:1</p> <p>Sell-side only, what you buy is what you sell.</p>  | <p>n:1</p> <p>Multiple supplier-side products for 1 retailer-side product.</p>  |
| Onboarding workflow - pre-defined tasks and logic for product data creation | <p>✓</p> <p>Product Data is onboarded by the Retailer</p> | <p>✓</p> <p>Product Data is onboarded by the Suppliers</p> |
| Collaboration workflow - pre-defined tasks and logic for collaboration inside the retailer's team | <p>✓</p> | <p>✓</p> |
| Product data onboarding via Smartsheet - using Smartsheet to create / update product data | <p>✓</p> | <p>✗</p> |
| Product data onboarding | <p>✗</p> | <p>✓</p> |

| | Product Content Management | Vendor Data Onboarding |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|------------------------|
| via PDS - the Supplier uses PDS to manage its products and syndicates them to a dedicated retailer's channel | | |
| Product data onboarding via GDSN - get quality product data from GS1 standard, GDSN. GS1 is not a supplier, therefore there is no pricing information | ✘ | ✔ |
| Variant handling | ✔ | ✘ |

PMDM for Retail Key Concepts

PMDM for Retail is a solution that manages product data across your company. But who creates, enriches, and classifies this product data? Even if the answer varies for each organization, the following standard actors are typically involved in Master Data Management.

| | User | Role |
|------------------------------------------------------------------------------------|-------------------|-----------------------------------------------------------|
|  | Retailer | Buys products from suppliers and sells them to customers. |
|  | Supplier / Vendor | Sells products to retailers. |
|  | Data Provider | Produces product data as a service. |
|  | Customer | Buys products from the retailer. |

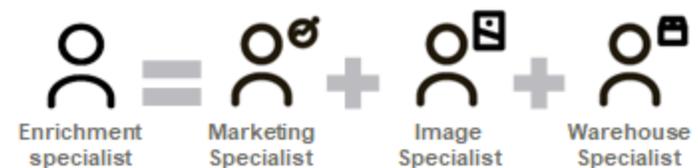
The retail's actors are discussed below.

Retailer's Actors

From the retailer's perspective, the following tables show the users and roles involved in the PMDM for Retail solution.

Some actors are valid for both modules (PCM and VDO), while some are specific to VDO only.

| | User | Role | In module |
|-------------------------------------------------------------------------------------|-------|-------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Buyer | Negotiates and buys products from the supplier. | <div style="background-color: black; color: white; padding: 2px; display: inline-block; margin-bottom: 5px;">PCM</div> <div style="background-color: black; color: white; padding: 2px; display: inline-block;">VDO</div> |

| | User | Role | In module |
|-------------------------------------------------------------------------------------|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Quality Assurance Expert | Ensures the quality of the data. | <div style="background-color: black; color: white; padding: 2px; display: inline-block; margin-bottom: 5px;">PCM</div> <div style="background-color: black; color: white; padding: 2px; display: inline-block;">VDO</div> |
|  | Marketing Specialist | Writes copy and manages the product's marketing data. | <div style="background-color: black; color: white; padding: 2px; display: inline-block; margin-bottom: 5px;">PCM</div> <div style="background-color: black; color: white; padding: 2px; display: inline-block;">VDO</div> |
|  | Image Specialist | Maintains the images and assets of the product. | <div style="background-color: black; color: white; padding: 2px; display: inline-block; margin-bottom: 5px;">PCM</div> <div style="background-color: black; color: white; padding: 2px; display: inline-block;">VDO</div> |
|  | Warehouse Specialist | Manages warehouse-specific product data. | <div style="background-color: black; color: white; padding: 2px; display: inline-block; margin-bottom: 5px;">PCM</div> <div style="background-color: black; color: white; padding: 2px; display: inline-block;">VDO</div> |
|  | Enrichment Specialist | <p>In smaller organizations, the Enrichment Specialist can cumulate the work of the Marketing Specialist, the Image Specialist, the Warehouse Specialist.</p> <div style="text-align: center; margin-top: 10px;">  <p>Enrichment specialist = Marketing Specialist + Image Specialist + Warehouse Specialist</p> </div> | <div style="background-color: black; color: white; padding: 2px; display: inline-block; margin-bottom: 5px;">PCM</div> <div style="background-color: black; color: white; padding: 2px; display: inline-block;">VDO</div> |
|  | Data Steward | Manages category-specific attributes, LOVs, primary product hierarchy, and classifications. | <div style="background-color: black; color: white; padding: 2px; display: inline-block; margin-bottom: 5px;">PCM</div> <div style="background-color: black; color: white; padding: 2px; display: inline-block;">VDO</div> |

Technically, MDM also involves machine-to-machine (M2M), where exchange and automation happen between the systems. This means the external systems must also be considered as actors.

| | System | Role | In module |
|-----------------------------------------------------------------------------------|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | ERP | Optionally sends data to STEP, including a unique SKU ID, and a value used to classify the product automatically (the 'ERP line' attribute). | <div style="background-color: black; color: white; padding: 2px; text-align: center; margin-bottom: 5px;">PCM</div> <div style="background-color: black; color: white; padding: 2px; text-align: center;">VDO</div> |
|  | STEP | Master Data Management | <div style="background-color: black; color: white; padding: 2px; text-align: center; margin-bottom: 5px;">PCM</div> <div style="background-color: black; color: white; padding: 2px; text-align: center;">VDO</div> |
|  | E-commerce platform | Receives the MDM product data to be used on E-commerce channels. | <div style="background-color: black; color: white; padding: 2px; text-align: center; margin-bottom: 5px;">PCM</div> <div style="background-color: black; color: white; padding: 2px; text-align: center;">VDO</div> |
|  | PDS | Product Data Syndication is a simple, fast, cost-effective way for manufacturers and brands to share and update product data with retailers, data pools and content service providers. The suppliers and manufacturers use PDS to publish their products to PMDM for Retail. | <div style="background-color: black; color: white; padding: 2px; text-align: center;">VDO only</div> |

PMDM for Retail Products and Product Data

A product is an item that you, the retailer, buys from a supplier, and that you sell to a customer. In PMDM terminology, it can be called a 'sell side product' or 'sell side item.'



Note: The Product Content Management module of the PMDM for Retail module only deals with the sell side products.

Various types of products should be considered:

- **Products** are any of the items that you sell.



- **Variant products** are versions of a single product, such as a shirt that is available in a variety of sizes and colors (PCM only).



- Other product types depend upon your data model as defined during your STEP implementation. For example:
 - Samples: items that are not sold but are distributed.
 - Kits: a repair kit that links to other products.
 - Packs: a group that contains a selection of other items.
 - Bundles: a set of products plus the installation service delivered by a specialist.

Buy Side and Sell Side

It is common practice to make a distinction between products being bought and products being sold as follows:

- The 'buy side' product is what you, the retailer, buys from a supplier.
- The 'sell side' product is what you, the retailer, sells to your customer.

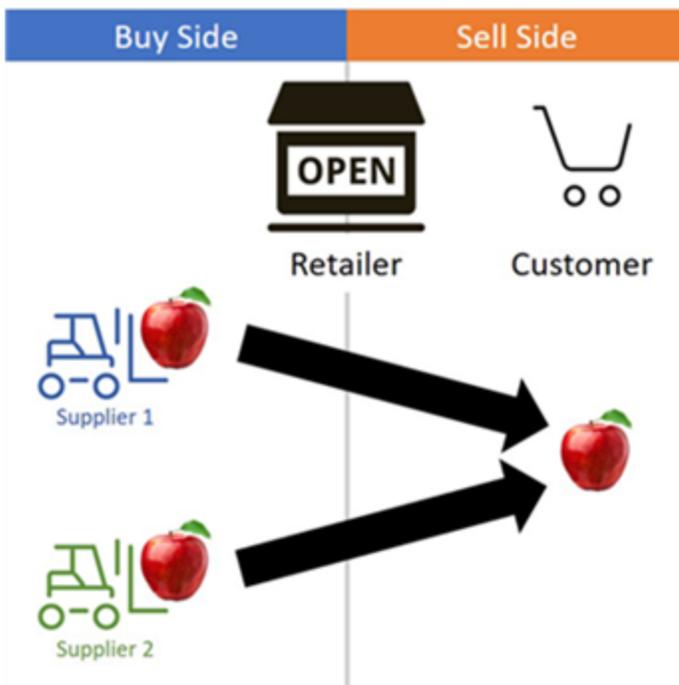


Consider the following scenarios:

- **The same product is bought and sold** - You buy a product and you sell the same product (PCM only).



- **Multiple products are sold as the same product** - You buy equivalent products from several suppliers and you sell them as the same product (VDO only).



- **Single product is sold as different products** - You buy one product from a supplier and you sell it as different products.



Product Data

Often the terms 'product' and 'product data' are used interchangeably. In PMDM, 'product' refers to the item being bought and sold, while 'product data' is the supporting information about the item being bought and sold.

Product data is any data that describes it: its name, identifiers (GTIN, EAN, SKU id), product description (such as GPC attributes, marketing texts), pictures, links to other products, link to a classification, etc.

Data for a product is held by the following elements:

- **Attributes** hold characteristics about the product. For more information, see the **Attributes** topic in the **System Setup / Super User Guide** documentation.
- **References** hold links to other products, such as cross sell items, up-sell items, packs, etc. For more information, see the **Reference and Link Types** topic in the **System Setup / Super User Guide** documentation.
- **Assets** are digital items such as images, specifications, instruction manuals, etc. For more information, see the **Digital Assets** documentation.

Product Hierarchy and Classification

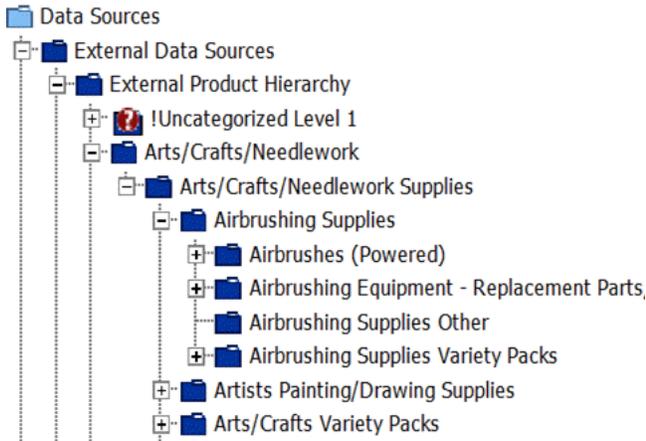
The primary product hierarchy is a type of classification used to manage products and identify product families. For more information, see the **Product Hierarchy** section of the **Products** topic in the **Getting Started / User Guide** documentation.

The product is classified in a unique location in the Primary Product Hierarchy. GPC classification and Open classification are two types of classification 'content' that can be used, as defined below.

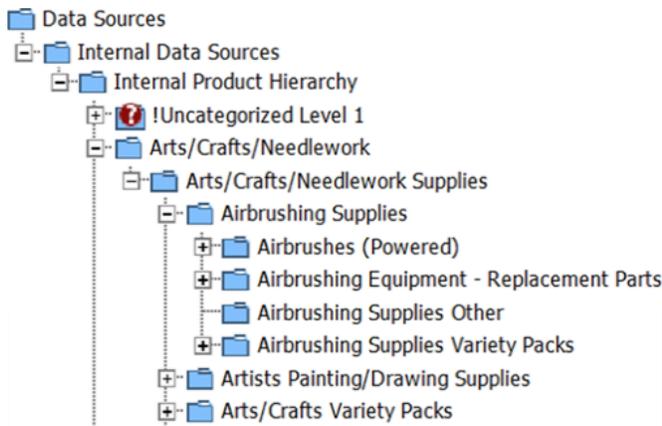


Below is an example of populated GPC hierarchy.

The “External Data Source” hierarchy:

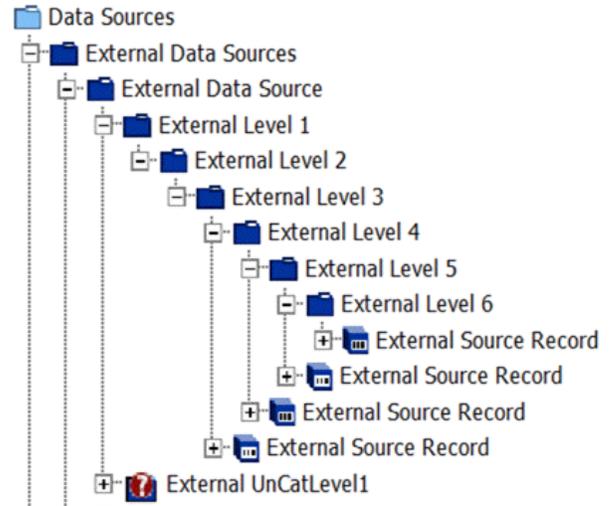


The “Internal Data Source” hierarchy:

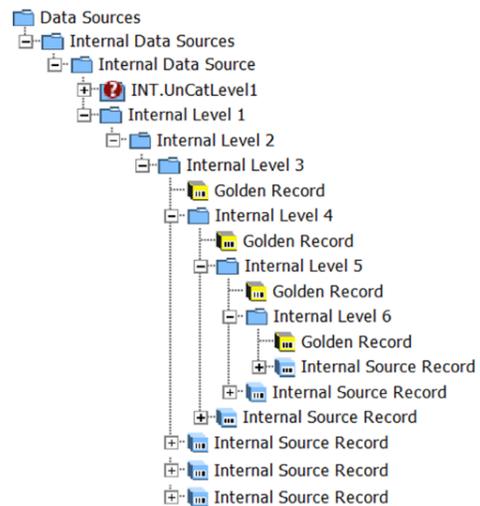


Below is the overarching data structure.

For External Data Sources:

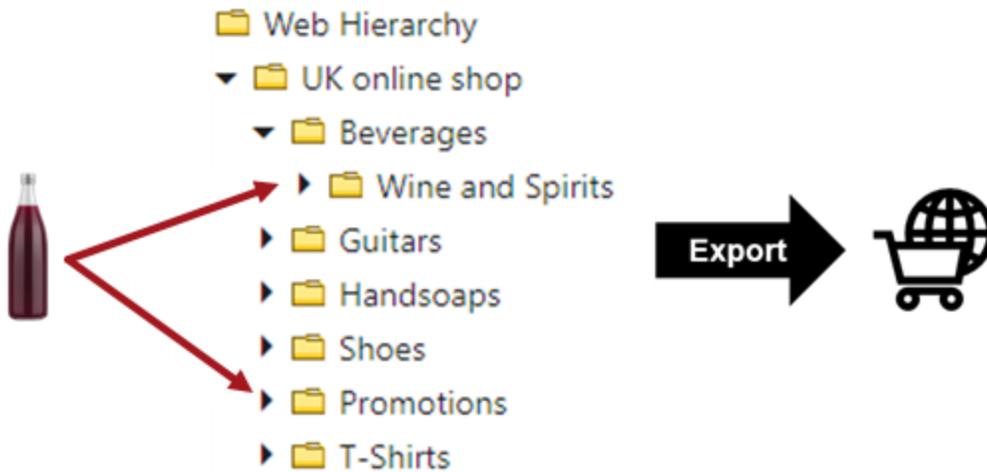


For Internal Data Sources:



Another classification type is the web classification, as illustrated in the 'Web Hierarchy' classification shown below. A common practice is to use an 'alternate' classification to export data to the E-commerce platform.

In the example web classification, the bottle of wine product can be placed at several locations, for instance, in the 'Wine and Spirits' folder, as well as in the 'Promotions' folder.



Product Distribution Channels

The retailer can distribute its products in different ways:

- **Directly** through its own shops (physical stores), online channels (site, app), distance selling (phone and mail, paper catalogs, TV shopping as showcases).
- **Indirectly** through marketplaces such as Amazon, eBay, Walmart, Wayfair, BOL.com, CDiscount, PriceMinister, Google Shopping, Etsy, Facebook, etc.
- **White label** for another brand. The retailer sells its own products, but with a different brand, operating this brand's channel.

Each of these 'channels' can have different assortments. For example, stores in one area will not have the same assortment as stores in another area. The products available in a physical store may not be available online (for instance, because home delivery is not possible), and vice versa. There can also be online-only products.

Multichannel or omnichannel scenarios are common practice in retail. The idea is to have a continuity of purchase experience through the different channels. The most common example is 'click and collect' where you buy a product online and pick it up in a shop. Another scenario is the other way around where you buy a product in a store and it is delivered at home. This requires the capacity to manage product data across these channels.

To cover these distribution needs, a common practice is to use one 'alternate classification' per channel, such as the 'Web Hierarchy' classification mentioned above. The retailer creates dedicated alternate classifications for each of its channels.

Product Data Lifecycle

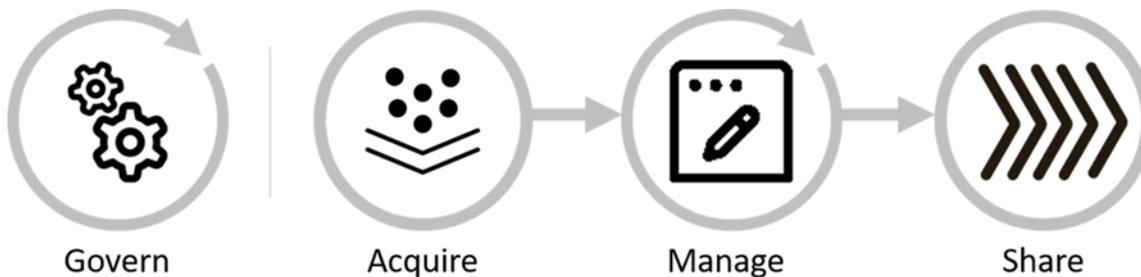
Product data is crucial for your business. To sell efficiently, product data needs to be accurate. To sell fast, product data must be available, centralized, and controlled. With the **Product Content Management** module, the retailer can add, enrich, maintain, and publish product data directly into Stibo Systems' MDM.

With the **Vendor Data Onboarding** module, the suppliers will submit their product data directly to the retailer using Product Data Syndication or PDS.

Siloed, duplicated, and inaccurate product information has a strong competitive business impact on any retail business: impersonal experiences, higher product return rate, low up-sell / cross-sell conversion. Agile and fast decisions are key to support customer-centric brand experiences.

Managing accurate, up-to-date product information enables you to increase up-sell / cross-sell and to reduce the returns rate. You also gain the insight to manage products with complex hierarchies and attributes, and to fuel customers' engagement with products, create customer retention, and drive more sales.

PMDM for Retail allows organizations to acquire, manage, and share product data from a variety of internal and external systems with their customers and value chain partners. The Product Content Management module implements this logic using a typical business process which covers the scenarios frequently encountered.



Both the Product Content Management module and the Vendor Data Onboarding module include these activities:

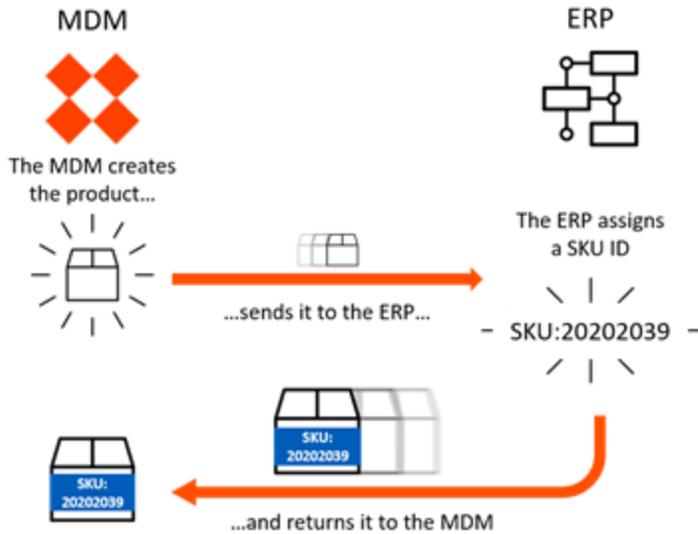
- **Govern** - maintain key elements of the data model like attributes, LOVs, and mappings
- **Acquire** - add or import product data into the MDM
- **Manage** - enrich the product data: copyright, digital assets, and warehouse data
- **Share** - export product data for users or external systems

The Data Lifecycle for PCM and VDO will be presented in their own sections.

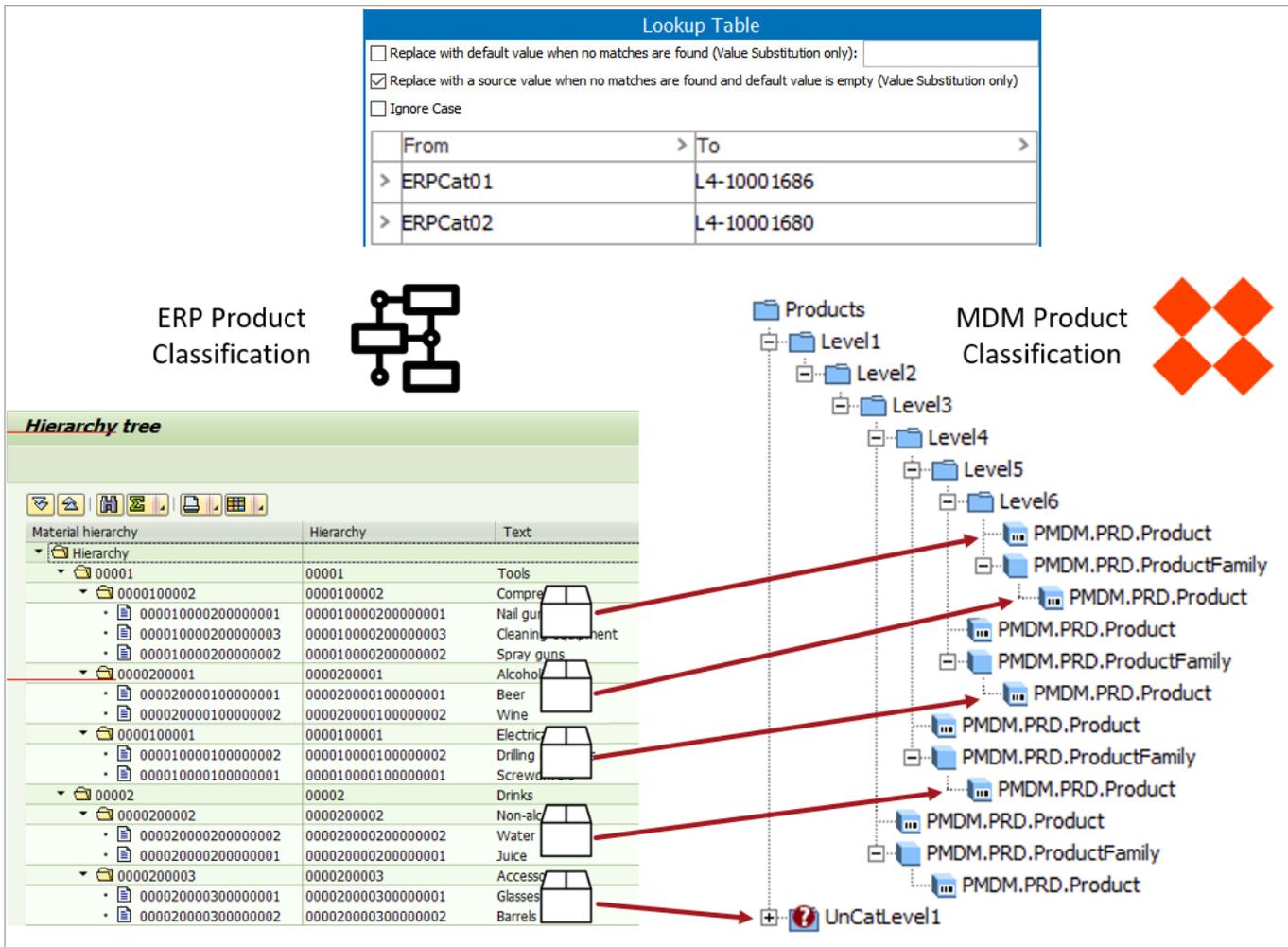
PMDM and an ERP

Frequently, STEP and an ERP (enterprise resource planning) software communicate to manage:

Attribution of a unique identifier by the ERP - The ERP holds the product identifier, also called 'SKU ID.' When a product is created in STEP directly, STEP requires an ID from the ERP.



Mapping of the ERP classification with the one of the PMDM classifications - PMDM and the ERP have specific product classifications that can differ from one another. A 'mapping' describes the classifications in PMDM that are equivalent to the ones in the ERP. This mapping is maintained by the data steward, during the 'govern' activity.



A mapping identifies a relationship between the following two attributes:

- 'ERP Product Classification (PMDM.AT.ERPLine)' attribute sent by the ERP.
- 'ExternalIdentifier (ExternalIdentifier)' attribute on the primary product hierarchy node to which the product must be attached.

This mapping is maintained in the 'ERP To PMDM Mapping (PMDM.LUT.ERPToPMDMMapping)' lookup table.

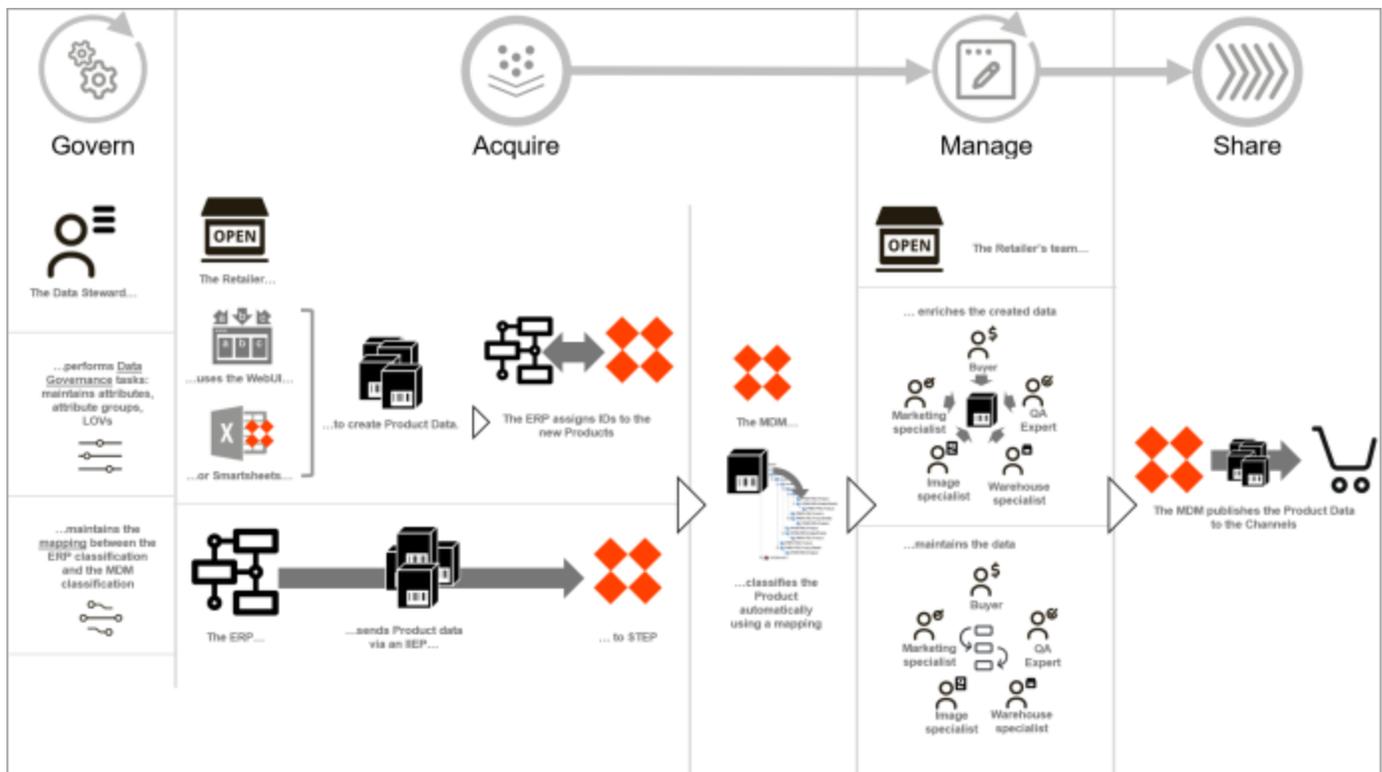
Module - Product Content Management

Configuration of the Product Content Management module is handled using configuration files as defined in the **Initial Setup for Product Content Management Module**.

The following topics explain the activities managed by the 'Product Content Management' module included in PMDM for Retail as displayed in the image above:

- Product Content Management 'Govern' Activity
- Product Content Management 'Acquire' Activity
- Product Content Management 'Manage' Activity
- Product Content Management 'Share' Activity

Product Data Lifecycle in PCM



Initial Setup for Product Content Management Module

To access the Product Content Management business module, the following licenses must be enabled. Contact your account manager to enable licenses for your system.

- X.App.ProductVariants
- X.Smartsheet

Contact your Stibo Systems account manager or partner manager for information on installing PMDM for Retail using configuration files.

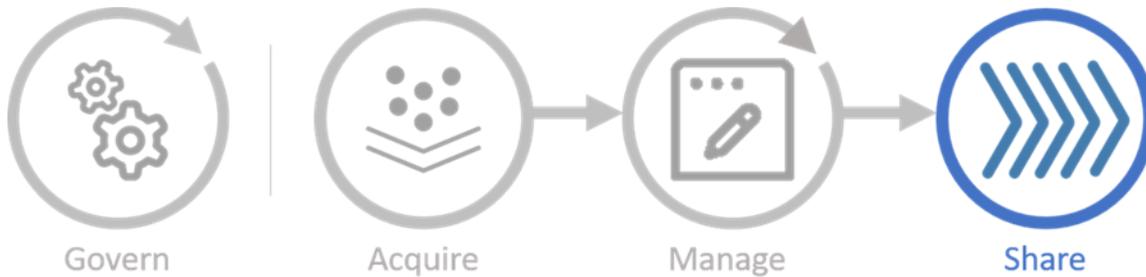
Prerequisites and Considerations

The following prerequisites and considerations apply to using the Product Content Management business module:

- The Product Content Management business module deals with sell-side products only.
- Users must be granted the 'Install Business Modules' setup action to install business modules.
- The module should only be installed on clean systems. If data structures already exist in the target system (e.g., product or classification hierarchy), or standard STEP base objects have been removed, it is not guaranteed that the module can be successfully installed.
- If any of the steps within a business module fail during installation, the installation may not fully complete, though as much data will be imported as possible.
- The minimum required baseline for the module is version 9.2-mp3.

Product Content Management 'Share' Activity

The Product Content Management module includes the Govern, Acquire, Manage, and Share activities.



Within the Product Content Management module, the 'share' activity includes an outbound integration endpoint (OIEP) that exports data in the STEPXML format to a hotfolder. The targeted system then imports the data and processes it.

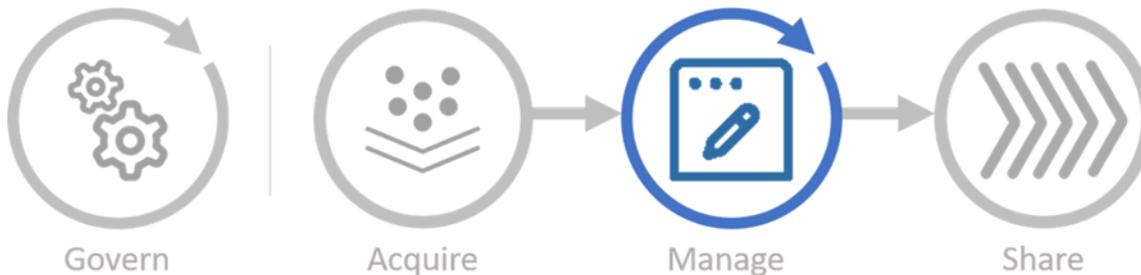
The OIEP 'Products Outbound (PMDM.OIEP.ProductOutbound)' is triggered on each approval.



For more information, see the **Outbound Integration Endpoints** topic in the **Data Exchange** documentation.

Product Content Management 'Manage' Activity

The Product Content Management module includes the Govern, Acquire, Manage, and Share activities.



Two actions are included in the 'manage' activity:

- Enrich data for a newly created product in the Product Creation Workflow.
- Collaborate about any subject on a product or a family in the Product Collaboration Workflow.

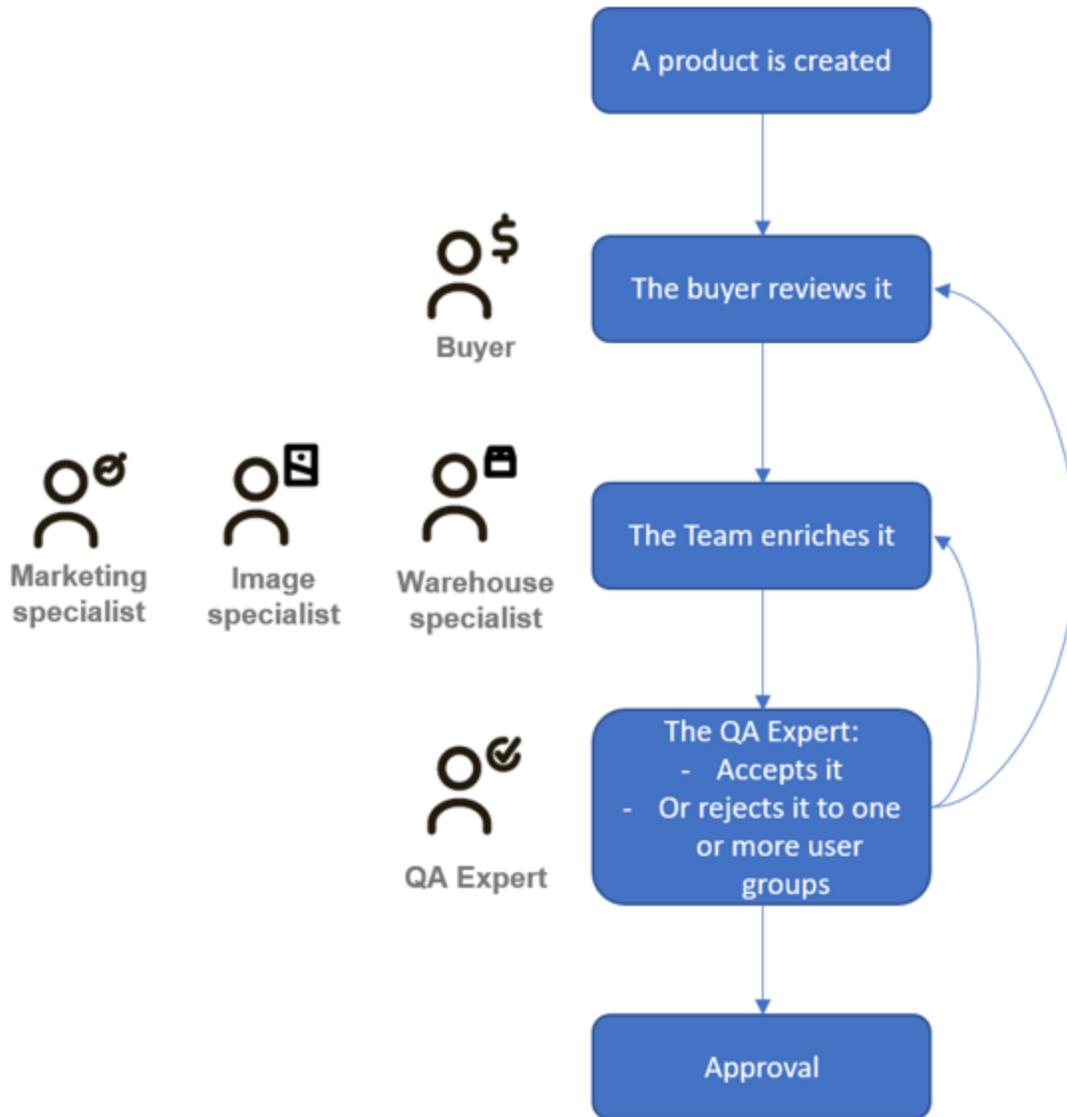
Each action is described below.

Enrich Product Data Action

Within the Product Content Management module, the 'enrich' action involves user groups for images, marketing copy, and warehouse providing the required data for the buyer's approval.

The business logic in this action is as follows:

- STEP checks if the product is classified, and if not, the product is assigned to the 'Buyer Group' for manual classification. This is repeated until the product is classified.
- The **Buyer** reviews the data. If the data is not acceptable, the task is reassigned to the previous individual user for additional data review.
- The product is reviewed and enriched by these user groups:
 - The **Marketing Copy Group** handles the 'Copy Writing' state and enriches marketing information.
 - The **Image Group** handles the 'Digital Assets' state and uploads digital assets relevant to the product.
 - The **Warehouse Group** handles the 'Warehouse Data' state and enriches warehouse data information.
- The **QA Expert** reviews all data and either accepts or rejects the product.



Review and enrichment actions by role



The Buyer reviews a newly-completed product completely before submitting it to the rest of the team.



The Marketing Specialist must assign the product to a Web Category and should also provide additional review as necessary.



The Image Specialist must attach a Primary Product Image, and should also provide additional review as necessary, and clicks the 'Proceed' button.



The Warehouse Specialist has no required actions, as this role can vary per customer. This review can include attribute information for Base Unit Information (the package of the 'each' dimensions and weight), Country of Origin, Regulatory Information, and Packaging Hierarchy (in this module, Packaging Hierarchy are modeled as a Data Container).



The QA Expert performs the final review and validation, and then approves or rejects the product.

Review and enrichment action process

1. On the homepage in the Product Creation Workflow widget, specialists see the number of products ready for review and enrichment based on role. In this example, the Marketing Specialist clicks the link to display the 'To do' tab and the tasks in the Copywriting Review state.

| PRODUCT CREATION WORKFLOW | | |
|---------------------------|------|--------|
| | High | Normal |
| Copywriting Review | 0 | 4 |

2. On the To Do tab, the specialist reviews the product, focusing on the data listed, and clicks the **Assign To Me** button if editing is required. In this example, the Marketing Specialist clicks the 'Assign to me' button before providing the data for the Copywriting Review task.

The screenshot shows the StiboSystems Master Data Management interface for a product named 'Lund's Apple Juice'. The breadcrumb trail is: Beverages > Non Alcoholic Beverages - Ready to Drink > Fruit Juice - Ready to Drink (Shelf Stable). The product details include: Name: Lund's Apple Juice, SKU: LUND-9783598215032, GTIN: 9783598215032, and a primary product image of a bottle. The product creation workflow shows several review steps: Buyer Review, SKU Request, Error Review, Copywriting Review (marked with a blue dot), Asset Review (marked with a blue dot), Warehouse Review (marked with a blue dot), and Product Review. The 'Marketing Descriptions' section is highlighted with a red circle '2' and contains a table with the following data:

| ID | Name | Object Type | Reference type |
|---------------|----------|------------------|----------------|
| WebCat_100599 | Beverage | Website Category | Website Link |

At the bottom of the interface, there are several action buttons: 'Add to basket', 'Save', 'Reset', 'Collaboration', 'Assign To Me' (highlighted with a red circle '2'), and 'Proceed'. The status bar at the bottom right indicates 'Number of items : 1'.

3. After each team completes the review and enrichment, the QA Expert validates the data quality and takes one of these actions:
- Accepts the product, which is then automatically approved and exported, as defined in the **Product Content Management 'Share' Activity** topic.
 - Rejects the product and returns it to the Buyer, Copy Writing, Digital Assets, and/or Warehouse group, adding a message for the group(s).

The screenshot displays the StiboSystems PMDM for Retail interface for the product 'Lund's Apple Juice'. The main panel shows product details such as Name, SKU (LUND-9783598215032), GTIN (9783598215032), and a primary product image. Below this, there are sections for 'Description Information' and 'Marketing Descriptions'. A 'Final Product Review' message states: 'Please review the product's attribute values and references.' At the bottom of the main panel are buttons for 'Add to basket', 'Save', 'Reset', 'Assign To Me', and 'Proceed'.

The right sidebar, highlighted with a red border, contains four sections for collaboration actions, each with 'Accept' and 'Reject' radio buttons and a 'Message to [Group]' text area:

- Accept/Reject to Buyer:** 'Reject To Buyer' (radio selected), 'Buyer' (radio), 'Message to Buyer Group' (text area), 'BuyerUserID: RACHEL'.
- Accept/Reject to Digital Assets:** 'Reject to Asset' (radio selected), 'Digital Assets' (radio), 'Message To Image Group' (text area), 'AssetUserID: IMOGEN'.
- Accept/Reject to Copy Writing:** 'Reject To Copywriting' (radio selected), 'Copy Writing' (radio), 'Message To Marketing Group' (text area), 'CopywriterUserID: MARCUS'.
- Accept/Reject to Warehouse:** 'Reject to Logistics' (radio selected), 'Logistics' (radio), 'Message To Warehouse Group' (text area), 'LogisticUserID: PHLUND'.

Collaboration Action

PMDM for retail integrates a Collaboration feature based on a workflow. When browsing a product page, a member of the team can forward the product to a user group with a message. Collaboration can be used to raise a question, request action from a team member, etc.

For example, consider the following process to conduct a conversation between Rachel, the buyer, and Imogen, the image specialist.

1. Buyer Rachel clicks the Collaboration button.



2. Buyer Rachel selects the Image Group as recipient and adds a message.

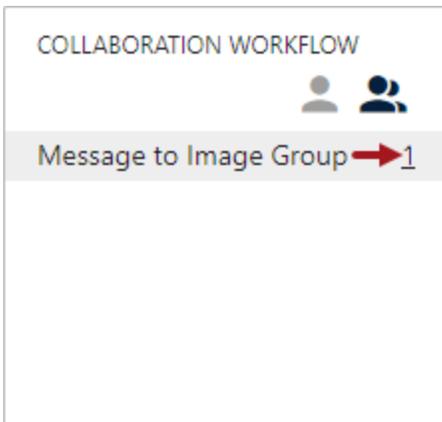
Pick recipient and add message

Message Receiver Image Group (Image) ▼

Message Could you check the color of the picture?

Cancel
OK

3. Image specialist Imogen sees there is a message for the Image Group on the homepage Collaboration Workflow widget and clicks the link.



4. Image specialist Imogen reviews the latest message in the task list.

MASTER DATA MANAGEMENT

Search 🔍

Imogen – Digital Asset Manager
English US
☰
🌙
🔗
🏠

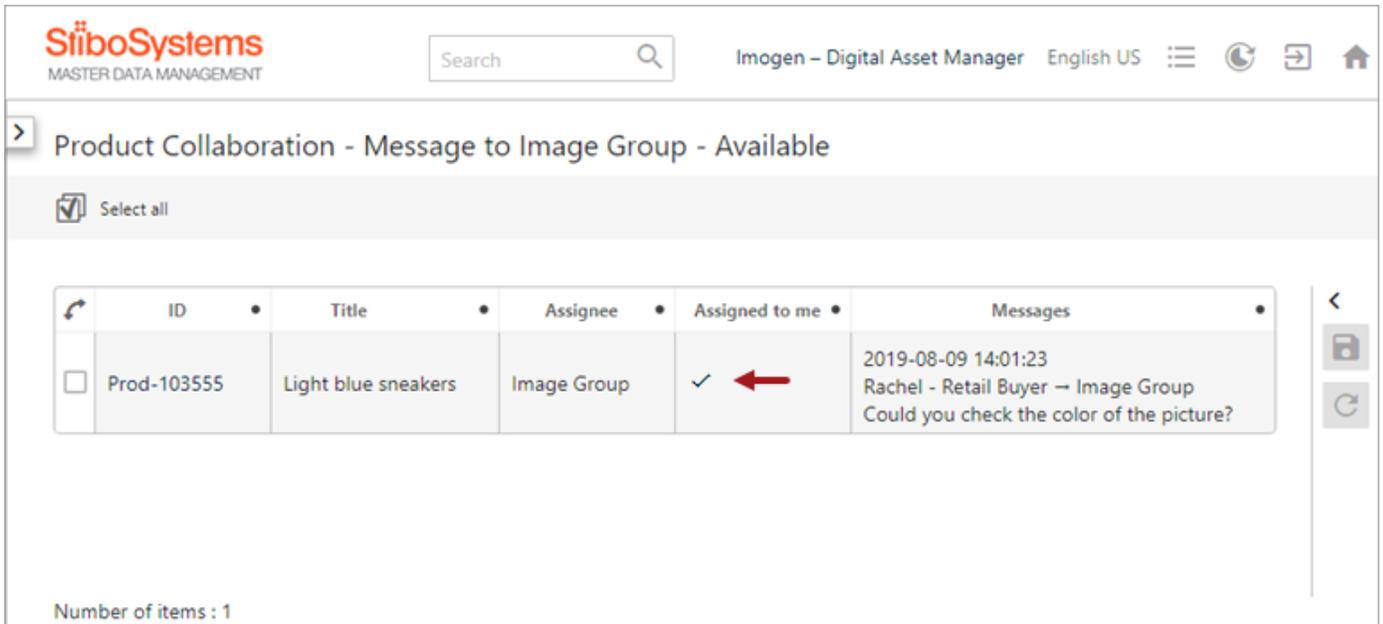
>
Product Collaboration - Message to Image Group - Available

Select all

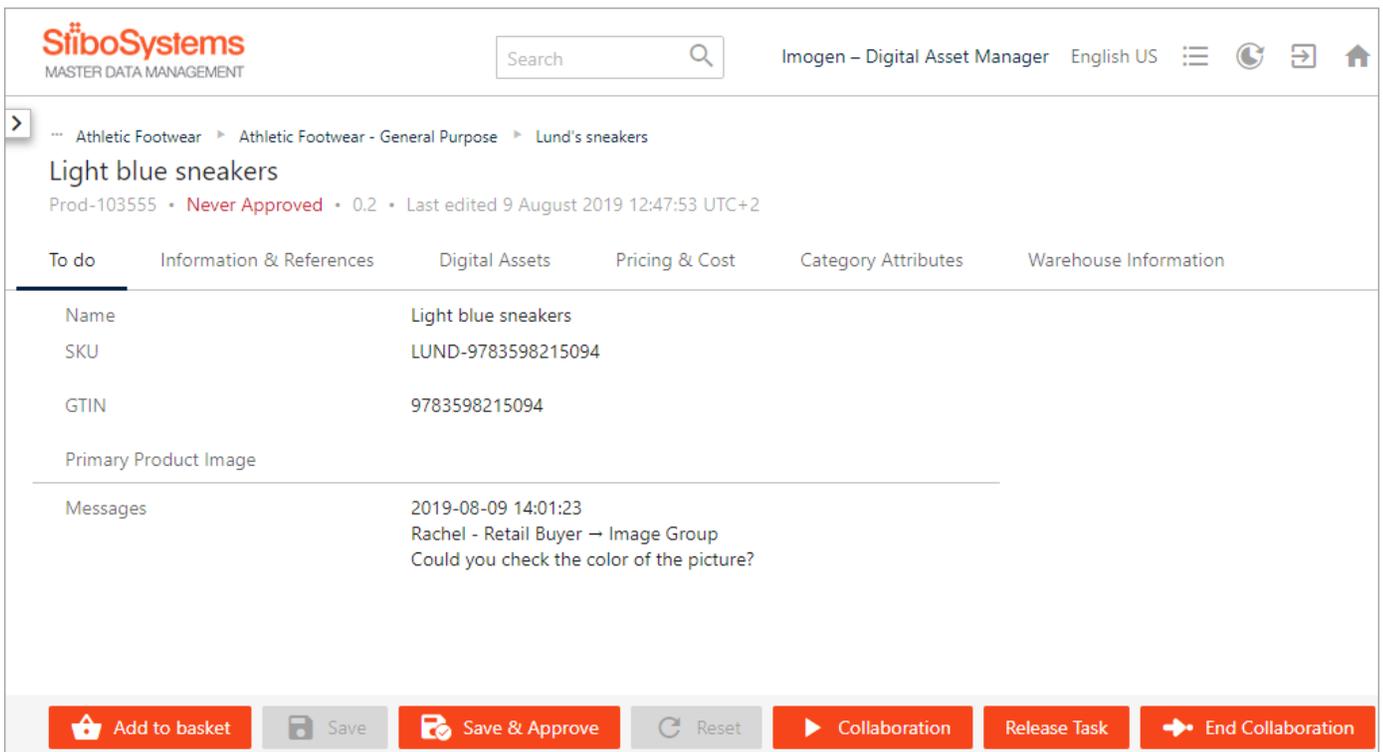
| | ID | Title | Assignee | Assigned to me | Messages |
|--------------------------|-------------|---------------------|-------------|--------------------------|---------------------------------------------------------------------------------------------------------|
| <input type="checkbox"/> | Prod-103555 | Light blue sneakers | Image Group | <input type="checkbox"/> | 2019-08-09 14:01:23 Rachel - Retail Buyer → Image Group Could you check the color of the picture? |

Number of items : 1

5. Image specialist Imogen uses the 'Assigned to me' header to claim the task.



6. Image specialist Imogen views the conversation thread on the product page.

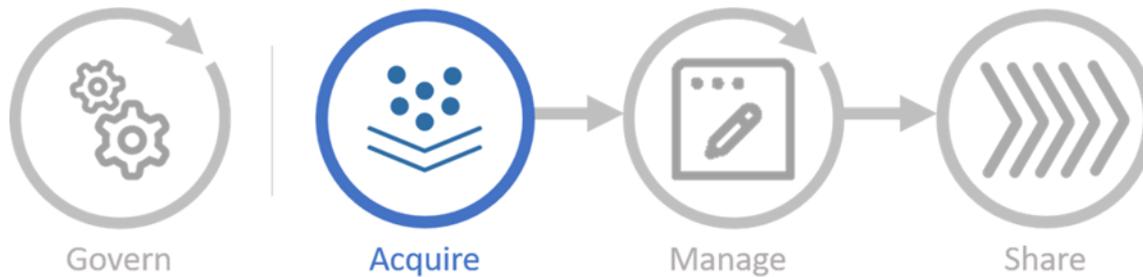


7. Image specialist Imogen can perform the following actions:

- Continue the conversation by adding a new message and clicking the **Collaboration** button.
- Click the **Release Task** button to remove the current assignment so that someone else in the group can work the task.
- Click the **End Collaboration** button to finish the conversation.

Product Content Management 'Acquire' Activity

The Product Content Management module includes the Govern, Acquire, Manage, and Share activities.



Within the Product Content Management module, the 'acquire' activity is performed by the buyer working with the sell side products.

Product data can be created via the following activities and is defined below:

- In STEP Web UI by the retailer.
- With an Excel Smartsheet by the retailer.
- From the ERP via an inbound integration endpoint (IIEP).

Regardless of the method used to create product data, a unique Product Creation Workflow is executed. Among other things, the workflow communicates with the ERP and performs the following tasks (see the **PMDM and an ERP** section of the **Product Data Lifecycle** topic):

- Requests the SKU ID from the ERP: a common scenario in retail is that the ERP holds SKU identifiers. This logic is included in the process.
- Automatically classifies the product: implements the 'manage' activity, which consists of dispatching the enrichment and review activities of the team.

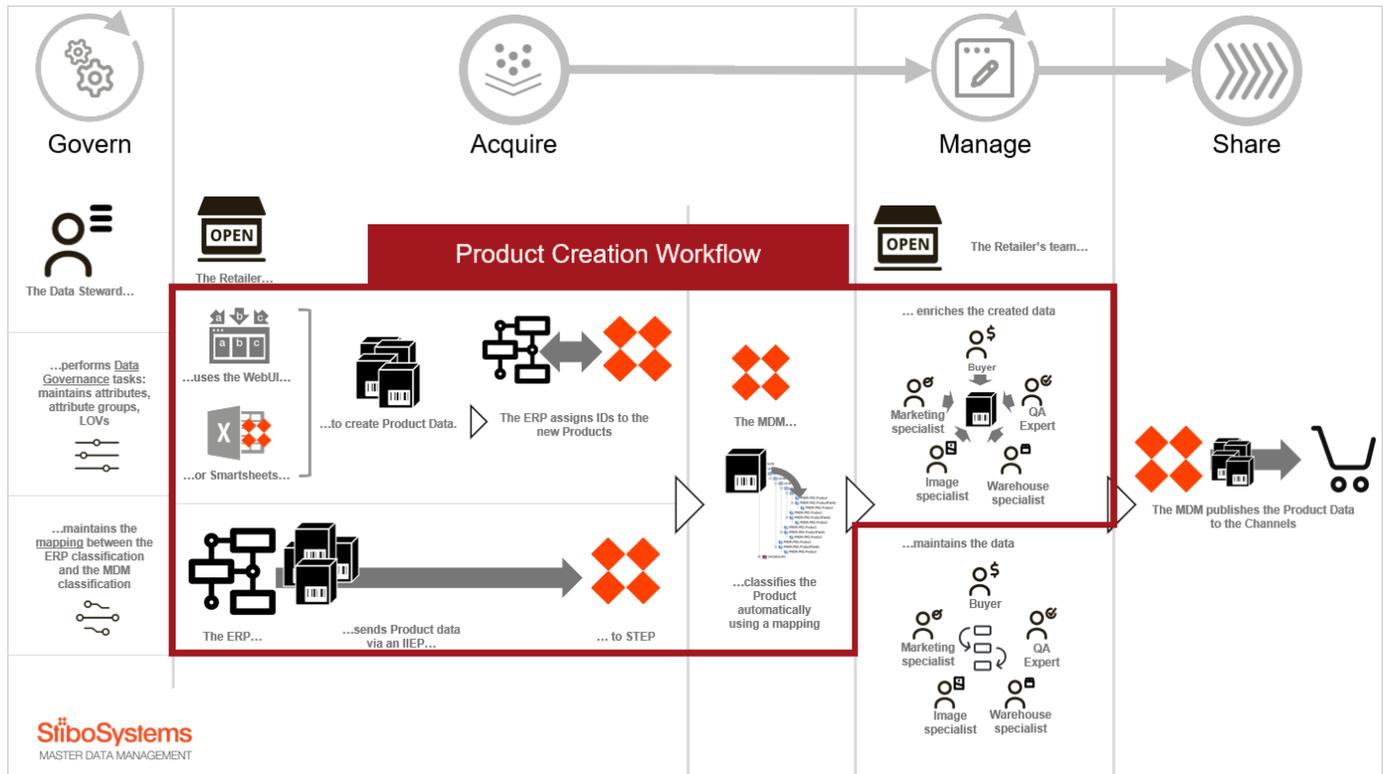
The topics that describe the 'acquire' activity include:

- 'Acquire' Activity - Common STEP Workflow
- 'Acquire' Activity - Create Products in Web UI
- 'Acquire' Activity - Create Products via Excel Smartsheet
- 'Acquire' Activity - Create Products via IIEP

'Acquire' Activity - Common STEP Workflow

Regardless of the method used to add a product—in the Web UI, Excel Smartsheet, or IIEP—a single STEP workflow handles the business processes in the red frame below.

For more information, see the **Workflows** documentation.



Workflow Status Flag

In a specific state, the product can be in two statuses: 'Normal' or 'High.' When a product enters the workflow, the status is set to 'Normal.' When a product is 'rejected' by the QA group, the status becomes 'High.'

SKU ID

The SKU ID is the identifier sent by the ERP for a specific product. When the product is created by the ERP, it is assumed that it has a SKU ID, in PMDM this attribute is 'SKU (PMDM.AT.SKU)'.

ERP Product Classification

Mapping identifies a relationship between the ERP and PMDM for the following two attributes:

- 'ERP Product Classification (PMDM.AT.ERPLine)' attribute sent by the ERP.
- 'ExternalIdentifier (ExternalIdentifier)' attribute on the primary product hierarchy node to which the product must be attached.

This mapping is maintained in the 'ERP To PMDM Mapping (PMDM.LUT.ERPToPMDMMapping)' lookup table.

'Acquire' Activity - Create Products in Web UI

The retailer uses the Web UI to add one or more new products in PMDM.

The methods available for adding new product using the Web UI include:

- Create a single product
- Create multiple products
- Create families and variants

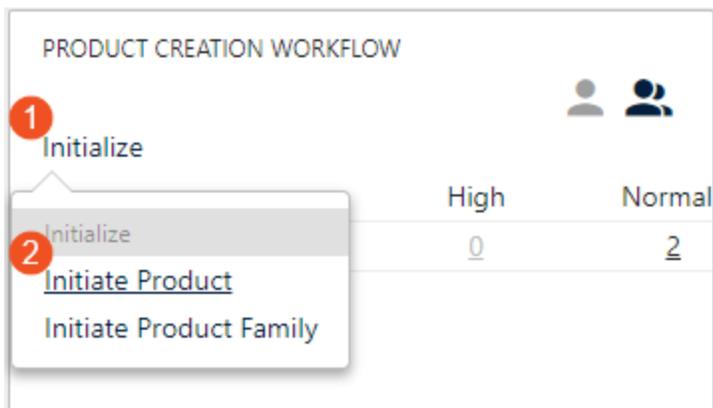
Each is defined in the sections below.

Create a Single Product



The buyer performs all steps to create a single product.

1. On the 'Product Creation Workflow' homepage widget click the **Initialize** link and click the **Initiate Product** link.



2. Supply the necessary information and click the **Create** button.

The screenshot shows the 'Initialize Product' form in the StiboSystems interface. The form is titled 'Initialize Product' and contains the following fields:

- Name:** Lund's Apple Juice
- * Parent Node:** Fruit Juice - Ready to Drink (Shelf Stable)
- SKU:** LUND-9783598215032
- GTIN:** 9783598215032
- Short Item Description:** Bottle of Lund's Apple Juice
- Country of Origin:** PORTUGAL

At the bottom of the form, there are two buttons: 'Create' and 'Reset'.

3. Choose a method to categorize the product:

- Manually - Click the **Categorize Manually** button if the product is not already categorized in the Product Primary Hierarchy.
- Automatically - First select an 'ERP Product Category' from the dropdown and then click the **Categorize Automatically** button to align ERP Product Categorization and the PMDM Product Categorization.

The screenshot shows the StiboSystems MDM interface for a product named 'Lund's Apple Juice'. The breadcrumb trail is: Beverages > Non Alcoholic Beverages - Ready to Drink > Fruit Juice - Ready to Drink (Shelf Stable). The product details include: Name: Lund's Apple Juice, SKU: LUND-9783598215032, GTIN: 9783598215032. The status is 'Never Approved' and version is '0.1'. The last edited date is 8 August 2019 10:57:12 UTC+2. The interface has tabs for 'To do', 'Information & References', 'Digital Assets', 'Pricing & Cost', 'Category Attributes', and 'Warehouse Information'. The 'To do' tab is active, showing a 'Product Creation Workflow' with steps: Buyer Review (selected), SKU Request, Error Review, Copywriting Review, Asset Review, Warehouse Review, and Product Review. There are also fields for 'Process Notes' and 'Message to Buyer Group'. Below this is the 'Product Categorization' section with a warning: 'Warning: the product is categorized in the MDM but not in the ERP. If you wish to classify it using the ERP's classification, select an 'ERP Product Category'. The 'ERP Product Category' dropdown is set to 'Fruit Juice - Ready to Drink (Shelf Stable)'. At the bottom, there are buttons: 'Add to basket', 'Save', 'Reset', 'Categorize Manually', 'Categorize Automatically', 'Collaboration', and a menu icon. Red circles with numbers 1 and 2 highlight the dropdown and the 'Categorize Automatically' button respectively.

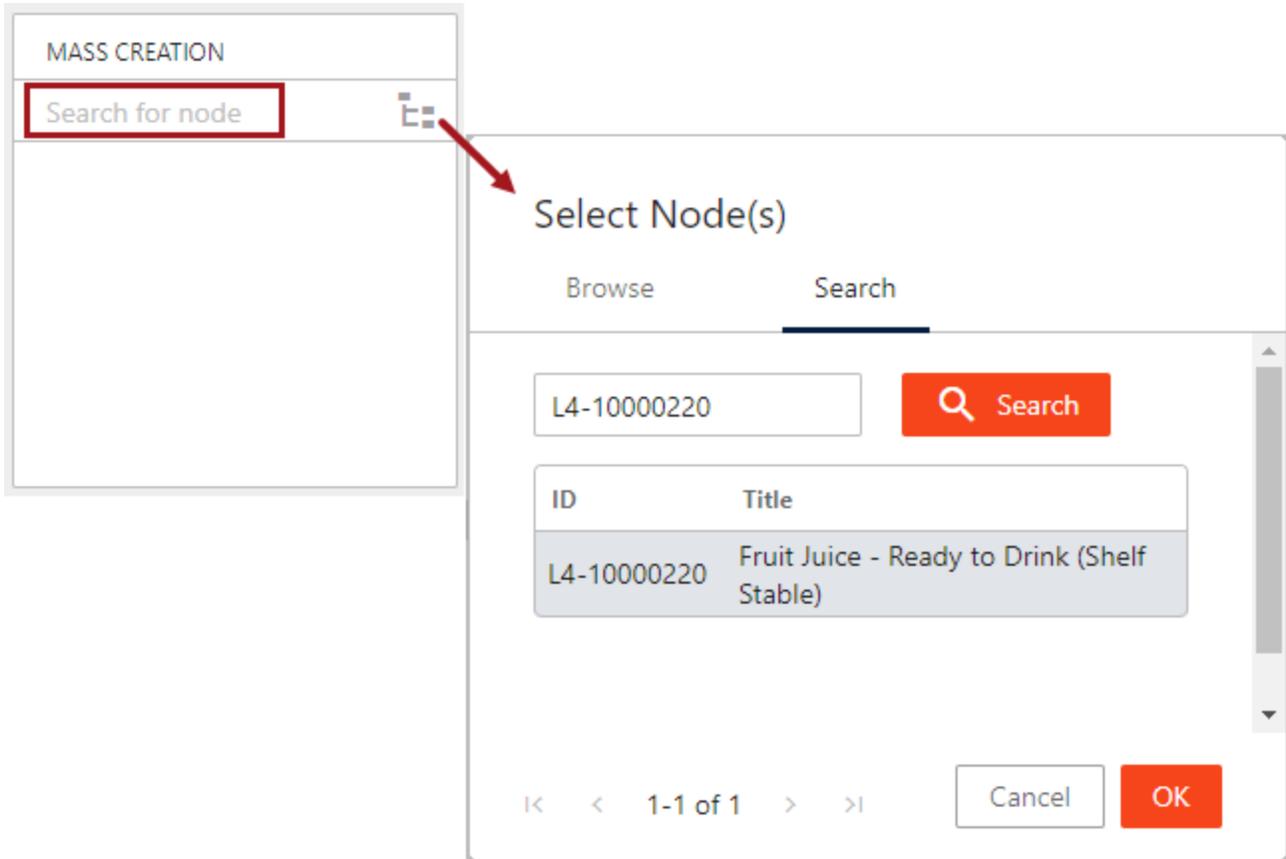
4. If desired, continue in the workflow and assign the task by clicking the **Assign to Me** or the **Assign to Group** option and then clicking the **Proceed** button. The product task can be worked.
5. Continue with the **Product Content Management 'Manage' Activity** topic.

Create Multiple Products

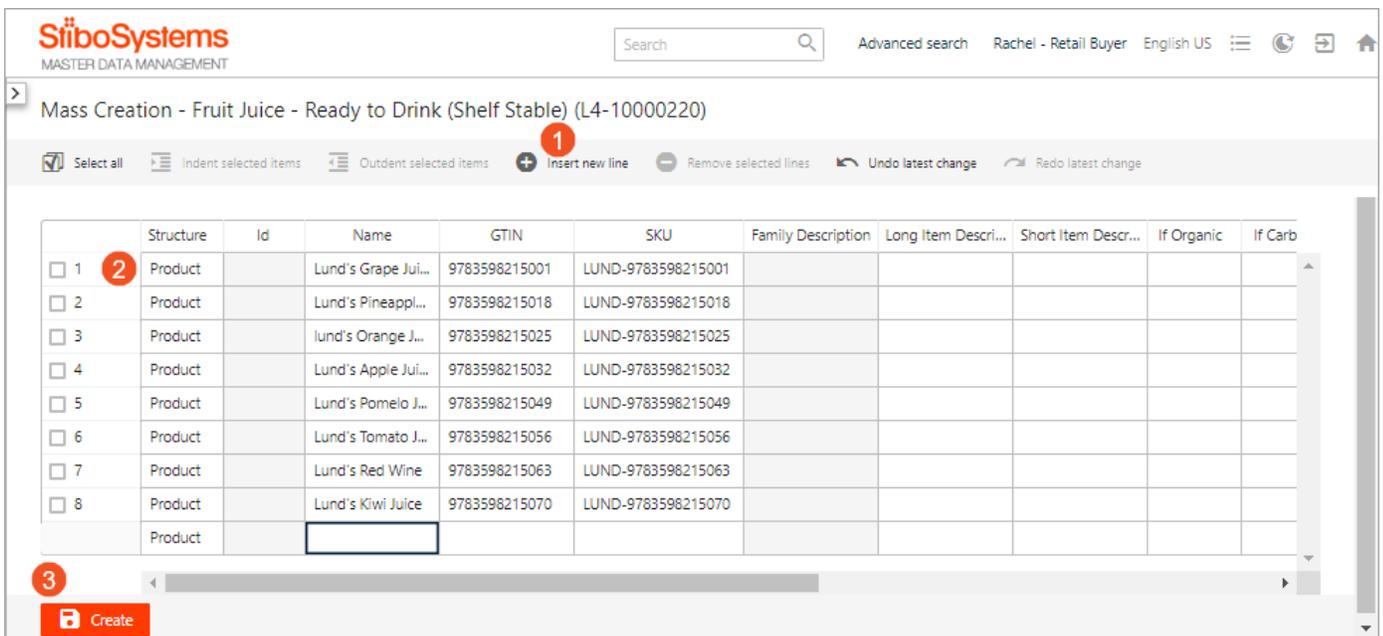


The buyer performs all steps to create multiple products.

1. On the homepage 'Mass Creation' widget, choose a method to identify the node under which the products will be created:
 - Type a node into the text box.
 - Click the hierarchy button to display the Select Nodes dialog. Use the Browse or Search option, select the node and click the **OK** button.



2. Click the **Insert new line** button and add the necessary information on the new row inserted. Repeat this step until all new products are displayed.



3. Click the **Create** button.
4. Continue with the **Product Content Management 'Manage' Activity** topic.

Create Families and Variants

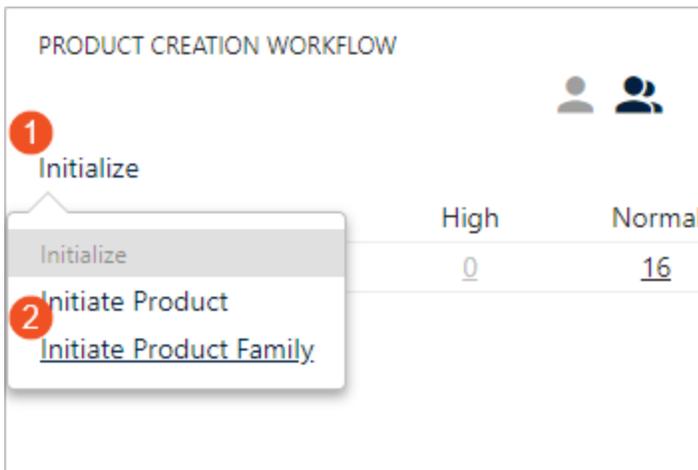
The buyer performs all steps to create families and variants.



In PMDM for Retail, a 'variant' is a product which has a 'family' for parent. The buyer must first create a family and then create as many variants as necessary.

Note: PMDM for Retail includes generic 'Size (PMDM.AT.Size)' and 'Color (PMDM.AT.Color)' attributes for variants. If GS1 also has 'size' and 'color' specific data, it can be complex to implement. The use of generic 'size' and 'color' attributes is commonly encountered.

1. On the homepage 'Product Creation Workflow' widget, click the **Initialize** link and click the **Initiate Product Family** link.



2. Add a name, select a parent node, add a family description, and click the **Create** button.

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Search Advanced search Rachel - Retail Buyer

> Initialize Product Family

Name

* Parent Node

Family Description

3. Create variants using one of the following methods:

- On the **To Do** tab, click the **Create Variants** button to display the Create Variants dialog. This method is similar to the steps described above in the **Create a single product** section.

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< 5/18 > Search Advanced search Rachel - Retail Buyer English US

Footwear > Athletic Footwear > Athletic Footwear - General Purpose

Lund's sneakers
Fam-103501 • Never Approved • 0.1 • Last edited 9 August 2019 12:15:24 UTC+2

1 To do Information & References Product Variant Detail Digital Assets Pricing & Cost Category Attributes Warehouse Information

Name

Product Creation Workflow
Buyer Review SKU Request Error Review Copywriting Review Asset Review

Process Notes

Message to Buyer Group

Workflow Messages

Product Categorization
Is the product categorized? The product is both categorized in the MDM and in the ERP.

ERP Product Category
This field must be populated in order to use the "Categorize Automatic" feature.

Variants Product attributes
2

Thumbnail ID Size Color

No existing records

Number of items : 0

On the 'Create variants' dialog, add the variant information and click the **OK** button.

Create variants

Object type: Product

Size

Source: 37, 39

Result: 36, 38

Color

Source: Black, Blue, Gray, Red

Result:

2 variants

Cancel OK

- Select a family from the Tree, then click the **Create variants** button to create the variants.

The screenshot shows the StiboSystems interface with a product tree on the left and a product details view on the right. The tree on the left shows a path from 'Footwear' to 'Athletic Footwear' to 'Athletic Footwear - General Purpose' to 'Lund's sneakers'. A red circle '1' highlights the 'Lund's sneakers' folder. The main view shows the 'Lund's sneakers' product details, including a 'Create variants' button (highlighted with a red circle '2') and a table of generated variants.

| ID | Thumbnail | Size | Color |
|---------------------|-----------|------|-------|
| (Prod-103510) | | 37 | Black |
| (Prod-103511) | | 36 | Gray |
| (Prod-103512) | | 36 | Black |
| (Prod-103549) | | 39 | |
| Gray sneakers | | 37 | Gray |
| Light blue sneakers | | 37 | Blue |

Number of items : 6

Add to basket Save Save & Approve Reset Categorize Manually Categorize Automatically Collaboration

On the 'Create variants' dialog, add the variant information and click the **OK** button.

Create variants

Object type: Product

Size

| Source | Result |
|--------|--------|
| 37 | 36 |
| 39 | 38 |

Color

| Source | Result |
|--------|--------|
| Black | |
| Blue | |
| Gray | |
| Red | |

2 variants

Cancel OK

'Acquire' Activity - Create Products via Excel Smartsheet

Excel is often a vital part of an organization. For example, the retailer can export an Excel Smartsheet from STEP and send it by email to a supplier. The supplier updates the Excel Smartsheet and returns it to the retailer. The retailer validates the data using the built-in STEP validation feature of the Excel Smartsheet format, and imports it into STEP. For more information, see the **Excel Smartsheet Format** topic in the **Data Exchange** documentation.

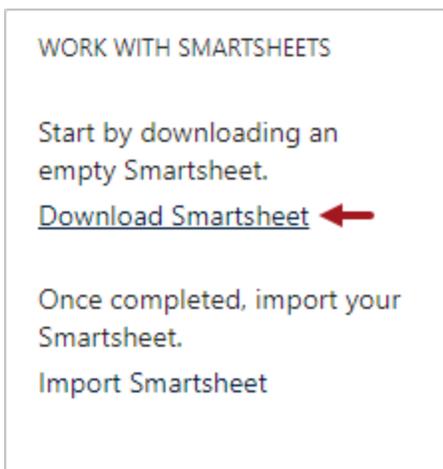


The buyer performs most of the steps to create products using Excel Smartsheet.



The Smartsheet user supplies data for the Excel Smartsheet.

1. On the homepage 'Work With Smartsheets' widget, click the **Download Smartsheet** link.



2. Select the appropriate widget to create products or families / variants, select a node, and export the Smartsheet.

INFO

◀ Go back

Select the type of Smartsheets you want to download in the widgets ("Smartsheet Product" or "Smartsheet Family/Variant").

SMARTSHEET PRODUCT

Export

SMARTSHEET FAMILY/VARIANT

Export

3. On the Background Process Details page, click the background process link to download the Smartsheet.

Advanced search
Rachel - Retail Buyer
English US

Background Process Details

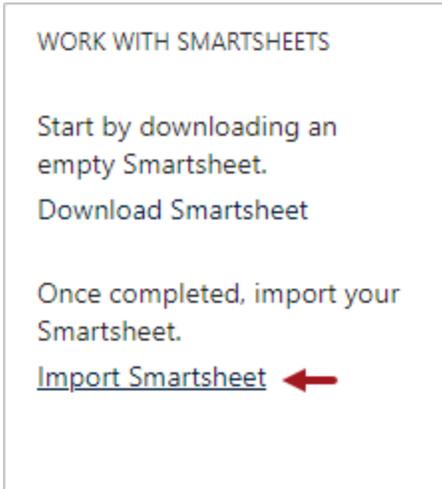
| | |
|-------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ID | BGP_103572 |
| Started By | RACHEL |
| Description | Smartsheet template export |
| Template ID | Export Manager Pipeline |
| Status | ✓ Succeeded Fruit Juice Ready to Drink Shelf Stable - 2019-08-09--13-06.xlsm ← |
| Started | 09/08/19 13:06:11 |
| Finished | 09/08/19 13:06:12 |
| Elapsed | 3 s |

Export

| ID | Type | Text |
|----|------|--------------------------------------------------------------------------------------------------|
| 10 | Info | Export process started (Fri Aug 09 13:06:11 CEST 2019) |
| 20 | Info | Logging on to PIM server pmdm-enablement-dev2.stibo.com as RACHEL... |
| 30 | Info | Logged on |
| 40 | Info | Analysis started. (Fri Aug 09 13:06:11 CEST 2019) |
| 50 | Info | Analyzed 1 objects from initial object selection in 0 seconds. (Fri Aug 09 13:06:11 CEST 2019) |
| 70 | Info | Analyzed 0 children objects (including aggregates) in 0 seconds. (Fri Aug 09 13:06:11 CEST 2019) |

1-25 of 52

- Send the downloaded Excel Smartsheet to the Smartsheet user to complete, validate, and return to the buyer.
- On the homepage, click the **Import Smartsheet** link.



- A background process is initiated as shown in a notification like the one below.



- The background process is reported.



- Products are initiated into the 'Product Creation Workflow' as reported in the notifications panel.

← Web UI Smartsheet Import (100%) ↓

All (11) Errors (0) Warnings (0)

Import Started

Logged On

Started 1 objects in Workflow
'PMDM.WF.ProductCreation' (0 failed).

Started 1 objects in Workflow 'PMDM.WF.VariantHandling'
(0 failed).

Imported 1 new products, 0 new classifications, 0 new
entities and 0 new assets.

Processed 0 existing products, 0 existing classifications, 0
existing entities and 0 existing assets.

Skipped 0 products, 0 classifications, 0 entities and 0
assets.

Deleted 0 products, 0 classifications, 0 entities and 0
assets.

Found 0 warnings

Found 0 errors

Import completed

'Acquire' Activity - Create Products via IIEP

Products, as well as families and variants, can be created by an inbound integration endpoint (IIEP) 'Products Inbound (PMDM.IIEP.ProductsInbound)', connected to the ERP.

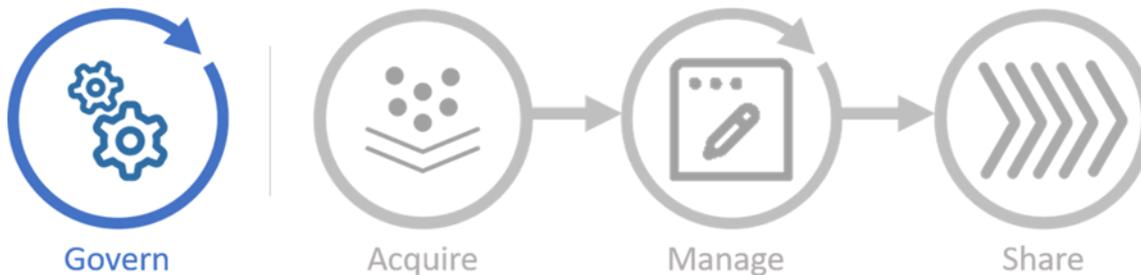


- The ERP creates product data with a few pieces of key information, one of them being the 'SKU.' The ERP generates a STEPXML file and saves it in a hotfolder.
- STEP automatically imports the STEPXML file and creates and/or updates products.
- The products created already have a SKU assigned by the ERP and are initiated into the 'Product Creation Workflow.'

For more information, see the **Creating an Inbound Integration Endpoint** topic in the **Data Exchange** documentation.

Product Content Management 'Govern' Activity

The Product Content Management module includes the Govern, Acquire, Manage, and Share activities.



Data Steward

The data steward:



- maintains the mapping between the ERP classification and the MDM classification.
- performs Data Governance tasks to maintain attributes, attribute groups, and LOVs.

Each of these tasks are defined below.

Maintain the ERP and PMDM Classification Mapping

Within the Product Content Management module, the 'govern' activity includes defining and maintaining a mapping between the ERP and PMDM. This task is usually performed by the data steward.

The product is automatically classified in the primary product hierarchy using a value ('ERP line') provided by the ERP. And it is also possible to classify products directly in STEP.

Applying automatic classifications requires a mapping between the 'ERP line' code, provided by the ERP, and a unique identifier of a node (a level) in the primary product hierarchy. This identifier is the attribute 'External Identifier (ExternalIdentifier)'.

This mapping is served by a Transformation Lookup Table (PMDM.LUT.ERPToPMDMMapping) and must be maintained in the workbench.

ERP Product Classification



MDM Product Classification



| Lookup Table | |
|------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
| <input type="checkbox"/> Replace with default value when no matches are found (Value Substitution only): | |
| <input checked="" type="checkbox"/> Replace with a source value when no matches are found and default value is empty (Value Substitution only) | |
| <input type="checkbox"/> Ignore Case | |
| From | To |
| > ERPCat01 | L4-10001686 |
| > ERPCat02 | L4-10001680 |

Hierarchy tree

| Material hierarchy | Hierarchy | Text |
|----------------------|--------------------|------------|
| ▼ Hierarchy | | |
| ▼ 00001 | 00001 | Tools |
| ▼ 0000100002 | 0000100002 | Compre |
| • 000010000200000001 | 000010000200000001 | Nail gu |
| • 000010000200000003 | 000010000200000003 | Cleanin |
| • 000010000200000002 | 000010000200000002 | Spray guns |
| ▼ 0000200001 | 0000200001 | Alcohol |
| • 000020000100000001 | 000020000100000001 | Beer |
| • 000020000100000002 | 000020000100000002 | Wine |
| ▼ 0000100001 | 0000100001 | Electric |
| • 000010000100000002 | 000010000100000002 | Drilling |
| • 000010000100000001 | 000010000100000001 | Screw |
| ▼ 00002 | 00002 | Drinks |
| ▼ 0000200002 | 0000200002 | Non-alc |
| • 000020000200000002 | 000020000200000002 | Water |
| • 000020000200000001 | 000020000200000001 | Juice |
| ▼ 0000200003 | 0000200003 | Access |
| • 000020000300000001 | 000020000300000001 | Glasses |
| • 000020000300000002 | 000020000300000002 | Barrels |

Products

- Level1
- Level2
- Level3
- Level4
- Level5
- Level6

PMDM.PRD.Product
 PMDM.PRD.ProductFamily
 PMDM.PRD.Product
 PMDM.PRD.ProductFamily
 PMDM.PRD.Product
 PMDM.PRD.ProductFamily
 PMDM.PRD.Product
 PMDM.PRD.ProductFamily
 PMDM.PRD.Product
 PMDM.PRD.ProductFamily
 PMDM.PRD.Product

UnCatLevel1

Attributes and LOV Data Governance

The data steward manages attributes, attribute groups, and LOVs in the Web UI. Data Governance features are accessed via a Stack Panel Item on the ---[MAIN]--- page of your Web UI.

StiboSystems
MASTER DATA MANAGEMENT

Tree <

Product Creation Workflow

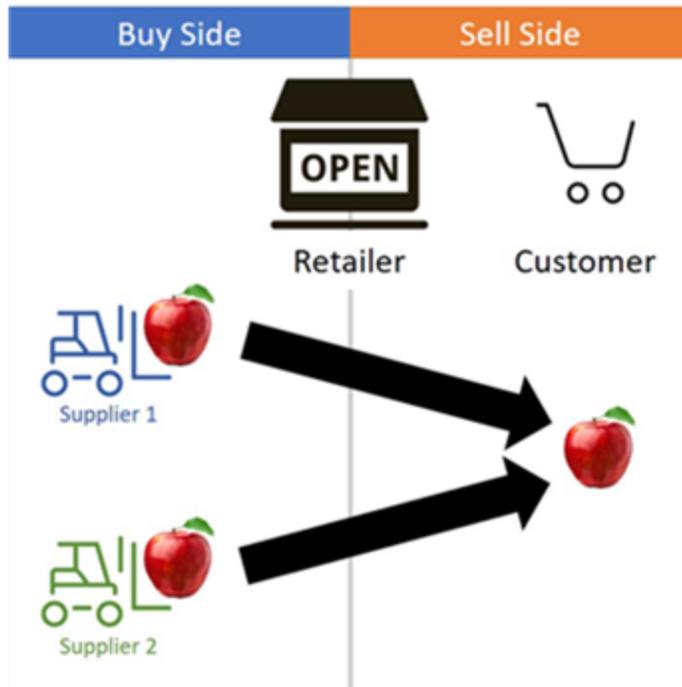
Collaboration Workflow

Data Governance

- Attributes
 - ▶ Category Specific Attributes
 - ▶ Product Maintenance
 - ▶ Asset Metadata
 - ▶ Web Category Attributes
- List of Values
 - ▶ GPC LOVs
 - ▶ Product Attribute LOVs

Module - Vendor Data Onboarding

The Vendor Data Onboarding allows for multiple supplier-side products for one retailer-side product (buy-side, sell-side). In this configuration, the Suppliers onboard their data (while in the “Product Content Management” module, the Retailer was onboarding the Product Data). A distinction is made between the product data coming from the suppliers (which may vary from one supplier to the other) and the product data as maintained by the retailer.



The Source Records (or purchased product and sold product, or buy-side / sell side and other expressions)

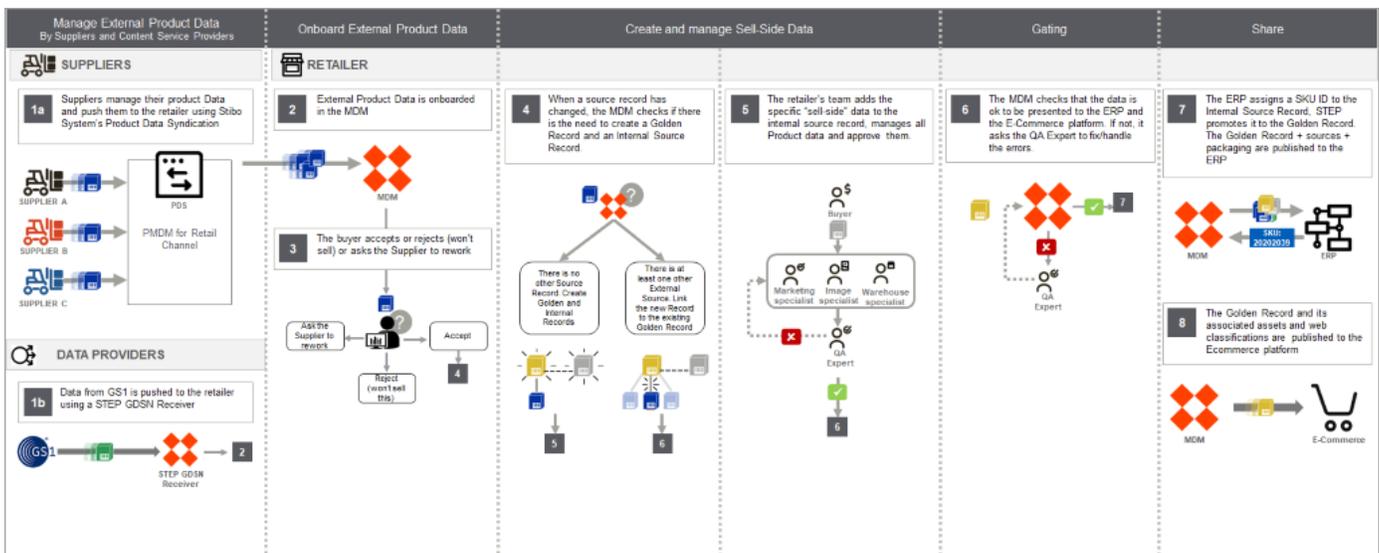
While you may know about 'buy-side product,' 'supplier product,' and 'vendor product,' a more generic naming is relevant. Product data can come from a supplier, but it can also come from a content provider (such as GDSN, Salsify, etc.), so the term 'source record' is used.

There are three types of Product Data, or “Source Records”.

| Object | Also known as | Definition |
|------------------------|-------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| External Source Record | Buy-side product, supplier product, purchased product | An External Source record is a Product data object coming from a supplier, who would like the Retailer to buy its product, or from a product data provider (GDSN, etc.), which contains quality data on products. They are external to the retailer. |

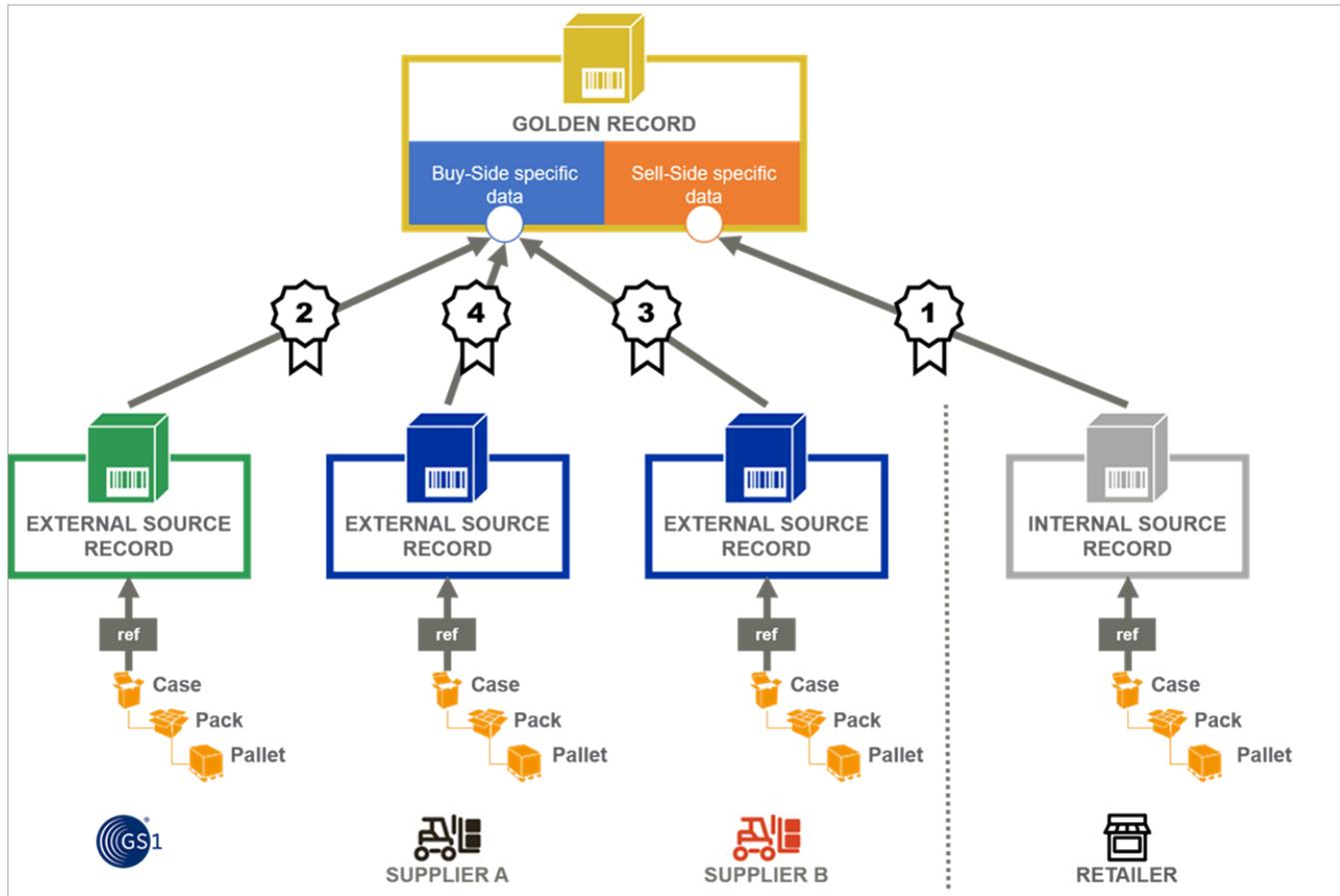
| Object | Also known as | Definition |
|------------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Internal Source Record | Silver record, sell-side product, sold product | <p>Mixing the data provided by the supplier and present it directly to the consumer is often not enough. The Retailer needs specific data to make its product sell very well. This could be for instance: a powerful marketing text to tempt the consumer, an impactful picture, convincing argument explaining why it is best to buy it from the Retailer and not from a competitor, etc.</p> <p>The Internal Source Record is a Product data object on the retailer side containing retailer-specific data which will also be promoted to the Golden Record.</p> |
| Golden Record | | <p>When there are several data sources for the same Product, it is indispensable to take the best of the data and aggregate them into a read-only object: this is the role of the Golden Record.</p> <p>It is the source of truth for product data that mixes the most relevant data from the external and internal sources.</p> <ul style="list-style-type: none"> • Contains both buy-side and sell-side data. • Published to the sales channels. |

A quick look at the Onboarding Process



The process will be detailed in the next sections.

Vendor Data Onboarding Data Model



The Vendor Data Onboarding data model includes External Source Records, an Internal Source Record, and a Golden Record. The following diagram illustrates how the different objects are articulated:

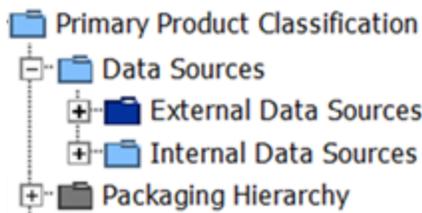
- The Golden Record aggregates data coming from the External Source records and the Internal Source records (aka 'Silver Record').
- The packaging hierarchy objects are attached to each record.
- The 'each' is the source record itself.
- Each Source Record has a 'rank'. This rank can be thought of as a 'weight' or 'trust index' used during the Matching & Linking process to prioritize data and chose which record to 'promote' from the different sources to the Golden Record.

Primary Product Hierarchy

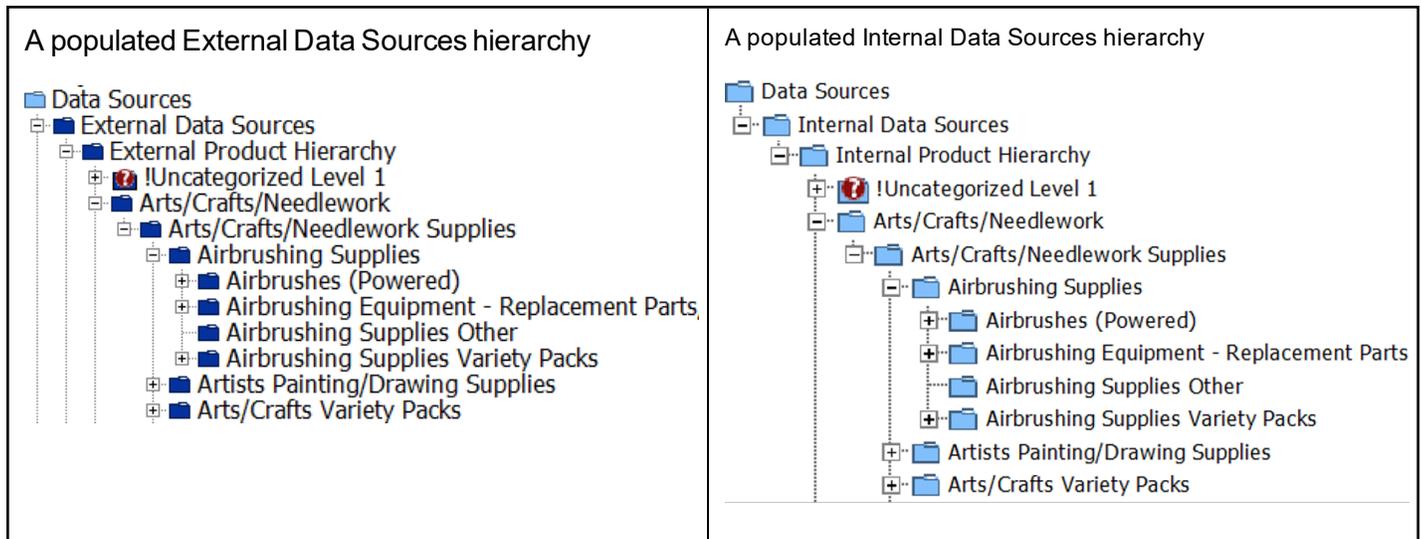
In the Vendor Data Onboarding configuration, the Primary Product Hierarchy is organized as follows:

- External Data Sources
- Internal Data Sources
- Packaging hierarchy

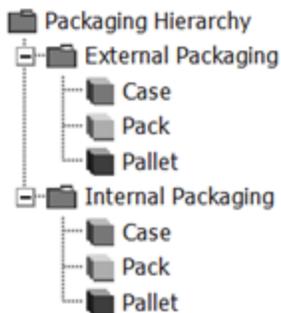
The structures of the 'External Data Sources' and 'Internal Data Sources' are identical, as shown below.



- In the External Data Sources classification, the External Source Records are stored.
- In the Internal Data Sources, the Internal Source Record and the Golden Records are stored.

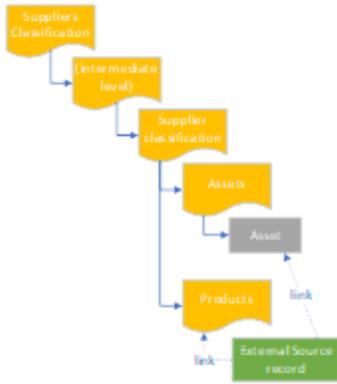


The Packaging hierarchy is a flat structure, used to store the packaging objects.



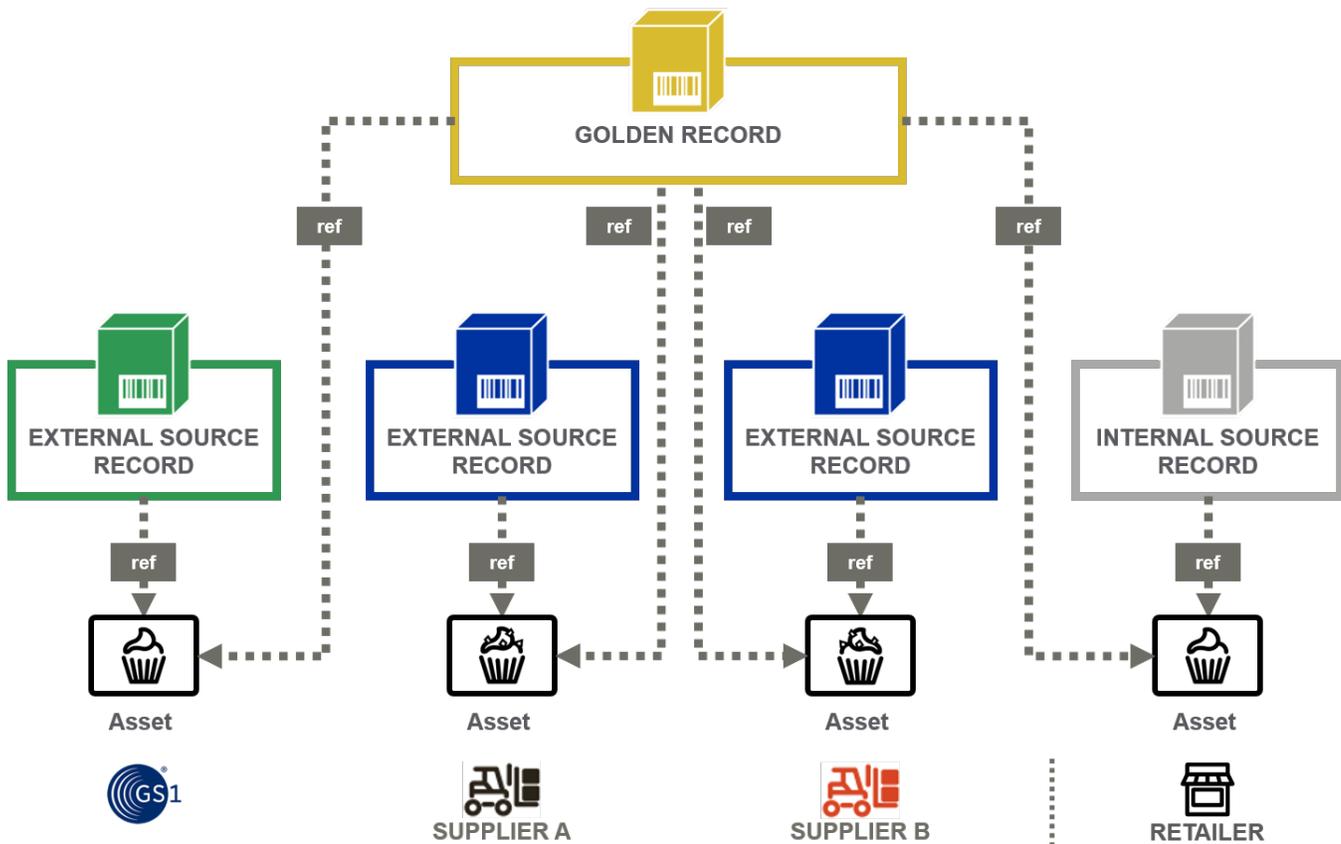
Supplier classification

Suppliers are classified in a classic way:



Assets

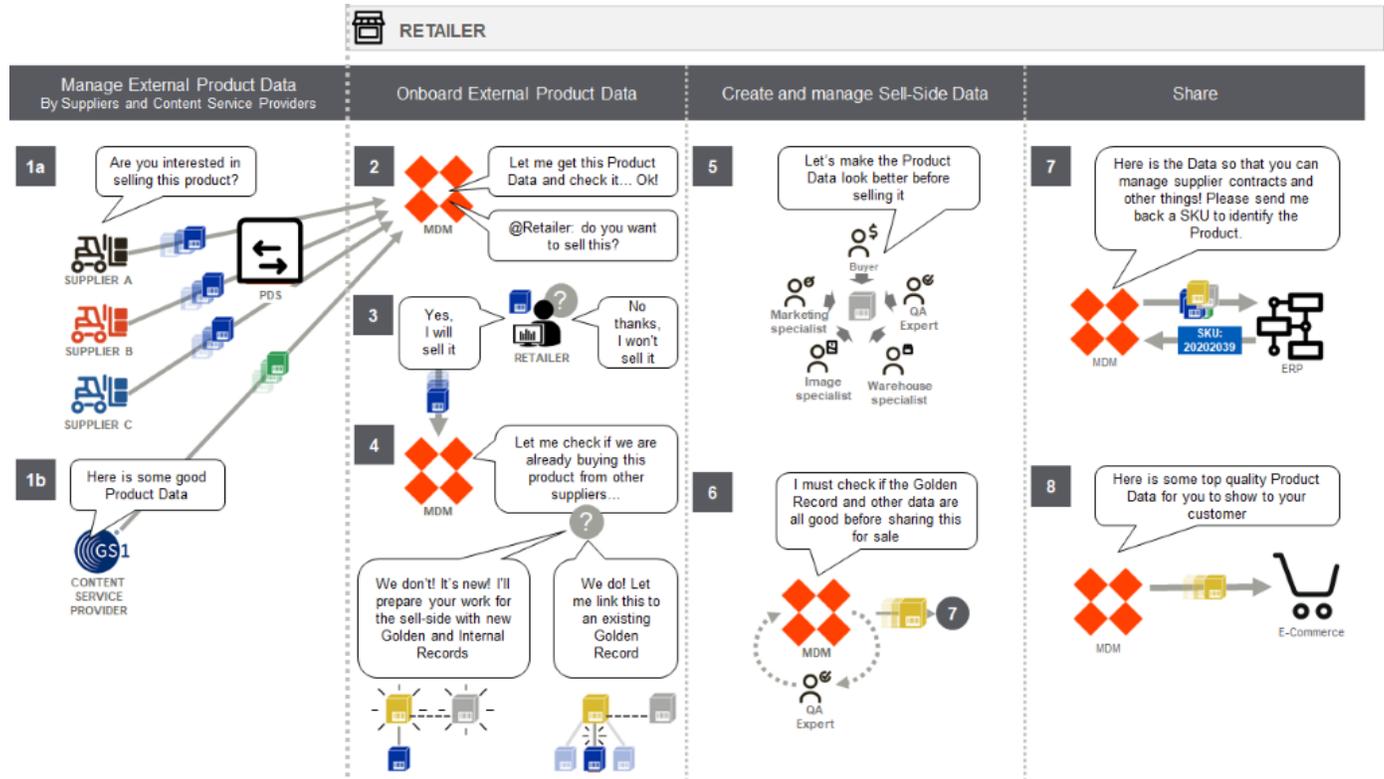
Assets are linked as follows:



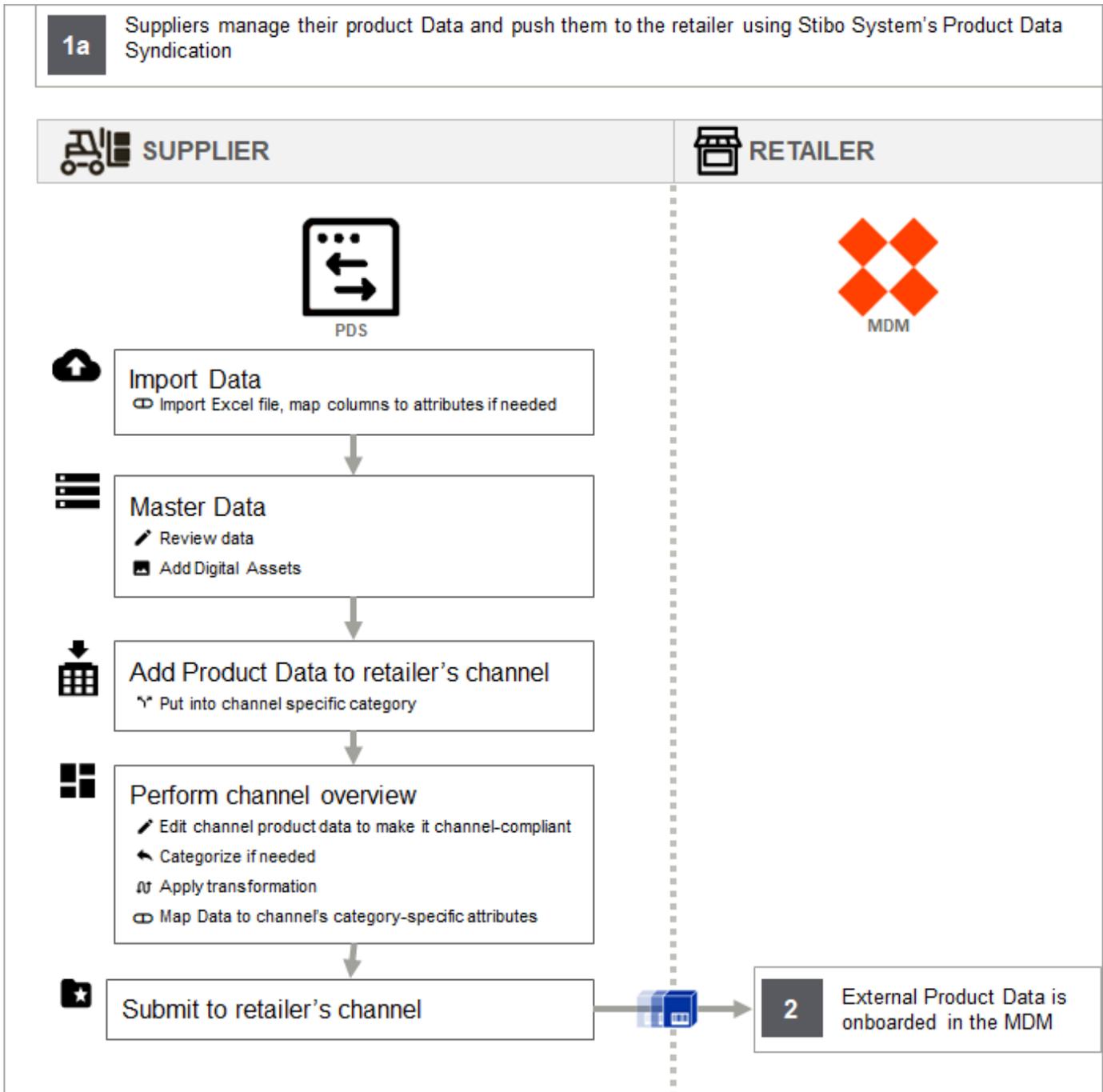
Vendor Data Onboarding - Processes

Onboarding Process

Below is the full story about onboarding vendor data. Each number is detailed in its own section.



Onboarding Process - 1a - The Supplier Manages and Publishes Product Data



Using PDS, the vendor will onboard and submit their product information to the Retailer. The following is a typical process followed by the vendor.

- **Import Data:** Vendors can upload product data and assets either from Excel or using PDS' APIs to integrate with their internal systems.

- **Master Data:** Vendors can view, and when required, manage imported product data and digital assets.
- **Categorization:** Vendors will manually select or create automation rules to map products to retailer categories.
- **Mapping and Validation:** To ensure they meet the Retailer's requirements, the vendor will map their master data attributes to the retailer specific attributes, viewing any error messages, and using attribute value transformations or data edits to resolve errors.
- **Process Management:** From product onboarding and maintenance to viewing and responding to reject and return reasons, vendors can use PDS to manage the end-to-end process of syndicating their product information to the retailer.

Onboarding Process - 1b - The PMDM Onboards External Product Data from GDSN



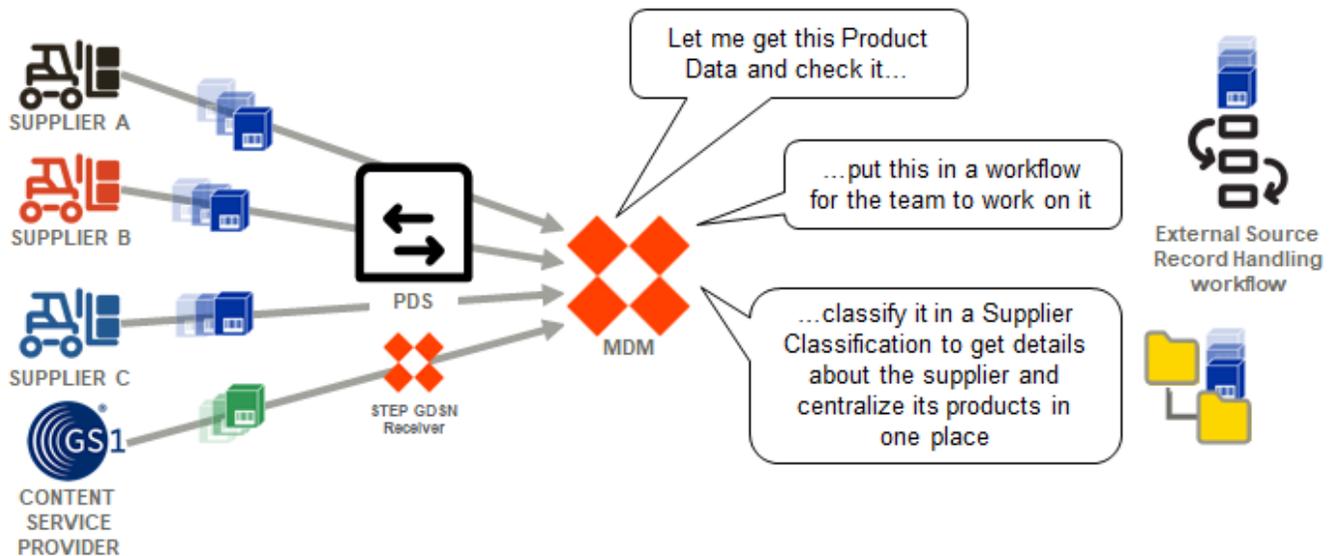
Product Data can be onboarded from GS1. This ensures a very high data quality. GS1 data is collected in a separate STEP instance with a GDSN receiver.

For more details, see the topic **Module - GDSN Receiver for PMDM for Retail**

Onboarding Process - 2 - The PMDM Onboards External Product Data from Suppliers

2

External Product Data is onboarded in the MDM

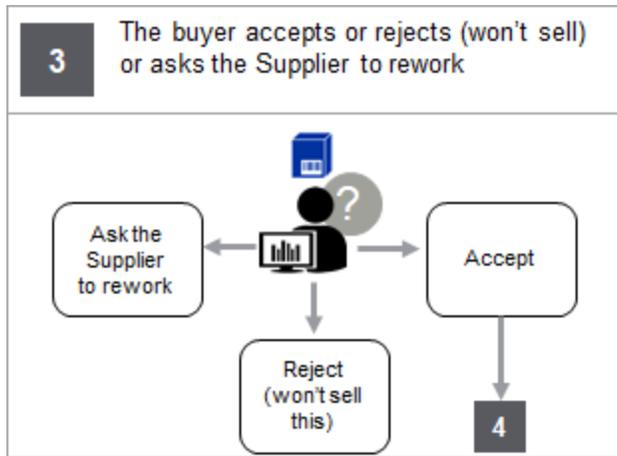


The product data received from the Supplier via PDS or subscribed to and received from GDSN is being created in PMDM for Retail as a separate product object of the type External Source Record in the External Product Hierarchy and optionally separate packaging objects in the External Packaging hierarchy. As part of the creation, the External Source Record is being initiated in the External Source Record Handling workflow which will guide the External Source Record through the different states of the onboarding process.

The External Source Record is being linked to a Supplier classification to keep track of the products delivered per Suppliers. If product data for the same product is being received by multiple Suppliers or Content Providers they will be created as separate External Source Records, each linked to the relevant supplier.

The data on the External Source Record is owned by the Supplier and it will not be maintained by the retailer.

Onboarding Process - 3 - The Buyer Accepts or Rejects the Supplier's Product Proposal



When a new External Source Record has been created in PMDM for Retail and initiated in the External Source Record Handling workflow, the workflow checks if the specific Supplier is configured to allow for automatic approval of proposed products or if it has to go through a manual process where the Buyer has to manually decide if we want to onboard the product.

On the homepage, in the “External Record Handling” widget, the buyer will see the number of External Source Records concerned.

| EXTERNAL RECORD HANDLING | |
|--------------------------------|-----------|
| Proposal | 36 |
| Enrichment | 35 |
| Proposal Approval Buyer | 35 |
| Rework | 1 |
| Rejected | 0 |

3 →

In the manual proposal approval process the buyer has the option to approve the product data and continue with the onboarding of the product, send it back to the Supplier for rework in case the supplied data is wrong or incomplete or reject the product for onboarding in case the Retailer do not want to onboarding and sell the product.

On the Product Page, the Buyer will make his choice:

Proposal Status

- Approve
- Reject
- Rework

"Approve": the Product data is good, it will be sold.

"Reject": the product won't be sold.

"Rework": ask the Supplier to rework on the data.

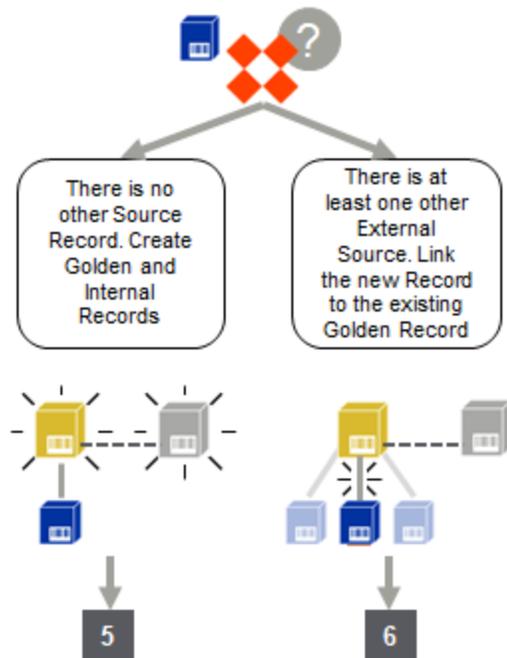
Message to Supplier

If you select "Reject" or "Rework", please write a message for the Supplier.

Onboarding Process - 4 - The PMDM Aggregates the Data in a Golden Record

4

When a source record has changed, the MDM checks if there is the need to create a Golden Record and an Internal Source Record.



When the External Source Record is approved for further onboarding in the External Source Record Handling workflow it automatically gets approved and is send for Matching and Linking.

The Matching and Linking process first creates a match code for the External Source Record which is used to check if there is already an existing Product with the same match code in the system. Per default, the match code is the GTIN of the Product.

If no existing Product with the GTIN is found then the system creates a new Golden Record and an Internal Source Record for this Product. The Internal Source Record is used by the Retailer to enrich the Product and will contain the Retailers own product data like web descriptions, data from the ERP system etc. If the External Source Record causing the Matching and Linking process to be executed has corresponding external packaging objects, then they will be duplicated to internal packaging objects which will be linked to the created Internal Source Record.

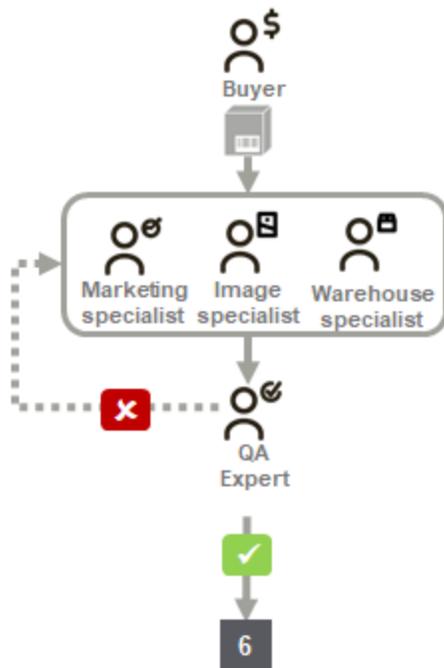
If there is already a Product with the same GTIN then there is a match and the External Source Record will be linked to the existing Golden Record.

As part of the process data from all linked sources (External and Internal Source Records) will be promoted to the Golden Record using a set of survivorship rules which is defined on the Products matching algorithm.

Onboarding Process - 5 - The Retailer Adds Sell-Side Specific Data

5

The retailer's team adds the specific "sell-side" data to the internal source record, manages all Product data and approve them.



The product data for a new Product needs to be enriched internally by the Retailer before it will be ready to go out for downstream systems and be sold. To support this process, the Internal Source Record Creation workflow is initiated when a new Golden Record and Internal Source Record are created.

First, a task is assigned to the Buyer Group to allow a Buyer to enrich and maintain the Buyer relevant part of the product data.

The Buyer Review task is visible on the homepage, in the "Internal Record Creation" widget:

| INTERNAL RECORD CREATION | |  | |
|--------------------------|-----------------------|-------------------------------------------------------------------------------------|--------|
| | | High | Normal |
| 5 → | Buyer Review | 0 | 14 |
| | Copywriting Review | 0 | 0 |
| | Digital Asset Review | 0 | 0 |
| | Warehouse Data Review | 0 | 1 |
| | Enrichment Review | 0 | 0 |
| | Product Review | 0 | 1 |
| | | | |

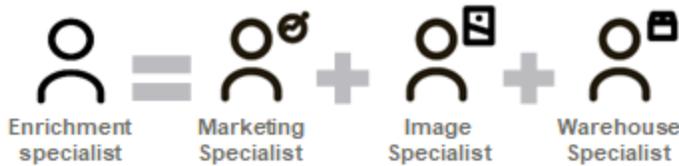
Note: Only the tasks that are relevant to users will be visible to them.

The **Buyer** can also decide if the product should be sent for further enrichment by the **Marketing Specialists**, the **Image Specialists** and/or the **Warehouse Specialists** or if it should be sent directly to final review by the Quality Assurance Experts. If the Product is sent for further enrichment by Marketing, Image and/or Warehouse they will be able to do their enrichment in parallel.

The enrichment tasks are visible on the home page, in the “Internal Record Creation” workflow widget.

| INTERNAL RECORD CREATION | |  | |
|--------------------------|-----------------------|---------------------------------------------------------------------------------------|--------|
| | | High | Normal |
| 5 → | Buyer Review | 0 | 14 |
| | Copywriting Review | 0 | 0 |
| | Digital Asset Review | 0 | 0 |
| | Warehouse Data Review | 0 | 1 |
| | Enrichment Review | 0 | 0 |
| | Product Review | 0 | 1 |
| | | | |

Alternative: In smaller organizations, the Enrichment Specialist can accumulate the work of the Marketing Specialist, the Image Specialist, the Warehouse Specialist.



This option is visible in the Workflow widget, as the “Enrichment Review” task.

| INTERNAL RECORD CREATION | | |
|--------------------------|----------|-----------|
| | High | Normal |
| Buyer Review | <u>0</u> | <u>14</u> |
| Copywriting Review | <u>0</u> | <u>0</u> |
| Digital Asset Review | <u>0</u> | <u>0</u> |
| Warehouse Data Review | <u>0</u> | <u>1</u> |
| Enrichment Review | <u>0</u> | <u>0</u> |
| Product Review | <u>0</u> | <u>1</u> |

When all enrichment tasks are done, the Product is assigned to the Quality Assurance Experts. They have the final saying if all product data is correct and can be approved. If the Quality Assurance Expert finds something that needs to be corrected, they have the option to reject the Product to the Buyer, Marketing, Image, or Warehouse Group for rework.

| INTERNAL RECORD CREATION | |  |  |  |
|--------------------------|--|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| | | High | Normal | |
| Buyer Review | | <u>0</u> | <u>14</u> | |
| Copywriting Review | | <u>0</u> | <u>0</u> | |
| Digital Asset Review | | <u>0</u> | <u>0</u> | |
| Warehouse Data Review | | <u>0</u> | <u>1</u> | |
| Enrichment Review | | <u>0</u> | <u>0</u> | |
| Product Review | | <u>0</u> | <u>1</u> | |

5



Onboarding Process - 6 - The MDM Checks that the Data is Okay to be Presented to Other Systems

6

The MDM checks that the data is ok to be presented to the ERP and the E-Commerce platform. If not, it asks the QA Expert to fix/handle the errors.



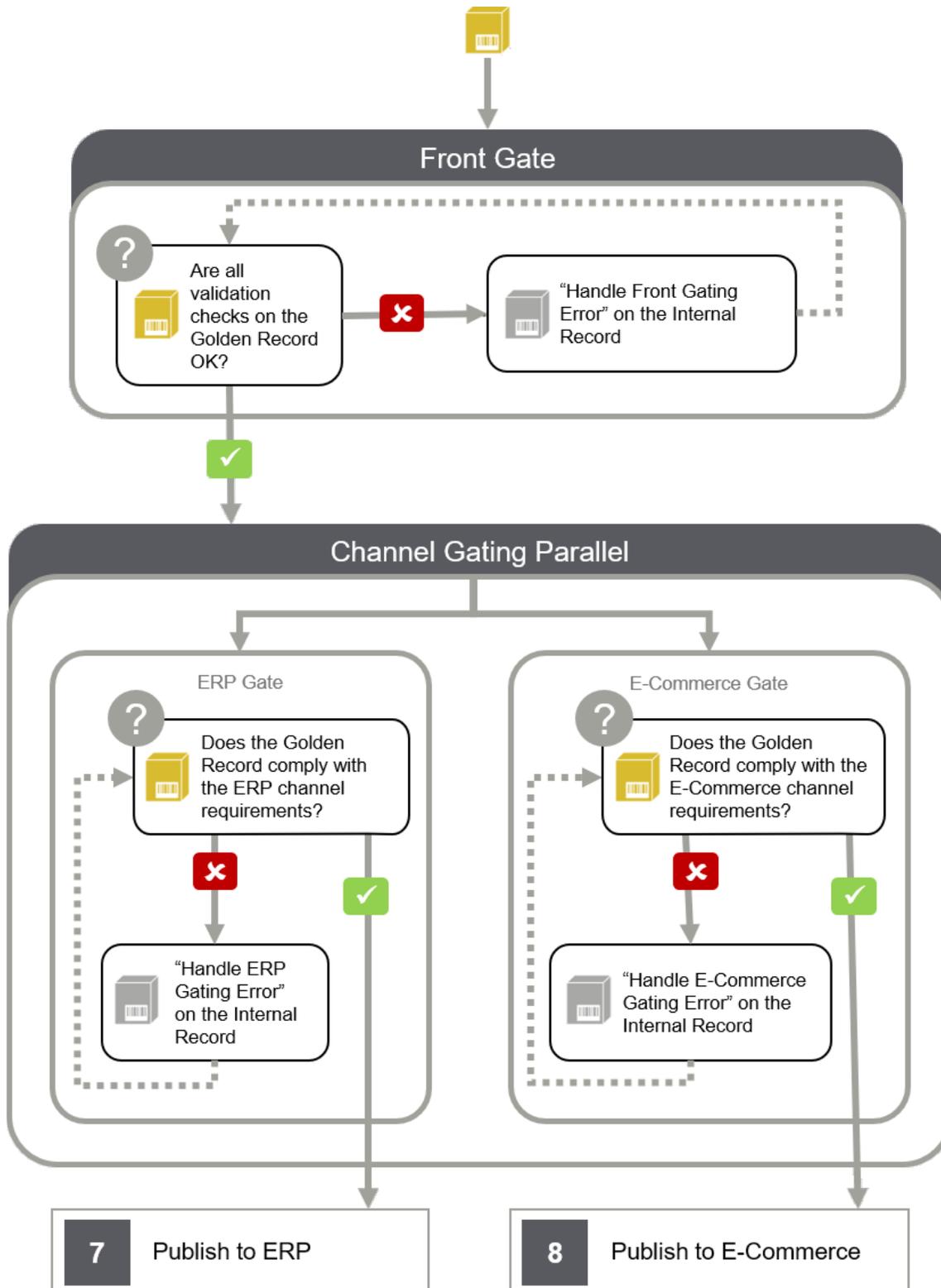
When the Product has been approved by the **Quality Assurance Expert** the Internal Source Record Creation workflow is sending the Product to the **Matching and Linking** process again to promote the latest set of data from the linked sources to the Golden Record. When the data has been promoted, the Product is initiated in the **Golden Record Gating workflow** which will validate the Golden Record against a set of validation rules to see if the Golden Record is ready to be Published.

The Golden Record Gating workflow first runs the Product through a common validation (validation gate) to check for e.g. attribute values that are mandatory across all channels. If passed, it will continue with channel specific validation in parallel to check if specific validation rules for ERP and E-commerce are fulfilled.

If one or more validation errors are found, then the Product will be sent to a gating specific “Handle Error” state in the **Handle Gating Error workflow** and a task will be assigned to the **Quality Assurance Expert**. When the product data has been corrected and the Quality Assurance Expert has proceeded the task, the process is executed again to check if the validation is now fulfilled.

If all general validation rules and the ERP specific validation rules are fulfilled, then Publish to ERP will be set to Yes on the Golden Record.

If all general validation rules and the E-commerce specific validation rules are fulfilled, then Publish to E-commerce will be set to Yes on the Golden Record.



The tasks related to Gating Errors can be found on the homepage, in the “Handle Gating Error” widget.

| HANDLE GATING ERROR | | |
|-------------------------------|----------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| |  Onboarding |  Update |
| Handle Front Gating Error | <u>0</u> | <u>1</u> |
| Handle ERP Gating Error | <u>0</u> | <u>0</u> |
| Handle Ecommerce Gating Error | <u>0</u> | <u>0</u> |

The errors are displayed at the bottom of the Product Page, like this:

Front Gate: Errors

Primary Product Image: Missing Primary Product Image reference(s)

Validation rules for gating process

During the Matching and Linking process the Golden Record is initiated in the Golden Record Gating workflow which will check if the Product it is ready to be send out to the ERP system and/or the E-commerce platform.

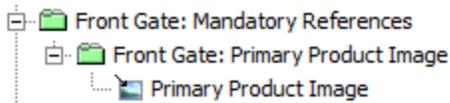
First the Golden Record will go to a common validation state (Front Gate) where it will be checked for mandatory attribute values, mandatory references etc. This check is being handled by the “Front Gate” business rule.

Per default, the business rule checks the following:

- The Golden Record has a value for all attributes linked into the “Front Gate: Mandatory Attributes” attribute group.
- The Golden Record has at least one existing reference per reference type linked into the “Front Gate: Mandatory References” attribute group.

Each reference type must be linked into a separate sub attribute group below “Front Gate: Mandatory References”.

If attributes are linked into the sub attribute group together with the reference type, then these attributes will be considered mandatory meta-data attribute on the reference.



If one or more validate errors are found, then the Internal Source Record will be forwarded to the “Handle Front Gating Error” state in the Handle Gating Error workflow.

If the Front Gate is passed, then the Golden Record will continue with the channel specific validation states (ERP Gate and E-commerce Gate). Each of the two states are similar to the Front Gate.

ERP Gate

- Business rule used: ERP Gate
- Attribute Group for mandatory attributes: ERP Gate: Mandatory Attributes
- Attribute Group for mandatory references: ERP Gate: Mandatory References
- Attribute containing ERP Gate errors: ERP Gate: Errors
- State the Internal Source Record will be forwarded to on errors: Handle ERP Gating Error

If the ERP Gate is passed, then the “Publish To ERP” attribute is set to Yes on the Golden Record and the Golden Record is exported to the ERP system using the “Products Outbound – ERP” outbound integration endpoint.

E-commerce Gate

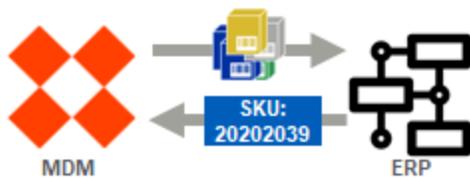
- Business rule used: E-commerce Gate
- Attribute Group for mandatory attributes: E-commerce Gate: Mandatory Attributes
- Attribute Group for mandatory references: E-commerce Gate: Mandatory References
- Attribute containing E-commerce Gate errors: E-commerce Gate: Errors
- State the Internal Source Record will be forwarded to on errors: Handle E-commerce Gating Error

If the E-commerce Gate is passed, then the “Publish To E-commerce” attribute is set to Yes on the Golden Record and the Golden Record is exported to the E-commerce system using the “Products Outbound - E-commerce” outbound integration endpoint.

Onboarding Process - 7 - The PMDM Communicates with the ERP

7

The ERP assigns a SKU ID to the Internal Source Record, STEP promotes it to the Golden Record. The Golden Record + sources + packaging are published to the ERP



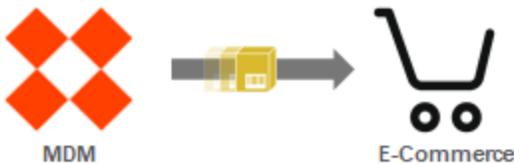
When the Golden Record has passed the validation for ERP then the Golden Record is sent to the “Products Outbound – ERP” Outbound Integration Endpoint and the corresponding Internal Source Record is initiated in the ERP Communication workflow which is used to handle the 2-ways communication with the ERP system.

The export will be in STEPXML format and will contain the Golden Record, all linked Source Records (Internal and External) plus all packaging objects linked from the sources.

Onboarding Process - 8 - The PMDM Sends Product Data to the E-commerce Platform E-Commerce

8

The Golden Record and its associated assets and web classifications are published to the Ecommerce platform



When the Golden Record has passed the validation for E-commerce then the Golden Record is sent to the "Products Outbound - E-commerce" Outbound Integration Endpoint.

The export will be in STEPXML format and will contain the Golden Record, the assets referenced from the Golden Record and the Web Hierarchies where the Golden Record is linked.

Collaboration Workflow



The Vendor Data Onboarding configuration includes a collaboration workflow which works in the same way as in the Product Content Management Module.

The workflow uses the objects introduced in this module: Internal Source Record, External Source Record, Golden Record.

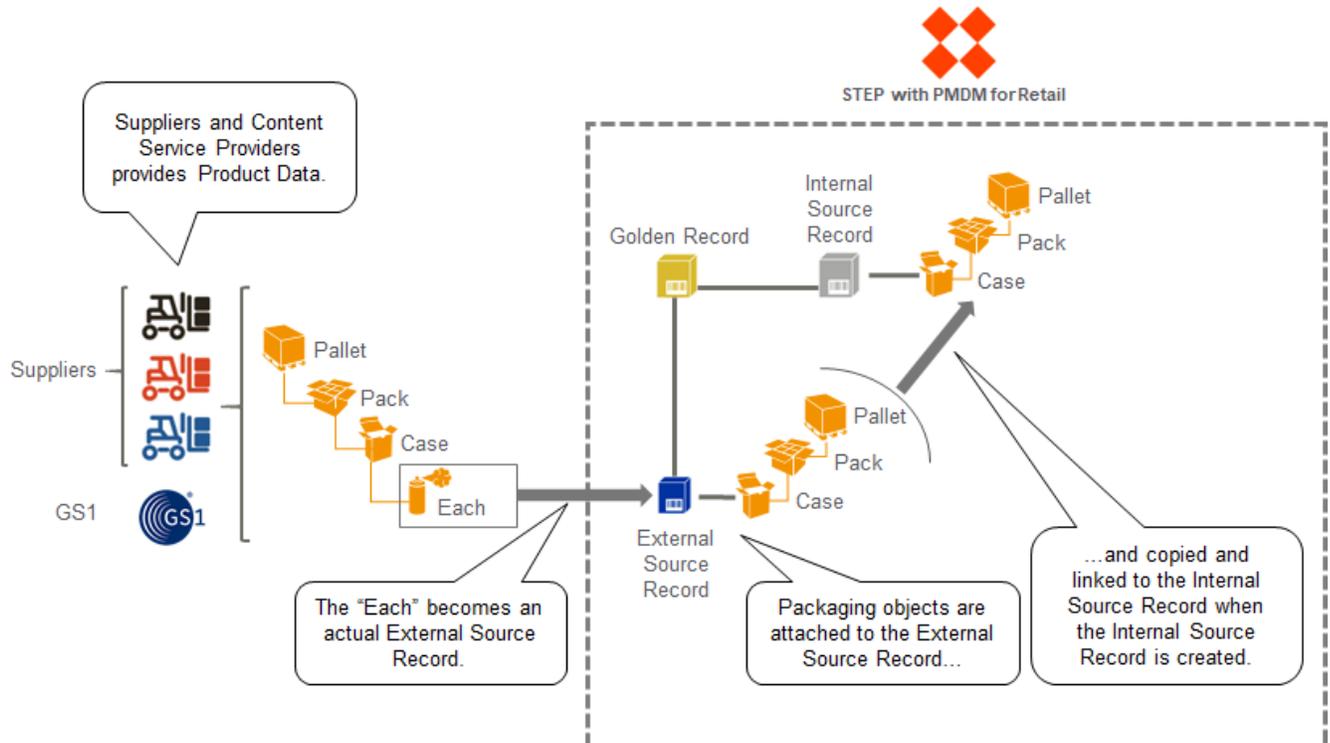
With this workflow, the retailer's team can collaborate around product data. This is an internal communication feature, which cannot include external suppliers, using different systems.

Note: For PDS, a communication channel is included in the onboarding workflow to handle when the retailer accepts a supplier's product, rejects it, or asks the supplier to have it reworked.

Vendor Data Onboarding - Packaging Hierarchy

If the product data received from PDS or GDSN contains packaging information, then it will be created as a separate packaging object per packaging hierarchy level. PMDM for Retail is pre-configured with support for Pack, Case and Pallet which will be linked from the largest unit to the smallest unit with the quantity of next lower package stored as meta-data on the reference. The Each is represented by the External Source Record.

The packaging objects are modeled as products in PMDM for Retail. They will be categorized directly under either External Packaging or Internal Packaging in the separate Packaging Hierarchy without further categorization.



The Packaging Hierarchy can be viewed in a Product details page, in the "Packaging Hierarchy" tab.

Pain d'épices miel BIO - Bjorg - 300 g e - ERS-101301

INT-104356 • Never Approved • 0.1 • Last edited 22 April 2020 12:45:59 UTC+2

Golden Record Digital Assets Pricing & Cost Category Attributes Warehouse Information **Packaging Hierarchy** Multi Language View



| | ID | Name | Qty of Next Lower Package | Number Of Items | + Packaging Information | + Packaging Selling Weights | + Packaging Shipping |
|------------------------------------------------------------------------------------------------------------------------------------------------|---------------|----------------------------------------------------------------------|---------------------------|-----------------|-------------------------|-----------------------------|----------------------|
| Pain d'épices miel BIO - Bjorg - 300 g e - ERS-101301 | INT-104356 | Pain d'épices miel BIO - Bjorg - 300 g e - ERS-101301 | 1 | 1 | | | |
| Pack of 40 Pain d'épices miel BIO - Bjorg - Biora - Case of 320 Pain d'épices miel BIO - Biora - Pallet of 1920 Pain d'épices miel BIO - Biora | Pack-104357 | Pack of 40 Pain d'épices miel BIO - Bjorg - 300 g e - ERS-101301 | 40 | 40 | | | |
| | Case-104358 | Case of 320 Pain d'épices miel BIO - Bjorg - 300 g e - ERS-101301 | 8 | 320 | | | |
| | Pallet-104359 | Pallet of 1920 Pain d'épices miel BIO - Bjorg - 300 g e - ERS-101301 | 6 | 1920 | | | |

Number of items: 4

Add to basket
 Save
 Save & Approve
 Reset
 Collaboration

Vendor Data Onboarding - Setup

Initial Setup for Vendor Data Onboarding Module

Contact your Stibo Systems account manager or partner manager for information on activating the PMDM for Retail solution:

- PMDM: STEP 10.0 (or greater)
- Service activation (license, PDS channel)
- Install and configure the module

Some of the key setup activities are described in the next paragraphs.

More tasks must be performed to make the configuration fully operational, which will not be handled by your dedicated consultants or partners.

- PDS-related data (see below)
- Suppliers (see below)
- Matching & linking
- Users and groups
- Contexts
- Asset push
- OIEP
- Configure profiling for KPIs

Configuration of the data model for the PDS channel

For the Suppliers to be able to onboard Products via PDS, the schema used for the PDS channel needs knowledge about the Supplier facing product hierarchy, the set of Supplier relevant attributes and asset references etc., as defined in PMDM for Retail. This section contains information about how this can be controlled in PMDM for Retail.

When there has been a change to the data model in PMDM for Retail which is relevant for the PDS channel then it is necessary to make a schema update in PDS to reflect the change. This can be done as a weekly scheduled process or on request.

Supplier facing Product Hierarchy

The selectable product categories in the PDS channel include all nodes of the object types External Level1 - External Level 6 defined below the “External Product Hierarchy” node.

The product hierarchy allows for creation of External Source Records starting at External Level 3.

Packaging Objects (Pallet, Case, Pack) will be created directly below the “External Packaging” node.

Attributes

There are three attribute groups where all viewable attribute groups will be stored: Product Maintenance, Packaging Maintenance and Category Specific Attributes.

All attributes in the mentioned groups will per default be shown to the Suppliers in PDS.

If specific attributes in the mentioned attribute groups should not be shown in PDS then the attributes have to be linked to the “PDS: Hide From Supplier” attribute group.

Asset references

The set of asset reference types to display in PDS can be controlled by setting the “PDS: Relevance” attribute to Yes on the asset reference type definition for the PDS relevant asset reference types.

Display sequence of Attributes and Attribute Groups

The “Display Sequence” attribute valid on attribute definitions, attribute group definitions and on attribute links can be used to control the display order of attribute groups and attributes within those groups in PDS.

Required for Initiate

It might not be necessary that the Supplier fills out the full set of mandatory attributes before he submits a new Product to PMDM for Retail. A short description and the GTIN of the Product might be enough for the Retailer to determine if this is a product they would like to onboard.

The set of attributes being mandatory for initiate is defined by linking the attributes to the “PDS: Mandatory For Proposal” attribute group.

Mandatory Attributes

The set of attributes being mandatory for submit after initiate is defined by linking the attribute to the “PDS: Mandatory For Submit” attribute group.

Category specific mandatory attributes are controlled using the standard Mandatory option on the attribute link.

Category Specific Mandatory Asset References

Category specific asset references that are mandatory will sit on the product category node itself. The multi-valued “PDS: Mandatory References” attribute will hold the list of references that are mandatory on that category.

Locked Down Attribution

It might be beneficial to be able to lock certain attributes after a product has been initially onboarded into PMDM for Retail to prevent the value of these attribute gets changed by the Supplier. To enable this, the relevant attributes must be linked to the “PDS: Locked After Proposal” attribute group.

Attribute Help Text

It is possible to show description of attributes and asset references to the Suppliers in PDS by using the “PDS: Description” attribute being valid for attribute definitions and asset reference definition.

Setup of new Suppliers

Before a Supplier can submit product data from PDS the Supplier has to be created in PMDM for Retail.

A few objects must be created per supplier and a few configuration options needs to be defined per Supplier.

To setup a new Supplier the following steps are needed:

1. Create a new Supplier User Group below the Suppliers user group.
As part of this process, the Supplier Classification is created by selecting the parent for the Supplier Classification below the “Suppliers” classification node.
2. Create a User below the new Supplier User Group.
This user is used by PDS to authenticate against PMDM for Retail.
3. Set the value of the “PDS: Is Service Account?” attribute to “Yes” on the new User.
This will start a process which will link the user to the “PDS: Service Accounts” user group and add the User ID to the “PDS: Service Account” attribute on the Supplier Classification.
4. On the Supplier Classification the following attributes should be maintained:
 - **Supplier ID and Supplier Name** - Used to identify the Supplier and to ensure uniqueness.
 - **Type of Supplier** - Used for information purpose when comparing sources for a Golden Record.
 - **General Handling of New Source Records** - Controls if new External Source Records from this Supplier should be automatically approved in PMDM for Retail or if the Buyer needs to manually approve the product data before onboarding the Product.
 - **General Handling of Updated Source Records** - Controls if a change to an existing External Source Records from this Supplier should be automatically approved in PMDM for Retail or if the Buyer needs to manually approve a change before it is considered for promotion by the Matching and Linking process.
 - **General Rank For Supplier and General Rank Type Of Supplier** - Used by the Matching and Linking survivorship rules to control the preferred order of source when promoting product data to the Golden Record.
Rank Type Of Supplier has the following options: “Approved Content Source” (AC) and “Non-Approved Content Source” (NA).

Rank For Supplier has the following options: 1, 2, 3, 4, 5.

The values of the two attributes are concatenated into a single Source Rank For Promotion value which is used by the survivorship rules when promoting product data to the Golden Record.

The preferred order of sources configured in the survivorship rules in PMDM for Retail is:

MDM, AC1, AC2, AC3, AC4, AC5, NA1, NA2, NA3, NA4, NA5, NA99

where:

MDM: Internal Source Record

AC1-5: Approved Content Source

NA1-5: Non-Approved Content Source

NA99: Used if no Rank Type or Rank is defined for the supplier.

Example:

Attribute A has the value “Yes” on a source having AC2 as Source Rank For Promotion.

The survivorship rules check the sources in the defined preferred order. First it checks the Internal Source Record which doesn't have a value for Attribute A. It continues to look for a source with AC1 but that External Source Record does not have a value for Attribute A either. So it continues by looking for a source with AC2. Finally, a value for Attribute A is found so this value will be promoted to the Golden Record and it will skip looking for values on lower ranked sources.

For some Suppliers it might be required to be able to overwrite the general source record handling and product data ranking on all Products below specific Product Hierarchy nodes. This can be done by linking a node from the External Product Hierarchy to the Supplier Classification using the Category Ranking For Supplier link type. The link will have the following meta-data attributes: Category Handling of New Source Records, Category Handling of Updated Source Records, Category Rank for Supplier and Category Rank Type of Supplier.

5. The Supplier Classification must be approved.

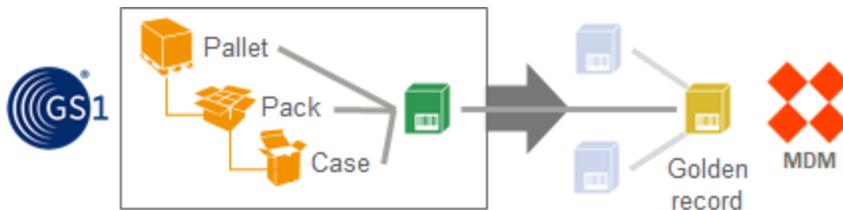
This will start a process which will generate a unique supplier identifier in the "PDS: Supplier Identifier" attribute on the Supplier Classification.

6. The "PDS: Supplier Identifier" value generated within a minute of the initial approval of the Supplier Classification is what the Supplier needs for authentication when adding the channel in PDS.

Module - GDSN Receiver for PMDM for Retail



The GDSN Receiver module is installed on top of the Vendor Data Onboarding module. With it, the Retailer can receive quality Product Data from GS1.



GS1 GDSN is an automated, standards-based global environment that enables secure and continuous data synchronization, allowing all trading partners to have consistent item data in their systems at the same time.

The GS1 Global Data Synchronization Network connects retailers and suppliers via their selected GDSN-certified data pools to the GS1 Global Registry.

To benefit from GS1 GDSN in PMDM for Retail, an external STEP system with the GDSN Receiver can be set up using a preconfigured solution.

GDSN Receiver Solution

The GDSN Receiver solution includes the following elements:

- Installable solution which is separate from the MDM and on its own release cycle
- Prebuilt GS1 attributes, code lists, Units of Measure (UoMs), and GPC hierarchy
- Full attribute mapping for inbound CINs
- Web UI for managing GDSN admin tasks
- Built-in workflows to manage messaging, MDM data flow, and Hierarchy Withdrawals
- Framework for automating the Catalogue Item Confirmation (CIC) response
 - Completeness Rules that can be maintained by non-technical users
 - GPC Validations that can be maintained by non-technical users
 - Framework to add custom API calls, custom JavaScript, etc. for more complex rules
- Framework for transforming GDSN data model to match downstream systems
 - Transformation tables for attribute IDs, LOVs, object types, reference types, and unit descriptors
 - XSLT post-processor

GDSN Receiver Architecture

The following diagram shows the relationship and interaction between GDSN and PMDM for Retail.

