**Information Management** software

# Best practices for new product introduction.

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**Executive summary**

This document is the result of IBM's experience implementing product information management (PIM) solutions to manage the new product introduction (NPI) process for retail clients in North America, Europe and Asia Pacific. The purpose of this document is to provide insight into the requirements of an NPI process, and to establish recommendations and best practices to guide the implementation of an NPI solution.

In this paper, the following topics will be addressed:

- Retailer new product introduction pain points and current processes
- NPI solution value proposition
- NPI solution guidelines and best practices
- NPI solution technology enablers, such as the Retail New Product Introduction Solution for Product Information Management

For the purposes of this paper, NPI refers to the process by which a new item is introduced into a retailer's systems environment.

Retailers and suppliers estimate that at any given time, five percent of their active stock keeping units (SKUs) or, on average, some 40 000 records contain inaccuracies (IBM/WorldWideRetail Exchange Survey, 2005). How are these errors introduced into retailer and supplier systems environments? Mainly through faulty new product introduction processes that rely on manual entry of product information into multiple systems. The problem of inaccurate product information is exacerbated by ongoing item enrichment and maintenance processes that introduce new errors, like duplicate or conflicting entries across disparate systems.

In addition to introducing bad data into systems environments, inefficient new product introduction processes can significantly delay time to market for new products. New products have the greatest revenue-generating potential during their first few weeks on the retail shelf, so a process that undermines a retailer's ability to capitalize on this short window will clearly impact the bottom line. Getting products to market quickly is a key source of competitive advantage and one that retailers cannot afford to lose.

IBM has helped clients around the world to address these issues. Based on this experience, IBM has developed a set of best practices for streamlining the collection and management of product information to support new product introduction processes.

This white paper offers an in-depth look at the reasons why current systems and processes for gathering and maintaining product information are broken and offers a set of best practices for fixing them.

**The problem with current processes**

The first step in implementing a product information management solution to support new product introduction is to understand a retailer's requirements for bringing new products to market, as well as the different systems involved in this complex process. Although business processes vary from one customer to another, IBM has identified a series of processes that are used by many retailers today to introduce new product information into a systems environment. These processes are largely manual and paper-based, and numerous departments and individuals must review, enrich and approve information for every new product that is introduced to market. Figure 1 shows a representation of these steps.
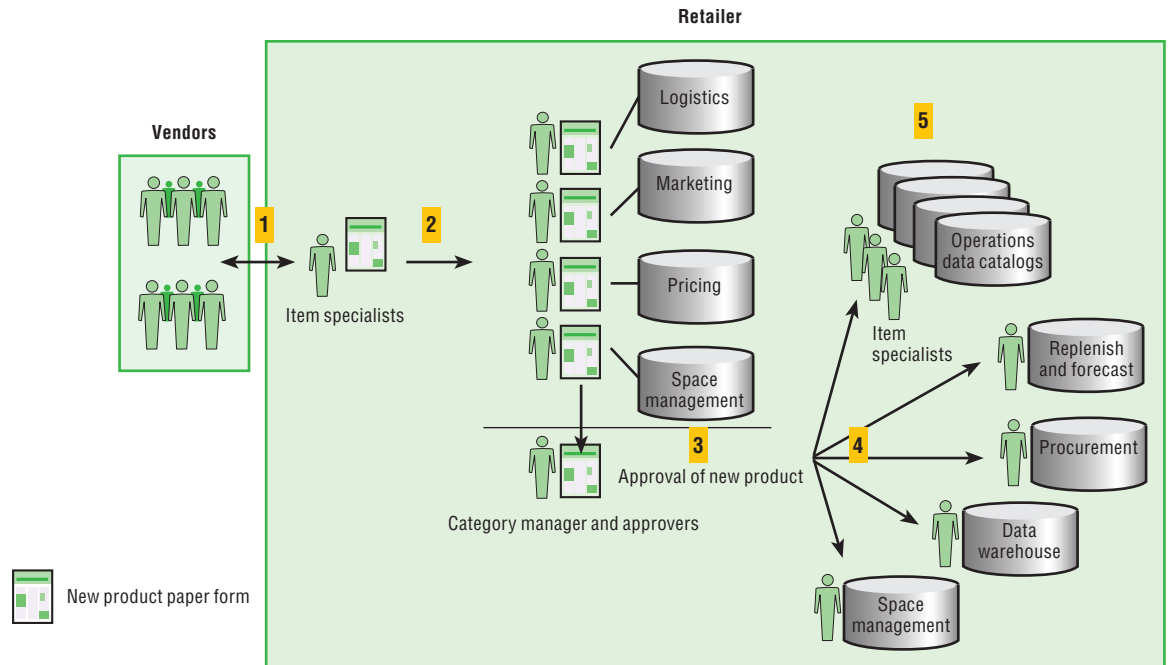


Figure 1. Current new product introduction process (highly manual procedure)

There are a number of problems with this as-is business process:

1. Laborious exchanges with suppliers to obtain product information. To kick off the NPI process, a category manager must first determine what products are required in the retailer's overall product assortment. The category manager or buyer identifies product needs by conducting competitive sales analysis and studying market trends. When identifying a need for specific products, the retailer evaluates different suppliers to identify who can provide the best price and product offering to meet the retailer's needs.

After the suppliers for the products have been established, a back-and-forth process between the retailer and the supplier begins in order for the retailer to obtain all of the information necessary to bring the product to market. The responsibility for obtaining this product information from a supplier is typically passed off from a category manager to an item specialist. This can be very time-consuming, because the process of requesting and exchanging product information with a supplier is done over the phone, through paper exchanges or by e-mail. Based on a recent joint IBM/WWRE survey, it was found that, on average, retailers spend 260 person-hours a week corresponding with suppliers to obtain accurate product information. That means that the average retailer has over six full-time employees dedicated to the task of exchanging product information with suppliers. Obviously, this activity is costly in human resource terms, but this is not its most significant impact. The time spent receiving, correcting and verifying information from suppliers has been proven to cause significant delays in introducing new products to market.

2. Manual paper processes. As e-mail and paper exchanges take place between the item specialist and the supplier, finalized supplier data is captured manually on a retailer's internal new item paper form. This core product information that comes from the supplier is just part of the information that needs to be collected about a product before it can be brought to market. After retrieving the core product information from a supplier, the item specialist will then look to obtain additional, internal department- or category-specific information about the product. This data is also captured manually on a paper form.

Internal department- or category-specific data to be captured might include:

- *Logistics:* Attributes specific to how a product will be shipped
- *Marketing:* Attributes specific to how a product will be sold
- *Pricing:* Attributes specific to product pricing
- *Space management:* Attributes according to how a product will be displayed on the shelf or shelf tag

Surprisingly, retailers of all sizes are still following these manual paper processes to obtain both external and internal product information. This process is time-consuming and slows the time to market for new products. In addition, it is highly error-prone. Data validations are performed manually (if at all) and vary widely from one user to the next. This means that the accuracy of the data that finds its way into systems throughout the organization is of variable quality and reliability.

3.  Lack of approvals and approval hang-ups. After all required product information has been collected from internal and external sources, it must be reviewed and approved before the product can be introduced to market. Unfortunately, most retailers don't follow this step as part of their NPI processes, because their current systems can't support it. Other retailers have identified the approvals that should be carried out, but their processes are inefficient and cause bottlenecks. Often, the new product paper form is manually routed to all parties who need to approve all or part of the information, in a serial manner. It is not uncommon for such a form to get buried in an inbox along the way or to land on the desk of an employee who is out of the office on vacation. In this case, the form simply sits and waits for someone to discover it, delaying the process by days or even weeks, and directly impacting the time to market for a new product. Although controls are necessary to ensure data quality, they must be implemented in a way that does not slow the process of introducing a new product to the market.

4.  Manual updates to downstream solutions. After obtaining approval of a new item, the item specialist sends the new product paper form to downstream resources for manual updates to some of the following systems:

- *Operational data catalog (enterprise resource planning [ERP] and so on)*
- *Replenishment and forecasting*
- *Procurement*
- *Data warehouse*
- *Space management (plannogram tools, for example)*
- *Other departmental applications*

The process of manually creating and updating product information downstream introduces a number of problems. Not only is this an error-prone method of updating data, but it introduces the risk of creating duplicate data. When a user tries to update an existing item, if an item is not found, the user creates a new item record. In many cases that item might already exist, but the user was not able to identify it. This leads to multiple records in a single system that represent the same item, a situation that has a direct, material impact on the business. From ordering errors to data reconciliation challenges and reporting problems, this single error cascades throughout the business. Perhaps even more significantly, it compromises an organization's ability to accurately report on sales and revenue, inviting unwanted attention from regulatory organizations.

5.  Siloed data repositories. Maintaining product information in multiple repositories is a challenge in and of itself. On average, retailers tend to have at least 18 systems or applications that are impacted by product information, not including the unknown siloed solutions that are not formally recognized. Many of these systems serve operational purposes; however, many are redundant, and some serve only individual departmental needs.

These redundant or unknown, siloed data repositories make it difficult and expensive to create and maintain product information through a defined, streamlined business process. In some cases, the data in these systems is not maintained at all, but is still leveraged to support critical business processes.

Some potential impacts include:

*Inconsistent data quality across systems and applications*
Because data in these silos isn't maintained with the same rigor as data in other enterprise applications, it falls out of sync with data in more-mainstream applications and as a result, causes out-of-date and inaccurate data to be leveraged in certain business processes.

*Lack of data ownership*
The existence of multiple data repositories promotes an overall lack of data ownership, eroding data quality over time.

*High capital expenditures*
Support for these systems can result in high labor and hardware maintenance costs.

*Inefficient business processes*
Rarely is a retailer able to successfully or efficiently manage data across all of these systems. In the absence of a centralized repository for product information, item introduction and maintenance processes are very difficult to standardize.

Other challenges that retailers face in their NPI process include:

*Varying product definitions*
Retailers across different industries and even within the same industry tend to have different definitions of what constitutes an item in their organization. Furthermore, within a single retailer's organization, the definition of an item is not always clear. Because of these variations, retailers struggle to implement standardized NPI processes for all items. A few specific examples include:

• Retailers that carry more than one type of product typically maintain different types of information about each type of product. For example, the attributes that need to be maintained about a tube of toothpaste are different from those that need to be maintained about a pair of jeans. However, without a way to apply unique processes based on item type, these retailers often end up with some item records that contain insufficient data, and other item records that contain junk data or made-up values created to satisfy requirements that don't apply to a specific item or item type.

- Some retail systems environments are configured to manage a product specific to the system's operational purpose. For example, an inventory management system might manage different information about a product than a pricing system would. Therefore, a translation or mapping is required to maintain the relationship between this item across the two systems.

- Global Data Synchronization (GDS) and the GS1 standards have defined an item as a hierarchy (for example, pallet-case-each). Many retailers have struggled to adopt this representation because their existing systems define items and hierarchies differently. These systems are seldom flexible enough to be modified to support the standards definition.

*Large data volumes*

Retailers of groceries, books and music, and online one-stop shopping retailers such as Amazon.com maintain an especially large volume of data simply by virtue of the large number of products they carry. These data volumes can be difficult to manage efficiently and consistently across an organization, making the NPI process challenging. In addition, inefficient processes that are labor intensive and slow to implement can have a significant effect on these retailers' bottom line—the cost of processing so many inefficient new product introductions is high, and the opportunity cost of not getting these new products to market amplifies the problem.

**Dimensions of ROI**

Retailers' current systems environments do not easily support the complex process of introducing a new product into their environment, an issue that has proven very costly. On average, retailers introduce 900 new items or 0.67 percent of the retailers' total item count each month. (IBM/WWRE Survey, 2005) Therefore, these inefficient NPI processes that delay the time to market for new products have a significant impact on sales and revenue.

**The return on investment (ROI) of an NPI solution for a retailer can be measured by the following metrics**

*Increased revenue through reduction in time to market for new products*
Time to market for a retailer is critical in order to remain competitive in the marketplace. As previously mentioned, the greatest revenue potential for a new product is during its first few weeks on the store shelf. Failure to capitalize on this short window of opportunity can result in significant lost revenue. The risk is even higher for promotional or seasonal items.

- If the product appears too late on the shelf, the opportunity to sell the product at a higher price is lost, and it might only sell at a marked-down price, resulting in a potential loss for a retailer.
- If the product isn't available for purchase when the customer expects it to be, the customer will most likely shop elsewhere. This could result in future sales losses as well.

The increased urgency for getting a product to market quickly can also be due to the scheduling of on-air or printed advertisements.

- If the product isn't on the shelf when the advertisement says it will be, customer satisfaction is in jeopardy.

*Reduced costs through improving merchandising productivity*
Inefficient processes require more people to carry them out and take longer to implement. When time and labor costs are multiplied together, it becomes evident that efficient processes can significantly reduce costs.

*Reduction in capital expenditures*
When a centralized repository is positioned to support the NPI process, capital costs are reduced as redundant systems can be decommissioned, thus reducing maintenance and hardware expenses.

*Removal of penalty payments*
Poor NPI processes can result in data that is not valid (errors and duplicate data). Such data can impact reporting for a company, and when statements regarding annual revenue are found to be inaccurate, retailers are charged for every error that is made. The implementation of validation rules and automated processing as part of an NPI process can help eliminate these issues.

In addition to a having a strong ROI, a well-defined NPI process provides structure and prevents process inefficiencies. This alone provides tremendous business value by freeing employees from laborious, manual, low-value tasks to focus more on high-value core competencies.

**Streamlining the NPI process: Where do I begin?**
When implementing an NPI process, it is critical to have a deep understanding of the types of data involved in the process. IBM has developed a construct called XYZ to describe the different types of data involved in the retail new product introduction process, as shown in Figure 2.

| X Data<br>Standards defined<br>Vendor provided | **+** | Y Data<br>Retailer requested<br>Vendor provided | **+** | Z Data<br>Retailer defined<br>Retailer provided | **=** | Complete referential<br>product definition |
|---|---|---|---|---|---|---|

Figure 2. The XYZ Framework for Retailers (data types only)

- *X data:* X attributes are derived from the production information provided by a retailer's chosen data pool. Information falls into two categories:
  - Attributes defined by GS1 standards
  - Other attributes supported by the specific data pool

Note: A small percentage of suppliers send referential data through electronic data interchange (EDI); however, EDI data is typically transactional and should not be stored in a PIM solution.

- *Y data:* Y attributes are provided by suppliers and include valuable business data, such as price, first-shipment date and so on. Y attributes are critical because they fill in the gaps not currently addressed by GS1 standards or data pools, and address unique supplier-data requirements from a retailer. Typically, Y data is requested by the retailer through a supplier portal.
- *Z data:* Z attributes are derived from a retailer's own set of internal product information requirements. Z data represents data required by the retailer, and also provided by the retailer.

X+Y+Z data should equal 100 percent of the data required by a downstream system in a retailer's environment.[*]

In addition, within the X-Y-Z construct, data can be further broken down into two types: neutral and relationship-dependent type attributes.

- *Neutral attributes.* Neutral attributes of a product always stay the same, regardless of who supplies it or where it is sold. For example, a retailer can carry a product that is supplied by multiple suppliers. The "color" for that product should be consistent across all suppliers who supply it. Because the "color" value for a product stays the same, regardless of who supplies it, "color" is considered a neutral attribute. Neutral attributes can come from X, Y and Z data, as defined by the retailer.
- *Relationship-dependent attributes.* These represent the product attributes that vary depending on the relationship a retailer has with a supplier. For example, cost is an attribute that varies by supplier and, therefore, a separate attribute value for cost for each supplier should be stored on the product. Relationship-dependent attributes typically come from X and Y data, and occasionally Z data, as defined by the retailer.

After completing the NPI process, a product should have all the referential attributes required to define and support the product in downstream systems in a retailer's organization. For private-label products, there are a few additional factors to be considered.

*Private-label considerations*
Retailers will typically define their private-label product requirements in a PIM solution. After defining their requirements for the product, they will identify a manufacturer to create and supply the product. The retailer is responsible for providing a universal product code (UPC) for the private-label product to the manufacturer so they can apply it to the product accordingly. However, the manufacturer of the private-label product should still be responsible for providing the majority of the core product information (X and Y attributes).

**NPI solution best practices**

The NPI process can be broken down into three major steps:

- Item retrieval
- Workflow
- Publication

The following paragraphs outline the best approach to addressing each of these steps.

*Item retrieval*

The item-retrieval step is the process by which a retailer looks to obtain the X and Y data required to define a product. In order to streamline the NPI process, it is critical that most or all of this data is obtained electronically, because exchanging paper forms is inefficient and error-prone, and delays time to market for new products. There are multiple ways that retailers can obtain product information electronically from a supplier or other third party. Some examples include:

- *GDSN*. The Global Data Synchronization Network (GDSN) is a network of interoperable data pools and a global registry that facilitates the exchange of item information between trading partners. Data pools are populated by suppliers with data that conforms to GS1 standards so that subscribing retail organizations can receive the data electronically in a standardized format. Retailers should identify at least one data pool from which they will receive product data.
- *EDI and third party*. EDI and other third-party tools are used to supplement the item information that comes from data pools.
- *Supplier portal*. Retailers can create a portal interface to allow suppliers to enter product information that is specific to the relationships between a single retailer and supplier. This is typically Y data for suppliers already sending data through a data pool, but could be X and Y data for suppliers not currently working with a data pool.

A retailer can choose to receive supplier or third-party data from any one of these sources. However, one method is seldom sufficient to gather all necessary data from suppliers, so employing multiple methods that offer options and flexibility to suppliers is recommended. This flexibility will help retailers meet the goal of receiving all supplier data electronically, thereby allowing them to retire paper forms and to eliminate the time-consuming manual exchange of data with suppliers.

*Workflow*

The workflow defined for the NPI process must be flexible and adaptable in order to support the variable requirements of a retailer's data. Some of these variations include item definitions that differ across the organization and within standards bodies, specific attributes based on the item type and so on. Figure 3 outlines the high-level flow of the NPI workflow process:
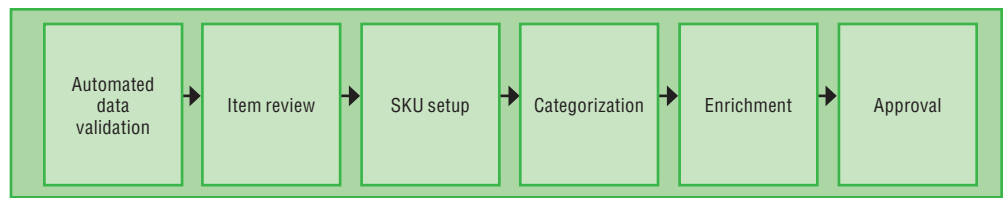


*Figure 3. New product introduction workflow*

*Automated data validation*

Today, retailers invest significant time and resources in manually validating product information sent by suppliers. Despite these efforts, manual validations fail to ensure high-quality data because they rely on consistent training, knowledge and dedication of all of the individuals who carry them out. Bad data inevitably finds it way into retailers' systems, and a second process must be implemented to find and correct this bad data on an ongoing basis. Therefore, the first step in streamlining the NPI process is to replace manual validations with an automated validation process that is automatically associated with third-party data before it reaches internal systems.

Data received from a supplier does not always meet the quality standards set by a retailer. As a best practice, data should go no further in the NPI workflow process until it has been fixed by the supplier. This will ensure that retailers are not spending unnecessary time reviewing bad data and manually fixing it, only to have it overwritten at a later date when an update for that same product data is received from the supplier. It is important that data errors are addressed at the source to prevent recurring data problems. In order to put this process in place, however, a retailer must have a defined set of clear validation logic to apply to all incoming data from suppliers.

The types of validations that should be applied during this step include:

- *Identification of missing attribute values.* If an item is missing attribute values that are required to complete the product definition for the retailer, this item should be flagged and returned to the supplier, indicating that attribute data is incomplete.
- *Identification of duplicate data.* If the supplier is sending an item that already exists in the retailer's organization, it is important to either update the existing item with any modified information, or flag the item as a duplicate and return it to the supplier. This will prevent duplicate items from being created in the retailer's environment with different identification numbers.
- *Attribute type and length validations.* Basic validations on type (string, numeric, currency and others), as well as length of an attribute, should be applied to each incoming attribute value. In some cases, the retailer might be able to apply logic to modify incoming data to meet the retailer's system and product definition requirements. In cases where the data is simply bad, it should be returned to the supplier for correction.

Many other validation rules can be performed on incoming supplier data; this is just a small subset of the rules a retailer might define. The types of validations that should not be applied are those that duplicate validations already performed on supplier data by data pools, third parties and supplier portals.

*Item review*

After data has passed initial data validation, the item is ready for review by the retailer. The purpose of the item-review step is to identify the neutral attributes that will be stored for that item. Two scenarios should be supported in the item-review step:

- *Scenario 1:* The incoming supplier item already exists in the retailer's item repository from another supplier. In this scenario, retailers will review the new item information against the existing item to determine which attributes should be considered neutral for the product, and which attributes should be considered relationship-dependent, or specific to the supplier-retailer relationship.
- *Scenario 2:* The item does not already exist. In this scenario, retailers will review the data singularly, or should have the ability to review the item against a similar item.

As a best practice in either scenario, the retailer should store only one version of the neutral attributes, while ensuring that there is a relationship captured between the item and all of the suppliers of that item. On this item-supplier relationship, any relationship-dependent attributes should also be captured.

As with the automated data validation step, the retailer should have the option at this step to reject and return the item to the supplier if the data still does not meet the quality standards of the retailer.

A few additional best practices to note during the item-review step:

- A retailer should keep only one set of neutral master data for an item, and avoid storing multiple versions of supplier-provided neutral attributes.
- Ensure that only referential data is stored and managed in the PIM solution to support the NPI process. Transactional data should be stored in transactional solutions.
- If the retailer is building GDS integration capabilities into the PIM solution to support the NPI process, the complete Global Product Classification (GPC) hierarchy representation of an item should be stored within the NPI solution, separately from the item's neutral and relationship-dependent data, but tied together through a relationship of some sort. This storage requirement will help support all future GDS transactions.

*SKU setup*

The SKU-setup step is the process by which a retailer creates a new retail item, or associates this new retail item to an existing item, or both.

Before following the SKU-setup step, it is important to ensure that the meaning of an item has been clearly defined and is understood by all participants in the process. A retail item can be very complex, and is often represented in different ways by different systems within the retail environment. For example, an item in a warehouse system will be defined and configured differently than in a pricing or e-commerce system. Retailers should review the various item definitions that exist across their systems and create a standard master item definition to use for the NPI process (usually a superset of all existing item definitions). After completing the NPI process and exporting this master item data out of the NPI solution, logic and Enterprise Application Integration (EAI) tools can be used to map values from the master item definition to the dependent systems' item definitions.

When an item is determined to be new to the retailer's organization, the following steps must be carried out during the SKU-setup process:

*A unique retail item ID must be assigned*

As a best practice, it is recommended that no logic is built into this item number; it should simply be of type "sequence." Other identifiers should also be stored on the item such as the UPC or Global Trade Item Number (GTIN); however, it is not recommended to use either of these as the primary key on the item.

*The type of item to be created must be identified*

When there is a clear definition of what an item is to the retailer, they must then evaluate and identify all the different types of items that exist in their organization. In many cases, different attributes will be applied to an item depending on item type. Consider the following examples:

- *Hazardous materials:* If a product is considered hazardous, attributes such as material and handling codes might be required.

- *Customs item:* If the product is to be imported, specific data might be required to populate customs forms. For example, a tariff code might be required.
- *Special order:* If an item will not be carried in a store, but is available through special order, attributes such as freight, lead time and so on might be required.
- *Refurbished SKUs:* If a product is not new but has been rebuilt, it might need to be related to an existing SKU (representing the new item equivalent), and might need to acquire many of the attributes of this new item.
- *Direct to store delivery:* If an item is either a direct to store delivery (DSD) or warehouse item, specific attributes might also be required.
- *Others:* Clients within different retail segments (fashion, grocery and hardlines, among others) might have other types of items that require more specific attributes to help define where an item should be sold or otherwise treated.

*The new item must be associated to existing products to support sales and marketing processes*
Relationships to be established include cross-sell and up-sell relationships, similar products, replacement products and accessories.

If the item already exists in the retailer's systems environment but is sourced from a different supplier, the item should not be recreated according to the process outlined above, because this would lead to duplicate-item creation. Instead, the item should be associated to the existing item (automated if possible), and, according to a given retailer's business process, the SKU-setup process might be bypassed.

*Categorization*
After a SKU has been created, the new item must be categorized. The categories to which an item is assigned might determine how and where it is sold and which department will be responsible for it. While an item will likely be represented in multiple hierarchies, it should first be added to the standard hierarchy defined by the retailer. This is the general hierarchy used to represent the entire product catalog across the organization. After the item has been added to the standard hierarchy, it can be added to additional hierarchies that support the needs of specific channels, banners, departments or other specialized business functions.

This item classification process should be automated where possible. Based on business rules and logic applied to specific attribute values, an item is classified to the standard hierarchy. The NPI solution should be capable of mapping one hierarchy to another. This way, once an item exists in the standard hierarchy, it is automatically classified to all supplemental hierarchies in which it belongs.

This process can be especially useful for items defined to standard hierarchies by incoming data pools. For example, the GS1 data pool uses a hierarchy called the bricks classification. An item can be mapped from this standard GS1 classification to a retailer's internal hierarchy, allowing for automated classification of items based on their bricks classification.

Just as some attributes of an item are dependent on item type, other attributes of an item are dependent on item category. After an item is assigned to all categories in which it should exist, it can be enriched with information specific to its category, as further defined in the next step.

*Enrichment*
The enrichment step is typically the most time consuming part of the NPI process. In terms of our XYZ paradigm, the data added through enrichment is typically Z data, defined internally by the retailer.

The enrichment process can be only partially automated, which is one of the reasons why it is the most time consuming step in the NPI process. Still, measures can be taken to expedite this step:

- Enrichment automation should be applied on all data that can be derived from existing attributes. For example, concatenating two attribute values into one attribute value is an enrichment step that can easily be automated.
- Enrichment requiring manual intervention can be expedited through parallel processing. For a given retailer, Z data could comprise a large number of departmental or category-specific attributes, which will require updating by different user groups. Allowing all of these users to enrich the item concurrently will greatly reduce the amount of time it takes to complete the enrichment step.

Because new data is entered during the enrichment step, it should be validated before moving to the next step in the process. Trapping data errors as they are made allows for immediate correction and prevents bad data from traveling downstream.

As previously noted, incoming data from a supplier through a data pool should not be discarded if a GDS solution is not present. However, a retailer should avoid updating supplier-specific data (X and Y data) as this data should be updated only at the source. If suppliers do not correct bad data in their systems, the next time it is sent to the retailer, all updates or corrections made by the retailer on their own will be lost and overwritten with the same bad data.

*Approval*
After completing the setup of a new product, an approval process is usually required by the retailer. To prevent approvals from becoming a source of bottle-necks, the following best practices should be considered when applying them:

- Apply parallel tasking when multiple approvals are required. Instead of waiting for one approval to be completed before requesting another, ensure that all approvals are requested at the same time to reduce overall approval-processing time.
- Apply escalations and reporting when approvals do not happen within a set amount of time. This will help to ensure that there are no hang-ups in the process, and that each item is reviewed and approved in a timely matter.
- Avoid unnecessary approval steps. Allow items to bypass approval steps if they meet certain criteria.

Approvals should be managed inside the PIM solution to support the NPI process, and not through a paper process. Although this task might be simple to implement, if it is not implemented correctly it can cause significant delays in introducing new products to market.

*Publication*
After completing the NPI workflow, the new item is ready to be published and made available to downstream systems. The process followed by many retailers today for propagating new-item information to downstream systems is manual, introducing significant risk for error. Therefore, best practices should be followed to reduce this risk and increase overall efficiency. Best practices for this step include:

- *Use of an EAI tool:* Because retailers' existing environments contain many disparate systems, the benefits of an EAI tool can be significant. An EAI tool can be configured to receive new-item data from the PIM solution on a scheduled or near real-time basis, and distribute it to dependent systems through supported transport protocols and formats. This eliminates the need for users to perform manual updates to product data in downstream systems, a potential source of errors.

EAI tools also introduce a number of valuable features such as guaranteed delivery, which guarantees that no transaction is ever lost. Therefore, this integration approach is recommended to ensure that clean new product data can quickly be made available to the multiple systems that require it.

- *Maintenance of product data in the source:* Ongoing maintenance of referential product data for the new item should be managed in the source, which is the PIM solution. Product data should not be updated in downstream solutions. Instead, updates should be made in the PIM solution and should cascade to downstream systems. This ensures that product information remains synchronized across all systems in which it resides, and eliminates the risk of operational errors.

**NPI solution technology enablers**

The foundation of an NPI solution that supports these best practices is a robust PIM system, such as IBM WebSphere Product Center. The PIM system serves as the centralized, referential repository for all product information. As previously noted, it is critical to centralize product data to ensure that data is consistent across systems and to create one version of the truth for product data. When selecting a PIM system to streamline new product introduction, it is important to keep in mind that to really solve the underlying issues, the PIM solution must contain the following elements:

*Data-modeling capabilities*

A flexible data model that can create an accurate, complete representation of products — a foundation element of the NPI solution. This modeling capability should support:

- *Category-specific attributes:* Attributes applied to a product based on their category
- Multi-occurring or localized attributes: Attributes that can have multiple attribute values associated
- *Sequence ID generation:* Automated primary key-generation for a retail item
- *Relationship management between items:* Critical to support item-to-item relationships for cross-sells, up-sells, accessories and replacements
- *Multiple hierarchies:* Support for a global hierarchy, as well as multiple other hierarchies as required by the retailer
- *Mapping of hierarchies:* Support for automated classification of items through mapping one hierarchy to another
- *Managing relationships:* Management of relationship between a base item and its variants (by size, color, fabric and flavor, for example) Relationship between users, the PIM roles they play in the system and the categories of products they manage

*Robust, integrated workflow*

To manage the process of collecting product information from multiple sources, passing that data through various departments for enrichment and validation, and syndicating that information to downstream applications, a robust, integrated workflow tool is required. Without this tool there is no way to choreograph and manage the process from end to end, and the NPI initiative will not deliver the expected ROI.

*Validations framework*

To ensure that product information remains accurate and consistent across all applications and systems where it resides, a validations framework is required. It is critical that only product information that has passed through all defined validations is committed to the PIM system. When bad data is allowed to enter the PIM system, it ripples throughout the business and can erode the integrity of the NPI solution. It is critical to select a PIM system that can easily model validations that reflect any type of business requirement, and one that implements these validation rules automatically every time a new item is created or an existing item is updated.

*Data retrieval and import functionality*

PIM solutions should be capable of easily integrating with other applications or solutions responsible for generating product information. These solutions include supplier portals, GDS data pools and other third-party data providers.

*Publication and export functionality*

PIM solutions should be capable of exporting new-item data in multiple transport protocols, and in multiple formats. Retailers' system environments are complex and are often composed of numerous packaged applications and existing systems, and an NPI solution must be capable of integrating with all of these systems and applications.

## Conclusion

New product introduction is a complex process and one that retailers must handle on a daily basis. The consequences of an inefficient, nonstandardized NPI process are significant, and can have a major impact on the bottom line. Inefficient NPI processes delay the introduction of new products to market and give an advantage to more-agile competitors. Inefficient NPI processes also introduce errors into product information. When this bad data cascades to downstream systems, the reliability of forecasting, inventory management and reporting is compromised, and might result in consumer confusion and frustration.

IBM has the opportunity to help address these issues with technology that has been proven to yield results. WebSphere Product Center, IBM's PIM solution, has been implemented at numerous retailers throughout the world to solve this very problem. The IBM Retail New Product Introduction Solution for Product Information Management addresses the root causes of inadequate NPI processes by providing retailers with a best practice workflow and validation schema while leveraging the accurate, reliable and consistent product information sourced from the WebSphere Product Center.

**For more information**

To learn more about IBM's Information Management Solutions, especially other Master Data Management Solutions such as product optimization for multi-channel and single view of customer please visit:

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