How master data management relieves the top 10 pain points in supply chains

How cost savings and revenue generation can easily pay for your MDM implementation

**Executive summary**

The supply chain is a complex set of operations involving many different organizations, suppliers and parts. It includes manufacturing, logistics and fulfillment as well as retailers and consumers of the products. There are many pain points across the supply chain, some of which are specific to the supply chain, while others span across numerous or all industries. Some of these pain points can be related to incorrect or incomplete data used by the business processes. Enterprise information touches so many aspects of the supply chain it becomes imperative that the information used in your business processes and day-to-day operations is of the highest quality possible. The cornerstone of an efficient supply chain begins with complete and accurate product, customer and reference data.

The best way to get high-quality data for your supply chain is by implementing a Master Data Management (MDM) platform. An MDM solution can help your business:

- Ensure proper storage in the warehouse
- Lower transportation costs and emissions
- Reduce last-minute, expensive shipping due to incorrect product information
- Reduce product “road miles,” potential spoilage and returns to the warehouse from deliveries that don’t match orders
- Reduce exceptions
- Facilitate the order-to-cash process
- Ensure customer satisfaction and avoid customer retention issues or negative publicity surrounding the product, brand or company

MDM’s function is to aggregate product, reference, customer and potentially other data from disparate systems. It also performs data-quality processes to merge records and remove duplications, validate the data against business rules and then approve the data through workflows. Trusted data then is available for applications, Service-Oriented Architecture (SOA) services, business processes, and data warehouse and business intelligence systems. Read this white paper for more details on how a MDM strategy and solution can help you resolve many of the pain points in your supply chain and improve business performance as well.
Introduction

The supply chain encompasses many different activities to secure raw materials, manufacture a product, deliver the product to wholesalers and retailers and, ultimately, to the consumer. But along the way, there are also many challenges to overcome:

- What happens when stock-outs occur? Or when the consumer cannot perform effective comparison shopping because different suppliers use different terms and units of measure?
- How can you maintain customer satisfaction, customer retention and the brand image?
- How can a retailer cut costs through volume discounts when they don’t realize that other departments within the company are also ordering from the same supplier?
- What is the best way to manage the materials data used by multiple departments, such as accounting, demand planning, distribution, engineering, materials planning and control, maintenance, purchasing, sales, and storage and warehousing?

The good news is that some of these issues can be resolved with an MDM implementation. While this white paper will not address each and every challenge that the supply chain faces, it will address some of the more important areas where MDM can help.

Supply chain improvement drivers

There are numerous drivers for improving supply chain operations, including:

- Regulatory compliance
- Avoiding out-of-stock conditions
- Meeting Service Level Agreements (SLAs) for deliveries
- Improving visibility across the supply chain
- Merging customer, product and other records from M&A activities
- Improving order-to-cash timeframes
- Reducing costs
- Maintaining corporate social responsibility and sustainability
- Protecting brand image
- Reducing time spent fixing order exceptions

Other examples include faster New Production Introduction (NPI), obtaining that “single view of customer,” squeezing out inefficiencies, better forecasting and inventory control management.

How MDM relieves the top 10 pain points in supply chains

1. Managing materials data

Materials (or item) data is comprised of part numbers, descriptions, specifications, stocking codes and more dimensions. Multiple departments use this data, but rarely do they have a unified approach to managing their materials master data. Procurement sources parts with suppliers, who have their own part numbers and descriptions, while engineers create new parts and assign their own part numbers. This can lead to creating multiple, siloed, non-standardized materials data residing in different systems across the enterprise. Yet, material master data is core data for numerous types of Supply Chain Management (SCM) systems, including those for material requirements planning, supply chain execution and warehouse management.

To resolve this problem, an MDM platform will aggregate and standardize all this data, making a single source of data available to all systems which use this data. Many industries are taking the lead in adopting MDM. According to Ventana Research, industries rapidly adopting materials MDM include discrete manufacturing, process manufacturing, utilities, retail and healthcare providers.

A multi-domain MDM platform allows you to master other data types as well as materials data, such as supplier, customer, product, reference and other subject areas.
2. Inventory management

PWC’s 2013 global supply chain report\(^3\) from a survey of 503 supply chain executives across a wide range of industries over three continents found that inventory reduction was a key differentiating practice of leading companies.

For manufacturers, a centrally managed material master provides a current inventory of parts and materials, which can support inventory management objectives by providing visibility to this data. Without this visibility, it becomes easy to “play it safe” and order more than necessary, or create a new entry for a substitute vendor’s identical part. But this comes at a price.

An Aberdeen report found that overall inventory average carrying costs accounted for 6.3 percent of an organization’s annual sales revenue\(^4\). That’s huge! To reduce this cost, it becomes necessary to optimize inventory management with governed, material master data in an MDM platform.

3. Better forecasting and reducing stock-outs

Two major initiatives in the supply chain are improving forecasting and reducing stock-outs. While they are separate issues, they are also related.

A presentation delivered at the Gartner Supply Chain Executive Conference in 2012 showed that the top obstacle to achieving supply chain goals was forecast accuracy and demand variability\(^5\). Further, AMR Research states: “In 49% of instances an out-of-stock will lead to a lost sale. If stock-outs recur, it will encourage consumers to seek satisfaction from a competitor.”\(^6\) This is certainly a major concern for manufacturers as well as retailers, and one to avoid as much as possible.

Many times, a stock-out problem is the result of inaccurate forecasting. Other times, it may be due to the demand variability issue: the result of external conditions such as competitive measures, the weather or even natural disasters, causing people to buy more of some products and less of others. News stories can also cause panic buying of certain products. These external forces cannot be foreseen, of course, nor can MDM provide any resolution in these situations. But using poor-quality data to make business decisions or forecasts only adds to the problem. This can be greatly improved by using better data from which to perform the analysis, such as the accurate, complete and trusted master data that MDM platforms provide to business intelligence systems. The old adage of “garbage in, garbage out” is certainly true. BI systems are only as good as the data they’re fed.

An Aberdeen Group report states that “Organizations with MDM ... reported that their time-to-information improved by 13% after implementing their MDM system, and time-to-decision likewise improved by over 20%. When looking to improve visibility and get a better handle on managing supply chain information, the first step is to get one’s own house in order: MDM provides the tools to do so.”\(^7\)

4. Obtaining volume discounts (cost reduction)

Many organizations are spending more than necessary by not taking advantage of volume discounts. Yet organizations can’t leverage volume discounts if they are unaware of the other departments that are also using the same vendor.

For example, one department may have a supplier listed as Acer Laboratories Incorporated. Another department may have the same company listed as ALI. They are the same company but who knew? Any potential volume discount pricing would be lost without knowing the connection. An MDM platform would solve this problem by merging these two supplier records into one master record.

Additionally, MDM platforms allow you to import and search through D&B information, such as credit and risk info, relationship info, supplier risk analysis and evaluation scores, enriching your supplier data records with valuable information for future purchasing decisions.

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5 Gartner-Getting The Right Technology for Your Supply Chain Strategy (2012)
5. Dealing effectively with M&A activities
Organizations involved in merger and acquisition (M&A) activity suddenly find that their data issues multiply overnight. As companies are acquired and their various systems and data assets are added to the enterprise, there are questions that need to be answered, such as which system has the best information about customers, products and assets. Having information regarding customers and their products separated by companies (the acquiring company and the acquired company) is less than an ideal situation because you won’t have that complete view of your customer. Plus, you will not have business insight for cross-selling and up-selling opportunities. And, you may be soliciting a customer for a product that they already have.

MDM platforms are designed to resolve these types of issues by performing data-quality processes on all the data and consolidating this information into the MDM hub, or by pointing to the enterprise system where the best data of each subject area resides. Whatever architecture style is employed, the end result is that the best data is identified and delivered to requesting business processes, applications and services to reduce process errors and ensure better performing operations.

MDM platforms give you that “single view of customer” and can facilitate product consolidation into complete product catalogs for your customers.

M&A activities are a primary driver of MDM initiatives. In fact, the keynote address at Gartner’s MDM Summit in 2013 stated that the third-most important MDM business driver is reduced time to value in mergers and acquisitions. This statistic is from a pre-event survey of 140 end-user organizations.8

6. Faster new product introduction
One obstacle to new product introduction is incomplete or inaccurate product data. A common method of transferring product data from the manufacturer to the retailer is by emailing spreadsheets. For some retailers, this is not good enough. They want a standard method of receiving product data, and they want a standardized set of product attributes. Some have even mandated this as a requirement of doing business with them. This helps them:
• Standardize the data they receive
• Ensure common product attributes (e.g., using ounces versus kilograms) to facilitate comparison shopping
• Get products to market faster

MDM platforms can support retailer requirements by employing the same standards. Additionally, through the use of a vendor portal, communication and collaboration between suppliers and manufacturers and manufacturers and retailers can be established to ensure conformity and governed product information changes.

Let’s go back to the manufacturing stage for a moment. Remember the materials master? Being able to reference this data to quickly determine what parts need to be ordered for a new product (versus what’s currently in stock) and identifying the preferred suppliers based on their performance metrics can result in faster product delivery to retailers. The keynote address at Gartner’s MDM Summit in 2013 identified reduced time to market as the fifth-most important MDM business driver.

7. Ensuring regulatory compliance
Some manufacturers are subject to regulatory compliance. In 2012, Canada listed Triclosan, an antibacterial ingredient commonly found in toothpaste, as a toxic under the Canadian Environmental Protection Act.9 Should this result in a ban of this component, it could affect all companies who sell products containing this ingredient to Canada.

Maintaining a list of forbidden components by country and comparing it to their materials master can help companies determine where the manufactured product can legally be sold, potentially avoiding fines and negative publicity toward the brand and company name. Such lists are called reference data and are commonly mastered similarly to other types of data in MDM platforms. The keynote address at Gartner’s MDM Summit in 2013 identified regulatory compliance as the sixth-most important MDM business driver.

8. Single view of customer

Establishing a single view of your customer is a common problem for most industries since customer information resides in ERP systems as well as in systems for order entry, customer support, Customer Relationship Management (CRM), fulfillment, and logistics. Pieces of information are in each system, yet there is not one system where all information resides. This makes obtaining comprehensive and complete information for your business processes and day-to-day operations a challenge.

Think about what happens when a customer goes online and updates his address when placing a new order in the order entry system. If that new address isn’t propagated to the shipping system, it will be delivered to the customer’s previous address. When that occurs, you have a potentially dissatisfied customer, and a process exception that must be dealt with immediately to ship the items to the new address, hopefully avoiding a customer retention issue. Plus, there’s the added expense of re-shipping and reverse logistics associated with the first shipment. It’s far better to get this right the first time.

Additionally, having that single view of the customer, and knowing what products they have provides insight for additional sales opportunities. You are probably familiar with Amazon.com’s upsell strategy, “people who bought this also bought,” which quite effectively increases average order size. Linking customers with potential products of interest and obtaining that “single view of customer” is easy with MDM platforms.

9. Reducing time spent fixing order and process exceptions

This is a major concern for the supply chain. To solve this problem, you have to look into the reason(s) for the exceptions. Something went awry. What was it and how can you avoid it from happening again in the future?

There are many types of order and process problems leading to exceptions. These include invoicing errors, orders with incorrect part numbers or ordering products that are no longer available and are now obsolete, orders and deliveries that don’t match, products out of stock, and manufacturing parts not available in sufficient quantities to name a few. In all of these cases, the problem may be traced back to faulty data—invoicing data, inventory data, product data, materials data, and customer data—all data that can be mastered to reduce order and process exceptions in the supply chain.

Reference data can also come into play here. For example, payment from an invoice could be interrupted if the currency conversion is not correct in the invoice. Perhaps an obsolete version of the exchange rates was used. MDM platforms resolve this by versioning the existing reference data and replacing it with updated reference data when it becomes available. This updated data is now available to other enterprise systems, such as the billing system.

10. Maximizing warehousing and logistics

Inaccurate product information in warehousing can have negative effects. Warehousing efficiency relies on accurate case and pallet information and dimensions, among other things. When this data is not accurate, the warehouse either wastes valuable space or is suddenly over capacity.

Consider what happens when the case strength is incorrect. Let’s use the example of bottled water. The plastic containers used to be thicker and stronger. So, to stack them without damaging them, either the case packaging or the pallet structure must accommodate the reduced strength of the product itself. This leads to questions: Is this change correctly documented in the product information? And, what about incorrect dimensions or product packaging? Those can affect the number of cases or pallets that can be stored in a given area.

Another consideration is how incorrect labeling affects food products. If it is not clear that temperature controlled storage is required, product spoilage and related losses can easily occur. The Supermarket News 10, April 26, 2010 edition reported, “Each year in the U.S., food borne illness affects 76 million people, leading to 300,000 hospitalizations and 5,000 deaths, according to the U.S. Food & Drug Administration estimates.” How much of this can be attributed to incorrect storage due to inaccurate product information?

Hazardous materials must be labeled, handled, and stored properly, to prevent accidents and injuries. Again, this comes back to accurate product information, a topic easily mastered in MDM platforms.

Warehousing efficiency relies on accurate case and pallet information and dimensions, among other things.

In MDM, data is commonly aggregated from back-office systems into a centralized repository.

10 The Supermarket News, April 26, 2010 edition, article: Rebuilding Safety
The same session at the 2012 Gartner supply chain conference mentioned previously also listed transportation or logistics constraints, performance or costs as a top obstacle to achieving supply chain goals.

Inaccurate product information can easily impact transportation costs. If dimensional data is overstated, trucks may not be fully loaded resulting in extra deliveries, unnecessary delays, costs and emissions. Alternatively, if the truck is overweight due to incorrect product information, the driver may face fines when stopped at weigh stations. This is a particular problem that a large northeast U.S. grocery chain identified as a primary concern to rectify at the 2010 UConnect conference.

Food miles are another concern. These are the cumulative miles that food travels from production to consumer. Incorrect orders mean returning the product to the warehouse which reduces the product’s life and adds to transportation costs. In another case, when there isn’t enough of the product delivered to meet the order requirements, an expedited delivery must be initiated to meet the buyer’s needs. Using air freight increases costs and emissions. It is easy to see that it is far better to have the order correct and shipped optimally the first time.

**Overview of MDM platforms**

By now, it should be apparent how having complete and accurate materials, product, reference and customer information facilitates the supply chain and resolves many costly problems. In this section, let’s investigate what MDM platforms do and how they work.

First, MDM platforms foster collaboration, yet provide data governance with security measures. Depending on his role in the organization, each user has the appropriate access level to allow them to add, edit, review or approve product information. This information, including product packaging, fair trade & corporate information, can be changed quickly and synchronized within the enterprise and externally with trading partners.

Workflows, as part of the MDM platform, govern users, data and business processes related to the life cycle of the data. For example, as each department verifies or edits product information in a new product introduction scenario, the workflow engine alerts each person assigned in the workflow when he or she has a task to perform at the appropriate step in the progression. And as business processes or condition change, the workflow can easily be changed accordingly.

In MDM, data is commonly aggregated from back-office systems into a centralized repository. Each specialty system contains some amount of data related to product information. It all comes together in the MDM hub and is validated against industry standards and company-specific business rules before becoming your master data. Once the data is validated, it can be shared between suppliers and retailers, ensuring consistency of data which facilitates supply chain operations. One of the ways that this data is exchanged is through the Global Data Synchronization Network (GDSN). The GDSN is a method of sharing one source of standardized data between manufacturers and retailers, common in new product introduction.

Multi-domain MDM platforms provide additional data in the form of relationships data between data domains. This is very valuable information, indeed. It is beneficial to know what products a particular customer has and which customers have a particular product. This provides cross-selling and up-selling opportunities as well as an easy way to alert affected customers in the event of a product defect or recall.

From a business standpoint, one area where MDM platforms help is with comparison shopping. Going online to see one product’s weight in kilograms, and another in ounces, doesn’t help the consumer make an informed choice. MDM platforms “normalize” or standardize data to ensure that all units of measure and abbreviations are the same. So for another example, “Street,” “street” and “ST.” would all become standardized to the needs of the organization by applying business rules during the data quality operations as new data is entered.
Advantages of webMethods OneData

webMethods OneData, the MDM software from Software AG, provides all the benefits you’d expect and more. It is a true multi-domain platform, able to master any type of data, as evidenced by numerous customer use cases.

While some MDM vendors provide separate platforms to master different domains, such as one for mastering customer data, another for mastering product data, and yet another for mastering reference data, OneData provides the capabilities to master all data domains in a single product, and in a single instance of the product. This lowers your TCO, and reduces training and support requirements.

OneData imports and exports data using industry-standard technologies. ARIS data models, and those of CASE tools, can easily be imported into OneData, saving time while keeping your business models intact. Plus, since there are no proprietary data structures, the data in the repository is readily accessible to third-party tools.

One differentiator is that OneData can actually master data residing in other databases as if it was inside the OneData database.

OneData is interoperable with other enterprise systems, such as a business process management suite, enterprise service bus, SOA CRM and ERP system, including SAP® environments. Most, if not all of Software AG MDM customers have integrated OneData into their enterprise infrastructure. For the benefit of those in the field, data can be accessed with Apple® iPads® in addition to laptops, desktops, email links, and website and application portlets. There are many channels with which to view master data, which is why Software AG refers to OneData as “The Trusted Data Everywhere MDM Platform.”

Next steps

In this paper we’ve investigated some of the business issues, drivers and pain points related to the supply chain and how an MDM platform can help to resolve some of them. With the many opportunities to reduce costs or maximize revenue, the cost of implementing MDM can generate significant ROI depending on the size of your operation. MDM initiatives are often the result of the realization that business processes, including those of the supply chain, are reliant on complete and accurate information to improve efficiency and reduce process exceptions.

But it is important to note that an MDM initiative is only part of the solution. Organizations truly committed to facilitating their supply chain also should put policies and procedures on operational processes in place as there is a human factor to all of this as well. This will help you to progress to the Gartner Stage 4, or the orchestration maturity level, in which resources up and down the organization are fully aligned and in sync.

Inaccuracies in product, materials, supplier and customer data can cause waste and inefficiencies in the supply chain. See how MDM can help. Ask your Software AG representative for an analysis of how the webMethods OneData MDM solution can contribute to your company’s sustainability and performance by eliminating these inaccuracies to reduce waste and save money.
About the author
Rob Rowe has 20+ years in technology, including roles in engineering, education, IT, customer account management, as well as marketing management for Software AG’s master data management offering. Rob is currently the product marketing manager for Software AG’s API management and SOA governance products. Rob was awarded U.S. patent #6314482 for his software development at a previous place of employment.