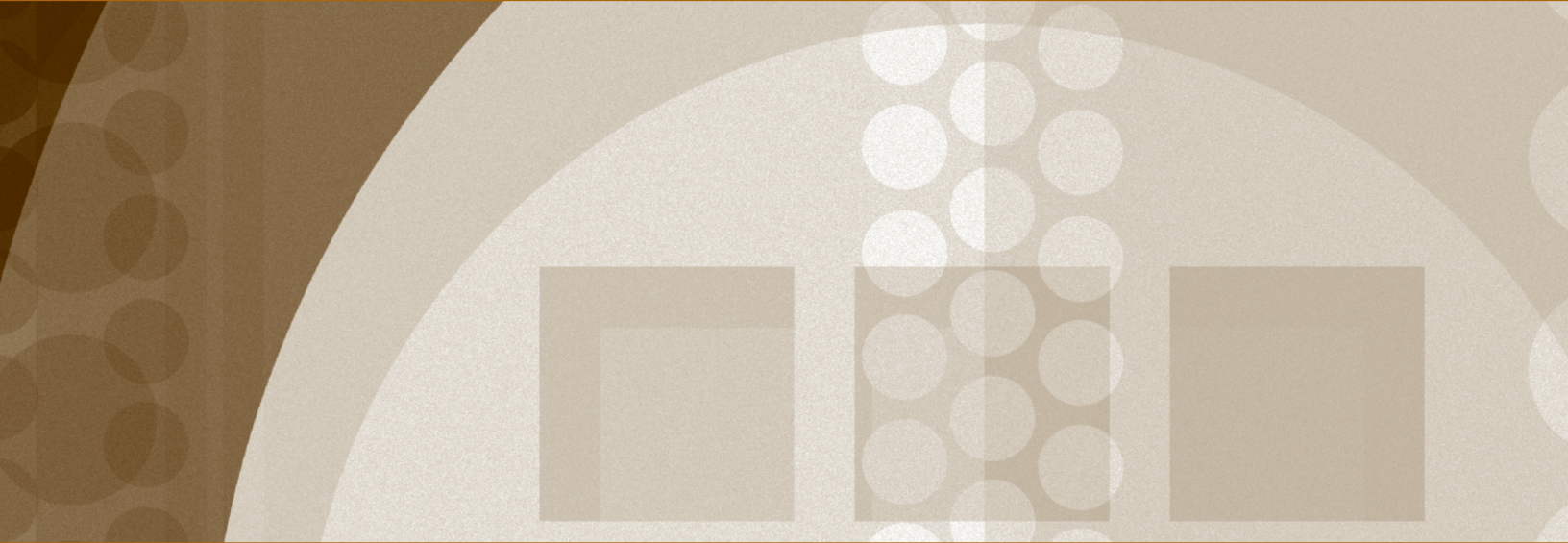


MDM Strategies for Enterprise Applications

by Bill Swanton, John Hagerty, and Lora Cecere



Most master data management (MDM) case studies focus on industries dominated by custom software, such as financial services and telecom. Managing master data in an environment centered on packaged enterprise applications requires data stewardship and company-specific tactics that match the application landscape. Companies also risk outstripping their vendors' abilities, since they are still perfecting their capabilities.

Acronyms and Initialisms

ATP	Available to promise	ETL	Extraction, transformation, and loading
B2B	Business to business	MDM	Master data management
BI	Business intelligence	MRO	Maintenance, repair, and overhaul
CDI	Customer data integration	R&D	Research and development
COE	Center of excellence	PIM	Product information management
COTS	Commercial off the shelf	PLM	Product lifecycle management
CRM	Customer relationship management	PM	Performance management
EAM	Enterprise asset management	SCM	Supply chain management
EPM	Enterprise performance management	SFA	Sales force automation
ERP	Enterprise resource planning	SOA	Service-oriented architecture

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Managing master data in an environment centered on enterprise applications requires data stewardship and company-specific tactics to match the application landscape.

The
Bottom
Line

Executive Summary

Most master data management (MDM) case studies target service industries that are dominated by custom software. Managing master data in an environment centered on packaged enterprise applications requires a different mindset. A major difference between leaders and laggards is knowing the importance of MDM to a larger strategy. As companies become more global with increasingly heterogeneous systems, MDM grows in importance.

This Report lays out a prescriptive set of advice for approaching MDM. It starts with understanding the issues and gaining consensus on a plan, then layering on the next sequential decisions or special cases that would change your strategy. Specifically we get into the following:

- MDM in an enterprise application environment emphasizes data stewardship over collect, rationalize, and publish.
- There is no magic bullet—develop an MDM framework and implement opportunistically.
- Don't expect to build Rome in a day—an incremental approach is required.
- Manage centrally, but distribute work and accountability to the business.
- A single global instance simplifies MDM.
- More complex system landscapes create many complications and options.
- Take advantage of business intelligence (BI) and data warehouse investments.
- Single vendors for multiple MDM needs are emerging.

Most companies spend several years putting an initial MDM process in place for all types of master data, and then years afterward tightening up data quality and reducing the operating cost of the process. Your plan should reflect this long-term perspective and take into account that the vendors are still evolving their capabilities, creating the risk that you will outstrip their capabilities.

Defining master data management

MDM is a system of business processes and technology components that ensures information about business objects, such as materials, products, employees, customers, suppliers, and assets. It is current, consistent, and accurate, whether used inside or exchanged outside the enterprise.

MDM in an enterprise application environment emphasizes data stewardship over collect, rationalize, and publish

Most MDM case studies come from the services industries, especially financial services, telecommunications, and energy. Their reliance on custom software and unique integration between departmental systems offers a unique customer experience or cross-selling opportunity, which is what sets a service company apart. Because the systems can service millions of customers, custom software and integration have enough leverage to be economically viable.

This is a far cry from the commercial-off-the-shelf (COTS) approach most manufacturers and retailers favor. Two enterprise application trends have swept through these industries:

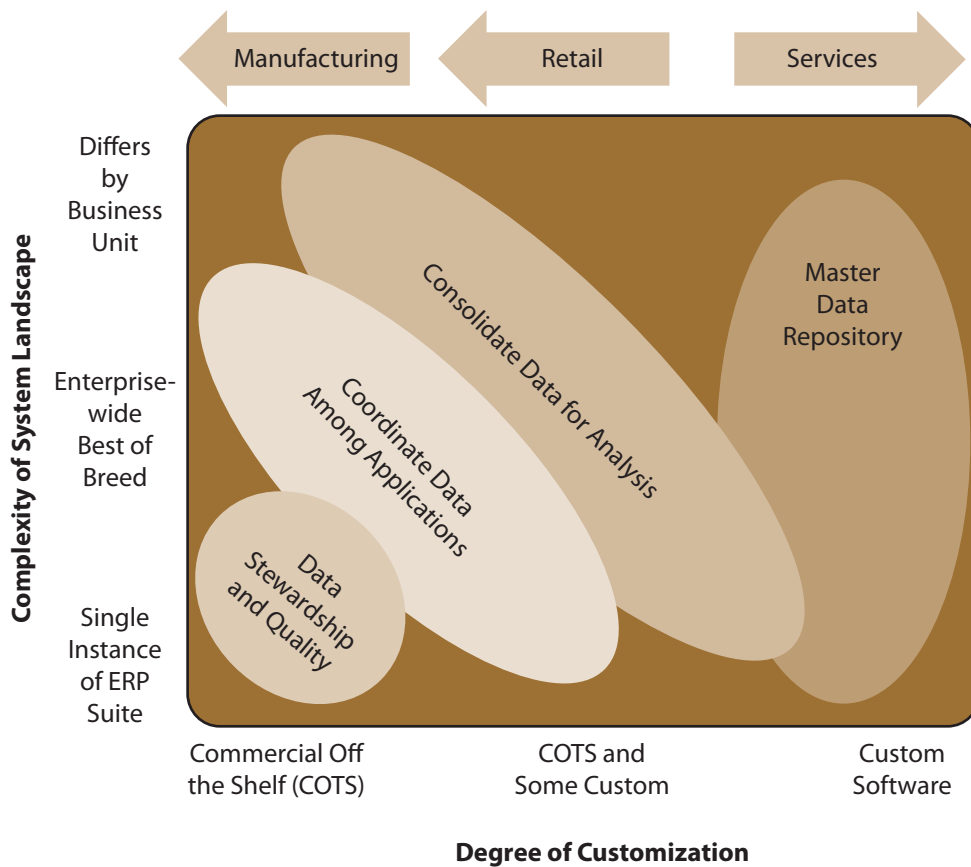
- **Application rationalization**—Manufacturing companies are reducing their number of software applications and vendors, a trend that led to the explosive growth of ERP suites in the late 1990s. CIOs hope to cut their integration bill by buying as much as possible from one vendor. Retail companies are doing the same, thus the consolidation of the retail software market mostly into the hands of **SAP** and **Oracle**.
- **ERP consolidation**—As we described in “Justifying ERP Instance Consolidation Requires a Strategic Business Goal,” companies are also consolidating into a single global instance—or at least regional cookie-cutter instances—to better serve global customers and capitalize on commonality among business units and geographies. The value comes from taking advantage of common customers, suppliers, materials, and business processes. Distinction in the market usually comes from product innovation and improved supply chains.

The goals of MDM efforts depend on your system landscape and software customization (see Figure 1). Starting in the lower left, the needs change as the complexity increases in each of these dimensions:

- In landscapes with more best-of-breed applications, MDM needs will grow beyond data stewardship and quality, requiring more application synchronization.

- More complex system landscapes are common in conglomerates and holding companies that cannot practically consolidate on one system. Here the goal is harmonizing data and some high-level stewardship of coding and hierarchies to facilitate analytics for business intelligence and data warehousing. For example, product categories may need to be harmonized across business units to facilitate product profitability analysis.
- In a heavy custom software environment, however, companies are pulling master data out of applications and creating single master data repositories used by all applications. This is very difficult to do in a landscape dominated by enterprise applications because each application assumes it owns the master data.

Figure 1: Master data management use cases in manufacturing and retail



Source: AMR Research, 2007

There is no magic bullet—develop your MDM framework and implement opportunistically

You may face a combination of needs. For example, supply chain operations may be consolidated on a single ERP system, while multiple customer-facing systems for sales, service, and the web still must be coordinated. Each company must pull together a plan that fits, covering the three major components of AMR Research's master data management framework (see Figure 2):

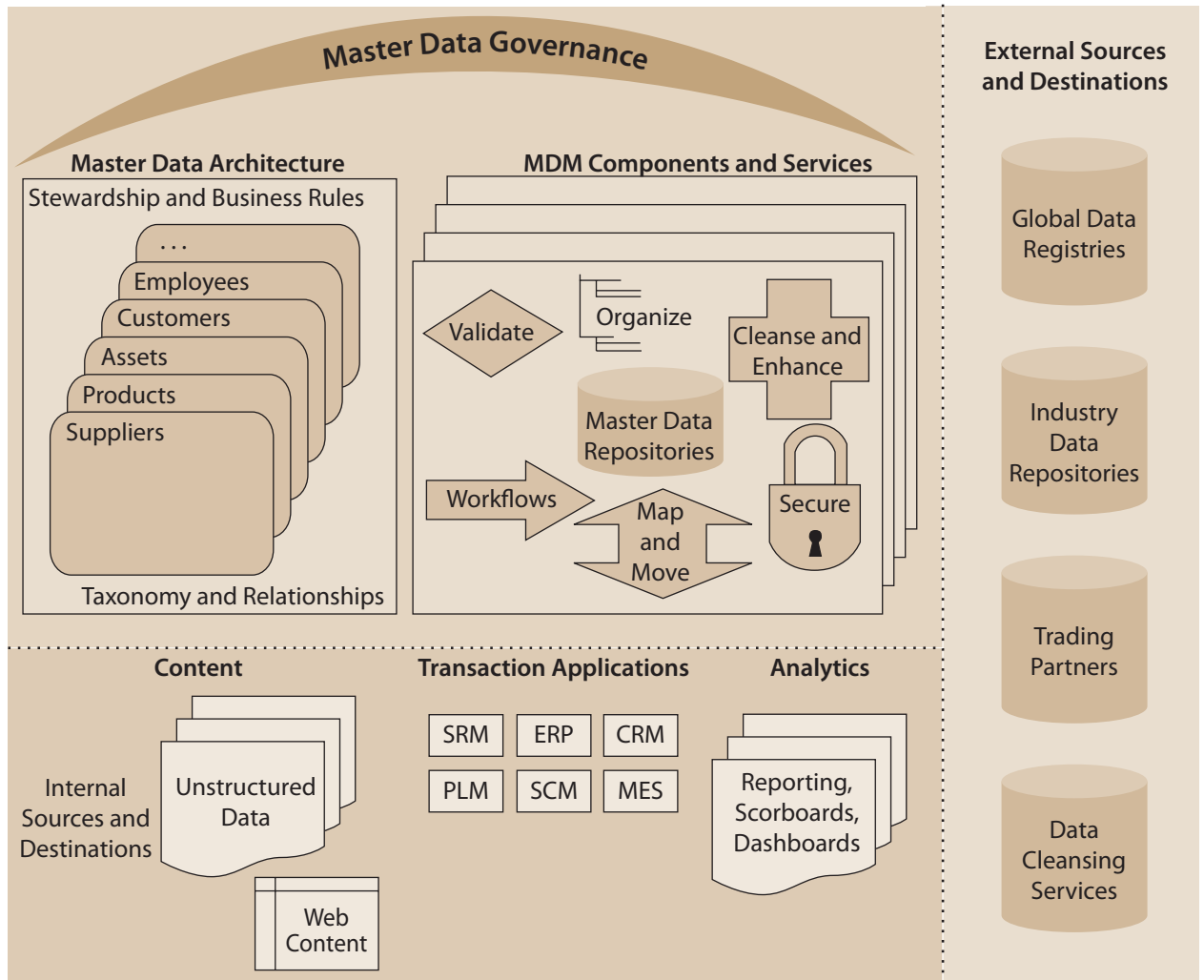
- **Master data governance**—Here you establish a process for deciding the business rules for master data and responsibility for data accuracy. We'll touch on this with the organizational issues below.
- **Master data architecture**—This is the technical description of the data elements, business rules, and responsibility by organization for each element. In most companies, this has been a hodgepodge of partial specs, operating procedures, and tribal knowledge. Your MDM efforts need to document this formally so that it can be the basis of your implementation.
- **MDM components and services**—This is the technical implementation of your architecture, using MDM products, data tools, and services. The exact complement will be unique to your company and depend on your master data architecture, applications landscape, and existing investments in data integration tools.

Don't get hung up on the tools—they are usually the least of the problems. Several clients that have been through the process estimate the relative effort to be as follows:

- 10%—MDM software implementation
- 40%—Establishing governance and documenting the master data architecture
- 50%—Data remediation (for example, cleaning up existing data to meet the newly codified rules, running down discrepancies, and filling in missing information)

The details of the framework and the business case for MDM are described in more detail in “Master Data Management Framework: Begin With an End in Mind.”

Figure 2: Master data management framework



Source: AMR Research, 2007

Six reasons why an MDM strategy matters

A major difference between leaders and laggards is knowing the importance of MDM to a larger strategy. As companies become more global with increasingly heterogeneous systems, MDM grows in importance. While the MDM project may start as an isolated initiative, we find that it plays a major role in process improvement in multiple areas. Here are six of the most frequent:

- **Connectivity**—B2B connectivity in networks reduces demand latency.
- **Improving customer service**—Order processing efficiency, allocation, and available-to-promise (ATP) strategies require clean customer data. Since sales, marketing, and customer service require data with different context, many packaged application vendors have evolved concepts of customer data hubs.
- **Plan globally to enable operational excellence at a local level**—MDM is vital infrastructure for planning as well as managing the handoff of requirements for source, make, deliver, and return processes. As a result, MDM business ownership is frequently found in the supply chain center of excellence.
- **Product development and commercialization**—Underlying the ability to reduce time to market and improve new product launch effectiveness is a robust MDM strategy. Because manufacturing, procurement, and R&D require the same data with different contexts, many vendors have evolved product data hubs.
- **Supplier development and supply rationalization**—As design and supply networks merge, MDM is essential to tender requests for proposals and connect multivariant bid optimization results to update material masters.
- **Quality**—This area concerns the infrastructure in improving conformance in global systems, including the sharing of specifications in supplier development programs.

Don't expect to build Rome in a day—an incremental approach is required

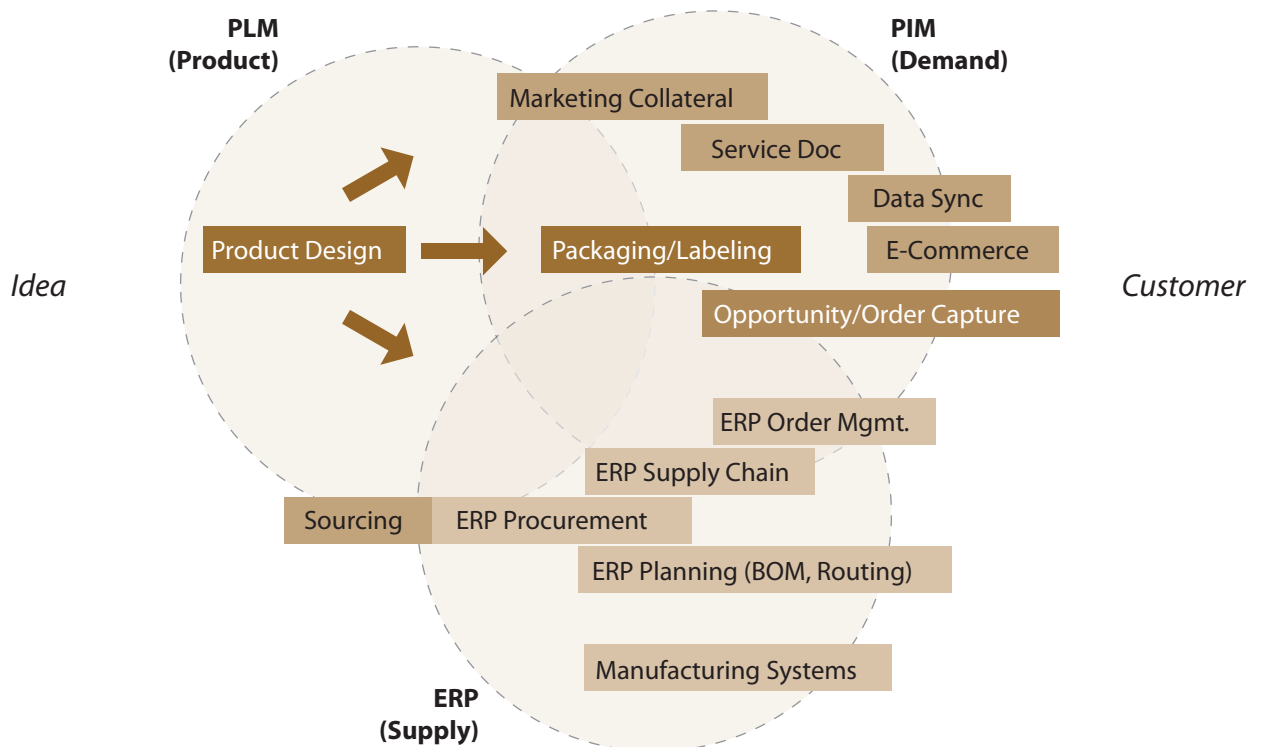
MDM is a major process undertaking that stretches the length of your corporation and often far into your suppliers and customers as well. The political and governance issues can be insurmountable within a single organization, let alone the whole company. One master data area that epitomizes this issue is saleable products. We have yet to see a company that manages all this data with a single system. Instead, as shown in Figure 3, product information is managed in three spheres of influence:

- **Product**—Your PLM system should already be managing the engineering release process, which will trigger other master data efforts.
- **Supply**—ERP suites are at the core of these processes, which lends itself to the single instance approaches described below.
- **Demand**—Many consumer goods manufacturers have implemented product information management (PIM) systems to support retailer-mandated data synchronization programs or web content management.

Each of these efforts is a large undertaking unlikely to be redirected by your MDM project. In fact, your project is most likely built on one of these three areas. The most practical approach is to identify the touchpoints between these systems as part of your master data architecture and the events, such as an engineering release, that trigger a handoff from one to the other.

These product data issues are described more fully in “Accelerating Product Launch With Master Data Management.”

Figure 3: MDM coordination points for saleable products

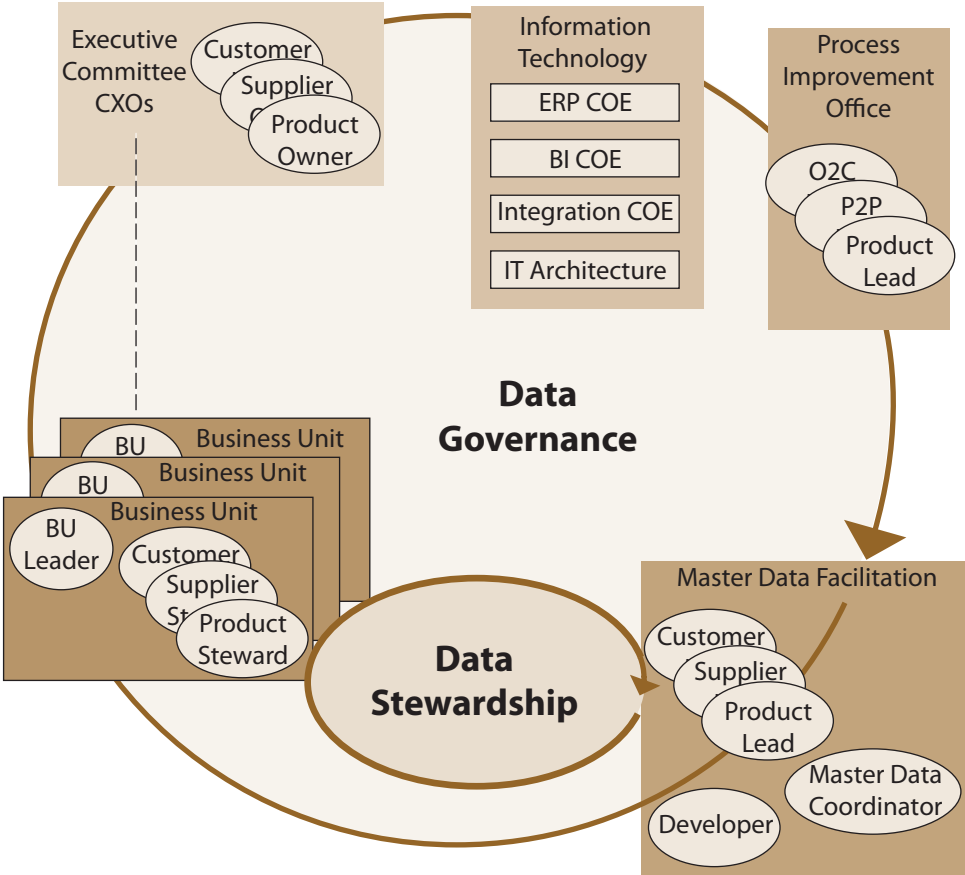


Source: AMR Research, 2007

Manage centrally, but distribute work and accountability to the business

Most practitioners struggle with governance and the organization as they try to raise awareness of MDM in their companies. (Warning: success may vary depending on your company’s political environment and culture.) As shown in Figure 4, two concentric MDM business processes are defined across the organization: data governance and data stewardship. Get senior executives on board, and then establish a data facilitation group.

Figure 4: Organizing for master data management



Source: AMR Research, 2007

Tone from the top to assign responsibility

MDM may not be at the top of most business executives' agendas, but it's vital to success in most of the following strategic programs:

- ERP consolidation, strategic sourcing, one face to the customer, and continuous improvement
- Compliance programs, especially when ensuring revenue and customers are properly classified
- Enterprise performance management (EPM), since dashboards are only reliable and used by managers if the data is clean and consistent

The business needs to be responsible for data quality, but it won't be a top priority unless corporate leaders believe it is important. Once you accomplish the tough task of selling the top leaders on the importance of MDM and data quality, those leaders need to do the following:

- Assign a senior executive for each type of master data to be the data owner. For example, the SVP of sales and marketing might be assigned responsibility for customer data. Their job is to deal with organizational issues raised by the master data governance process, resolve escalated issues if necessary, and take ultimate responsibility for the governance process, but delegate the day to day activities to the team.
- Include data quality metrics in everyone's objectives. Take the emotion out of data quality problems by assigning targets and holding people responsible. The metrics flow down through the organization, but business unit leaders should be held ultimately responsible.

Establish concentric business processes for data governance and data stewardship

In addition to involving the management team, create a cross-functional team for each data type to implement the governance process and create and approve the data architecture. This includes everyone affected by master data:

- Data owners from the ranks of executives, as described above
- IT representation from various ERP, integration, and BI centers of excellence (COEs) or IT architecture
- A business process lead or subject matter expert from your process improvement group (as described in "ERP Benefits Realization Framework: Metrics and Organization Aligned With Business Processes"). For example, the process lead for order to cash might represent her group in the governance council for customers

- An overall master data coordinator and a master data lead for each of the major data types, as described below
- Data stewards in each organization or business unit that are ultimately responsible for data quality on a daily basis

In many organizations, people wear many hats. For example, the business process leads might also do double duty as master data leads. For the data stewardship process, data stewards and master data leads work together to keep the master data accurate.

Use central MDM facilitation, not control

Most companies need an MDM group as they centralize their IT applications. As noted earlier, data quality is the responsibility of the business, but it can be facilitated by a central group. The goal is to do the following:

- Provide tools, such as workflow, that speed changes to master data originated anywhere in a global organization while ensuring data quality is maintained.
- Measure data quality and report the metrics to all levels of the business.
- Create tools to sift through corporate data, identify problems, and get them resolved.

This group is never large, not even in multibillion-dollar enterprises. 6 to 10 people may be all that is required. Note that none of these people should be doing data entry. Their job is to make sure the governance process is followed and automate as much of the work as possible. There are three primary roles required. The actual titles should be picked to establish the right level of seniority needed to get the job done in your company:

- **Master data coordinator**—This person manages the group and leads the master data governance process for the corporation, working closely to educate the business on MDM issues and helping establish the master data quality metrics and targets. Deeply involved with all corporate and IT projects that depend on master data quality, the master data coordinator becomes the expert in the data issues across systems.
- **Master data lead**—Typically one person per major data type (such as customer, product, supplier/material, etc.), these people do the day-to-day work of monitoring quality and making sure different employees in the workflow are responding in a timely manner. The master data lead intervenes with the business as necessary to resolve problems and participate in projects involving the data type. This person has day-to-day responsibility for publishing metrics and specifying any tools required to automate the process.

- **Developer**—MDM tools tend to be quite dynamic. Every day someone finds a new type of data problem, as the company introduces new products or changes the organization and business strategy. Automation of the process keeps costs low. Dedicated developers that can configure workflows, business rules, and write data analysis scripts are critical.

The exact location of the MDM organization is less important than ensuring its role to clearly defined as facilitating, but not doing the process. Some companies choose to put MDM in the business side to reinforce business responsibility for the data, creating separate customer, product, and supplier/materials responsibility into their respective business organizations.

IT is the most common location, especially when the master data issues are closely tied to a major systems initiative. ERP or BI COEs are a favorite home, while integration COEs are a possibility because of a need for similar skills. While the IT architecture group is a good fit for long-term governance issues, it may not have the same day-to-day management role that MDM requires.

Tap existing knowledge in the company

Since companies have been fighting master data issues since first days of business computers, groups have probably already started down this path. They will have already documented much of the existing data, developed hierarchies and business rules, and developed some software support for part of the problem. The most common sources are narrower business projects within a department:

- Strategic sourcing and enterprise application management (EAM) project initiatives for vendor and purchased items and commodity codes
- PLM and PIM projects for products and product hierarchies
- CRM projects for customers, often targeted at sharing customer data between sales, back office, and service
- Financial reporting or BI projects for organizational hierarchies

A single global instance simplifies MDM

Large global companies with single instances of ERP quickly realize the following three things:

- Hundreds of business people need to be involved in creating master data.
- High data quality is necessary to make ERP work, and elimination of redundant data is necessary to capitalize on the company's global clout.
- If the process is too bureaucratic, it will consume enormous amounts of time and money while slowing down product launches and process improvements by months.

Automation is necessary, but the basic ERP vendor assumption is that one person types in all the data about an object on multitabbed screens. The buyer is left to use low-level configuration and customizations to do the following:

- Route the work and control access at a field level for the 10 or more different roles across manufacturing, procurement, engineering, regulatory affairs, and supply chain that are often involved.
- Validate that business-specific rules are followed in addition to the minimum requirements of the ERP software, typically a total of 2 to 300 rules.

Workflow and data analytics to the rescue

Whether you buy it or build it, the following four items are needed:

- **Data migration and consolidation**—Clean up data from legacy systems, add new information needed by the more sophisticated ERP suite, and harmonize the data to eliminate redundancy.
- **Item creation workflow**—Route the work among the different specialists that create and approve the items, and enforce business rules about data.
- **Data quality monitoring**—Constantly check data quality against business rules, flagging errors or inconsistencies and calculating quality metrics.
- **Error resolution workflow**—Route errors to responsible staff for follow-up and correction.

As already discussed, these tools make it possible for a small central staff to coordinate master data in a multibillion-dollar company.

Many IT staffs have built such tools as part of their projects. One of the most common approaches is to build an external workflow application on a tool already in use, such as **IBM's** Lotus Notes. While the workflow is easy, a large amount of custom programming is necessary to integrate it to the ERP system, and most companies do not fully automate the process. For a COTS solution, you should evaluate your ERP vendor's capabilities and also consider third-party products described below.

Oracle builds in data stewardship, SAP struggles with separate MDM product

The capabilities of the two major ERP suites are strikingly different:

- Oracle has built data stewardship with its Data Librarian modules for product and customer data. These are an offshoot of its Product and Customer Data Hubs that can be implemented as a standalone MDM system to coordinate data in multiple applications, but are actually just the same data models as the EBS item/product and customer masters. The data models are also extensible, allowing users to add data elements not needed by EBS. The Data Librarians can be configured to add workflow, role-specific views, and data quality checks for either a standalone hub or one within EBS. They will also become a vital part of Oracle's EBS to Siebel and Retek integration strategies. In the long term, both will be the core of the Fusion Applications MDM, inheriting many of the unique capabilities offered by the various Siebel data hubs. Oracle EBS users should evaluate these tools, especially if they are implementing R12.
- SAP's MDM product was an acquired PIM product, and the company has been building it out to a broader system. The mindset of the tool is to collect and harmonize data, not to provide primary master data stewardship and workflow. But the recent SP4 release is starting to close the gap, with better workflow and web services. It's also starting to add customer matching capability. A few very large companies are now starting to build out MDM applications with extensive workflow and data stewardship, but so far these are pilots that require significant development resources from SAP or service providers.

In summary, Oracle EBS companies have a viable alternative from their vendor. SAP companies should also evaluate third-party providers at this time.

Small fledgling market evolving out of other ERP needs

A few service providers are starting to package MDM tools for SAP and Oracle as products, albeit one that still requires client-specific services. As shown in Figure 5, they usually specialize in one of the major vendors, though most profess expansion plans for other vendors and multivendor environments. The differences are based on their histories and what they were doing when the MDM opportunity was recognized.

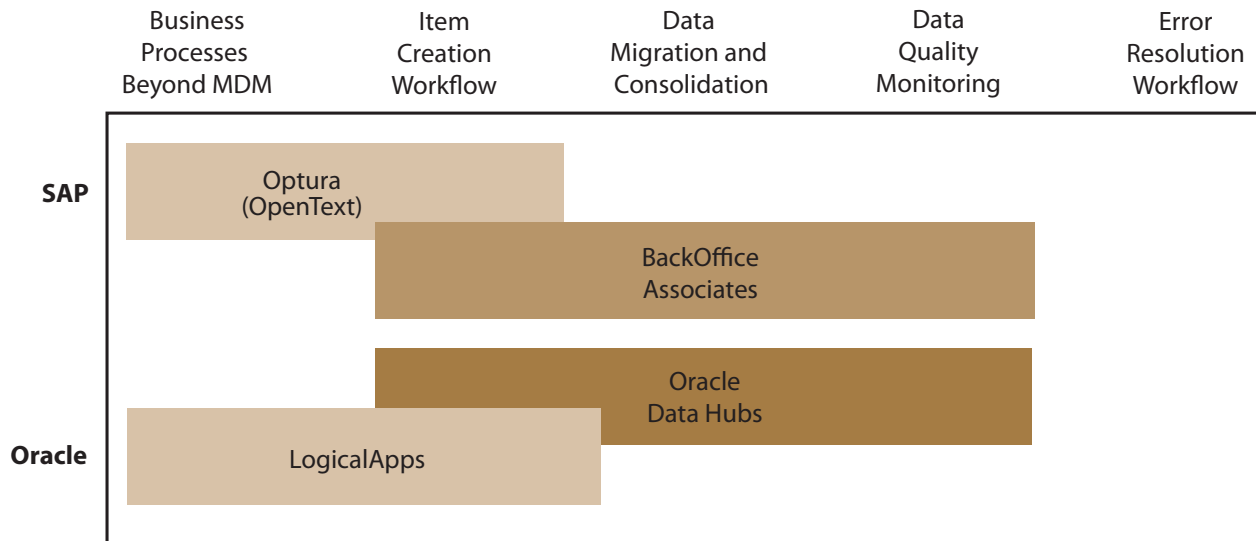
Consider the following examples:

- **LogicalApps**—Focusing on the Oracle EBS market, the company provides tools for configuring user interface customizations on Oracle for role-specific views and security. Its tool automatically generates the form and workflow to enforce business rules so that it can be reapplied after upgrades. LogicalApps has packaged up standard templates for common needs such as security administration, Sarbanes-Oxley financial controls, and now master data.

- **Optura** (an **OpenText** company)—This provider builds standard workflows using SAP tools for common problems, such as accounts payable imaging and approval. It concentrated on the item creation side, with its clients experiencing fewer data quality problems because they get the data right the first time.
- **BackOffice Associates**—A service provider with a long history in the ERP business, BackOffice Associates has been providing data migration and cleanup services for years, with a concentration on the large SAP market. After helping with cleanup, clients started asking for tools to help ongoing change and maintenance of master data. The company has tools for business rules and workflow that are targeted at business analysts, and has been investing in packaging standard capabilities. It covers the widest range of functionality of any of the companies we evaluated.
- **Zynapse**—A division of **Zycus**, the company recently extended Zycus spend data management used for data harmonization and analytics with an onsite data stewardship application for maintenance, repair, and overhaul (MRO) items and vendors.

None of these companies are huge, but their MDM businesses have been growing quickly. Services are generally more costly than the price of licenses, but each is trying to bring this down with more prepackaged abilities. While you can develop this internally, the packaged systems described here are reaching the point where they can be implemented quickly. They also should be easier to maintain in the long term.

Figure 5: ERP MDM workflow accessories



Vendors focus on supply MDM (supplier, materials, BOM, routing, and finished goods).

Source: AMR Research, 2007

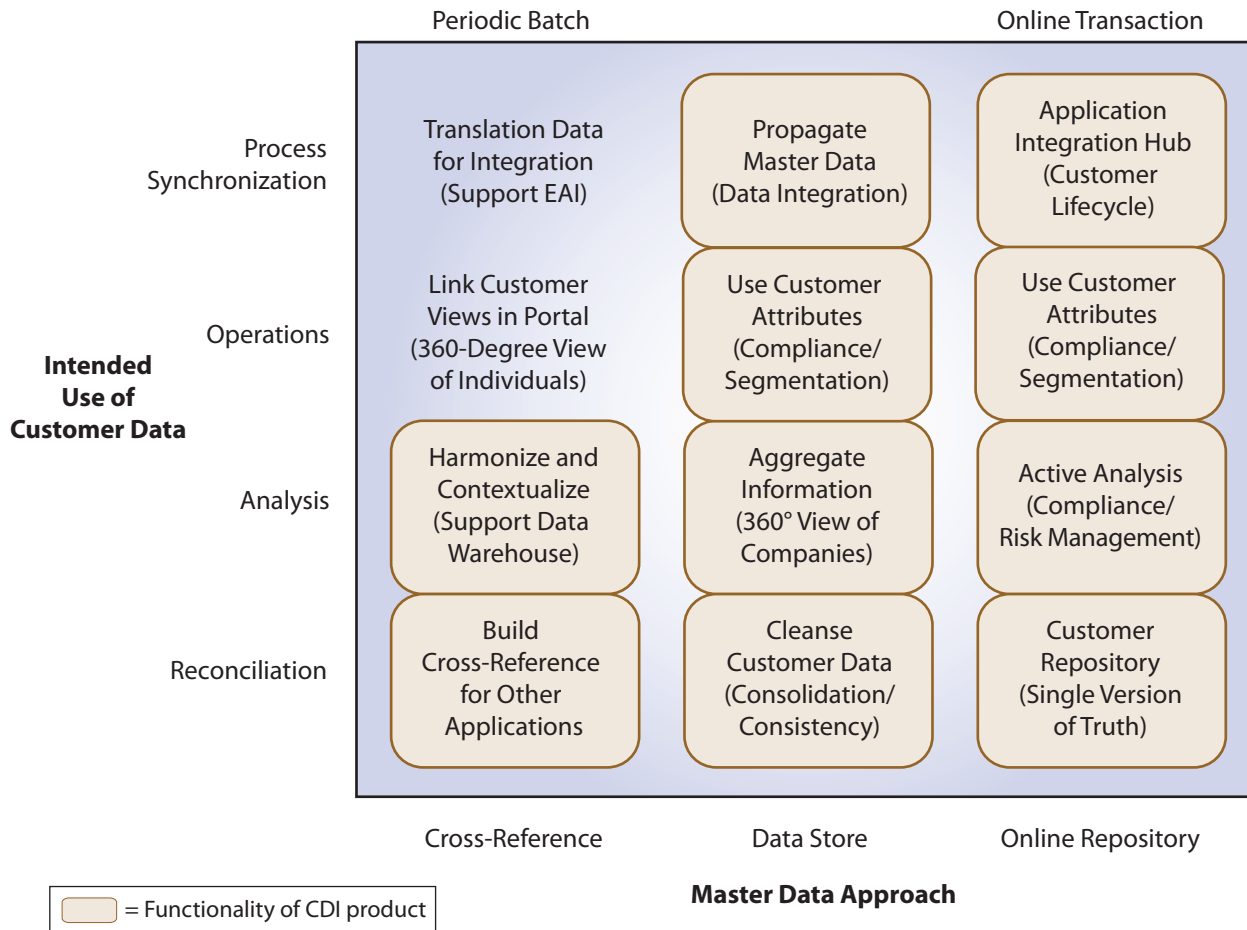
More complex system landscapes create many complications and options

Companies with a complex system landscape invariably have duplicate data in many places. Unless replacing or consolidating these systems in the short term, you need an MDM strategy that will support the complex landscape as it evolves.

With the following five approaches, you can use different ones for different data types:

- **Collect, rationalize, and publish**—While not adequate for master data used in operational systems, it works for situations, such as saleable products, where information can be brought together from many systems into a PIM system. The information is then published to downstream systems and partners in a controlled manner.
- **Cross-reference**—Settle for the ability to cross-reference data, but not absolutely control it. As shown in the left column of Figure 6, this is a common approach for customer data integration (CDI) where companies are satisfied with getting a single view of the customer. (Figure 6 is described in more detail in the three CDI articles listed in Appendix A.)
- **Data hub**—Maintain a master data store or hub and use batch or real-time data integration to propagate the data to other systems. An approach used in CDI (middle column of Figure 6), it's also common for strategic sourcing cases where the vendor and item masters are maintained centrally, with each divisional or plant ERP or EAM system updated from it as changes are made. The best practice is to shut off the ability to create new items on the target systems and only allow attributes not available in the hub to be added or modified. For example, the vendor, part number, description, and commodity code of a repair part might be maintained centrally, but each plant would set its own target inventory in its own system.
- **Point to point**—Rather than creating a central data store, information is passed from system to system at specific points of its lifecycle (Figure 3 shows this for product information). For customer information, the customer might be created in a sales force automation (SFA) system as a prospect, and then passed to ERP and support systems when they buy. Note that data stores or hubs can do the same thing and are more flexible when the systems landscape changes than point-to-point integration.
- **Real-time integration**—The righthand column of Figure 6 shows this use for CDI, which is the most common example. In custom software environments, this online repository may act as the customer master for multiple applications, eliminating copies in each. In COTS application environments, the most common is to set up a user exit in the application's customer creation process to check whether the customer already exists before allowing a duplicate to be created.

Figure 6: Customer data MDM use cases for manufacturing and retail



Source: AMR Research, 2007

Take advantage of BI and data warehouse investments

Most companies first confront the master data issue in their BI/performance management (PM) efforts when they build an enterprise data warehouse or other large analytics project. Many issues with standard data elements and coding, as well as those that need to resolve multiple sources of data, must be tackled for these projects to succeed. They are, however, fundamentally different. They usually map data to a common format and resolve duplicates after the fact, rather than take an MDM approach to manage the data at the source.

To some degree, this reflects the maturity of the BI/PM data architecture as discussed in “Business Intelligence/Performance Management Maturity Model 2007—Data Architecture Really Does Matter.” Most companies are at Step 2 of the AMR Research BI/PM model, which is characterized by data being standardized in pockets, such as finance and customer data. At this stage, the BI/PM architects either assume the data is clean coming in or build defensive cleansing as part of their extraction, transformation, and loading (ETL) processes.

Advancing to Step 3 requires common master data and metadata, and should be an integral part of your operational master data architecture. It will require harmonizing your MDM and BI/PM strategies.

But as you get started, the BI/PM data architects will be a prime source of material for creating your master data architecture. In many cases, these teams end up leading the MDM efforts because of their experience with the various sources of data within the company. They also have a strong incentive, since master data issues are at the root of many problems in the electronic data warehouse and BI systems, leading to a lack of confidence in the data.

Teradata and **Kalido**, two vendors best known for their work in electronic data warehouses, also sell MDM products. If you are using their products for BI/PM, they may prove a valuable part of your MDM strategy too.

Managing hierarchies

Analytical systems make extensive use of hierarchies to analyze data. Consider the following examples:

- General ledger chart of accounts
- Business units, organization structures, and people
- Product lines and brands
- Locations
- Sales territories
- Commodity classes and codes

One thing the hierarchies have in common is they change frequently, at least annually, because of reorganizations, expansions, mergers, acquisitions, and divestitures. The master data goal is to provide the same type of workflow and data quality to changes to the hierarchies, reducing the IT bottleneck on these changes by pushing the responsibility out to the business. Also needed are audit and controls on changes, since many of these hierarchies control financial reporting.

Two vendors, **Hyperion** and Kalido, have specialized products to manage this master data. Their products are part of their suites of BI/PM products, but available separately. When used as a part of their suites, however, these products open some interesting opportunities for analysis. For example, historical data can be analyzed against new or proposed organizational structures or sales territories. Both also provide business rules to block or escalate approvals of proposed changes.

Single vendors for multiple MDM needs are emerging

The majority of MDM vendors specialize in PIM or CDI, and are discussed in the articles referenced at the end of this Report. Besides SAP and Oracle, other vendors are attacking multiple types of data, though most of their efforts are still a work in process. These vendors should be considered in selections if they have substantial footprints as an infrastructure or application provider. They also shine in complex system landscapes where Oracle and SAP are not the only—or even the largest—applications.

TIBCO

TIBCO has high hopes, claiming to see momentum from its Velosel acquisition. Like other vendors, it sees MDM as critical to its wider service-oriented architecture (SOA) strategy. It still plays at the high end of the market, selling relatively few high-value deals a year. TIBCO is also handling some interesting applications, such as commodities trading and retail assortment planning. Its latest release sought to productize some of these areas by strengthening its handling of multiple data types and service-enabling its platform to fit in better with the wider TIBCO suite. The company has a strong PIM product, and should also be attractive to companies using its SOA framework.

IBM

Big Blue is pushing a universal MDM platform, but as described in “IBM Information On Demand: Substantial Progress, But Still a Long Journey Ahead,” it still has the two separate, with its PIM (Trigo) and CDI (DWL) acquisitions.

IBM is one of the strongest contestants in retail MDM selections, mainly because of some solid references in retail, while most other PIM vendors have stuck with the manufacturer or distributor markets. Its CDI product is designed for the heavy transactional use and real-time integration required by consumer and financial services businesses, but it may be overkill for manufacturers.

i2 Technologies

i2 entered the MDM business out of self defense. It grew by acquisition and needed to synchronize master data between a dozen of its own SCM applications and the different data models of the many ERP systems its customers also owned. Optimization applications are especially sensitive to master data accuracy and consistency, so MDM was required to make its core applications a success in the field. The product now supports the following:

- Manufacturing and SCM applications, including supply chain network management (how location and functions are connected)
- Retail and distribution applications

- PIM
- Vendor and item data

i2 is expanding these abilities with CDI and is looking at financial master data. The MDM product is actually a set of data, business rule, and workflow templates delivered on i2's Agile Business Process Platform, which can be used to extend and modify the capabilities for the standard data domains and add new ones.

i2's MDM is one of the few products to deliver support for multiple data domains, and has been sold to approximately 50 companies. Consider the product if you have a substantial investment in i2's applications or need to synchronize master data in a multivendor environment.

Siperian

Best known for complex CDI applications in the life sciences industry, the company is diversifying its industry and functional coverage. Many of its initial CDI customers are starting to use the product for other data types, including saleable products and hierarchy data. The company's federated query capability also creates opportunities for more complex analysis and operational use, by combining master data kept in the hub with other attributes from attached systems.

Teradata

Teradata had been partnering with i2 on MDM, but in mid-2006 it went a step further, licensing the code and hiring some of the original engineers to create its own product. It has since ported the product to its own database and the **BEA** WebLogic and IBM WebSphere application servers. The development roadmap includes closer ties to Teradata's industry data models and other data quality partners, and will evolve separately from i2's product. (i2 is pursuing similar licensing arrangements with other software vendors.)

The company has already signed a few large deals with companies that use both Oracle and SAP applications. The interesting opportunity for Teradata is to link the operations and BI/PM worlds with a common master data system. The combination of the industry data models and master data to support them promises to accelerate data warehouse projects and ensure they are fed with clean data from the operational applications. Existing Teradata customers and companies considering a data warehouse project should consider this product for their MDM needs.

Appendix A: major articles on master data management

Customer data integration

- “Customer Master Data Management, Part 1: Architectural Options”
- “Customer Master Data Management, Part 2: Balancing Cost, Complexity, and Capability”
- “Customer Master Data Management, Part 3: Positioning CDI Vendors”

Product information management

- “An Update on the PIM Path to MDM”
- “Taking the PIM Path on the MDM Journey”

Master data quality

- “The Many Paths to Data Quality”

Service providers for MDM

- “Look to India for Dedicated MDM Services”

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