

# Case Study: Lexmark Uses MDM to Turn Information Into a Business Asset

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**Analyst(s):** Bill O'Kane

Lexmark International undertook a master data management (MDM) program when it realized that its systems could not give decision makers the answers to the questions they were asking about the business. The MDM team designed an ambitious program that can serve as a model for MDM leaders who must plan their own initiatives.

## Key Findings

- The IT organization surveyed Lexmark's eight financial analysts, and discovered they spent 22,000 hours a year just to find the information they needed for their reports.
- Lexmark assembled a data governance council, chaired by the CFO, including the CIO and the vice presidents in charge of sales and marketing, finance, the supply chain, R&D, purchasing and HR.
- The MDM team and governance council identified five domains for the initiative: customer, vendor, product, material and person.
- Lexmark can now produce profit-and-loss reports for specific products in 10 minutes — it used to take a week, with heavy manual work to find and cleanse data.

## Recommendations

- Don't simply seek a senior executive to sponsor the initiative; find one who will actively participate throughout the life of the program.
- Embed the MDM discipline in business processes. MDM is an integral part of transactional and operational processes so that people cannot circumvent them or change data in a subscription system without doing so in the MDM system.
- Measure results as a way to improve the implementation. To improve decision making, the MDM team defined clear data quality metrics, which are used to measure progress at regular intervals.

## What You Need to Know

Lexmark implemented an MDM program that drastically sped up the production of reports, derived more analytical insight and increased the efficiency of data handling. It launched MDM for five data domains at once across three business units. The senior executive who sponsored it continues to participate actively during its operational life. The project team took a disciplined approach to deciding what data and attributes to include and exclude from the program, what process to follow for implementation, and how MDM will be integrated into business processes.

## Case Study

### Introduction

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MDM promises to normalize key data across the enterprise so that it can be used and reused efficiently to improve business performance. The larger and more complex the enterprise, and the more data domains the initiative includes, the more value the enterprise can realize. Yet, these factors also make MDM more challenging to execute. Nevertheless, large enterprises do succeed with multidomain MDM initiatives. Lexmark won an MDM Excellence Award in May 2011 for such an effort (see Note 1). MDM leaders can increase their chances of success by following Lexmark's best practices.

### The Challenge

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Lexmark reported more than \$4 billion in revenue in 2010, sold products in more than 170 countries and employs about 12,000 people worldwide. The company has three lines of business: printers and multifunction products, content and asset management software, and managed print services. Lexmark's business intelligence applications and the reporting functions of its business applications could not easily answer the questions management was asking in order to make the right decisions for the business. Lexmark's data proved to be too inconsistent to use properly. For example, Lexmark's eight financial analysts spent 22,000 hours a year to find the information they needed for their reports. There was no consistency and, in most cases, no formal governance or accountability for data quality. Different applications, data sources, business areas and regions had different levels of governance by different roles. Lexmark wanted to transform its data from an obstacle to business into an asset.

### Approach

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In January 2008, Lexmark undertook an MDM initiative that would:

- Provide a centrally managed version of the enterprise's master data around the world.
- Implement a governance structure driven by the business, and focused on business needs.
- Create and maintain master data in real time embedded in core business transactions.
- Increase data quality to support decision-making analytics.

- Track data quality metrics and implement processes for improvement.

In October 2008, Lexmark assembled a global data governance council led by the CFO. The other members include the CIO and executives from sales and marketing, finance, the supply chain, R&D, purchasing and HR. The council then appointed an MDM team consisting of a senior IT manager as team lead, two data architects and one business lead for each data domain the initiative included.

## Design

The MDM team and the governance council identified five data domains, or core entities, for the initiative: customer, vendor, product, material and person.

To manage the master data, the MDM team chose a centralized implementation style for all domains, except customer, where the need to create new customers immediately dictated a coexistence architecture (see Note 2). A tough challenge proved to be identifying the attributes to manage. For example, the MDM team surveyed customer data and found 700 distinct attributes. After discussions with the business, the team chose a little over 150 of those attributes to govern. The team chose these master attributes if they:

- Changed slowly
- Were used by multiple enterprise systems
- Applied across geographic regions
- Were a key analytical dimension for the business

Thus, the approach for managing the five data domains looks like this:

- **Customer:** Two repositories (one legal, one financial) containing over 150 master data attributes
- **Vendor:** One repository containing over 125 attributes
- **Product:** One repository containing over 30 attributes
- **Material:** One repository (a product life cycle management system) containing over 35 attributes
- **Person:** One repository (PeopleSoft) containing employees and contractors

The MDM team worked with the business to embed MDM "gates" in procure-to-pay, order-to-cash and other processes so that workers cannot execute them without meeting their MDM obligations. For example, to create or update a record, users must fill out all required fields (the system validates the record), and follow the workflow for approval. Users cannot create a login ID for customers or partners unless they are in the MDM system first.

## Deployment Process

The MDM team decided to coordinate the initiative with an ERP upgrade that Lexmark planned. Combining the initiatives would ensure that the new ERP system was loaded with clean, structured data, and it would save a second disruption to users. The MDM work would occur just before the ERP upgrade in each region:

- EMEA's MDM program went live in October 2009
- The Americas in July 2010
- Asia/Pacific in January 2011

In each region, the MDM program launched in all five data domains at once. If the MDM team had failed to prepare the master data for a region, the new ERP system could not have gone into production for that region.

The MDM team created a four-step process for preparing the master data for each region:

- First, it baselined and profiled the source data.
- Next, it performed an initial data cleansing to prepare the data to load into MDM systems.
- Third, it designed a create, read, update, delete (CRUD) process to maintain the data, going forward.
- Finally, the team set up an ongoing process for cleansing and maintaining the master data, and gave data stewards a user interface to facilitate their work.

## Operations

The MDM governance organization that oversees the execution of the MDM program consists of global analysts, regional data stewards and business data owners, along with the data governance council. This organization established policies and procedures to guide MDM operations. It also established three categories of data quality metrics to track the success of the MDM program:

- Completeness
- Accuracy
- Consistency

A business leader is responsible for the MDM process in each data domain in each region. The MDM operational staff:

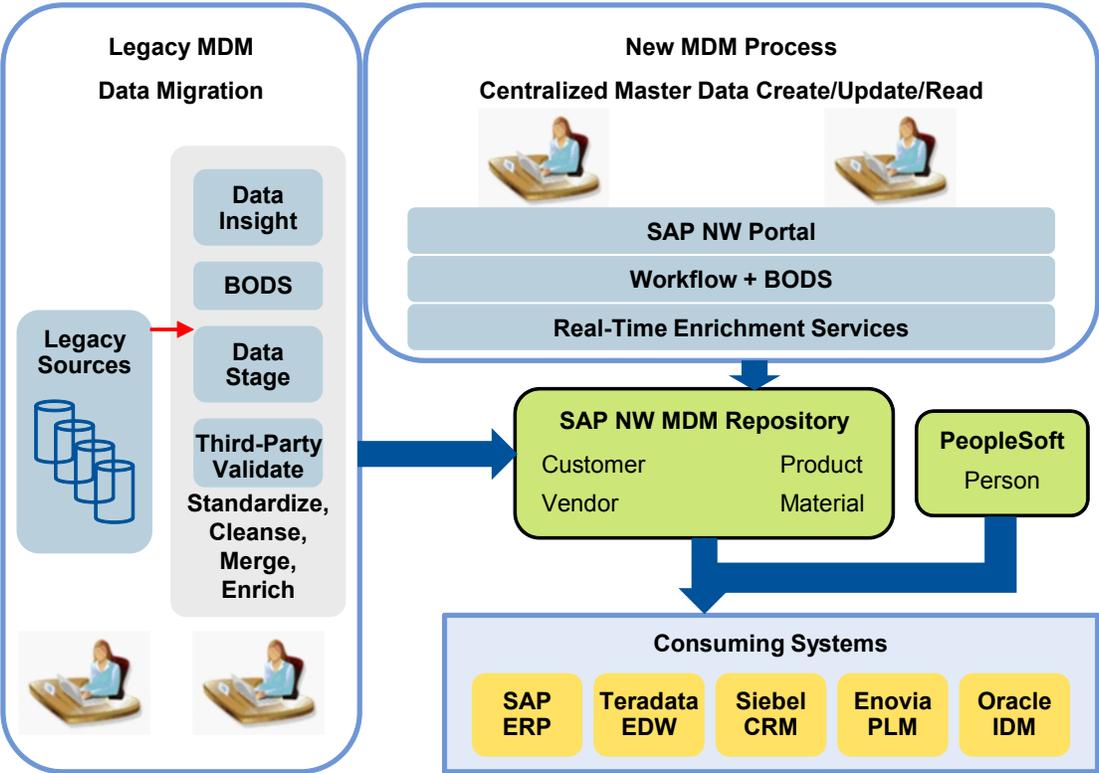
- Submits master data create/change requests
- Performs manual and automated data quality checks
- Follows a workflow (different for each geography) to gain approvals
- Finalizes the changes, and syndicates the new and updated master data to consuming systems

Every month, the business leaders must report their MDM data quality metrics to the data governance council. If a report shows a lack of compliance with MDM policies, the business leader must explain why and take steps to correct problems. Data stewards can draw on IT staff to help make any necessary changes.

Architecture and Technology

Lexmark uses SAP NetWeaver v.7.1 Service Pack 5 for its MDM repository (Lexmark upgraded from v.5.5 as part of the ERP project; see Figure 1).

Figure 1. Lexmark's MDM Architecture



- BODS: Business Objects Data Services
- EDW: Enterprise data warehouse
- IDM: Identity management
- MDM: Master data management
- NW: NetWeaver
- PLM: product life cycle management

Source: Lexmark (December 2011)

SAP's Business Objects Data Insight and Data Services, IBM's Data Stage, and third-party validation services helped perform the initial data cleansing. The CRUD step and ongoing MDM operations use NetWeaver Portal, SAP Business Workflow and Business Objects Data Services, as

well as specialized real-time data enrichment services. The repositories for four of the data domains reside in NetWeaver Master Data Management (the person repository is in PeopleSoft). The repositories syndicate the master data to several different subscribing systems:

- SAP's ERP
- A Teradata data warehouse
- Siebel CRM for call centers
- Enovia for product life cycle management
- Oracle for identity management system

## Results

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The MDM program launched on time in all three regions for all five data domains. The ERP upgrade proceeded on schedule. Because of the MDM project, 60% less data had to be migrated during the ERP upgrade. The purging of obsolete master data during the deployment process and the MDM disciplines that Lexmark follows have reduced the ongoing cost of maintaining data. As a result, Lexmark quickly integrated data from two companies it acquired without duplicating any master data. For example, Lexmark integrated Perceptive Software's master data in three months.

The MDM program increased the efficiency of reporting and gave decision makers better insights, which have translated into better decisions. Lexmark can now produce profit-and-loss reports for specific products in 10 minutes — it used to take a week. Lexmark generates these reports monthly, but managers can generate them "on the fly" whenever needed. The new reports enable better analysis so that managers can make smarter decisions around product life cycle management. The MDM team is working on doing the same for customer-specific, profit-and-loss reports. The harmonization of customer master data will provide better insight, for example, into customer credit limits and exposures.

The MDM team plans to build on its success by:

- Growing Lexmark's data quality culture
- Extending governance beyond master data
- Increasing the usage of analytics fed by the MDM program
- Improving process efficiency based on knowledge gained since implementation

## Critical Success Factors

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**Support:** Lexmark's CFO mandated that the business owners of each master data domain and the regional data stewards follow the data governance council's policies. The CFO may not approve a business case until the unit that submits it complies with MDM requirements.

**Business case:** The MDM team researched and wrote a business case to secure funding and management support for the program. The case identified pain points, such as the 22,000 hours analysts spent on data gathering, that kept users from doing what the business requires.

**Structure:** The MDM team did its work methodically, starting with the identification of the five data domains, and which data attributes to include in the program. The team designed a common process for implementing MDM in all domains and regions. This structure enabled the team to meet its deadlines.

**Link to a larger initiative:** Linking to the ERP upgrade drove the success of the MDM initiative. It increased the benefits the ERP upgrade could provide — users would get better data and better access to data.

**Business commitment:** Most members of the MDM team and the governance council came from the business side as do the data stewards, who do the day-to-day work of MDM, and the data owners. Business personnel helped design the solution and create the implementation process. This level of involvement built emotional commitment to the MDM initiative, and the business vividly understood the benefits it would get from MDM.

**Persistence:** The MDM effort could not succeed as a one-time project. The MDM team needed to engage stakeholders repeatedly to get what it needed for success. The team lead took the data owners and data architects on a tour of Lexmark sites around the world to get input from workers. Where the team couldn't meet people in person, it used webinars and conference calls. After the team came up with its initial design, it toured the world again to review the plans. The MDM team offered training sessions as many times as necessary until everyone who would work with the MDM process got trained — in some cases, the MDM team went to people's managers to make sure they took the training.

## Lessons Learned

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*Find a senior executive who will actively participate throughout the life of the program.* Lexmark's CFO didn't just bless the project at the start or even act as a problem-solver when the MDM team hit a wall. Instead, he belongs to the data governance council, attends monthly meetings, reviews MDM metrics and makes sure MDM is part of the way Lexmark operates every day.

*Work with dynamic personalities on the business side.* MDM requires that people in business units adhere to global policies and processes that differ from what they have been used to. Dynamic business leaders have the force of personality to carry through the cultural changes necessary for MDM to succeed.

*Take a disciplined approach to what the MDM initiative should and should not include.* The MDM team did not back off its goal of including all five data domains in the project just because it would be harder than working on one domain at a time. The goals and benefits of MDM for Lexmark required five domains, so that's what the team included. Yet, the team also took care to include only the data attributes that the MDM program required, and left out the rest.

*Embed MDM in business processes.* The team designed daily MDM operations as an integral part of transaction processes so that people cannot change data in a subscription system without doing so in the MDM system. Workers in the call center must sign up a new customer quickly, but the MDM team did not allow this imperative to become an excuse for not following MDM procedures. The team modified its centralized MDM architecture so that call center workers fulfill their MDM duties while still doing their jobs.

*Create policies and stick to them.* Do not allow an "everything is an exception" culture to develop. Enforce the adherence to the MDM data and process standards despite inevitable resistance by business owners who believe their domain is unique. The MDM team often made the point that MDM is about the most widely used data attributes; it does not necessarily reflect the value of the data.

*Measure results as a way to improve.* The MDM team defined data quality metrics, which are used to measure progress at regular intervals. The metrics identify any data problems and help to find and fix gaps. Every data object has a business owner; therefore, every piece of master data has someone motivated to hit his data quality goals. The team continues to look for ways to improve performance, such as by resolving anomalies.

## Recommended Reading

*Some documents may not be available as part of your current Gartner subscription.*

"The Seven Building Blocks of MDM: A Framework for Success"

"The Five Vectors of Complexity That Define Your MDM Strategy"

"Should Organizations Using ERP 'Do' Master Data Management?"

"Best Practices in MDM: Overcoming the Barriers and Challenges to Launching an MDM Program"

"Best Practices in MDM: Maintaining Momentum in an Ongoing MDM Program"

"Toolkit: Workshop on Identifying Barriers and Best Practices for Organizing and Governing Master Data"

"Governance of Master Data Starts With the Master Data Life Cycle"

### Note 1 Gartner's MDM Excellence Award

This annual award program runs in conjunction with Gartner's MDM Summit. The program highlights world-class MDM initiatives, and shares their successes, challenges and insights. Applicants work within a Case Study framework, based on Gartner's seven building blocks of MDM, to describe their MDM initiative and highlight why it demonstrates MDM excellence (see "The Seven Building Blocks of MDM: A Framework for Success"). Gartner's MDM research analysts identify three top contenders from the year's submissions to present their programs during a combined Summit session, and session attendees then vote for the winner.

## Note 2 The Four Implementation Styles of MDM

Gartner identifies four implementation styles for MDM (see "The Five Vectors of Complexity That Define Your MDM Strategy"):

- *Consolidation*: Matches and physically stores a consolidated view of master data, mainly for reporting and analysis.
- *Registry*: Accesses master data from source systems, and assembles a point-in-time view.
- *Coexistence*: Allows separate repositories (sources and hubs) to physically author, store and validate master data by attribute.
- *Centralized*: Centralizes authorship, validation and storage of master data in a single hub for all purposes.

## Regional Headquarters

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**Corporate Headquarters**

56 Top Gallant Road  
Stamford, CT 06902-7700  
USA  
+1 203 964 0096

**European Headquarters**

Tamesis  
The Glanty  
Egham  
Surrey, TW20 9AW  
UNITED KINGDOM  
+44 1784 431611

**Asia/Pacific Headquarters**

Gartner Australasia Pty. Ltd.  
Level 9, 141 Walker Street  
North Sydney  
New South Wales 2060  
AUSTRALIA  
+61 2 9459 4600

**Japan Headquarters**

Gartner Japan Ltd.  
Aobadai Hills, 6F  
7-7, Aobadai, 4-chome  
Meguro-ku, Tokyo 153-0042  
JAPAN  
+81 3 3481 3670

**Latin America Headquarters**

Gartner do Brazil  
Av. das Nações Unidas, 12551  
9° andar—World Trade Center  
04578-903—São Paulo SP  
BRAZIL  
+55 11 3443 1509

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