Gartner Research

Publication Date: 11 October 2007 ID Number: G00151496

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

John Radcliffe

Gartner's Seven Building Blocks of Master Data Management (MDM) framework describes the essential elements that need to be addressed in an MDM program. MDM program managers should familiarize themselves with this framework and ensure that their programs cover all the MDM building blocks, with appropriate customization to their needs and situation, to achieve MDM success.

## Key Findings

- Regard MDM as a discipline that is implemented via an ongoing and evolving program made up of individual, focused projects.
- An MDM program is more than just the implementation of technology. The greatest challenges will not be technical, but governance-related.
- The creation of an appropriate, well-functioning governance mechanism is essential for MDM program success.
- MDM programs need to ensure strong alignment with the organization's business vision and demonstrate ongoing value through a set of metrics.

## Recommendations

- Use a strategic MDM framework through all stages of the MDM program's activity cycle — strategize, evaluate, execute and review.
- Gain high-level business sponsorship for the MDM program and build strong stakeholder support.
- Create an MDM vision and strategy that closely align to the business vision of the organization. An MDM metrics hierarchy should be used to communicate what success looks like and to objectively measure progress.
- Create a decision rights and accountability governance framework to ensure desirable behavior in the management of master data.
- Build up your organization's MDM capabilities in phases, delivering value at every stage.
- View your MDM program as part of a wider enterprise information management (EIM) strategy.

## WHAT YOU NEED TO KNOW

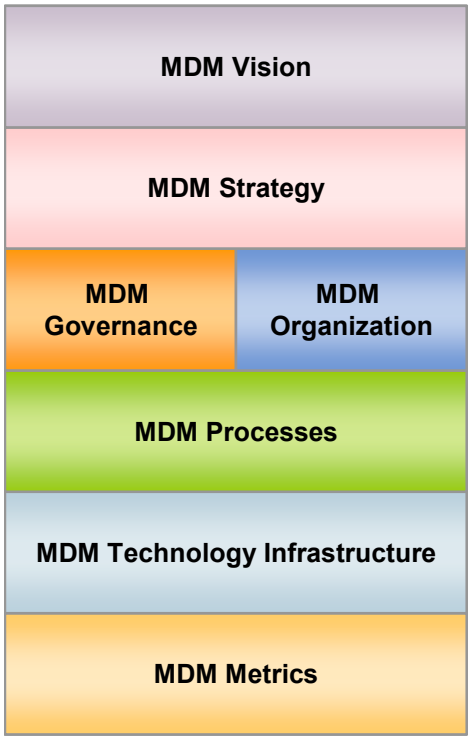
MDM program managers should use a balanced and integrated framework to ensure that all the component parts of an MDM program are being addressed. Organizations that use this approach are more likely to achieve enduring success in their MDM initiatives. Key to success is the need to strike the right balance between technology vs. governance and organizational issues, plus the need to ensure that the MDM strategy aligns with the business vision and that success can be measured through a set of metrics.

## ANALYSIS

Interest in MDM (see Note 1) and its most-established drill-down domains of customer data integration (CDI) and product information management (PIM) is high. Since 2003, the number of initiatives has increased dramatically, and it will continue to grow rapidly during the next five years. Many of the first MDM initiatives, typically based on packaged MDM software, are reaching fruition, with more success stories and best practices starting to form. So far, the majority of CDI, PIM and other more-generic MDM initiatives haven't suffered from press stories about project failures. However, around 30% of technology, not just MDM, projects typically "fail," where failure is defined as not meeting expectations (if they had ever been defined, agreed and communicated properly). Most MDM-related initiatives that do run into problems and stall are due to governance and organizational, not technology, issues. Some struggle to clearly demonstrate business value.

Now is the time to gather best practices and organize them into a framework methodology that can be widely used and can help ensure widespread success with MDM. Use Gartner's Seven Building Blocks of MDM (see Figure 1) to achieve this objective. With appropriate customization, this framework can help your organization see the "big picture" for MDM and what will be involved. It will help you create a strong MDM strategy, execute the MDM implementation successfully and continue to measure the effectiveness of MDM. It emphasizes the need for a holistic, integrated approach and tries to ensure that the correct balance between technology and nontechnology issues, such as governance, is recognized and achieved. An MDM initiative should be seen as part of a wider EIM initiative (see Note 2); for that reason, this MDM framework is aligned with the equivalent, higher-level EIM framework.

**Figure 1. The Seven Building Blocks of MDM**




**Source: Gartner (October 2007)**

This MDM framework is useful in the early stages of an MDM program for getting everyone "on the same page" in terms of internal education and who will need to be involved and why. It can also be used as the basis for an assessment of the organization's established and required MDM capabilities, to help understand the current position and plan future initiatives. As the MDM initiative gathers speed, it can be used to ensure that all building-block areas are being addressed and that responsibilities are clear. Later on, it can be used to ensure that goals are being met.

## Vision

There needs to be a business vision (owned by the board) that requires an underlying MDM vision as a key enabler. Otherwise this could become a solution looking for a problem to solve. Business visions typically revolve around statements of leadership in a chosen market and the organization's differentiating brand values. These will be underpinned by strategies for excelling in areas such as operational effectiveness, customer intimacy, and product or service leadership. In most large, complex organizations, these goals are difficult, if not impossible, to achieve without well-functioning and well-integrated technology, people and processes. For example, failure to address MDM as a discipline in a bank will make it difficult for that bank to achieve its business vision of differentiating itself by understanding customers' needs and providing customers with a valuable, consistent experience.

The MDM vision needs to be articulated in terms of its scope: What data domains and what use cases will be addressed? It must be clearly stated how this MDM vision supports the organization's business vision. There must be a clear, enduring, business benefit justification. In the same way that an organization can only have a single, unifying business vision, there can only be a single, unifying, strategic MDM vision. This may take years to realize, followed by

ongoing maintenance and optimization, with successful initiatives in individual data domains being milestones along the way.

There is also the question of who owns the vision. Organizationwide business or MDM visions won't happen unless they are owned and championed at the board level. It is common to hear that the new CEO has a vision for customer centricity that needs supporting with a single view of the customer capability, but stakeholders further down the organization also need to buy into this vision.

## Strategy

The MDM strategy focuses on how the MDM vision will be realized and is the plan for how to manage master data assets within the organization. This revolves around the life cycle and the architecture for master data. How and where is master data going to be authored or sourced? Who will validate it and how? How and in what manner will it be enriched? Where will it be stored and where will it be published? Who needs to consume it; how and where? An MDM program manager will need to analyze these requirements and determine the priorities. The result will be a prioritized road map that delivers on these objectives, but the road map itself is not the strategy, it is the implementation plan.

Typically, program managers need to deliver value at every stage of the program, but this phased delivery should build toward achieving the overall strategy, and not be a series of disconnected quick-win projects that can't be built on. To achieve the strategy, it is necessary to create an effective governance structure, meet the organizational challenges, specify and create appropriate ownership for the processes required, implement enabling technology infrastructure and establish a metrics scheme for measuring benefits and success.

## Governance

Without effective governance, an MDM initiative will probably fail, so it is vital that the MDM governance framework is created at an early stage, and MDM governance should be seen as part of a wider need for governance of all information assets. Gartner defines MDM governance as the specification of decision rights and an accountability framework to encourage desirable behavior in the ongoing authoring, storage, enrichment, publishing, consumption and maintenance of master data. It specifies the processes, roles, standards and metrics that ensure the effective and efficient use of master data in enabling an organization to achieve its goals. In organizational terms, it needs to bring together individuals from different parts of the organization and different levels of seniority to fulfill different roles.

The model of the different branches of the U.S. and other governments, comprising the executive, legislative and judicial branches, plus the administrative branch, can be a useful guide. The executive branch (top management) sets, and hopefully owns and communicates, the business vision, providing executive sponsorship. The legislature (the business unit stakeholders) discusses and specifies policies and processes. The judicial branch (a steering group of senior management) provides an arbitration facility to ensure decision making when the stakeholders can't agree. Finally, the administrative branch (data stewards and end users) enacts the policies and processes on a day-to-day basis.

## Organization

Individuals and groups will vary in their roles and responsibilities for authoring, managing, consuming and maintaining master data. The needs and future responsibilities of these different communities must be well thought through, because different communities likely need a different

subset of the master data, and model it in a different manner (for example, the sales view vs. the finance view) because they have different needs.

A unified MDM program will create change, something that is always resisted when there are established working practices, cultures and organizational structures. Therefore, communication, training and change management will be major challenges and must be well-planned and resourced with appropriately skilled people.

The MDM program will require a matrixed organizational approach, with leadership coming from the business side and the IT organization being a major contributor. At the core of the MDM program will be a small number of dedicated resources in a central team, which is likely to evolve into an MDM competency center as the program progresses. The appointment of data stewards, typically in key areas of the business and who have responsibility for the quality of master data, will be key to success.

## Processes

In addition to clear governance processes, there must be well-understood and agreed on processes for authoring, validating, enriching, publishing and consuming the master data. These processes will differ depending on the type and complexity of master data. As the organization starts taking a more structured approach to managing master data, new processes will be created and old processes (which will often have designed themselves) will be retired. In large, complex organizations, it may not be possible to analyze, specify and agree on all processes at the beginning. This will certainly not aid the desire to deliver value early and often. Instead, there must be a step-wise, prioritized focus on different data domain areas, source systems and consuming communities. Prioritization is key to determining which are the key processes and which are "nice to have."

Like most things, processes need owners — otherwise, they don't succeed. Because the consumers of master data are often different from the creators of master data, change management will be necessary, backed up by effective governance.

In addition to the processes that author and consume master data, another set of processes must focus on ongoing MDM maintenance and data quality management. The master data must be routinely profiled to determine its quality and the appropriate corrective action taken.

## Technology Infrastructure

MDM technology capabilities are a key part of the organization's overall information infrastructure and information architecture; therefore, they need to build on underlying technologies, such as middleware and data integration infrastructure, and integrate with established and future application systems. Determine what technologies are needed to enable the MDM vision and strategy, and where and how this technology should be sourced.

One option is to build the capabilities, perhaps in association with an external service provider. This was the traditional route prior to 2003, because there was a lack of packaged solutions on the market. But organizations must understand that MDM is a complex activity requiring complex technology capabilities, and the full scope of what may need to be built and maintained over the years needs to be understood and budgeted for. On the other hand, the packaged MDM solutions continue to mature and broaden their scope. However, no product can do it all in terms of handling all requirements in depth in all data domains, use cases and industry sectors.

Whether you choose to build or to buy (see Note 3), you need to provide an MDM capability that meets your organization's needs in terms of:

- Data modeling
- Information quality management
- Loading, integration and synchronization
- Business services and workflow
- Performance, scalability and availability
- Manageability and security
- Technology and architecture

## Metrics

Without measuring the quality of master data and its effects on business performance — before and after an MDM initiative — there is no objective basis for reporting improvements. Create a hierarchy of MDM-related metrics, aligned to wider organizational metrics, to communicate objectives down the organization and to measure status vs. plan. The MDM metrics should align with and link to the organization's wider business metrics. The top level of an organization's performance management metrics are the organization's corporate goals, which are typically revenue, profit and market share related in commercial organizations. Moving down a layer are strategic metrics related to the operational effectiveness (for example, cost measures), customer intimacy (for example, customer retention rates), and product or service leadership (for example, product introduction times and customer service sustainment) goals. Moving down again are process-level metrics (such as cross-sell and up-sell rates; product substitution rules; the ability to meet regulatory requirements; the cost and efficiency of sourcing materials; supplying products; or invoicing).

MDM improvements should have a positive, direct effect on the majority of these metrics. Create an operational level of metrics beneath them to measure the levels of master data quality, such as the level of customer master data duplication and completeness, and to demonstrate a cause-and-effect link-up to those higher-level metrics. You must set targets for those operational-level MDM metrics, communicate them and regularly measure their status to determine success and business impact.

### RECOMMENDED READING

"Mastering Master Data Management"

"Four Dimensions of MDM: Understanding the Complexity"

"Vendors Have Different Approaches to Implementing Master Data Management"

"How to Choose the Right Architectural Style for Master Data Management"

"The Important Characteristics of the MDM Implementation Style"

"How to Evaluate a Vendor's Master Data Management Solution"

"Q&A: Master Data Management Questions From Gartner's 2007 BI Summit"

"The Role of Master Data Management in the Business Service Repository"

"Magic Quadrant for Customer Data Integration Hubs, 2Q07"

"Magic Quadrant for Product Information Management, 2Q07"

"Enterprise Information Management Represents the Future of Data"

"The Essential Building Block for Enterprise Information Management"

"Governance Is an Essential Building Block for Enterprise Information Management"

"Gartner's Data Quality Maturity Model"

"Data Stewardship: Critical Component of Data Architecture"

"Magic Quadrant for Data Quality Tools, 2007"

"Drive Data Quality Improvement From a Foundation of Metrics"

## Note 1
## MDM Definition

Master data is the consistent and uniform set of identifiers and extended attributes that describe the core entities of the enterprise and are used across multiple business processes. Some examples of core entities are parties (customers, prospects, people, citizens, employees, vendors, suppliers or trading partners), places (locations, offices, regional alignments or geographies) and things (accounts, assets, policies, products or services). Groupings of master data include organizational hierarchies, sales territories, product roll-ups, pricing lists, customer segmentations and preferred suppliers.

MDM is a process that may be workflow-driven or transactional in nature, in which business units and IT departments collaborate, cleanse, publish and protect common information assets that must be shared across the enterprise. MDM ensures the consistency, accuracy, stewardship and accountability for the core information of the enterprise.

## Note 2
## EIM Definition

EIM is an integrative discipline for structuring, describing and governing all information assets, regardless of organizational and technological boundaries, to improve operational efficiency, promote transparency and enable business insight.

## Note 3
## The Technology Capabilities Required for MDM Systems

Whether you choose to build up your MDM capabilities from components such as data integration and data quality tools, or buy a packaged MDM solution, you need to think in terms of achieving the following MDM capabilities:

- **Data modeling:** You must be able to model your master data entities and attributes, manage potentially complex relationships, manage potentially complex hierarchies, accommodate vertical-industry modeling requirements and map to the master customer information requirements of the whole organization, not just selected areas.
- **Information quality management:** There should be well-integrated facilities for cleansing, matching, linking and identifying data from different sources, plus facilities for data stewards to manage them. There must also be facilities for profiling the master data to understand its quality level for visualizing and navigating complex relationships and merging data (with auditing and survivability).

- **Loading, integration and synchronization:** The central MDM system must be integrated with other systems that create or consume master data. This integration may take various forms, including the use of batch loads or message-oriented middleware. There may also be the need for publish-and-subscribe mechanisms.
- **Business services and workflow:** Organizations that see their MDM systems as a foundation for service-oriented architecture will need a rich library of business services surrounding the data model. Most solutions will also need a workflow process to manage the involvement of different parties in the creation, validation and publishing of master data.
- **Performance, scalability and availability:** MDM systems are the center of an organization's IT and business infrastructure. It is crucial that any MDM solution meets the organization's needs in terms of performance, scalability and availability.
- **Manageability and security:** Master data is key to the organization's success, and must be well secured. With customer data, there must also be a strong emphasis on meeting data privacy needs. In terms of system management, the MDM system will be an important system that needs managing with the organization's chosen system management tools.
- **Technology and architecture:** An MDM system is highly strategic to an organization, and its lifetime is likely to be more than 10 years. Therefore, it is important to base it on a set of technologies that are mainstream and enduring.

## REGIONAL HEADQUARTERS

**Corporate Headquarters**
56 Top Gallant Road
Stamford, CT 06902-7700
U.S.A.
+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





Gartner