

WHITE PAPER

# The Case for Master Data Management

*Prepared by BPM Partners*



## Introduction

According to the research and advisory firm Tower Group, fifty percent of enterprises maintain master data separately in eleven or more source systems. Eighty percent of enterprises plan on centralizing master data. Because of this, large organizations face a growing problem that already undermines the accuracy of the reporting and analysis of their operations. Master data is being categorized, rolled up, and filtered inconsistently and erroneously across the enterprise.

Inconsistencies arise between business units that view the enterprise in different ways. Discrepancies are also found between different databases, data warehouses, and BI (business intelligence) or BPM (business performance management) applications and tools. According to Forrester Research, most Global 2,000 companies use between five and fifteen reporting and analysis applications; making a single BI platform “an IT fantasy”.

The results of poor master data management can be embarrassing, as when managers enter a meeting to present reports that show conflicting totals. The problem can also be costly—when reports are wrong, incorrect decisions are taken, and the company falls out of compliance with Sarbanes-Oxley requirements. Add to this the toll in employee time to find and correct mistakes. It's very common for sophisticated multinational companies to have ongoing, expensive difficulties in reporting that stem directly from confused master data.

The traditional approach—telling IT to fix the problem—does not work because accurate enterprise reporting is a complicated **business** issue that requires *ongoing, detailed collaboration with the IT side*. IT and Finance—and areas that often use individualized reports, such as marketing and sales—are not organized or designed to tackle this problem in a joint manner.

A logical suggestion is that the company's main transaction or ERP system is the place to store and protect commonly used master data pertaining to customers, products, accounts and other business dimensions, but those systems have no “home” or facility for this information. They do not define and store a complete set of master data.

The answer is to proactively manage master data—the report and analysis structures used by employees in every functional area—with a software solution called an **MDM system**. The MDM (master data management) system:

- Handles the necessary integration of transactional storage, and analytic systems
- Supports compliance with Sarbanes-Oxley
- Enables an auditable, repeatable process
- Captures and protects your company's human intelligence about report structures—this is knowledge which otherwise lacks a home.

MDM enables appropriate employees to change master data, does the hard work of implementing changes across the associated data systems, and keeps track of them. This means that the right **business users** will, to a much larger extent, control and have responsibility for the way business results are reported.

### History: Where the MDM Problem Came From

Over the years, companies assembled their own portfolios of systems as they took a best-of-breed approach to software applications. They also inherited a mix of different systems through M & A. Today, it's rare to find a large company that uses a pure single-vendor approach. With large collections of different systems, it's well-understood that integration at the data interchange level is key. Now it is becoming apparent that another common thread must exist between these disparate systems: master data must be trans-system and cross-enterprise.

Historically, while corporations were adding the operational and analytic systems they needed, master data discrepancies came with those systems and now are a constant companion. The variety of systems bought, or inherited through M&A, was the Trojan horse, so to speak, and master data was waiting inside.

MDM can also be described as a way for some aspects of managing crucial, shared corporate data to become largely a business function, as opposed to being purely an IT function.

This white paper focuses on why organizations need MDM, and how MDM solves this data management problem.

## Master Data—A Problem for the Enterprise, Not Just IT

Large organizations waste considerable time and money figuring out who has the right view of their internal world. They expend more time and money attempting to apply management's preferred view across the many different systems used in a company, and repairing mistakes that sneak into reports.

### The Strategic Costs of Keeping the Status Quo

The cost of not undertaking master data management can be significant:

- Mistaken understanding of which products are profitable and growing
- Mistaken belief that reports are accurate, leading to incorrect decisions such as closure of the wrong retail branches or funding of the wrong products
- Misalignment of management reports versus statutory reports
- Missed opportunities, through a systemic inability to track a particular attribute or activity at a granular level or, conversely, at the enterprise-wide level
- Vulnerability to security and data integrity problems that arise from the lack of a defined process to control important aspects of the analytic tools used in the enterprise.

The benefits of managing master data proactively (covered in the next section) include accurate reporting, easier integration of mergers and acquisitions, and better compliance with Sarbanes-Oxley and international accounting standards. MDM brings the flexibility to proactively drive more report options, to examine business activity by slicing it in different ways, and to more easily compare year-over-year results even if the master data has been altered. Finally, it keeps track of when master data is changed and by whom.

The problem that MDM solves has its own 'iceberg' analogy. You might see only the tip of that iceberg: reports that are delivered late or with errors, or an inability to mesh financial statements after an acquisition or restructuring. Less visible is the mixture of technical and business issues that underlie enterprise reporting.

### The Problem for Finance

The pain of reporting is not always evident to senior management. By virtue of their position, they are insulated from the difficulties. In general, the problem of master data is not well understood. That makes it embarrassing for mid-level managers to mention it to their superiors. The difficulty behind the scenes goes beyond discomfort; it breeds data and report errors.

As an executive, you have requested a new report, based on a different rollup of business operations. You notice anxiety and consternation among your people. You may have just initiated the following type of scenario:

- The finance manager who received your request knows enough about the systems to realize that most of the information you need lives in a data warehouse. She'll have to talk to the data warehouse technical administrator, however, to confirm if and how it can be extracted in the form you want. Quite likely she'll ask an analyst or OLAP system administrator to build a new 'cube' of information sourced from the warehouse. There's a time element, and the anxiety of meeting your deadline. Finally, she is justifiably concerned because many errors are born at the confusing juncture of systems, particularly when data is regrouped.
- The same manager has to entrust the challenge of normalizing data from the different source systems to the technical administrators. Simply put, she is now responsible to you for the accuracy of a task she does not control: merging data from different systems. New enterprise reports typically require a mix of technical and finance issues that are not simple to sort out. With a tight deadline, the risk of faulty reports will rise sharply.

A marketing manager, receiving the same instruction to make a new report, probably has less experience dealing with IT and sorting out accuracy problems.

### The Problem for IT

Technical administrators of databases and data warehouses, the people with the hands-on ability to change report rollups, are also in a difficult position. They receive conflicting instructions from analysts, product managers and sales management on how to create and change reports. This frequently forces technical administrators to make business decisions.

## Example: How It Gets Complicated

Let's take a hypothetical multinational consumer goods company to illustrate the complications that can flow from a lack of master data management.

Its US division includes all coffee products under Breakfast Foods. That always worked, so the practice has become tradition. But the company's division in France rolls up fresh coffee under Beverages. The French division treats powdered decaffeinated coffee quite differently; lumping it under Miscellaneous Snacks, a different perspective that a decaffeinated product receives in that country. Just with this simple example, a global report on the market share of Breakfast Foods, or Total Coffee Sales, is difficult and requires significant "Excel time", pulling detail from a variety of databases. It can easily become worse. Next, in the US division, the product manager of Organic Foods goes to management and makes a point: organic and shade-grown coffee—which happens to be exploding in popularity while overall coffee sales are flat—should be under her purview. She asks the technical administrator for reports that show the growing clout of Organic Foods in the US and Europe. How difficult will it be to roll up historical and ongoing organic coffee sales under her category? At the technical and accounting levels, this becomes much more complex, because different ERP systems and different charts of accounts come into play.

For example:

- Should they revamp the data structures they look after, to meet requests from Finance or Marketing?
- Should they fend off those requests, or simply insist that the request come from a vice-president?
- Should they accommodate only requests that conform to a particular chart of accounts?
- Is it the technical administrator's responsibility to ensure that a rollup change in one OLAP cube is replicated throughout other databases? How does that happen—and how should it happen?

In few companies do technical administrators have guidelines on when to second-guess business users on the issue of report structures. Yet, usually it is not possible or sensible to accede to all requests.

With a variety of databases and analytic tools in use at many enterprises, the software vendors who sold these tools are not putting energy into getting applications to use common master data. While certain OLAP tools come with "dimension editors," they conform only to that tool, and thus do not help to enforce integrity or consistency. Some "included editors" do not allow the administrator to revert back to an earlier structure after changes are made. All the pain of interfacing among transactional, reporting, and analytic systems falls to IT personnel, often with Finance finding and trying to fix errors that inevitably result.

MDM would give the Finance manager the ability to deliver the report, independent of the IT personnel. She could create a new rollup of data, according to the request, and it would be remembered and tracked. Once created, the new rollup can be reused. It can also be discarded completely and cleanly, if the company finds it less than useful. MDM makes it possible for the Finance professional to make the necessary changes without being entangled in technical issues.

### Is Master Data Management an Issue for Your Company?

One way to size up the master data management issue at your organization is to gauge it by factors of complexity and rates of change. The complexity factors include:

- The number of separate transactional, operational, and analytic (BI, OLAP, BPM, etc.) systems your company uses
- The number of business units with their own report structures
- How many charts of accounts are in play
- How many large-scale dimensions are used.

The change factors include the rate of organizational change, the rate of master data changes, and the number of report requests. If all these factors go up at a linear rate, it tends to complicate the master data management problem at a geometric rate.

In most companies, analytic independence is inevitable. If reports don't categorize and aggregate information the way users want it, they tend to go after the detail data and work it on their own, building idiosyncratic reports. These independent approaches have quiet ripple effects that quickly spiral out of control. With an MDM solution, analysts can help improve business performance and the chaos of multiple report hierarchies is controlled.

## MDM: Vision and Practical Solutions

Reporting, business analysis, and performance management will be more accurate and work better if the same master data is employed enterprise-wide. Business managers hold knowledge of which rollups accurately portray business performance. A dependable process is needed to ensure that the right managers have appropriate influence over particular report hierarchies and master data.

This can be accomplished today with an MDM system that resides between the databases and the business users. The databases and data-handling applications subscribe to the MDM system. The appropriate users are assigned privileges to manage particular master data, or to manage a particular level in the hierarchy of rollups. When an authorized user makes a change, the change will be committed to each subscribing application when the technical administrator of that application gives permission. The system keeps a per-

manent audit trail of who changed what data, and when. Master data management becomes a repeatable process that is largely independent of IT.

### How Is Master Data Handled Today?

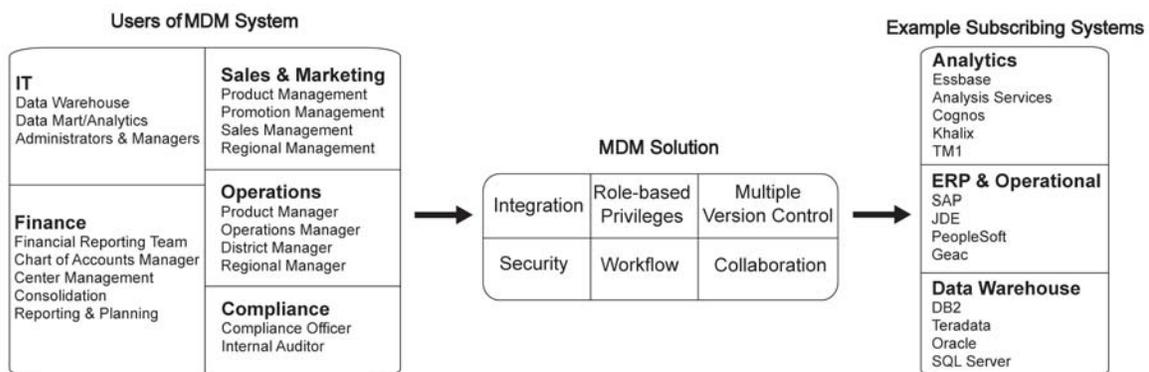
It may be illuminating to ask your analysts how much time and money is expended to maintain master data and rollups or hierarchies. Ask them how likely it is that, after a change of rollups, the following issues occur:

- Something ends up in the wrong region
- Data is double-counted
- Data needed for analytic purposes is omitted.

### Sarbanes-Oxley Compliance

The Sarbanes-Oxley legislation drove many companies to evaluate MDM for the first time, but where does MDM rank on the list of Sarbanes-Oxley priorities? That differs from one company to the next, but in nearly every organization a repeatable, self-documenting process to manage the structures and consistency of reporting is essential to compliance.

In particular, because an MDM system records each change to master data and report structures, it supports Sarbanes Oxley compliance. All vendors of business intelligence and performance management tools



## M & A

Your company plans a merger. This triggers different plans across the company. IT's reaction may well be, "We need to acquire more ETL (extract-transfer-load) tools to handle the integration."

The Finance group makes a plan to "modify its OLAP cubes" to incorporate data from the other company. Marketing sets out to create new spreadsheets fitting the product lines together.

The more effective response to the merger is a unified approach: a master data model that lets business users map out alternate structures for joining financial and marketing data while preserving standard structures of the past - and allows going back to an earlier version if a new model isn't working.

proclaim themselves to be "SOX-compliant," but if the master data they use isn't consistent then the foundation of their reporting is inherently flawed and non-compliant.

## A Collaborative Process for Master Data Changes

Master data management at the enterprise level is fundamentally collaborative, with multiple users across multiple departments working together to establish and maintain the most useful data. The approval process provided by an MDM solution's workflow capability helps balance control of master data, easing the burden on IT departments. MDM also facilitates corrections when inconsistencies are found in the report hierarchy.

Collaboration implies more business users acting on report structures, and this is only possible with adequate security. MDM systems provide security in the form of role-based access privileges and a permanent audit trail of changes.

Collaborative master data management calls for automation. The MDM system should actually carry out authorized data changes on subscribing systems. In companies with 10 to 20 systems, this automation means enacting master data changes once, not 10 or 20 times. It also removes the element of error from a repetitive process, opening MDM up to a wider audience of business users.

## Integration versus Open System Interface

Most companies have upwards of ten applications running, and with just ten, there are already potentially 45 point-to-point interfaces to manage. MDM systems are considerably more useful if they are vendor-agnostic; that is, if they handle subscribing systems from multiple vendors. The integration problem, for report structures, is greatly reduced by an MDM solution that has an open system interface. But organizations also need to map out, and in some cases temporarily adopt alternate hierarchies. A prime example is found in the merger and acquisition process, where it is necessary to plan and evaluate different organizational scenarios. Pro forma financial reports for different "possible new entities" are needed. To support this activity, MDM software systems need version control capabilities that support and maintain an unlimited number of different report scenarios.

This product feature is called "parallel branching" and goes beyond the rudimentary form of version control which tracks incremental changes to the current set of master data. An important core capability, version control allows the company to cleanly revert to a previous version if the new hierarchy is not working out.

## MDM Supports Enterprise Growth

As companies grow geographically, it is quite important to ensure that all regional units stay within a common reporting structure. The issue of coordination, integration, and reconciliation becomes more pressing with each geographic step, and with each year of system evolution.

## MDM Makes Structural Changes Easier

A change happens: your company shifts its Phoenix operation from the Central Region to its Western Region. Expenses and revenues related to Phoenix must be recoded and moved from Central to Western region, and that task is probably carried out with sufficient accuracy. But an indirect expense is easily overlooked. How do we know that the overhead allocation for Phoenix also moved from Central to Western? If there are ten such organization chart changes, what is the best way to ensure that the overhead always travels with the reassigned city? MDM is an answer to this challenging issue.

## MDM in Banking

The following example is drawn from a large regional bank in the US, which faced the following problems:

- The Cost Center roll-up structure included a "ragged," or unbalanced, management reporting hierarchy up to 18 levels deep, and a legal entity external reporting hierarchy.
- Frequent acquisitions required reporting of all levels, showing results with, and without, the acquisitions.
- Many alternate hierarchies were requested for type (branches only versus ATMs only), market areas, and lines of business.
- Center hierarchies were maintained directly in an OLAP tool. All changes depended on one technical OLAP administrator. Consolidation integrity was not enforced. Hierarchies were not exposed to other systems, such as the data warehouse, in a usable form.
- Because hierarchies were not derived from an external data model, but were all edited within the OLAP tool, the maintenance effort was growing sharply.

The solution came in the form of an MDM system.

- A centralized model of "Centers" was created in the MDM system.
- OLAP, DW, GL and numerous reporting systems become subscribers to the MDM system.
- Appropriate business users were authorized to change specific components in the model.

The outcome included the following benefits:

- Many more alternate hierarchies for analysis and reporting were made possible, while reducing maintenance workload by over half.
- Numerous systems are now in sync. Each system uses a portion of the central data model. Not all systems have the same hierarchy requirements.
- Multiple people, across multiple business functions, contribute to the Center change management process. Accounting acts as the final arbitrator of revisions in the MDM system before publishing to all subscribing systems.
- Completeness and correctness of hierarchies is enforced through the MDM model to eliminate downstream reporting errors.

MDM enables quicker analysis across an enterprise that is growing by acquisition. This is a key business benefit. The acquiring company can quickly map the target company's chart of accounts to its own, but data and analysis on both the new entity, and the separate pre-merger entities, is still available.

### Centralization

Large companies benefit by centralizing most areas of their information management, and this is true of master data. MDM provides a central repository for all master data in the enterprise, allowing:

- Consistency
- A common analytic language across the company
- Easier administration of each subscribing tool/application.

Unlike in-house systems that usually focus on centralizing transactional data, MDM applies equally to analytic, reporting, and operational systems.

## Conclusion

With "fifty percent of enterprises maintaining master data separately in eleven or more source systems, and eighty percent of enterprises planning on centralizing master data"—as reported by research and advisory firm Tower Group—the adoption of MDM is greater than ever. Integration challenges, compliance demands, the need for a consistent and coherent process for data management, and the tendency to take a best-of-breed approach to IT tools drives the necessity of MDM.

As stated by Forrester Research, "most Global 2,000 companies use between five and fifteen separate reporting and analysis applications." Therefore, not agreeing on a company-wide set of reporting and analytic structures is much like setting up a financial system without agreeing on a chart of accounts. By adopting a vendor-agnostic MDM solution, business users are able to handle changes across a wide range of systems, from simple tools, to those that affect the entire reporting structure.

MDM solutions can significantly reduce errors in reporting, boost Sarbanes-Oxley compliance, enable creative analysis of opportunities, and save time and money in reporting activities. For instance, a multinational consumer goods company who has implemented an MDM solution has reduced the time it took to update their 23 different customer systems from 161 hours to one hour, an exercise performed at least twice monthly. This has provided them with a three year ROI of \$267K.

MDM is a major step to taking control of the critical issues of organization growth, IT change, the adoption of new business practices, and software evolution within the enterprise. A major US financial institution upon implementing an MDM solution was able to centrally manage their thousands of cost centers and charts of accounts. This effort has enabled them, while managing the same amount of master data, to reduce operating costs by two full-time equivalents (FTE). This financial institution now has master data updated within minutes, compared to two to five days per month.

The value of MDM adoption is undeniable—it reduces the reliance on IT, simplifies report management, eases the challenges of M&A, and dramatically lowers the high probability of errors when replicating changes across systems and report groups.

Master data management is the only comprehensive, effective means to address the challenge of keeping reports accurate and consistent in large organizations.

### The Limits of MDM

What are the limits of MDM, in terms of the master data covered? Generally speaking, some lower-level attributes do not need to be handled by the MDM system, as they will not find their way into higher-level analysis. Here's an example: product color. A toy manufacturer will track sales of blue trucks and blue doll dresses, but it does not need to analyze across product lines on the basis of color. Of course, at a different company, color would be a key dimension: garment retailing, for instance, where color trends are critical.

Some solutions integrate only with a single set of master data (e.g. product information). This is a serious limitation; such MDM systems are not practical for working with the current reality of best-of-breed IT portfolios.



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