MASTER DATA MANAGEMENT:
EXTRACTING VALUE FROM YOUR MOST IMPORTANT INTANGIBLE ASSET
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MASTER DATA MANAGEMENT:
EXTRACTING VALUE FROM YOUR MOST IMPORTANT INTANGIBLE ASSET

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The vast majority (93%) of respondents in a 2006 ASUG/SAP Best Practices survey of the Americas’ SAP Users’ Group (ASUG) experienced data management issues during their most recent projects. Data management was also identified as the root cause of problems in process improvement projects.

The best way to manage data depends on the unique characteristics of the data. For instance, master data is reference data about key entities within the organization, such as customers, products, employees, and so on. Unlike transactional data – for example, a sales order – master data does not change frequently and typically involves a relatively small number of key attributes. Master data management – developing a central corporate repository of standardized information – can be a vital contributor to business performance. Think of master data management (MDM) as a single source of truth: the home of accurate data concerning everything that is vital to the company.

Many organizations operate under the belief that they are using master data, but the truth is that they are relying on data that is dispersed and trapped in information silos throughout the enterprise. This data – often inaccurate and inconsistent – is propagated throughout the organization and beyond. Organizations that attempt to achieve master data consistency across their distributed IT environment face an unenviable task. True integration at the business process level – where the real value lies – is not easy to attain.

A number of issues have escalated the importance of master data management. For one, the amount of data in a typical organization has escalated dramatically in recent years. Another reason is the growing variety and geographic diversity of an average company’s business partners. Global sourcing, extended enterprises, and more frequent outsourcing increase the need to reconcile and centrally store data. A third incentive is mergers and acquisitions (M&A). Nearly a trillion dollars in M&A deals were consummated in the United States in 2005 alone. Clearly, there’s a strong need for companies to quickly and accurately integrate their acquired data.

Intuitively, it’s not difficult to recognize MDM’s importance. But you may find it difficult to articulate the actual business benefits associated with managing and leveraging high-quality master data. As a result, you might be less inclined or less able to develop the kind of powerful business case that master data management merits. This SAP Insight explores the importance of master data and the barriers to achieving sound master data, describes the ideal master data management solution, and explains the value and benefits of effective management of master data.
THE NEXT LEVEL OF BUSINESS EXCELLENCE

If your organization is like others, you are probably looking to the quality of master data as the next best way to optimize business processes. Master data, which refers to the key data entities (or categories) that reside in your organization, includes information about products, customers, employees, and suppliers. This information is one of your company’s most valuable intangible assets, which is why master data management is so important. SAP defines master data as the reliable, authoritative foundation of data used across many systems and by many user groups within an enterprise.

THE VALUE OF EFFECTIVE MASTER DATA MANAGEMENT

Virtually all organizations can benefit from effective master data management, but the magnitude of value varies widely. As illustrated in Figure 1, two factors are particularly important when quantifying MDM’s value: the number of types of data and the range of uses for the data.

Volume of Entities

As noted earlier, your organization’s primary data entities generally are customers, products, employees, and suppliers. As the volume of data in any or all of these grows, the importance and complexity of managing the data increase. For example, wholesale distribution companies may sell hundreds of thousands or even millions of different products. Maintaining accurate data on each of these products is challenging enough, but imagine the problems across suppliers, customers, and third parties when naming conventions are inconsistent. Various business partners might, for example, refer to a 30-inch pipe as 30”, 30-inch, 30 inch, 30-in., 30-in, or 30IN.

A problem of similar complexity is managing customer data. For example, telecom providers may have millions of customers, all of whom subscribe to a varying mix of product and service offerings. Or consider national tax authorities that maintain records for millions of taxpayers. These organizations must manage master data effectively, while minimizing the time and effort required to do so. Large establishments like these often have the most to gain by developing world-class master data management capabilities.

Figure 1

Key Influencers of Master Data Management Value

Value of Effective Master Data Management

Volume of Entities

Range of Uses for Entities
Range of Uses

The more systems, functions, and business units that use customer, product, employee, and supplier data, the more value an MDM solution can have. For example, a manufacturer might use product data concurrently to feed into printed catalogs, CDs, a company Web site, a Web-based purchasing portal, and a distributor’s sales portal. The ability to efficiently disseminate accurate and consistent master data across all of these channels is a powerful benefit. Multiple functional areas within your organization might use master data differently. For instance, the accounting department may use information about a vendor for accounts payable, the procurement department uses the same information for spend analysis, the supply chain for making logistical decisions, executives might view it in dashboard reports, and a range of employees buying supplies may view the information using a purchasing portal. In general, the more ways your organization uses its master data, the more advantages there are to doing it well.

THE ILLUSION OF MASTER DATA

In a 2006 ASUG/SAP Best Practices survey of the Americas’ SAP Users’ Group, 93% of respondents experienced data management issues during their most recent projects. And data management was identified as the root cause of problems in process improvement projects.

Part of the problem stems from the fact that many organizations believe they are already using master data. But the reality is that they are operating within the confines of disconnected silos of data—the information contained in multiple systems, applications, and spreadsheets. Once master data is generated and trapped in silos, inaccurate and inconsistent information is perpetuated throughout the organization—and beyond. This creates an incomplete view of the business and limits your ability to aggregate and distribute data, which hampers even the most carefully planned and executed initiatives.

Achieving master data consistency for all systems within a distributed IT environment has traditionally proven difficult. This reason alone explains why branch offices often work independently of the larger enterprise. Mergers and acquisitions, too, present significant problems for maintaining consistent master data. At a technical level, you can indeed link new software solutions obtained in an acquisition, but fundamental incongruities between master data models routinely impede true integration at the business process level.
OVERCOMING BARRIERS TO MASTER DATA MANAGEMENT EXCELLENCE

To achieve effective master data management and improve operating performance, you must adopt a solution that addresses the following three elements:

- **Master data consolidation** means matching, normalizing, cleansing, and storing master data imported from client systems. The principal activities of master data consolidation are:
  - Identifying identical or similar objects spread across local systems
  - Building consolidated master data
  - Providing ID mapping for unified, company-wide analytics and reporting

- **Master data harmonization** ensures that master data is synchronized across heterogeneous system landscapes. Extending the scope of master data consolidation, harmonization also encompasses the distribution of consolidated, globally relevant information, and the enrichment of client application systems with locally relevant information.

- **Central master data management** speaks to the maintenance and storage of master data and the development of distribution mechanisms for delivering master data to the systems that need it. This activity differs from master data harmonization in that master data is created centrally using a rich client. You can then interactively distribute information to clients as required.

The ideal solution integrates seamlessly with your organization’s existing infrastructure and your partners’. Additionally, the solution is intelligent enough to ensure ongoing harmony of accurate and up-to-date information from disparate sources and is readily accessible to ensure it supports the needs of the entire business ecosystem.

Leading-edge technology helps you streamline and improve the aggregation of master data from disparate sources. The ideal solution manages the entire process, including deduplication and normalization, ID mapping, matching and merging, staging, change tracking, interactive data-quality analysis, and ad hoc consolidation.

You can then analyze consolidated data using a business intelligence solution. Ideally users experience near-real-time search performance, with multiple search mechanisms with every dimension interlinked. You should be able to search an entire repository easily with any item or group of items, and partial strings and equivalents should be indexed to increase positive results. Performance should be measured in milliseconds – even when managing repositories containing millions of records.
BENEFITING FROM SUPERIOR MASTER DATA MANAGEMENT

Excelling at master data management brings several types of business benefits. SAP has determined that effective and efficient use of MDM information benefits organizations in the following three areas:

- **Operations**: Improving day-to-day operations reduces costs and potentially increases revenue.
- **Insight**: Providing increased visibility into operations enhances and accelerates decision making.
- **Compliance**: Acting in accordance with increasingly demanding and complex regulations delivers multiple additional benefits.

IMPROVING OPERATIONS

Effective master data management can save time and money — even enable the capture of incremental revenues. A good example of savings is streamlined pricing updates. As prices change, users can quickly and effectively access and disseminate updates by using product master data. New price points thus are reflected rapidly across all channels, preventing the revenue leakage that frequently results from slow price changes.

Similar benefits result from more accurate freight data. When engineering enhancements are made to manufactured products, the weights and dimensions of those products often change. For example, before the deployment of an MDM solution, inaccurate product, delivery, and specifications information resulted in incorrect or returned shipments and retailer credit reduction errors for a leading home appliance maker.

Companies that effectively manage product master data can quickly ensure that any prepaid freight charges are accurate and avoid overpayments caused by out-of-date product information.

With product information scattered throughout 12 separate databases, a leading consumer products company found it time-consuming and challenging to deliver the right product information to its distributors and partners. The company has improved distributor relations, enhanced customer service, and significantly reduced administrative costs since it implanted an MDM solution. Because product data is now more current and accurate, the company can respond more quickly to distributor and customer requests for product information.

Sequential processes within manufacturing also represent a savings opportunity. A research and innovation group, for example, may design a next-generation product. But if the subsequent process used to launch that product continues to rely on an older product code with different characteristics, the effect can be disastrous.

Effective data management can reduce costs while improving customer service. Take the case of a manufacturer of flow control products for the construction industry. Before MDM, the company incurred US$1.5 million a month in remittance deductions when customers disagreed with an invoice. On top of that, 10 full-time employees were needed to reconcile the invoice differences. Once MDM was in place, accurate data enabled the manufacturer to reduce remittances to US$100,000 per month and to reconcile any differences with only two full-time employees.

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Reduced marketing mailing costs represent yet another savings opportunity. As customers move or households change, managing customer information becomes increasingly complex. Consider that, at one time or another, almost every consumer has received multiple pieces of the same promotional mailing. Most times, the culprits are slightly different spellings of the same name or the names of multiple family members appearing on the same list. Master data management makes it faster and easier to reconcile and “dedupe” mailing lists—a big boon when per-piece production and shipping costs often exceed US$1.00.

Master data management also enables product content management, which involves the requirements of rich product content management and cross-media catalog publishing. By leveraging product content management, you can consolidate, centrally manage, and publish disparate product data across your enterprise and among trading partners. With master data management, you can reduce marketing execution costs by flowing product master data (structured and unstructured) directly into print, Web, and CD catalogs. The net effect is less time and effort needed to develop and maintain these items, as well as the opportunity for marketing resources to focus on higher-value activities. Similarly, organizations with large and diverse product sets can quickly and easily develop targeted marketing content. This type of marketing can help drive incremental revenues.

This was the case for a leading manufacturer of home appliances. By implementing MDM, it was able to reduce the time associated with new product launches and eliminate errors that occurred during the collation and creation of content for its consumer Web site. In fact, it cut in half the time needed to create Web content, and the number of content errors noticed on the Web site (usually by consumers) dropped from 20 to 25 per week to 5 to 8 per week. Overall, average error rates seen on the Web declined 67%, catalog team productivity improved 50%, and cycle time decreased 90%.

Superior master data management helps you reduce global data-synchronization (GDS) costs. GDS helps your organization effectively manage trade-item exchanges via the Global Data Synchronization Network (GDSN) using ISYNC (formerly UCCnet and Transora). ISYNC enables the registration and publication of product information (such as weight and dimensions) by providing a global repository for standardized item, location, and trading-partner data. More and more manufacturers and retailers exchange product information electronically, so they can expect to save time and money by working through the ISYNC community (Figure 3). One study revealed that GDS can reduce shelf out-of-stock situations by 3% to 5% and reduce the time needed to reconcile invoice disputes by 5% to 10%.
INCREASING INSIGHT

Organizations that maintain a single source of truth (their master database) nearly always understand their operations better than those that don’t. As Figure 4 shows, clean, accurate data improves your company’s ability to track, measure, and interpret organizational performance, so you can make better business decisions.

Imagine a ream of paper procured by an office manager through a purchasing portal. Because this item could potentially be categorized by different user groups as “paper,” “stationery,” “office supplies,” or “copying accessories,” it’s extremely difficult to know how much is actually being spent on this item. Likewise, procurement organizations looking to quantify total spend with a particular vendor (for negotiation, rationalization, or contract-compliance purposes) are frequently hamstrung by different product naming conventions and the likelihood that the same supplier is listed in different ways within different systems. Master data management is the key to reconciling these incongruities and performing effective global spend analysis.

Another example of insight benefits is the ability to efficiently analyze product databases to maximize revenues. Without precise master data management, these activities are difficult and often unsuccessful. For the manufacturer of home appliances mentioned earlier, the implementation of a master data management solution enabled product and marketing managers to identify relationships between and among products. This insight ultimately increased opportunities for cross-selling and up-selling, and the result has been a rise in the average consumer sale on the division’s Web site.

Customer insight through customer data integration is another MDM advantage. Marketing and sales organizations, for example, often wish to segment their customer bases to create differentiated services or support activity-based costing programs, and they need accurate customer data to do so. Master data files that accurately reflect customer hierarchies, such as holding company or subsidiary relationships, make it possible to obtain and reconcile customer information quickly and so make better pricing, marketing, and service decisions. For example, an electronics distributor could determine that, although an OEM’s purchases are spread across a number of subsidiaries, its aggregate spend justifies a higher level of service – perhaps phone support rather than Web support.
A fourth benefit is better insight into your company’s workforce. With more organizations assuming a global presence, it is difficult to collect and analyze employee information. Employee master data can be the key to effectively scrutinizing employee headcounts, job descriptions, salaries, performance records, and so forth.

**Ensuring Compliance**

These days, regulatory compliance is a critical corporate concern. Whether the situation is a U.S. company affected by the Sarbanes-Oxley Act, a European firm that must comply with the Waste Electrical and Electronic Equipment (WEEE) mandates in Europe to return and recycle key parts and materials, or a financial institution affected by Basel II, effective management of master data can help assure regulatory compliance.

Large U.S. companies now spend millions of dollars on regulatory compliance. Clearly, there are significant efficiency gains to be had by leveraging master data management to ensure compliance. In fact, a recent study conducted by Virsa Systems, an SAP business unit, confirms that implementing the right controls can reduce audit and other external costs by 25% to 50%.

However, other compliance-related expenses are even more damaging than lack of efficiency: the costs that might be reduced through better management of master data. One such opportunity is avoiding the fines and penalties associated with citations for poor compliance. Auditor scrutiny – and thus the chances of being investigated – has increased sharply. Another reality is that investors punish companies that demonstrate poor governance. In the debate over the Sarbanes-Oxley Act, the U.S. Senate found that corporate governance failures have engendered market capitalization losses totaling more than US$6 trillion.

Last, by standardizing and reconciling all manner of information (customers, products, employees, and suppliers), master data management can help you recognize and therefore minimize dishonest internal behavior.
The Case for Master Data Management

Market and operating incentives, combined with the advent of innovative technology, make a compelling case for deploying a master data management program. Clearly the issue of master data management extends beyond the CIO’s office, touching upon all aspects of the business. This is especially apparent when you consider the potential for improvement across all business processes.

Effective MDM offers a number of benefits to a wide range of companies – particularly those with large volumes of data used for a variety of purposes by multiple organizations. They include operational efficiencies, enhanced revenue opportunities, better insight into business operations, and tighter compliance with regulatory requirements – helping avoid fines, internal misbehavior, and the potential for losses in shareholder value. In virtually every respect, increased attention to master data management can lead to quantifiable increases in business value.

Ultimately, master data management enables reliable cross-system, enterprise-wide business processes and analytics, ensuring that everyone involved in the process has access to the same information and knowledge. A solution that enables the consolidation of master data, as well as the availability and free flow of consistent data across system boundaries offers the most promising opportunity for improving business processes and a decisive competitive advantage.

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ABOUT THE AUTHOR

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