Evaluation Criteria for a Master Data Management Solution

SWP242D

Stratature • 11625 Rainwater Drive • Alpharetta, Georgia 30004 • 678.353.2150 • www.stratature.com

Introduction

With each year of rapidly evolving business requirements, companies have grown their information system landscapes into complex topographies of ERP, CRM, Business Intelligence, Financial Reporting, Planning, and other operational systems. While each is required for successful business operations, ensuring cross-system accuracy and consistency has become critical. That is where master data management comes in.

Each of these systems requires components of the same master data to operate, yet each manages the information independently, which directly impacts synchronization and reconciliation across systems. It also typically creates process redundancy, raising maintenance overhead and introduces a greater opportunity for error. Addressing these negative impacts of redundant maintenance efforts is the first step to ensuring accurate and consistent data.

The issues associated with master data management have impacted businesses for years. However, for many organizations, master data management has been the elephant in the dining room, with everyone working around it, but no one willing to acknowledge its presence. Now, under the yoke of recent legislation such as Sarbanes-Oxley in the United States and new accounting standards enacted internationally, companies are being driven to take a hard look at their master data management strategies—or to finally implement such strategies to replace stopgap tactics. In the process, many are finding they don't know what they don't know.

What constitutes a solid master data management strategy? What are established best practices, what supporting technologies are available, and how do you go about evaluating a solution? The following criteria constitute a proven framework for evaluating master data management that will serve to guide most organizations safely through the maze of possibilities to an optimal strategy to meet their particular needs. The good news is, in addition to compliance, finally addressing the issues of master data management will also result in reduced overhead, improved accuracy, and more effective deployment of the organization's information assets.

Establishing an Evaluation Methodology

The process of evaluating a master data management solution does not have to bring an organization to its knees under an avalanche of contradictory vendor information, although this is the fear, and sadly, the experience of many businesses who have tried to manage such an evaluation. The trick is to employ an evaluation methodology that serves to create a solid framework for comparing different approaches and technologies.

The first step in this process is to break down the evaluation into specific areas of focus. A careful review, then, of the criteria in each of these focus areas will facilitate a consistent and comprehensive appraisal.

One proven methodology for such evaluation establishes the following five key areas of focus:

- Technical Architecture
- Usability
- Version Management
- Security
- Workflow

Good vendor documentation will cover these concepts, which should also be considered critical elements for review in the product demonstration.

One of the greatest challenges in evaluating a master data management solution is to accurately identify and eliminate custom development work being presented by consulting company vendors as packaged products. This approach adversely affects the vendor's ability to cost-effectively support a client in its implementation, as it requires ongoing custom development in order to grow and maintain the solution. Assessment of the vendor's ability to provide the following will help businesses identify and avoid consultative/custom development approaches:

- Complete paper-based manuals
- Packaged CD with standard install routine (consultative engagement/DBA skills not required)
- Readily available upgrades (consultative engagement/DBA skills not required)
- Documented product release plans and quality assurance processes, demonstrating established product management function and competence
- Dedicated product support and problem resolution process
- Published public training curriculum

Technical Architecture

Web-based Applications Enable Collaboration
Master data management on an enterprise basis is inherently a collaborative process: multiple business users, across departments, must work together to effectively manage master data. The master data management tools that business users require in this collaborative scenario have to be easy to install, maintain and deploy in order not to compete with other business applications and processes for mind-share and desktop real estate. This necessitates a simple architecture, a zero-footprint client and easy access for users. For this reason, companies will find that a Web-based application is the best platform for deployment, offering a simple server install with no desktop set-up or maintenance, while providing instant access for all users.

Open Platform Supports Entire Enterprise
Several business intelligence tool vendors offer limited functionality to manage master data within their own proprietary platforms. This discrete functionality may be put forth as a master data management solution, but doesn't actually qualify as such, lacking the required ability to support any relational or proprietary business intelligence tool across the enterprise. Optimally, the database platform should be invisible to end-users. In addition, set-up and maintenance that requires consultative or DBA support is a good indication that you are not looking at a true open platform approach.

Minimize the System Administration Barrier
System administration requirements often constitute a barrier to user management of business processes, which short-circuits the benefits of a true master data management solution. While the solution has to be capable of supporting various data models (e.g. complex warehouse schemas as well as more straightforward cube technologies), requiring DBA skills to administer, install and maintain the application downgrades overall usability. A litmus test of usability can be applied when evaluating system administration; for example, no system functionality should require bypassing application security and logging into an underlying database.

Scalability and Licensing in Sync for Growth
Effective support of cross-organizational business processes drives scalability requirements for a master data management solution. A solution that is business-focused and accessible will quickly prove its value to the enterprise, and resulting user demand will drive growth. Under these circumstances, even a limited implementation that starts with the installation of a few business dimensions will soon be required to support business users in an enterprise-wide implementation with complex master data, hierarchies and attributes. The evaluation of products should ensure that the application will easily scale to support this model, however small at the start.

In some cases, scalability limitations can be surfaced through careful scrutiny of the relationship between scalability and licensing. Licensing per user, per component, per record, or per server contradicts application scale and scope through imposing prohibitive fees at the high end. While it has become commonplace for vendors to avoid scalability issues by constructing such licensing models, the business requirement doesn't go away simply because a given vendor makes it unaffordable.

Reporting Platform Puts Info to Work
Ultimately, the business benefits of master data management are delivered in the form of reports that make the underlying information actionable. Support for an industry standard reporting platform and an open reporting structure will enable organizations to maximize these benefits. The best reporting function is characterized by system-produced reports that are made immediately available in a variety of formats, including HTML, PDF, Excel, Web Archive, TIFF, Text, and XML. In addition, easily accessible ad-hoc and custom reporting on any master data within the system will boost the value of the overall solution.

Transaction-based System Architecture Ensures Compliance
Recent studies have demonstrated a clear positive correlation between companies with strong corporate governance practices and those with good quality of earnings and financial transparency. A master data management solution designed on a transaction-based system architecture will provide the tools to ensure compliance with corporate governance requirements.

With this architecture, each master data change within the system is treated as a transaction, and the User, Date, and Time of each change is logged, as well as pertinent audit details, such as type of change, member code, and prior vs. new value. In addition, the application should incorporate a commit and rollback transaction procedure model.

Optimal compliance and accountability is achieved when the audit trail is made available both onscreen and in high-quality printed reports that comply with corporate governance requirements, including Sarbanes-Oxley, GAAP, and IAS reporting standards.

Usability

Master Data Import Jumpstarts Productivity

How hard is it to get started? How quickly can you begin to manage existing master data using the new system? Once you have identified the data that will become the first version of record within the master data management system, what kind of resources will be required to get you there? These will be key criteria in evaluating the usability of a master data management solution. Ideally, the application should support data import from common business intelligence tools, such as Applix TM1, Cognos PowerPlay, Hyperion Essbase, or Microsoft Analysis Services, without the need for custom coding of SQL or ETL processes. By the same token, the solution should also support imports from data warehouses, as well as operational and transactional systems, via SQL and XML.

Master Data Export Maximizes Info Usability

The open platform model embraced in the best technical architecture has clear implications in the area of usability, as well. It allows organizations to fully leverage existing business intelligence systems, while providing control and consistency in the area of master data management. In order to maximize the benefits of this approach, the solution should employ a notification-subscriber model for dimension exports. This best-practice model allows subscribing systems to obtain master data on demand, while enabling business intelligence system administrators to control when loads, refreshes and calculations occur within the BI environment. Master data should be readily available to every downstream subscribing system in the standard data formats of SQL, XML and text.

Flexible Master Data Structures Support Business-based Modeling

The most usable master data management solution will provide the tools for business-based data modeling. That is, the solution should allow proper modeling and editing of the entities, attributes, domains and collections that describe your business, and should not require explicit definition of all hierarchies and their members. Rather, the solution should be able to generate many business dimensions and alternate hierarchies from the smallest possible set of distilled information. From the business-based data model, the optimal master data management system will automatically generate alternative views to serve the wide variety of explicit data structures required by various business intelligence applications, data warehouses and marts, and operational systems. The proprietary dimension editors employed by many business intelligence tools fall far short of the mark when it comes to usability in this area. These tools support only typical parent-child hierarchy structures, and attempt to support additional analysis requirements through the specific definition of attributes. The result is a high-overhead, low-productivity approach that precludes the flexibility to respond effectively to business drivers.

An End-user Experience to Boost Acceptance

System adoption, and the ultimate success of the master data management solution, is closely associated with the end-user experience. Business users manage master data from a different perspective than do technical resources, such as DBAs. The solution that provides the greatest ease-of-use for the business user will recognize and support the requirement for business processes to drive master data change, and not the reverse. Rather than necessitating a technical resource to update master data based on business user requests, the business user should be able to update master data directly, based on evolving business processes, without requiring technical training.

Hierarchy Management Made Easy

Effective hierarchy management is key to successful master data management, and a fundamental

usability factor. At the most obvious level, hierarchies should be easy to manage and maintain within the master data management solution. But the best system will also provide features such as the ability to filter and sort against any criteria or list of criteria, which enable the user to hone in on the specific items that require management. Standard functionality should offer a graphical interface that provides users with the ability to easily drag-and-drop individual items around a hierarchy, copy large groups of items for mass changes, and anchor on a manageable subset within a complex hierarchy. All such hierarchy changes should be automatically logged as individual transactions, detailing who performed the action and when, for purposes of compliance and auditing.

Collections Streamline User Reporting
One of the best features of a user accessible enterprise-wide master data management system is that users can facilitate their own reporting. However, if the solution rigidly enforces the requirement of a complete hierarchy each time, not only will usability suffer, needless hierarchy proliferation within the system will degrade performance and consume resources. Organizations can avoid such a result if the master data management solution supports the concept of small groups of members, or collections, to facilitate "one-off", user-specific reporting requirements without enforcing a complete hierarchy each time.

Version Management

Central Repository for Control & Auditing
A centralized master data repository resides at the core of any successful master data strategy. This is the one area that should not be open to ad-hoc user customization. Organizations will do well to avoid the open repository schemas featured in many solutions, as they encourage such access, with a predictable negative impact on rigorous process management and audit compliance. Best-practice management will be best served by a central hub that provides a secure, black-boxed system for audit of master data. If master data within the centralized repository is automatically validated for accuracy and completeness, and always readily available to any number of downstream subscribing systems, the enterprise will have the best of both worlds: centralized control with optimal user access.

Automatic Versioning Makes Control Practical
As mentioned in the discussion of technical architecture, master data management is inherently collaborative—and inherently iterative—making strong version control features absolutely essential for success. With initial data from both OLAP and operational applications loaded, preferably through a simple import functionality, the best master data management solution will automatically generate new versions of the master data as it evolves through the iterative additions, deletions and amendments applied by business users. Any such system requires a built-in safety valve that gives the application administrator approval/rejection power over user applied changes. However, administrative overhead in this regard is minimized, and business-driven evolution of information is made practical, only if the application itself enforces data accuracy and adherence to business rules.

It is important for a master data management solution to support two different approaches to versioning, in order for the system to be of practical use in real-world business situations.

The first approach, *version sequencing*, provides for the kinds of incremental changes that evolve in the normal course of business. In this case, changes which occur from one period to the next can be easily tracked and compared, as the versions develop in a linear and organic fashion.

With the second approach, *version branching*, organizations can use the master data management solution to create and compare parallel versions; that is, to "branch off" of the versions which represent the normal course of business, and run sophisticated what-if and planning scenarios in parallel. This capability makes full use of the versioning features, change management and tracking functionality of the master data management solution, enabling organizations to evaluate in advance the impact of extraordinary business events, such as reorganizations, mergers and acquisitions. Without support for version branching integrated into the master data management solution, running and

comparing parallel planning scenarios becomes a logistical impossibility.

With either approach, the system must facilitate the process of finalizing a version and making it available for use in subscribing systems.

Built-in Features for Best-practice Change Management

Effective version control depends on strong change management features. A comprehensive, best-practice approach to the management of master data change tracks activity throughout the versioning cycle—identifying a change, modifying the version, approving new changes, validating a modified version, committing the version to record, publishing the version to the enterprise. An enterprise-wide implementation will only be practical if such change management functions are handled automatically by the system, requiring little or no hands-on administration.

To further support corporate governance and data accuracy, the application must have a point of no return in which a version of data is recorded as "committed" and no further changes can be made. This is a key concept for the support of audit and compliance, as well as master data reconciliation.

Validation Eliminates Error Proliferation

With user-driven master data management, validation is critical to ensuring the accuracy and consistency of master data delivered across the enterprise. Of course, initial data imports must be validated for consistency and adherence to business rules. Just as importantly, as master data evolves and changes, a robust management system will provide the tools to perform a mandatory validation process before data is made available to subscribing systems downstream.

Here is another area where usability will be key to streamlining master data management and ensuring compliance with corporate best-practices. First, proactive email notification to appropriate users is the best way to drive prompt corrective action on missing or incorrect data. Then, in the best user scenario, at the same time that validation errors are identified by the system, the user should be provided with direct access to fix the offending data. Finally, an independent revalidation of the error, verifying that the record is correct before revalidating the entire business dimension, will avoid the user frustration and resource drain associated with running a full revalidation each time just to test the fix.

Master Data Reporting Key to Version Management

Master data reporting is critical to best-practice version management. The best master data management systems will provide two key types of reports, each available in a variety of formats, depending on the needs of the business.

Master data life-cycle reports detail the changes made within a single, specified version from its creation to its ultimate validation and publication to the enterprise. These reports provide both transactional and summary-level information.

Comparative reports highlight the differences between any two versions of a dimension. Comparative reporting is important for reconciling versions and understanding how the changes occurred over time. These reports aid in the review of new versions, and in point-in-time comparisons, such as current year-end vs. last year-end. Comparative reports are a key component in executing a compliance strategy.

Security

Master data management is inherently a collaborative process, and a successful enterprise solution depends on the active and empowered participation of business users. This presents organizations with unique requirements beyond what they already have in place for general application security.

Role-based Security Ensures Safe Collaboration

The all-or-nothing approach that is inherent in most analytic applications requires that a user be assigned system administrator rights in order to make a master data change. Unfortunately, that level of authority enables the same user to change any other structure, and in many cases, also gives the user access to rebuild databases, cubes—even to alter business rules. This approach is obviously impractical in a master data management scenario,

which calls for a role-based security scheme.

For role-based security, the application must recognize and differentiate the access requirements of various user roles, such as:

- *Model Management* — Requires the ability to monitor and control the model update process for a specific business dimension(s)
- *Member Management* — Requires the ability to create new members, as well as maintain hierarchy structures and attribute assignments
- *Attribute Assignment* — Requires only the ability to assign attribute values to existing members, not to add new members or modify hierarchy structures.

Granularity Balances Access with Control
Within the access definition for a particular role, a robust master data management security scheme will allow for more granular control of an individual or group of users through defining specific read/write access (e.g. within a model, specifying the types of members that can be added, hierarchies that can be changed, individual attributes that can be modified).

Access and security can be further tailored on the basis of functionality. Functional security restricts or allows access to the key functional areas of master data management: master data editing, master data reporting, version management, audit functions, user security, and data import/export, based on individual security settings.

Workflow

Finally, master data management processes must be seamlessly integrated into enterprise workflows in order for the solution to be embraced by business users in a cross-organizational implementation. Automated email notifications and alerts of key master data management events will facilitate this workflow integration.

For example, the system should provide notification of ID and password to new users as they are added. Users of a version should be notified when a version is locked, indicating that further changes are not permitted. Users should be alerted to validation errors, as appropriate. Downstream subscribing systems should be notified when a new version of record is published and available for download. In the optimal solution, these notifications and alerts will support real-time active links into the application via secure login, for complete integration of master data management tasks into strategic enterprise workflow.

Summary

Master data management enables companies to fully leverage, integrate and manage the corporate resources inherent in their various information systems. A solid master data management strategy embraces and supports the functional roles of business users across the organization, and informs their efforts by putting all of the information resources of the company at their disposal. At the same time, the best solution will apply established best-practices and enforce compliance with corporate standards. The supporting technologies will provide for control and security, coupled with usability and access. The right combination will result in a robust platform for operational execution that is equally valuable for strategic planning. With the right plan for evaluating available solutions, companies will find that the next stage in information management is less revolution than evolution; having moved from business *data* to business *intelligence*, with the right master data management solution, organizations can now leverage existing resources to create business *achievement*.

STRATATURE®

The Master Data Management Company

A Wholly Owned Subsidiary of Microsoft

ABOUT STRATATURE • Stratature, a wholly owned subsidiary of Microsoft, is a global provider of master data management software. Stratature helps organizations execute on enterprise and departmental performance management, satisfy corporate governance, and improve enterprise reporting by providing a comprehensive dimension, hierarchy and master data management solution in a single, fast-to-implement, and easy-to-maintain product.

Stratature's unique approach delivers a highly productized solution enabling large-scale collaboration, granular security, and enterprise deployment. Providing the highest functionality set and the lowest cost of ownership, Stratature presents optimal return on investment and the best price/performance of any solution available on the market.

Working through a network of technical alliances, distributors, resellers, and business consulting partners, Stratature provides its highly successful master data management solution, +EDM, around the world.

For more information, visit Stratature online at www.stratature.com.

SWP242D