Executive Summary

Master data consists of facts that define a business entity, facts that may be used to model one or more definitions or views of an entity. Entity definitions based on master data provide business consistency and data integrity when multiple IT systems across an organization (or beyond) identify the same entity differently.

In an Internet-based survey that TDWI ran in mid-2006, the business entity most often defined in master data is the customer (74%), followed by products (54%) and financials (56%). Other entities include business partners (49%), employees (45%), locations (41%), sales contacts (25%), and physical assets (21%).

Depending on where and how it's practiced, MDM solutions fall into three broad categories. Operational MDM is built into and/or used to integrate operational applications for ERP, CRM, financials, and so on. Analytic MDM is prominent in data warehousing, because of the balance between tracking data lineage (to ensure you have the right data) and repurposing data to create new structures (like aggregates and time series). Enterprise MDM is far broader in scope than operational and analytic MDM and—as a discrete infrastructure—may encompass them.

MDM has long been practiced as part of a larger application, as seen in analytic MDM (usually for a data warehouse) and operational MDM (usually for an ERP system). The current trend is to take MDM out of its isolated silos and make it a separate solution, so it can achieve a broader enterprise scope that integrates master data and related definitions across more systems. Today, few organizations practice MDM as a separate solution (20%), although most of those embracing the practice have done so with enterprise scope (76%).

In TDWI's MDM survey, 83% of respondents reported that their organizations have suffered problems due to poor master data, and 54% claimed to have derived benefits from good master data. Data warehousing and BI issues are deeply affected, with reporting and other BI functions either suffering (81%) or succeeding (54%) based on the quality of master data. For example, when compliance involves reporting, MDM helps to populate reports accurately (to avoid an audit) and to answer questions about data's lineage (in the event of an audit). But master data also affects other business functions, like customer service, marketing, purchasing, product introductions, and the supply chain. And it assists with business integration issues like mergers, acquisitions, and reorganizations.

A first step in designing a software solution for MDM is deciding whether business entities and their storage should follow a hierarchical, multidimensional, object-oriented, relational, or flat data model. A common struggle early in MDM practice is to get beyond reacting to master data problems (like out-of-sync systems) and start proactively searching for opportunities for improvement (like including more systems in the MDM grid).

As a key success factor, most organizations need business people to be involved in the creation of business entity definitions, if the definitions are to be valid and useful. Likewise, for master data to achieve its goal—consensus-driven definitions applied consistently—it must be shared ruthlessly, which in turn demands a central organizational structure with an executive mandate, like a data governance committee or data stewardship program. These much-needed corrections to how master data is managed have deep ramifications for organizational structures and staffing.

Master data management is about defining shared business entities, like customer, product, and financials.

MDM practices tend to be operational or analytic, but can be both when the scope is enterprisewide.

MDM is cross-functional by nature, so it benefits from a governance organization that fosters collaboration between business and IT.