

CDI-MDM Discussion White Paper

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Data Mastering White Paper

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This paper is intended to provide material to allow corporations facilitate cross functional discussions about Data Mastering. It is based on real examples and covers options available for future systems that may be implemented.

Introduction

The modern corporation will have to seriously consider the problem of how to manage its master data today. The old adage that it is IT's job to manage corporate data is simply wrong. Data needs to be managed in partnership between business departments and IT.

Enterprise-wide resource planning and customer relationship solutions are core to the success of the modern corporation. Integration between solutions is demanded as a foundation. In order to achieve effective solutions data quality is in increasing demand.

Master Data Management provides the key impetus for successful data quality management by the business.

Problem Statement

One of the major issues the average corporation faces is that of controlling data about the products that the company markets and the consistency of its customer list.

The average large corporation will have over one thousand applications active across the organization according to *Wolf Rivkin, Founder and Chief Architect of B-Wave Software*. Integration and the application of standards can represent a major problem and leads to many problems relating to the quality of data.

Where new systems are planned to be implemented for:

- Enterprise Resource Planning
- Customer Relationship Management,
- Supply Chain Management
- Finance,
- Product distribution system ,
- Vendor Relationship Management, and
- The Enterprise Data Warehouse.

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These systems are enterprise based and are intended to ensure that uniform processes are followed across an organization.

It is therefore important that data masters exist for:

- Customer Data,
- Vendor Data,
- Product Data, and
- Other reference data used.

Associated with the need to master this key data it is necessary that the business community instigate tighter controls on the data it owns in order to ensure that problems previously encountered do not re-occur in the future

Some commentators in the IT industry believe that for industries such as retail there needs to be data sharing across the extended supply chain from the original manufacturer to the retail store, including all wholesalers and distributors – the first step of which is the synchronisation and agreement of master data standards and content. Some commentators suggest this could also extend to a standard nomenclature across the globe for a specific marketplace.

Each marketplace will have their industry body that will collect and distribute statistics about performance of each type of product.

Any organization involved needs to get on the first step of this ladder and ensure data is clean and consistent and is available precisely where (and when) it is needed.

Building consistency across a series of legacy systems that have a reputation of providing poor data quality can be a distinct problem. In addition demands to integrate with the new corporate applications place an extra strain on the challenge of data quality.

This is where Master Data Management provides a foundation for change.

Ultimately there must be gatekeeper teams within the business that take ownership of key data elements e.g. Customer Services being the only people who can add a new customer.

Automation of processes will ensure all who need access to mastered data have it, but only those within the business authorised to make changes actually alter data.

Options Available

Lack of consistency in corporate data has driven the need to implement masters for key data segments.

The implementation of Master Data Management is an essential business initiative, especially as data continues to be embedded in new business processes and transactions accuracy becomes vital, with IS as the facilitator of the change.

Broadly the currently options for managing master data are:

1. Continue with existing systems,
2. Master the data within the Data Warehouse,
3. Master data in specialist systems
4. Implement data mastering technology

Existing Systems

Normally this can be discounted as a viable option as there are too many issues needing to be resolved within an old, if not, antique system.

Where the legacy system has no database it is difficult to implement a mastering policy. If a database exists then it may be possible to use this as a foundation for integrated messaging between systems.

However it is important to remember that no-one perceived the need for corporate-wide master data management when many of the early legacy systems were written, so it may be difficult to implement the controls demanded by modern systems.

Enterprise Data Warehouse

The Enterprise Data Warehouse will be one of the key systems that will make use of data masters, but it is not an operational system and is not designed to act as a operational data

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master. Its focus is on providing enterprise analytics and demands clean data provided to it.

Specialist Systems

The argument here is that each specialist system (for example the CRM) is responsible for maintaining the majority of data in a particular area (in this case the Customer data) and therefore this is where the master should be located.

The problem with this approach is that many other systems need to add associated data (e.g. updates of the quantity of product supplied to a particular customer and date of shipment) which may have cross functional relevance and hence should be part of the master data.

Implement Data Mastering Technology

The intent here is to deploy an application that will provide the correct environment for the management of the master data.

This recognizes the need to manage master data within the operational side of the business. The associated technologies may include applications for centralized maintenance of data on a single corporate database, plus integration into a messaging or ETL layer that will ensure all client systems remain up-to-date

Tools can also be provided to perform consistency checks.

Customer Master

Figure 1 shows a logical view of the impact area for the Customer Domain within the average corporation.

Normally there is a rule that new customers must be added through the CRM system (and of course modifications). But this is not the only system that impacts the Customer Domain. Processes such as customer billing, orders/allocation, and accounts receivable all impact master customer data in some way.

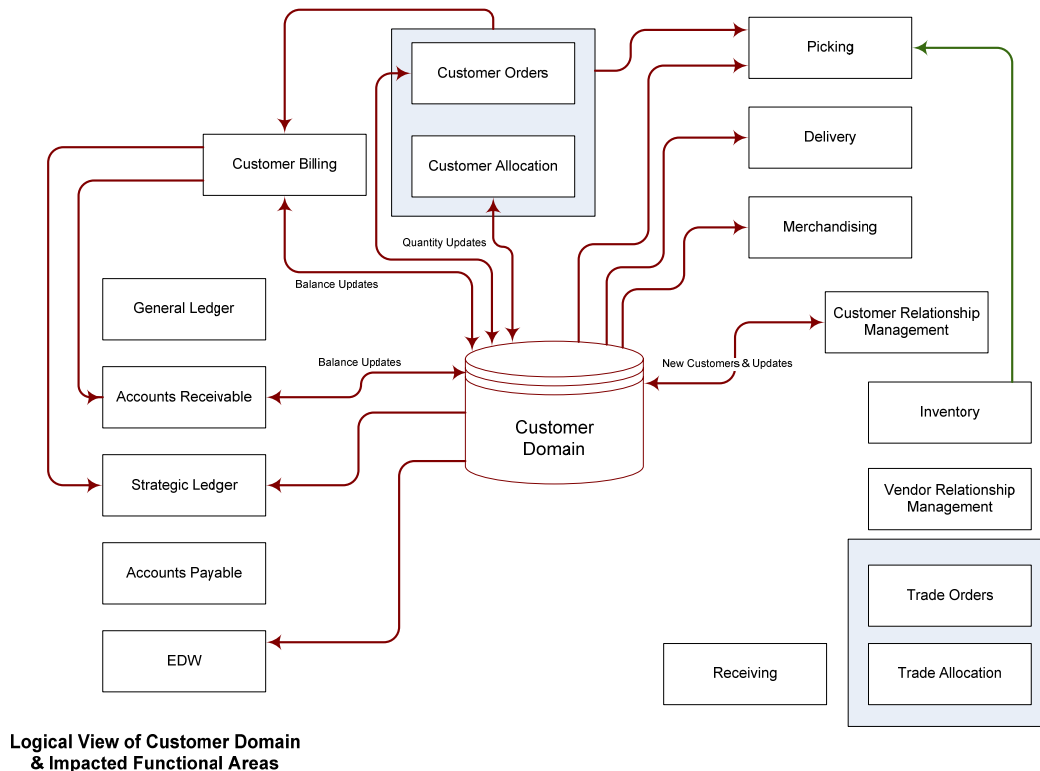


Figure 1 - Customer Domain

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All updates to this domain must be considered when deciding the best location for the master data set.

Ultimately each business areas relies on having up-to-date customer data. This latency is not limited to the correct name and address, but includes current credit limits, order balances and unit totals.

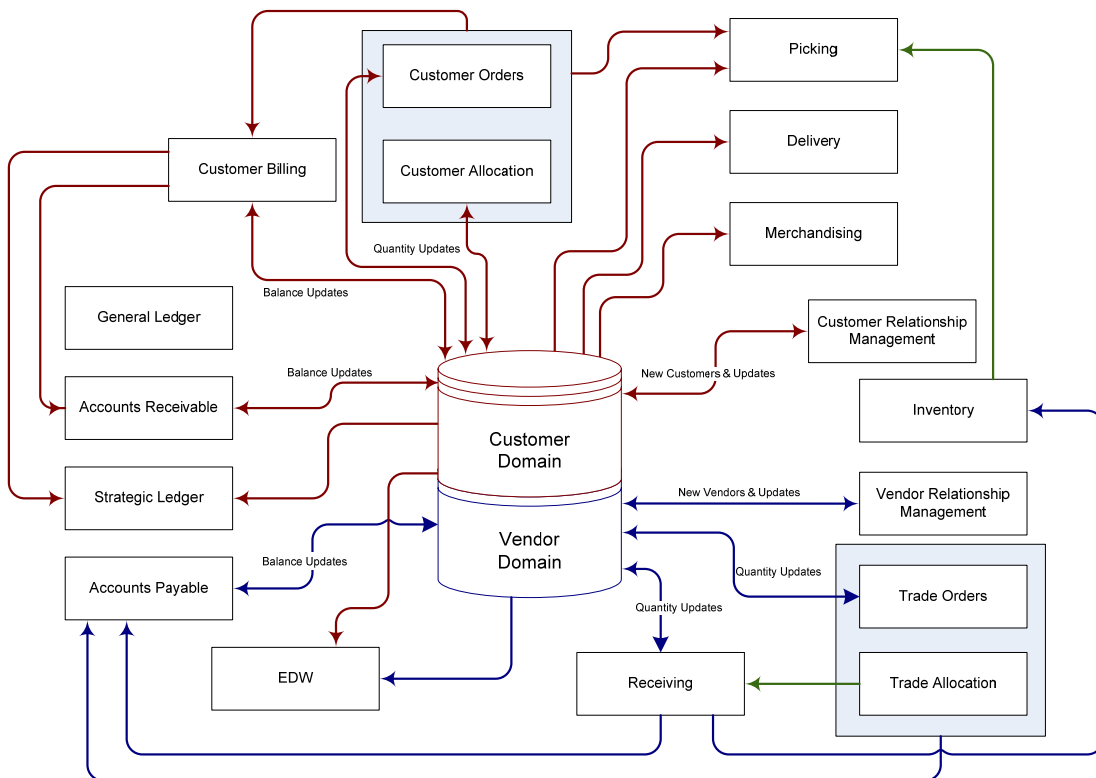
Financial data is rarely managed through the CRM.

Wherever this data resides there is a clear need to manage flows through an integration layer that is responsible for keeping all functional areas up-to-date. Updates must be on a timely basis so that no system is out-of-date for a long period of time. This may

require near real-time propagation of data to impacted functional business areas. Data Integration and Messaging tools will be integral to the success of this.

Vendor Master

It is essential to talk of the Master Vendor Domain at this point. We manage vendors differently than we do customers, yet logically vendor data is the same type of data as customer data, being primarily contacts, companies, and addresses. Therefore it would seem logical that this be an extension of the customer domain. Figure 2 adds the impact of the Vendor Domain to the existing Customer domain in our example corporation.



Logical View of Vendor Domain
And how this links to the Customer
Domain & Impacted Functional Areas

Figure 2 - Vendor Domain

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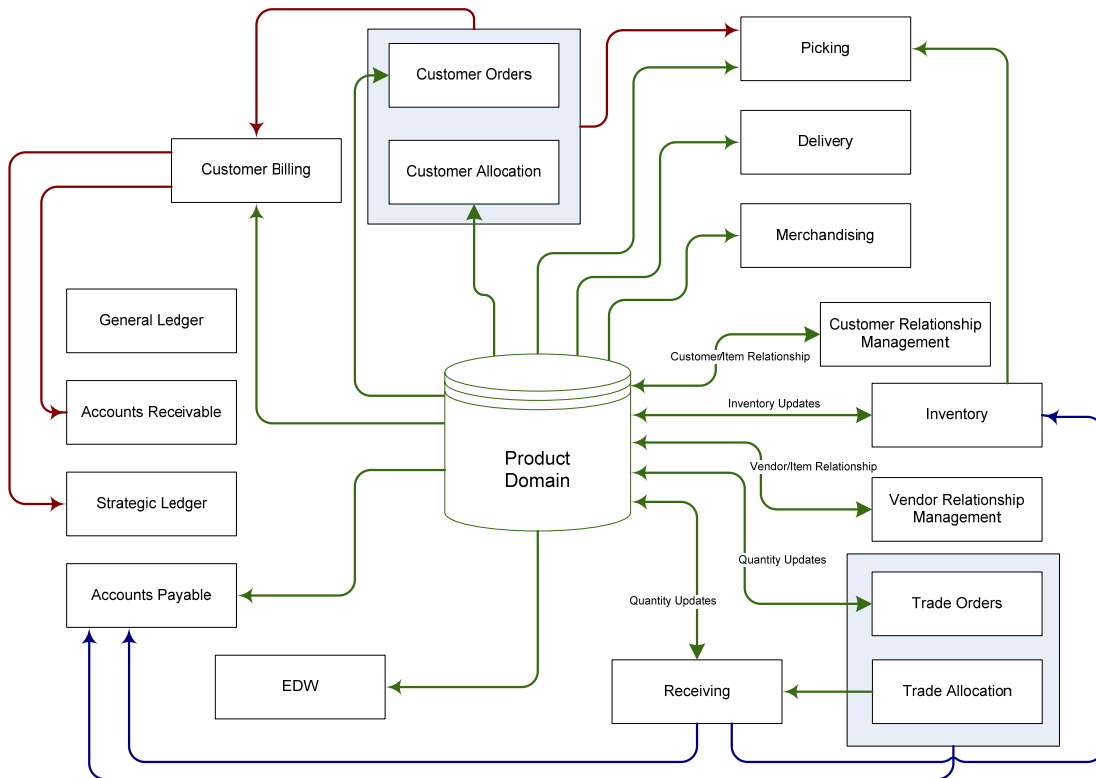
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There will be a requirement for a Vendor Relationship Management function. There is potential for this to be managed within the CRM application with each domain's data being separately flagged. Remember in certain circumstances a vendor can also be a customer. It has multiple business functions and the data will need to be managed through an integration layer to keep all associated functions current. Some actions will demand real-time updates e.g. once a new vendor is added the business user will need to create a trade order immediately to bring the product into the supply chain.

Product (item) Master

The situation regarding product data is usually more complex than customer or vendor data.

In Figure 3 product management systems are shown as a single logical process. On top of there are often a large number of different physical legacy systems managing each specific functional area. This can be made more complex when different systems are used to manage each type of product that the company handles. Hence Figure 3 only represents a simplified logical view of the complexity of the product domain.



Logical View of Item Domain
& Impacted Functional Areas

Figure 3 - Item Domain

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Many commentators concentrate on the mastering of customer data, but in my experience there are many more problems associated with product data, particularly when products are transacted between organizations. When a recent Harry Potter book was released it was discovered that there were 14 different versions book title, all made the worse by the fact that the publisher also spelled the title incorrectly.

This is one component that allows a corporation to communicate confidently with

its business partners, suppliers, logistics companies, and customers. We need to be clear about what product it is we are handling. Errors in names and addresses in customer or vendor records can normally be spotted and corrected with a minimal impact (Customers complain if you get it wrong). The item domain can go uncorrected for long periods of time. The cost impact of such errors can be greater to most corporations as product data is not seen as contributing value to the extended supply chain.

Data Gate-Keeping Policy

Earlier I have talked about the need for data gate-keepers. The need here is for specialist business units within the organization to control data in their specialist area. Ideally there should be a single business unit managing customer data and a another business unit managing products or items handled by the organization.

In reality any international corporation will have to maintain a multi-lingual catalogue for each product. English, Spanish, Italian, French, Chinese, Japanese, and Arabic versions need to exist in parallel. Not many products have a truly international single brand name. All versions should be kept together in a single master. Only a single business unit should be allowed to modify this data. This may require removing functionality from certain systems to groups who have traditionally been able to modify this data.

Many countries require dual language product information, e.g. Canada requiring English and French on labels (not to mention the growing use of Spanish in the USA), this can be a major concern for product manufacturers.

Having a gate-keeper for key reference data minimizes associated errors.

Robert S. Seiner, Editor of The Data Administration Newsletter, through his own consulting practice provides courses on Data Governance and Stewardship.

Implementation

The first time when the average corporation encountered the problem of data consistency and mastering was associated with implementation of the Data Warehouse associated with Business Intelligence solutions in the 1990's. At first it was assumed that masters should reside in the Data Warehouse, but this misinterprets the purpose of Master Data, which is transactional in nature. The Data Warehouse is a data client not the location of the master.

It is rare (even where an enterprise-wide ERP solution is installed) that there is only one system encompassing all of the functionality of the of every department in the corporation. Master Data Management solutions are therefore heavily dependent of a robust and dependable integration layer. Data will need to be consistently moved between each of the corporate systems.

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Updates should be made firstly to the master then propagated out to other systems. Each of the functional areas shown in the diagrams above may be represented by multiple physical applications.

There are two implementation options:

1. Adoption of Master Data Management technology
2. Implementation of a messaging architecture to manage each data contact.

In fact both approaches are likely to be required simultaneously Master Data Management technology will be a layer surrounding a master database requiring timely transportation of data to an API or drop zone.

It is essential to build on any project management successes or leverage the resources of the Project management office in order to build the organizational support for the initiative at a corporate level. People, particularly the business subject matter experts, are essential for success – as is their stewardship and control of the data. Data ownership shifts to the business side of the organization. Remember it is the end-state or target process that needs to be understood.

This requires business sponsorship based on full justification (ROI etc.) and executive support during the lifecycle. Data ownership will, however bring politics very much into the picture and relies on C-level sponsorship, including the CIO. The change agent almost invariably comes from the business side, it is not that IT does not understand the issues – it takes business understanding to provoke action and it is the business benefits that are the most relevant.

Summary

The solution must have the requisite business sponsorship from the outset. Data is a constantly evolving organism. In the same way as corporations gain control of their own destiny through the use of the Business Intelligence it must improve the quality of its data. The real value of our business data is not the data itself but whatever insights we can gain from it through the development of an information knowledgebase.

From the operational viewpoint errors in data do not stop the continuing activities of the business. They do however necessitate correcting actions that in some instances cost the company money. For a logistics company, deliver 1440 video cameras to a store instead of 144 will both deplete warehouse stocks and in the worst case would cause a driver to be sent out to pick-up the excess at extra cost to the company.

The implementation of Master Data will not stop all operational errors from occurring. It will ensure that we manage Customer, Vendor and Product data consistently across the organisation. Management of this information should be part of the normal everyday processes. Business based gatekeeper teams will ensure that errors are minimised. Automation should enhance this process and reduce effort. There should be no need to repeat master data entry across each warehouse, in fact there should be no right to change master data, just view it. Furthermore this type of data should be supplied by product suppliers with cross checking carried out by the business team responsible for maintaining the master.

The business benefits are reaped by improving information governance and synchronising with all component applications. Master data management is the glue that binds applications together.