

# Master Data Management

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I've been asked a lot of questions about "Master Data Management" over the past few weeks - what does it mean, who does it, and what are some tools and metrics that organizations are using to reign in this important aspect of ERP and analytics systems. I started reaching out to the folks in my professional network with some results, but I thought I might be able to leverage [LinkedIn](#) and [Twitter](#) to get input from far and wide. This "bootstrapped" market research might not deliver the depth and reach of the bigger technology research firms, but it will be interesting to see what can be gathered.

## Ground Rules

1. I've put together a little survey ([download from here](#)) which is intended to take about 15 minutes to complete - that should give you an indication into the amount of rigor and depth I am looking for.
2. Please fill it out and email the result to [BMRMDM@cazh1.com](mailto:BMRMDM@cazh1.com)
3. I'm trying to get input from a number of companies - large and small, with all sorts of ERP systems. So in return for your input, I'll be happy to email you an aggregated, anonymized summary of what folks are telling me. Please note that none of your specific answers will be tied to your company name in any way.

## Some Definitions

What do I mean by *master data*? Compare and contrast to *transactions* ...

- Transactional Data – describes “events”
  - Production orders, material movements, and confirmations
  - Customer orders, shipments, and invoices
  - Payments, credits, rebates, and returns
  - Journal entries
- Master Data – describes “facts”
  - Finished goods, raw materials, and work-in-process
  - Manufacturing routings, warehouse picking strategies
  - Customers, vendors, employees
  - Organizations and hierarchies
  - Chart of accounts
  - (also referred to as Reference Data, Configuration Data)



## The Question of Ownership

I've asked this question before – [who owns Master Data?](#) – but there may be some different understanding over what “ownership” refers to. Is the “owner” responsible for ...

- Master Data *Quality*?
  - Data Structure, including requirements and interdependencies
  - Process & Procedure for getting Master Data *into* the system
  - Access & Training for getting Master Data *out of* the system
  - Audits & Quality Checks to make sure corporate requirements and standards are met
  - Metrics & Visibility for critical Master Data processes, especially when adding new products
- Master Data *Content*? (for example ...)
  - Structure of the chart of accounts
  - Bin configuration and capacity
  - Modeling manufacturing processes in a routing
  - Product families, sales org hierarchies
  - Credit ratings
  - Material substitution

## Benchmarking Survey Questions

The survey asks some high level questions in these areas:

- Master Data Definitions
- Size & Scope of Master Data
- Organization Structures
- Scope of Responsibilities
- Positives
- Challenges

There is also space at the end to bounce back some questions - let me know what else is on your mind!

## Summarized Results

I've received input from ten companies so far - large and small, with all sorts of ERP systems. If you care to add some information, I'll thank you in advance, and add it (sufficiently anonymized) to this summary results document; the **Last Update**: date in the lower right corner of each page is your indication of freshness (compare to the date on the [web page](#)).

### Master Data Domains

The types of Master Data called out included the usual suspects - Customers, Vendors, Finished Goods, Employees. Others mentioned include Metadata, Packaging / Tooling (components), and Indirect customers (like Payors in managed care, or Buying Groups in B2B). The primary systems in scope included SAP, Oracle, JDEdwards, and QAD, joined by an eclectic mix of legacy systems and point solutions. Secondary systems called out included Siebel, JDA/Manugistics, and ADP (payroll) - plus more legacy / home grown / departmental apps.

Master Data initiatives varied, based on where the “current pain” is - R&D / engineering, CRM / Customers / Contracts / Pricing, and Finished Goods / Logistics were named by different companies as their particular focus areas. Other important considerations were things like geography (North America vs. ROW), and business structure (Enterprise vs. business unit vs. local plant).

A significant determinant of how folks thought about this problem was how their ERP is implemented - in a fully integrated “enterprise” (Finance, Order Management, Supply Chain, etc.) - and/or how the instances are divided (all enterprise, by location (geography) or by business unit).



Note, however, that relatively few respondents are concerned with synchronizing data across multiple instances - a popular callout / feature of some MDM solutions. They will speak of "integration", but a focus of the conversations were all around quality and process, not synchronization.

An interesting frustration from some of the respondents; the ERP system(s) do not capture all of the required attributes for an item, so these additional details are kept in a separate, siloed system. Easy examples would be specific attributes (like shipping material specifications), but there were multiple instances where [so-called] Master Data is calculated with complex formulas / rationale, so an Excel component is required (typically in the area of pricing / quoting details).

Note: I believe we should consider computation of pricing as a (potentially) complex process that occurs in its own transactional / analytical system (aka "the magic gonkulator"). The *output* is master data - but the *calculations* don't belong in an MD system.

## Size & Scope of Master Data

Predictably, there was a great variation in the responses - 100s to 1000s of customer, vendors, finished goods. However, the interesting trend was the notation that 10s of people (relatively large numbers, based on size of the company), were "responsible" (ie. "did some of the data entry"). Could this be why there is interest in MDM and an MDM organization? Apparently, Master Data is often managed like a wiki - everybody is an editor.

Note This is not always "out of control" - companies that have reasonably sized groups are the same ones that speak of metrics and controls. However, few report the existence of a centralized data governance organization (see below).

Most organizations have no metrics in place; a few can speak to "data police", folks that actively monitor the data looking for issues. Best examples cited included "Health Check measures" (does data fit set of established guidelines / tolerances); vendor audits, and [results of] scrubbing (ex. Name And Address data against external sources).

When asked about the business benefits of a Master Data Management effort, most companies left this blank or said "none". I generally got the sense that hard benefits are difficult to quantify; notable exceptions seem to come from past pain. Some organizations spoke to inventory reductions and transportation savings - both derived from more accurate supply chain data, which is facilitated by clean, consistent, complete Master Data.

## Master Data in the Organization

Many companies keep control / accountability at the functional area. However, companies with "enterprise ERP" implementations (full integration of Finance, Order Management, Supply Chain) typically call out ownership at the Enterprise level. It's not about the size of the company or the recency of their implementation - it's the degree of integration within the primary ERP.

Organizational specifics were tougher to get at - depending on how the company managed their master data. Generally speaking, companies that manage Master Data at a functional level (Customer Service, Purchasing, Finance) have organizational clarity. However, folks that say they manage at the Enterprise level had the wispiest definitions for Title and Accountability

Of note: centralized MDM teams rarely manage the bigger projects (implementations, acquisitions, or special projects with large MD components) - but they will (out of necessity) participate. None of the respondents look to these organizations / people for project management skills. However, there were some good callouts for the communication / change management skills required for the role, especially where the group has to review implications of adds / updates [of Master Data items] with multiple groups that will/may be impacted.



**Scope of Responsibilities**

An interesting, consistent set of answers in this area; "Yes, we take ownership and accountability - but no, we can't measure it". To be fair, not all companies had that clarity of ownership, but the lack of sharp, clear quality metrics is noticeable. Content, Quality, and Governance are consistent in all of these companies ... consistently not-well defined, not well measured.

**Positives & Challenges**

Funny how best practices in one company are challenges in another. There are two recurring themes throughout the responses; Quality and Complexity. The latter is interesting; this was the first point in the survey where the difficulties of Finished Goods Master Data were raised. Many companies call it out as a large challenge; all of them cite the complexity, the multiple facets (manufacturing, packaging, warehousing, transportation, pricing, costing) and the cross-functional nature

**Contact Information**

Questions? Comments? Suggestions? Let me know ...

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Direct quotes from survey responses appear in italics

Focus Area	Question	Answer	Comments
<b>Master Data Definitions</b>	What types of information are covered in your definition of Master Data?	"The Likely Suspects" - Customers, Vendors, Finished Goods, Employees Others mentioned: Metadata, Packaging / Tooling (components), Indirect customers (like Payors in managed care, or Buying Groups in B2B)	Other considerations in this area - geography (North America vs. ROW), and business structure (Enterprise vs. business unit vs. local plant). Answers vary based on where the "current pain" is - R&D / engineering, CRM / Customers / Contracts / Pricing, and Finished Goods / Logistics were named by different companies as their particular focus areas.
	What is your primary ERP system, or primary source system for Master Data?	SAP, Oracle, JDEdwards, QAD (or) None [a patchwork of legacy systems and point solutions]	These were the only ones mentioned - but most note that ERP is not implemented in a truly enterprise fashion at their company; typically separate instances by location (geography) or business unit. Note, however, that relatively few respondents are concerned with synchronizing data across multiple instances (a popular callout / feature of some MDM solutions). [This could be due to limited sample set]
	What other systems contain Master Data that must be managed?	Siebel, Manugistics, ADP (payroll), and a variety of legacy and home grown applications	Interesting to note that folks are concerned about MD (Master Data) integration, but the overall focus of the responses was around quality and process, not synchronization
	Do you use Master Data from your primary ERP system outside of that system?	Yes and no	The "no" responses included <i>well, not very effectively ...</i> However, use in pricing / contracting was called out as important.  Another interesting comment - <i>No, because the ERP system does not capture all of the required attributes</i> - so they are kept in a separate, siloed system. Yes, this was perceived as <i>less than effective</i> - but there are also numerous instances where [so-called] Master Data is calculated with complex formulas / rationale, so an Excel component is required.
	Do you manage Master Data outside of your primary ERP system that could/should be in the ERP?	Generally no	Only exception that was called out in a few areas - pricing / quoting details.  <i>Editor's Note</i> We should consider computation of pricing as something that occurs in a transactional / analytical system (aka <i>gonkulator</i> ). The output is master data - but the calculations don't belong in your MD system)
	Are there other functional areas / business units in your organization not on your primary ERP system, but which require Master Data access / management?	Engineering / New product development, and Sales / CRM, were the most commonly cited areas	Best quote - <i>yes, and the interfaces are a nightmare</i>
<b>Size &amp; Scope of Master Data</b>	What is the number of finished goods managed?	Varies by industry - range from 3000 to 150000	<i>Editor's Note</i> Note that this question skews the conversation - organizations that are currently focused on solving customer data problems will use "Master Data" to refer to "Customer Master Data"
	What is the number of other materials managed (WIP, raw materials, purchased items, other)?	Varies by industry - range from 3000 to 150000	
	How many employees are responsible for management of these types of Master Data:  Customers, Vendors, Materials, Pricing, Other		A great variation in the responses, but ranges from 10s to 100's  <i>Editor's Note</i> Could this be why there is interest in MDM and an MDM organization? Master Data is sometimes managed like a wiki - everybody is an editor.  <i>Editor's Note</i> This is not always out of control - companies that have reasonably sized groups are the same ones that speak of metrics and controls. However, few report the existence of a centralized data governance organization (see below)
	What metrics are in place (or planned) to quantify Master Data "quality"?	from None to some	Most organizations have no metrics in place; a few can speak to "data police", folks that actively monitor the data looking for issues Best examples: <i>Health Check measures</i> (does data fit set of established guidelines / tolerances); cycle counting (?), vendor audits, and scrubbing (ex. Name And Address data against external sources)

*Direct quotes from survey responses appear in italics*

Focus Area	Question	Answer	Comments
<b>Size &amp; Scope of Master Data</b> (cont'd)	<b>What business benefits are measured / targeted / spoken to, when justifying Master Data Management organization / costs?</b>	<i>Centralized functionality, reduce redundancy, enhanced control</i>  <i>Consistency and accuracy</i>  <i>Compliance (SOX / regulatory)</i>	<i>Editor's Note</i> Many folks left this blank or said "none" - I generally got the sense that hard benefits are difficult to quantify. Notable exceptions seem to come from past pain - some organizations spoke to inventory reductions and transportation savings derived from more accurate supply chain data.
<b>Master Data in the Organization</b>	<b>Are systems and data managed at the Enterprise level? Business unit? Functional area?</b>	Functional Area	Many companies keep control / accountability at the functional area. However, companies with "enterprise ERP" implementations (full integration of Finance, Order Management, Supply Chain) typically call out ownership at the <i>Enterprise</i> level. It's not about the size of the company or the recency of their implementation - it's the degree of integration within the primary ERP
	<b>Do you have a central Master Data Management (MDM) team; a clear "center of gravity" for all things Master Data?</b>	Yes, under various names, including <i>Data Governance team</i> <i>Customer Master team</i>	
	<b>Is there one person in charge of the overall MDM team? If so, what is their title, and what level in the organization do they report to?</b>	examples: <i>SAP Enterprise IT Lead, in IT</i> <i>Manager level, reporting to Customer Service</i> <i>CFO</i>	Organizational specifics were tougher to get at - depending on how the company managed their master data. Generally speaking, companies that manage Master Data at a functional level (Customer Service, Purchasing, Finance) have organizational clarity. However, folks that say they manage at the Enterprise level had the wisper definitions for Title and Accountability
	<b>Where does the MDM team roll up in the overall organization?</b>	under Functional Area	
	<b>Does this MDM team manage only ERP data, or do they cover other areas / applications / platforms?</b>		<i>Editor's Note</i> These questions typically got little substantive response, or they are covered in the previous two
	<b>Is non-ERP Master Data managed centrally?</b>		
	<b>Is all ERP Master Data (vendor, customer, materials, pricing) managed centrally?</b>		
	<b>Do your Master Data experts manage ERP implementations and special projects, or are they only focused on day-to-day maintenance?</b>	Day to Day, functional tasks	These teams rarely <u>manage</u> the bigger projects, but they will (out of necessity) participate. None of the respondents look to these organizations / people for project management skills.
	<b>What other work falls under the definition of "Master Data management"?</b>	<i>They focused entirely on MDM</i>  <i>BOM cost rolling assigned to Finance, and BOM maintenance to Engineering</i>	When there is clarity, there is focus (not a rule, just an observation). Also, some good callouts for the communication / change management skills required for the role: <i>[This group] has to review implications of adds / updates [of Master Data items] with all groups impacted</i>
<b>Scope of Responsibilities</b>	<b>Does the MDM organization take ownership of data "quality" - completeness, consistency?</b>	Yes	An interesting, consistent set of answers - yes, we take ownership and accountability, but no, we can't measure it.
	<b>Are their data quality metrics in place? If so, what do they measure?</b>	No	To be fair, not all companies had that clarity of ownership, but the lack of sharp, clear quality metrics is noticeable
	<b>Does the MDM organization take ownership of data "content"? What does data "content" mean to your company?</b>	<i>No, [content ownership] falls to the business</i>  <i>I think of content as the data itself, rather than policies, structures (formats for [part] numbers)</i>	Content, Quality, and Governance are consistent in all of these companies ... consistently not-well defined, not well measured
	<b>Does the MDM organization take ownership of data "governance"? What does data "governance" mean to your company?</b>	<i>data governance owns the numbers ... and is responsible to verify that it is correct</i>	

*Direct quotes from survey responses appear in italics*

Focus Area	Question	Answer	Comments
<b>Positives</b>	<b>What works well in your current Master Data management activities?</b>	<p><i>... policing the [ERP] and ramping up customer creations when necessary</i></p> <p><i>standardizing data across vendors</i></p> <p><i>centralized expertise, few errors</i></p> <p><i>tightly control customers / pricing to one corporate group</i></p>	Best practices in one company are challenges in another
<b>Challenges</b>	<b>What are the current challenges?</b>	<p><i>Quality and correctness of data</i></p> <p><i>Quality and consistency of data</i></p> <p><i>Cost and material data is very accurate. Why? Because sales dollars .. and margin are big corporate measurables. Conversely, manufacturing data - formulas and routes - are not as accurate. They are complex and difficult to do.</i></p>	Recurring Theme #1 - Quality
		<p><i>many departments 'own' different parts of the data</i></p> <p><i>Cost and material data is very accurate. Why? Because sales dollars .. and margin are big corporate measurables. Conversely, manufacturing data - formulas and routes - are not as accurate. They are complex and difficult to do.</i></p>	Recurring Theme #2 - Complexity
		<p><i>lots of data not owned by anyone and consumed by many</i></p> <p><i>Consistent backlog of data to be entered</i></p> <p><i>Lack of global standards</i></p>	This is the first time that the master data challenges inherent with Finished Goods are raised. Many companies call it out as a large challenge; all of them cite the complexity, the multiple facets (manufacturing, packaging, warehousing, transportation, pricing, costing) and the cross-functional nature
			Miscellaneous
<b>Future Benchmarking</b>	<b>What would you like to learn more about in a benchmarking exercise, regarding Master Data?</b>	<p><i>Metrics on duplicate / out of date data before a new MDM solution / process, and then impact (duplicates eliminated / data freshness) after</i></p> <p><i>How does one give the BU more flexibility without losing standardization?</i></p> <p><i>What tools are available to facilitate process?</i></p>	
<b>Other Comments</b>		<p><i>wow, Jim, what a great blog!</i></p>	just kidding