

Enterprise Master Data Management: Market Review & Forecast for 2008-12

An MDM Institute MarketPulse™ In-Depth Report

Corporate master data is a critical asset that must be increasingly managed within and beyond the enterprise — primarily to solve business problems in compliance, customer service, sales, and marketing. Such master data may be identified, harmonized and integrated at multiple levels of the software stack to materialize a “single customer view” (or supplier, product, view etc.).

Master data management (MDM) solutions will vary by industry in terms of tactical approaches taken – e.g., pharmaceutical/life sciences will adopt semi-batch, database-centric approaches for master physician data to be deployed to sales forces, while financial services providers and online retailers will require near real-time, business process-centric solutions to compete in the business-to-consumer online world.

During 2008-09, most large enterprises will focus on MDM by deploying 3rd generation packaged MDM solutions to deliver panoramic customer, product and supplier views across multiple channels, business lines, and heterogeneous IT environments. By 2010-11, 4th generation solutions will begin to predominate due to requirements for multiple master entities, unstructured data, etc. By 2012, more than 80% of the Global 5000 size enterprises will have committed to enterprise MDM as a core business strategy and have implemented at least one master entity – whether party (customer/supplier/citizen) or product.

The aggregate enterprise MDM market (customer and product hubs, plus systems implementation services) totaled US\$730 million at YE2007 and will reach US\$2 billion by the end of 2012. Software sales are but one portion as MDM systems integration services reached US\$510 million alone during 2007 and are projected to exceed US\$1.3 billion per year by 2012.

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Executive summary

The market for master data management (MDM) solutions continues to grow, diversify, and mature. Mega vendors IBM, Oracle and SAP are the dominant solutions with more than 80% of the total market between them, however, best-of-breed vendors continue to proliferate and accelerate their market share across this rapidly growing market. Unlike other analyst research reports which measure MDM as an aggregate/macro market (including data quality tools, data service provider/hosting revenues, and more) this is the first report to exclusively examine the “enterprise MDM” market under a microscope – e.g., the sum of customer data integration solutions that are also enabled to support product information management masters.

MDM rationale. Enterprises are increasingly turning towards MDM as a means to increase business optimization by rationalizing and sharing master data and processes – e.g., a single view of the customer/product/supplier.

Corporate master data is a critical asset that must be increasingly managed within and beyond the enterprise — primarily to solve business problems in compliance, customer service, sales, and marketing. Such master data may be identified, harmonized and integrated at multiple levels of the software stack to materialize a “single customer view” (or supplier, product, view etc.).

Master data management (MDM) solutions will vary by industry in terms of tactical approaches taken – e.g., pharmaceutical/life sciences will adopt semi-batch, database-centric approaches for master physician data to be deployed to sales forces, while financial services providers and online retailers will require near real-time, business process-centric solutions to compete in the business-to-consumer (B2C) online world.

Since 2004, given the choice of building or buying an MDM solution, the trend has clearly been to purchase off-the-shelf MDM packaged applications and customize them to the organization’s needs – similar to prior trends in Enterprise Resource Planning (ERP) and Customer Relationship Management (CRM). The two primary MDM markets remain: customer master data (referred to as Customer Data Integration or CDI) and product master data (referred to as Product Information Management or PIM). Based on quarterly surveys of the MDM Institute Business Council™ (8,000+ subscribers to the MDM Alert newsletter engaged in MDM projects), the perennial top five business drivers for MDM initiatives are summarized as: (1) compliance and regulatory reporting; (2) economies of scale for mergers and acquisitions (M&A); (3) synergies for cross-sell and up-sell; (4) legacy system integration and augmentation; and (5) “once & done” economies and customer satisfaction.

Market trends. The aggregate MDM market will grow from US\$2.8 billion to US\$4 billion over the forecast period (2008-2012), including revenues from both MDM packaged solutions and implementation services as well as the billion plus dollars related to data service providers such as Acxiom and Dun & Bradstreet. The above figure does not include the discrete software components such as extract-transform-load (ETL) or data profiling. Implementation services account for 21% of MDM market revenues today, but will rise to 26% of all MDM revenues by 2012 as Microsoft and other vendors deliver lower-end solutions targeted at the mid-market.

The aggregate enterprise MDM market (customer and product hubs, plus systems implementation services) totaled US\$730 million at YE2007 and will reach US\$2 billion by the end of 2012. Software sales are but one portion as MDM systems integration services reached US\$510 million alone during 2007 and are projected to exceed US\$1.3 billion per year by 2012.

Even after several years of healthy adoption rates, the MDM market is actually just beginning its trajectory toward broad adoption and deep penetration. Moreover, during the next five years, we will also see buyer behavior migrating from point products (i.e., to address customer or product master data only) to enterprise MDM (supporting multiple entities/data domains such as customer, product, supplier, location, price, etc.) — and, to a lesser extent, from

software products to hosted/managed services (software as a hosted service). Concurrently, MDM vendors will decompose their products into service-oriented architecture (SOA)-enabled functions, and in turn repackage and OEM them through a wide range of channels (vertical and horizontal).

Technology trends. In our meetings with the MDM implementation teams at these and other venues, we have noted that the requirement for commercial MDM solutions to provide support for multiple types of master data (“domains” or “entity types”) is increasingly on the minds of business technologists at these large enterprises. Specifically, the overarching concern is to avoiding “*repaving the cow paths*”. This occurs when an IT group executes on a shortsighted strategy of mastering the master data in one given business area with a specific brand of MDM solution and then discovers that another division or line-of-business has chosen a different brand of MDM product (and architecture) to solve their MDM issues. All too often these different product-specific MDM solutions do not offer the capability of integrating master data “across” the great divide between “party” master data (customers, suppliers, employees) and “product” ... resulting in “*random acts of MDM*”.

In terms of technology directions, MDM packaged solutions continue to evolve in several directions. Specifically In the past 12-18 months, there has been a great deal of both marketing and product development to support multiple entities or data domains. Additionally there’s been increased emphasis on adding or improving fundamental data governance capabilities beyond mere data steward consoles. We’ve also seen emphasis on data profiling as well as the integration of analytical capabilities such as dashboards and reporting. Both software as a service (SaaS) and open source movements are also interesting as they are providing lower price points as well as fundamentally fresh approaches to software licensing.

During 2008-09, most large enterprises will focus on MDM by deploying 3rd generation packaged MDM solutions to deliver panoramic customer, product and supplier views across multiple channels, business lines, and heterogeneous IT environments. By 2010-11, 4th generation solutions will begin to predominate due to requirements for multiple master entities, unstructured data, etc. By 2012, more than 80% of the Global 5000 size enterprises will have committed to enterprise MDM as a core business strategy and have implemented at least one master entity – whether party (customer/supplier/citizen) or product.

Summary. The goal of this MDM Institute MarketPulse™ market forecast is to outline the requirements for such capabilities while providing an industry road map that highlights the planning assumptions necessary.

Enterprises on the enterprise MDM journey are challenged to focus on mitigating the organizational and business case challenges that such an enterprise -wide, multi-data domain business strategy introduces – often this is Business Process Optimization and Business Transformation at their grandest. Among the challenges facing such enterprise MDM initiatives include: the architecting of a comprehensive SOA¹-based technology infrastructure and the concurrent revitalization of the relationship among business and IT organizations.

Despite such significant challenges, the business goal of delivering trusted data throughout the enterprise shouldn't be downplayed or ignored as the competition most likely has already begun their drive to this end goal. Instead of envisioning MDM as a “game change” strategy (which it often is), the pragmatic business will acknowledge although enterprise MDM is a multi-phase, multi-year, evolving business capability, it is an essential business strategy for keeping the enterprise sound in the increasingly competitive 21st century. The goal of the agile corporation mandates delivery of trusted, high quality and timely customer, product, and other vital master data.

¹ SOA – Service-oriented architecture

Key findings

Clearly, enterprise MDM is a major IT initiative being undertaken by a large number of market-leading Global 5000 size enterprises. Both as an IT discipline and an integrated set of technology solutions, MDM continues to evolve at a rapid pace. This research focuses on the below top five market trends for MDM and advises which actions enterprises should take to generate business value and achieve competitive advantage. These are the key findings of this MarketPulse™ market report.

1. Steady evolution away from data-centric hubs into application hubs
2. Elemental movement towards Enterprise MDM in multiple phases
3. Futile dogmatic resistance is fading against the power of multiples
4. Inexorable shift to formal data governance structures
5. Rapid growth of MDM market into mid-market as well as across industries and geographies

Steady evolution away from data-centric hubs into application hubs

Enterprise MDM solutions are steadily but rapidly evolving away from data-centric hubs into full blown application stacks.. In other words, MDM is becoming less of a standalone technology infrastructure as the emphasis is increasingly on relationship between domains, user interface, and integration with other emerging and adjacent technologies such as RFID, entity analytics, business intelligence, etc. This “application hub” focus concerns more than integration with existing CRM and ERP systems. It is recognition that MDM is the type of infrastructure solution that will leverage all other systems – other application stacks, other CRM and ERP instances, other data feeds, etc. Finally, such hubs are increasingly integrating more than applications, etc. within a line-of-business and are actually fundamental to integrating the actual lines-of-business.

Elemental movement towards Enterprise MDM in multiple phases

Enterprise MDM is “strategic” and therefore is the appropriate focus across multiple lines of business, multiple channels, and therefore across multiple years. Such enterprise MDM becomes a reality of multiple factors – especially when the enterprise desires to leverage one MDM product or platform across domains. Both IT and business management are increasingly focused on the longer term, i.e., 2-5 years down the line. Therefore, these same IT strategists are looking for vendors who can provide solutions that span more than one phase. Savvy customers are starting to ask for an integrated platform that indeed does support multiple domains across multiple phases.

An example of multiple phases is where the tactical project might start with batch and very little SOA as perhaps just a registry-architected solution. At some point in the 12-18 months horizon most organizations outgrow registry architectures and require much more of a full blown hub architecture.

Futile dogmatic resistance is fading against the power of multiples

MDM is increasingly concerned with the notion of “multiples” – multiple data domains, the multiple relationships among them, and the multiple usage styles. Even a tactical MDM project will require facets of an enterprise MDM solution set, for example a financial service provider will need to master more than “customer” as it looks to master “product” in post phase one stages. Additionally, product-centric MDM tactical projects quickly move to address customer master

attributes such as pricing, entitlements, etc. to be simplistic, it is important not to paint one's self into a corner. Typically all projects start with A, B and C but must be able to grow else they create yet another data silo. MDM architects need therefore to think broadly in terms of styles (operational, analytical, and collaborative) as it quickly becomes evident that the business requirements will bleed into more than one data domain and deployment style – “think global, and act local”.

Increasingly, the notion of “multiples” includes not only more than a singular master domain (e.g. customer or product). Even the definitions of the domains are getting more sophisticated. For example, only several years ago “location” was a point in space, however, now it includes which party of assets occupy that location. Moreover, the attributes of a domain/entity are becoming more complex. Clearly, the MDM Institute analysts are increasingly seeing more RFPs where enterprises acknowledge that it is not provident to focus solely on one master data domain when clearly both party and product master data quickly bleed into each other post-phase one.

Inexorable shift to formal data governance structures

One of the greatest challenges is the political arena which necessarily accelerates or brakes the critical momentum of both tactical and enterprise MDM. While tactical MDM marts may be successful via judicious efforts of data stewards who focus on the data quality of a singular domain, when the business utilization of master data expands across departments and lines of business then the government's framework is essential. Each and every consuming and producing organization has a duty or role in the governance of master data. For example once it is determined that master data is “a corporate asset” then that data must be protected across its life cycle from creation/capture through its retirement including such critical issues as accessibility, compliance, unfortunately most of the market did MDM solutions do not adequately address this formal requirement.

In fact, most vendors will point to their data steward console as the acme of their data governance capabilities. In reality, what's needed are formal processes, assisted by workflow software, to enable formalized decision making, documentation, and delegation, regarding the rules rendered as part of the governance lifecycle. Another gaping hole in data governance capabilities of the majority of MDM vendors is their inability to directly store and execute such governance-generated procedures as part of the MDM logic that controls the software which in turn should enforce the governance. True data governance mandates the integration of people, process, and technologies via a formalized framework. These formal structures are inevitable as they are the key enablers of data governance policy functions – much are so than paper-based methodologies and accelerator/frameworks.

Rapid growth of MDM market into mid-market as well as across industries and geographies

The market for MDM solutions is significantly and quickly expanding – across geographies, industries, and price points. This in turn is making MDM capabilities affordable to mid-market enterprises (small-to-medium size businesses). The steady growth of the MDM market into this mid-market further makes it economically viable to apply the solution cross a broad range of industries and geographies. Three to five years ago the typical MDM solution cost in excess of \$1 million just for the software and an additional \$3-4 million for the implementation services during the first year. During 2008, price points and product packaging (we should say “repackaging”) a provider more modest MDM functionality and accordingly less complexity which supported market pricing in the sub \$500K range. Overall, MDM matured from “early adopter IT project” status to become a mainstay “Global 5000 business strategy” during 2007-08 These new price points are reflective of various types of projects and the related product capabilities, i.e., enterprise MDM initiative vs. very-specific business solution. Moreover market dynamics further drove price differentiation as the market became more sophisticated and understood the price:value ratio of hybrid vs. registry vs. tool kit vs. full fledged MDM application.

Summary. For the Global 5000 enterprise (and increasingly the small-to-medium sized business or SMBs), approaching “enterprise MDM” as an IT infrastructure development project is career-challenging. There is very little economic rationale in building such custom middleware (with this associated high maintenance costs) when commercial off the shelf software meets the performance, reliability, and scalability requirements of most every industry and size organization. There will be in use cases that mandate the ultimate in speed and performance -- such as command and control systems for military applications or a straight through processing for financial services, however, these are not the norm.

Clearly, enterprise MDM is a major IT initiative being undertaken by a large number of the market-leading Global 5000 size enterprises. Most enterprises and solutions vendors are finding near-term success with the single-faceted approach inherent with the third generation of MDM solutions. Increasingly, however, these same enterprises are determining that this myopic strategy of focusing solely on a single data domain and usage style is detrimental to the longer term business strategy of integrating supply, demand, and information chains across both intra- and extra-enterprise boundaries. Coming to market during 2008-09 are multi-entity MDM solutions which are characterized as the fourth generation of MDM solutions which address the requirement for multiple domains and styles as well as the roles of the consumers.

To help IT organizations and their business partners focus on the more desirable longer term MDM strategy, vital issues that this market research report addresses include:

- What is enterprise MDM?
- Why is enterprise MDM considered “strategic” while domain-specific MDM data marts viewed as “myopic”?
- How does an organization plan for enterprise MDM deployment?

The value of enterprise MDM can be intuitively recognized in a range of business initiatives – from short-term fixes to a narrow set of problems such as capturing customer privacy preferences across product lines to long-term enterprise-wide initiatives to delivering infrastructure agility by embracing SOA.

Enterprise MDM

During the previous five year cycle (2003-07), MDM solutions matured from “early adopter IT projects” to become “Global 5000 business strategies”. The industry consensus is that “enterprise MDM” is that service-oriented architecture (SOA) infrastructure which provides for large scale, high availability, highly accurate MDM services across application portfolios and lines of business. Correspondingly, “multi-entity MDM” is a software solution to concurrently manage multiple, diverse master data domains (customers, accounts, products) across intra- and extra-enterprise business processes. Additionally, enterprises are determining that master data must be presented via multiple views to accommodate the wide range of data consuming and creating roles that exist across an organization. By centralizing the most critical master data to a single trusted source, and managing this within the context of governance-driven data lifecycle, multi-entity MDM provides flexible business process integration across multiple data domains and usage types. Multi-entity MDM solutions deliver such complex and collaborative business processes such as identifying the most valuable customers, introducing new products rapidly, crafting new product bundles more quickly, and managing threat and fraud risk more effectively.

Global 5000 size businesses are rapidly ramping up plans to consolidate “master” data into data hubs using a combination of off-the-shelf data hubs, EAI/EII/DQ toolkits, and even custom-built IT projects. The current commercial off-the-shelf solutions available to enterprises are commonly characterized as 3rd generation solutions.

Industry Terminology

Master Data Management (MDM). Authoritative, reliable foundation for data used across many applications and constituencies with the goal to provide a single view of the truth no matter where it lies.

Multi-Entity MDM. An MDM solution to concurrently manage multiple, diverse master data domains (customers, accounts, products) across intra- and extra-enterprise business processes. By centralizing the most critical data to a single trusted source within a cohesive data lifecycle, multi-entity MDM provides configurable process integration across multiple data domains.

Customer Data Integration (CDI). Processes and technologies for recognizing a CUSTOMER and their relationships at any touch-point while aggregating, managing and harmonizing accurate, up-to-date knowledge about that customer to deliver it ‘just in time’ in an actionable form to touch-points.

Product Information Management (PIM). Processes and technologies for recognizing PRODUCT, SUPPLIER, and PRICING master data.

Data Governance (DG). Formal orchestration of people, process, and technology to enable an organization to leverage data as an enterprise asset.

Source: The MDM Institute

3rd generation MDM solutions

During 2007-08, many of the requirements for MDM solidified into what most analysts characterize as 3rd generation MDM solutions. As a group, visa MDM solutions tended to focus on specific industries which in turn drove the product groups to further bifurcate and Elleni a based on industry requirements. For example Oracle Universal Customer Master was predominant in telecommunications, IBM WebSphere Customer Center dominated the financial services, Siperian dominated in pharmaceutical, SAP dominated in manufacturing,, and initiate systems likewise dominated and retail pharmacy as well as health care.

Concurrently those MDM solutions which originated as application-centric solutions in turn both leveraged and were indebted to the data models underlying those applications, i.e. IBM WCC with the Insurance Application Architecture and Banking Data Warehouse data models, Oracle Universal Customer Master with Siebel CRM, and SAP MDM with SAP R/3. On the other hand of those MDM solutions not coming from an application center heritage (e.g., Initiate Systems, Kalido, Purisma, and Siperian) focused on unifying multiple diverse data sources for them singular application portfolios.

What are the “vital signs” of a 3rd generation MDM solution? In our experience with the MDM Institute Advisory Council membership, “type A” MDM project leadership within very large scale IT organizations advise of these five “DNA markers” as good indicators:

1. **SOA/shared services architecture evolving to “process hubs”.**

Rather than re-invent the “data hubs” that are inherent within enterprise CRM and ERP vendor solutions, savvy IT organizations understand that the real need is to centralize and manage “business policies” such as pricing discounts, privacy preferences, etc. In turn, this will require major attention by the vendors to such issues as business process management/workflow API compatibility – i.e., BPEL compliance alone is not enough to enforce BPM compatibility. See also [*“Dysfunctional Data Hubs - 2006-07 Strategic Planning Assumptions for CDI-MDM and Business Services” January 19, 2006.*](#)

2. **Sophisticated hierarchy management.**

The management of data about organizational structures such as subsidiaries, business units, and sales regions, etc. is a complex and costly endeavor for all businesses but especially critical for businesses selling to other businesses. Because it is difficult to “know” these complex customers and to consolidate information about the business relationship, “hierarchy management” is fundamental to such CDI business initiatives. CDI and MDM are inherently about managing the “relationships” among parties such as customers and suppliers. While is somewhat reminiscent of the OLAP data mart trends of years past (everyone creating their own slice of the data with a drillable view based on their dimensional views), such “hierarchy-by-anarchy” philosophy counters the basic premise of MDM wherein enterprises are looking to capture, manage and leverage “standard” master data and relationships (hierarchies). Nonetheless, it is vitally important that a 3G MDM solution support flex-hierarchies to both manage relationships across data hubs (different ERP general ledgers for example) as well as import and map to industry standard hierarchies such as D&B’s DUNSRight legal entity hierarchies. See also [*“Customer Data Integration: MDM Milestones, Part 2” March 2006 DM Review.*](#)

3. **High availability identity management.**

The essential identity matching and linking capability is necessarily high-RAS (reliable, available, and scalable). This is because the ability to positively identify a customer, for example, is critical in online financial services transactions. Another example would be the initialization of a call center inquiry based on the inbound phone number used to dip into an ANI database and determine the caller’s account number, credit rating, next-best offer, etc. – all at speed-of-thought. In today’s increasingly 24x7x365 business climate, an enterprise cannot go offline for maintenance nor suffer outages when it comes to identifying customers or suppliers – or when serving up pricing policies, etc. A vital distinction is that this functionality is more than match/merge capability as such identity matching capabilities must also materialize and match on hierarchy

and other relationship attributes.

4. Data governance-ready framework.

Every MDM vendor and consultancy seems to have gotten “data governance religion” yet there remains the huge disconnect between methodologies and processes with the actual MDM software that enforces such MDM policies. To be generous, MDM solutions evaluators need to acknowledge this age old metadata problem still challenges the software vendors, however, 2008 will see pressure on the mega vendors to provide at least a “lite” methodology with integration to the underlying MDM software stack given that such solutions will be offered from best-of-breed or 3rd party vendors. See also [“Corporate Data Governance - From De Rigueur to De Facto to De Jure” November 2005 DM Review.](#)

5. Registry, persisted, & hybrid architecture flexibility.

Architectural forms vary in terms of the amount of instantiation of master data – varying from a fully virtual registry style cross reference index (e.g., web portal) to a fully persisted physical data hub (e.g., enhanced operational data stores). More common is the hybrid model which allows both in one solution to better support operational, analytical and collaborative “use case” MDM styles.

4th generation MDM solutions

During 2008-09, both mega vendors and best-of-breed MDM vendors will not only have embraced and delivered the five key 3G MDM capabilities but will also be well on their way to the next generation of MDM solutions. These 4G solutions can be characterized as “full spectrum” hubs due to their support for both structured and unstructured information.

Additionally, we expect to see greater emphasis on extreme “enterprise scalability” while concurrently delivering “master data search” capability. The latter is a relatively new CDI-MDM ecosystem category furthering the utilization and ROI of such enterprise information management (EIM) by incorporating “search” for both structured and unstructured info across a variety of applications such as catalog management, deep web search, and enterprise search.

Our five key “DNA markers” for 4th generation MDM solutions focus on:

1. Multi-entity MDM.

An MDM solution will need to concurrently manage multiple, diverse master data domains (customers, accounts, products, etc.) across intra- and extra-enterprise business processes. Moreover, a 4G solution will provide the capability to expand on relationships among entities – i.e., evolve from the 3G requirement of a single primary data domain and other supporting domains into becoming the system of record for multiple data domains and relationships among them.

2. Multiple “use case” styles.

4G MDM solutions should support all users and usage requirements for master data – e.g., different functions to define and create data (collaborative), use and maintain (operational), and derive insight (analytical). Additionally, this implies multiple deployment capabilities including the ability to start as an index for one domain and grow into full multi-entity over time.

3. Process/policy hub architecture.

Clearly, BPM workflows are critical to achieve value from MDM and to ensure that the outcome of such data governance infrastructure is actually orchestrated across business units and master data hubs. Just as clearly, there are major ROI and other benefits from centrally managing such policies within a single trusted policy/process hub. In short, 4G MDM will support the linkage of MDM styles into the actual business processes.

4. Integrated data governance.

While relentless near term business drivers (such as compliance in Financial Services) are now requiring

enterprises to institutionalize data governance, the longer term goal is to integrate, measure and manage data governance metrics within the context of the master data lifecycle. Clearly, effective data governance is integral to delivering reliable and usable MDM to develop master data as a corporate asset.

5. Enterprise search & support for unstructured info.

During 2008-09, semantically-enabled metadata will enable “search” for both structured and unstructured information across a variety of applications such as catalog management and deep web search, and enterprise search. By 2009-10, enterprise semantics and SOA-enabled data services will further provide the technology foundation for policy hub. While the majority of contemporary MDM solutions focus on the structured data held in CRM and ERP applications, the reality is that a plethora of valuable customer, product, supplier, employee, etc. information resides in what is characterized as “unstructured” information, e.g., emails, instant message log files, voicemails, etc. To provide a robust “universal customer view”, etc., it is clearly desirable to incorporate these valuable information sources as part of the composite view.

Business justification for enterprise MDM

Enterprise MDM is increasingly mandated to manage master data (customers, accounts, products, etc.) that has significant impact upon the enterprises' most important business processes. Based on quarterly surveys of the MDM Institute Business Council™ (the 8,500+ subscribers to the MDM Alert newsletter who are engaged in MDM projects), the perennial top five business drivers for MDM initiatives can be summarized as:

1. Compliance and regulatory reporting
2. Economies of scale for M&A
3. Synergies for cross-sell and up-sell
4. Legacy system integration and augmentation
5. "Once & done" economies and customer satisfaction

Compliance and regulatory reporting

- Centrally manages privacy preferences for consistent rules of visibility and entitlements
- Enhances "evergreening" of customer data accuracy – e.g., continuous customer data improvement by providing self-directed customer care portals ... which in turn integrate customer info across business units
- Enables regulatory reporting compliance– i.e., large customers' material events (SOX, BASEL II)
- Facilitates compliance with AML, OFAC, USA PATRIOT, et al

Economies of scale for M&A

- Facilitates quick scales of economy in mergers and acquisitions (M&A) – e.g., shortening customer, desktop, and billing integration timeframes while providing scalability to support rapid assimilation of new block of customers
- Accelerates revenue growth via more intelligent cross-sell and up-sell enabled by complete understanding of customer (profile, accounts and interactions) to leverage bundling opportunities

Synergies for cross-sell and up-sell

- Maximizes wallet share across product lines and business units
 - Up-sell via sticky bundles
 - New markets via cross sell to existing customer base
- Increases understanding of large customers by grouping all buying organizations into corporate (B2B) or household (B2C) hierarchy
- Enables integrated customer analytics – i.e., profitability analysis, lifetime value
- Enables "co-opetition" and electronic storefront models – e.g., B2B, B2C, and B2B2C by Drives costs of "dirty data" out of the info supply chain
- Accelerates revenue growth via more intelligent cross-sell and up-sell enabled by complete understanding of customer (profile, accounts and interactions) to leverage bundling opportunities

- Enables self-directed customer experience for sales and service
- Provisions hyper-integrated 21st century supply chain – e.g., outsourced manufacturing, outsourced service

Legacy system integration and augmentation

- Enables integration of new and old channels – e.g., collections, fraud, contact centers with kiosk, ATM, IVR and online self-service
- Minimizes architectural complexity to simplify application solution design, deployment, and maintenance
- Reduces number of interfaces between applications and increasing reuse factor to save substantial integration costs
- Improves infrastructure flexibility and control to enhance overall system performance
- Accelerates ROI of enterprise CRM solutions
- Reduces overall project risk through increased flexibility and centrally managed architecture

“Once & done” economies and customer satisfaction

- Drives fundamental operational savings and efficiencies – e.g., “once & done” enterprise-wide services for key customer processes such as account changes (name, address)
- Protects brand integrity by increasing customer satisfaction due to more focused marketing and service campaigns – e.g., “blended agent” capability to provide customer service across multiple touchpoints/contact channels
- Actualizes “consistent customer treatment” by blending channels to deliver common customer interactions / experiences across all touchpoints

MDM strategic planning assumptions

Research analysts at the MDM Institute annually produce a set of twelve milestones for their “MDM Road Map” to help Global 5000 enterprises focus efforts for their own large-scale, mission-critical MDM projects. For planning purposes, we thus identify 10-12 “milestones” which we then explore and publish via our [MDM Alert research newsletter](#). This set of strategic planning assumptions presents an enlightening view of the key trends and issues facing IT organizations during 2008-09 and beyond by highlighting:

- Planning for the juggernaut of MDM market momentum, maturation, and consolidation
- Coping with the skills shortage for data governance, enterprise architecture, et al.
- Identifying the essential (vs. desirable) features of an enterprise-strength MDM initiative

Thus the 2008-09 “MDM road map” helps Global 5000 enterprises (and IT vendors selling into this space) utilize these “strategic planning assumptions” to help focus their own road maps on large-scale and mission-critical MDM projects. During the following six months, we use these milestones as the focus for our analyst research in that every research report we write either confirms or evolves one or more milestones as its premise. The remainder of this section will present the below MDM Milestones:

- | | |
|---|-------------------------------|
| 1. Market maturation | 7. Architecture & data models |
| 2. Market momentum | 8. Identity resolution |
| 3. Market consolidation & diversification | 9. Party data quality |
| 4. Budgets/skills | 10. Analytics |
| 5. Data governance | 11. Policy hubs |
| 6. MDM convergence | 12. Enterprise search |

1. Market Maturation

- During 2008, the MDM market will continue to shift gears from “early adopter” to “mainstream” as 95%+ of financial services, communications services, high tech, and pharma/life sciences enterprises actively explore to replace homegrown MDM solutions
- Through 2009-10, verticalization/horizontalization of MDM solutions will expand beyond corporate financial reporting, EMPI healthcare, etc. into financial services and government especially
- By 2012, the market for enterprise MDM solutions (software and services) as both strategic initiatives and to refresh aging legacy MDM capabilities will exceed US\$2.5B

2. Market Momentum

- During 2008, MDM solutions such as IBM, Oracle, SAP, and Teradata will monopolize majority market share in the G5000 enterprise; while mid-market solutions arrive from Microsoft, Nimaya, and Oracle plus Data Quality vendors (Pitney Bowes/G1, SAS/DataFlux, Trillium)
- Through 2009-10, both mega and best-of-breed MDM vendors will aggrandize the traditional master customer DB business of Data Service Providers (e.g., Acxiom, D&B, and Experian) as these vendors sprint to deliver on-premise CDI hub solutions
- By 2012, every major application and database vendor will provide either native or OEMed MDM capability – including Amdocs, Microsoft, and salesforce.com

3. Market Consolidation and Diversification

- During 2008, mega IT vendors (IBM, Oracle, SAP) will continue M&A-driven R&D gyrations in moving to an enterprise MDM-centric portfolio with Oracle and SAP challenged additionally in moving from silo'ed application architectures into SOA-based architectures (Fusion and NetWeaver)
- By 2009-10, IBM (ASCL/CRSW/DMC/DWL/LAS/Princeton Softech/SRD/Trigo/Unicorn) and ORCL (HYSL/iFlex/JDE/PSFT/RETK/SEBL/Sunposis) will begin to overcome most architectural/BPM/metadata/platform issues that confounded SAP earlier (A2i/BOBJ/Callixa)
- Through 2009-10, mega IT vendors (IBM, Oracle, SAP, and Teradata) will dominate the MDM market with niche/best-of-breed vendors (D&B/Purisma, DataFlux, i2, Initiate Systems, Kalido, Siperian) thriving in specific industries and horizontal/corporate applications

4. Budgets/Skills

- During 2008, G5000 size enterprises will spend US\$1M for MDM software, with an additional US\$3-4M for SI services; Global Service Providers will operate under this price floor by applying highly-customized, labor intensive frameworks and related accelerators
- Throughout 2009-10, skill shortages will greatly inflame project costs as demand for data stewards, enterprise data architects, and individuals with data governance experience outstrip market supply; concurrently, SIs will fill the void in their classic style by baiting and switching senior veterans for junior rookies
- By 2012, market will stabilize as enterprises react by training and protecting their own MDM staff with specific product and project expertise; until then, enterprises will struggle with re-skilling same resources multiple times as emerging/evolving data management technologies mature (e.g., Fusion, NetWeaver, ...)

5. Data Governance

- During 2008, most enterprises will struggle with cross-enterprise data governance scope as they initially focus on customer, vendor, and product; enterprise-level data governance that includes entire master data lifecycle (creation, promotion, archiving, ...) will be mandated as a core deliverable of large-scale MDM projects
- Through 2009-10, major systems integrators and MDM boutiques will focus on productizing data governance frameworks while MDM software providers struggle to link governance process with process hub technologies and enterprises struggle to realize enterprise data governance in a cost-effective way
- By 2011-12, both corporate and LOB data stewards will be a common position as Global 5000 enterprises formalize this function amidst increasing de facto and de jure recognition of information as a corporate asset

6. MDM Convergence

- During 2008, party and product data interdependencies will quickly broaden MDM requirements – i.e., from “customer” to “product” to “vendor”; concurrently, vendor dogma will promote nouveau approaches such as collaborative MDM to assuage multi-entity conundrum
- Through 2009-10, select best-of-breed vendors (D&B/Purisma, Kalido, Initiate Systems, Siperian) will provide multi-hub (entity, architecture and brand) connectivity via hierarchy management extensions
- By 2012, enterprises without an overall, long-term MDM strategy run the ironic risk of building “MDM silos”

7. Architecture and Data Models

- During 2008, vendors will expose MDM capabilities as “always on” services in loosely-coupled architectures; enterprises will begin establishing a central, business-side led data management team with embedded data quality and external data update services in flow of core business processes
- During 2009-10, mega vendors (IBM, Oracle, SAP, Teradata) will focus significant resources on “industry content” of data models which will force specialist vendors to stay “data model lite” via specialization in B2B/B2B2C hierarchy management and distributed MDM
- Not until 2011-12, will mega MDM vendors rewire foundational software to fully support strategic application infrastructure (Fusion, NetWeaver, ...) and have completed transitioning from client/server to SOA; concurrently, G5000 business requirements will drive vendors into 4th generation, full spectrum hubs that support both structured and unstructured information

8. Identity Resolution

- During 2008, independent Data Quality vendors (AddressDoctor, G1, Human Inference, Trillium) will focus on name and address cleansing as they struggle against better funded match/merge and data profiling capabilities increasingly integrated with mega vendor MDM solutions; ongoing challenge will be aggregation of customer data balanced against privacy dictates
- During 2008-09, MDM capabilities for classifying, discovering and archiving party data/relationships while maintaining privacy will become a major requirement; concurrently, users will be challenged to discern the price/performance/scalability and accuracy of matching algorithms; use of cross platform/cross brand customer keys will become core to enabling seamless loyalty programs and online services
- By 2009-10, sophisticated hierarchy management capabilities will include “global IDs” as mainstay feature for all MDM vendors to link both legacy and newly-built hubs with Data Service Providers’ enrichment data; concurrently, support for metadata repositories to link mega vendors’ multitude of acquisitions will continue to significantly lag

9. Party Data Quality

- During 2008-09, enterprises will focus more on degree to which “party data quality” (consumer, subscriber, owner, member, vendor, establishment, contact, ...) is sufficient to meet requirements of diffuse business entities
- By 2009, “quality” metrics will increasingly be defined specific to purpose of particular business function (product development, marketing, sales, order admin, service, compliance, analytics, ...) and in turn be driven by enterprise-wide data governance initiatives
- Through 2010-11, wide deployment of loosely-coupled SOA architectures will catalyze consumption of highly-optimized data quality functions as made available via both mega data service provider and enterprise application vendors

10. Analytics

- During 2008, the convergence of MDM and business intelligence (BI) will accelerate as enterprises leverage MDM concepts in a BI context
- Through 2009-10, ongoing agglomeration of Analytical MDM and Operational MDM will increasingly benefit enterprises by blending such transactional hubs with master reference data repository as well as provide greater visibility into the impact of master data quality on business performance metrics
- By 2012, inline and real-time analytics derived from MDM-enabled aggregation of both transactional and historical data will have become a major source of sustainable competitive differentiation for Global 5000 enterprises

11. Policy Hubs

- During 2008, MDM vendors will lag their BPM counterparts in providing workflow orchestration to synchronize the trusted sources that comprise a federated master data store
- Through 2009-10, the mega MDM vendors (IBM, Oracle, SAP) will struggle to provide BPEL-compatible workflows while specialist MDM solutions rush distributed Collaborative MDM capabilities to market
- By 2012, without such flexible workflows, organizations will merely rebuild the same master data files they evolved the past 15-20 years with their ERP and CRM infrastructures

12. Enterprise Search

- Through 2008, the unique properties and behavior of master reference data will spawn a series of vertical applications and specialized features within MDM solutions
- During 2009-10, semantically-enabled metadata will enable “search” for both structured and unstructured info across a variety of applications such as catalog management and deep web search, and enterprise search
- By 2012, enterprise semantics and SOA-enabled data services will provide the technology foundation for policy hubs; concurrently, the 4th generation of hubs will innately support Analytical, Operational, and Collaborative and MDM business services

Leading MDM vendor profiles & field reports

The toughest and most trying aspect of any major IT investment decision is wading through the vendors and their references. The MDM Institute helps organizations save time and money by meeting with all the leading vendors, evaluators, and expert consultants – and compressing that information into a single chart of strengths and weaknesses

The below MDM solutions are the major products for mastering customer data (or customer and product master data) these are general purpose package MDM applications and not industry-specific. In addition the requirement was that the MDM solution has strong support for persistent data (i.e. not be solely a registry or virtual solution). And lastly, we're required that each product at least five references.

- D&B/Purisma Data Hub
- DataFlux qMDM
- Data Foundations OneData
- i2 MDM
- IBM InfoSphere MDM Server
- Initiate Systems Master Data Services
- Kalido MDM
- Liaison Technologies MDM
- Microsoft MDM
- Oracle Customer Data Hub
- Oracle Hyperion DRM
- Oracle UCM
- Orchestra Networks EBX
- SAP NetWeaver MDM
- Siperian MDM Hub
- Sun MDM Suite/Mural
- Teradata MDM
- TIBCO CIM
- VisionWare MultiVue

D&B/Purisma Data Hub v3.7 Field Report

D&B's efforts to deliver CDI solutions met only modest success prior to 2008 – primarily in its own customer base. In late 2007, D&B acquired Purisma which seemed an obvious conclusion to the serious partnering that had been taking place previously among the two vendors. The combination offers the potential to redefine the CDI market because every MDM implementation needs and will continue to need an external reference data source that can be trusted. This “external reference data source” backbone of any CDI initiative is needed to keep customer (B2C or B2B) information fresh and accurate ... and complete in the “holistic” sense. All of the IBM and Oracle/Siebel MDM implementations will continue to require such reference data.

While its good to have a parent with deep pockets (D&B revenues of US\$1.6B) it is also a challenge to remain innovative as part of a much larger organization as well as to “train the troops” in such a large U.S. organization (note that the D&B does not have a strong a worldwide presence. While the market is still looking forward to the synergies promised by the acquisition, at YE2008 the number of new name customers was significant in our view based on review of 15+ new customers from 2008. Additionally, the average selling price moved up as the vendor no longer operated as a start-up MDM vendor given its acquisition by D&B. Moreover, we see 50% or more of existing installations now moving into phase 2 deployments.

Strengths

- B2B, B2C, and B2B2C hierarchy management
- Flexible data model
- Data governance accelerators
- “My Data for D&B Purisma Appliance” solution for midmarket
- Plans to extend B2B relationships to include people relationships
- Additional market focus on SAP co-existence
- US\$1.6B D&B parent and momentum

Weaknesses

- Unlikely to add support for Product master data
- Lack of industry data models
- Only granular web services
- Minimal integration with 3rd party data quality & data integration tools
- Minimal SI partners
- Relatively scarce references for B2C

DataFlux qMDM v2.0 Field Report

Another vendor with parental deep pockets is DataFlux. As a leader in the data quality market with healthy growth and solid long term prospects, DataFlux has gained tremendous experience in helping organizations deal with data governance and data integration issues. In fact, it is the only independent data quality vendor that has successfully evolved its product line to support MDM requirements. Its current challenges include the need to add more CDI functionality given that master customer data is the largest opportunity and pain point for global enterprises. Moreover, DataFlux needs “live” proof points in the scalability of its new architecture. We do like what we see in the current market differentiation wherein the soon-to-be-released “qMDM” products highlight their strengths in data governance and data quality. Near term, DataFlux needs to evolve its marketing and sales strategies to reflect a move towards packaged MDM applications more so than MDM tools (data quality tools, data stewardship tools, etc.). Steady growth in the customer base for MDM users show that the strategy is working wherein DataFlux helps organizations manage their customer data quality issues first, then data governance, and then on to MDM. While the product supports a “multi-entity data model” existing DataFlux users are just beginning to plan this phase.

Strengths

- Graduated approach to MDM
- Integrated data quality
- Multi-entity data model
- Commitment to data governance and related work flow
- SAS “deep pockets”, channel and stability
- Rapid plans for integration of SAS data integration technologies
- Midmarket references – American Heart Association, Aspect, Intrawest, Sun (StorageTek)

Weaknesses

- Modest number of CDI references
- Nascent support and references for product master data
- Relatively small number of customers adding product master to customer master
- No references for registry or high-volume operational MDM implementations
- Lack of SI channels
- Lack of BPM/workflow for “policy hubs”

**IBM InfoSphere MDM Server 8.1/8.5
(formerly IBM WebSphere Customer Center (WCC) & DWL Customer)
Field Report**

IBM's MDM family suffers from an "embarrassment of riches" based on the perpetual M&A machine that has been put in gear. Due to its origination and strengths in the financial services industries, this product has done very well globally to support large banks and insurance companies. Both its strengths and weaknesses also derive from its strong affinity for the IBM industry data models and IBM software stack. This multi-level set of business services provides accelerator frameworks but often at the cost of dragging along considerable IBM software (InfoServer, DataStage, QualityStage, et al). Nonetheless this is the leading MDM solution for customer data in retail banking and insurance with suitability and success in other key markets such as retail and communications. In number of installations and associated dollar value of sales (software and services) IBM was the clear leader for enterprise MDM during 2007.

With its 50% year-to-year growth in installations, combined with the formidable IBM global marketing, sales, and consulting organizations we expect IBM to continue to dominate in these industries. This is further evidenced by its strong references for high volume transactional environments as well as proven ability to support multi-phase complex enterprise-wide rollouts. Our audit of the IBM MDM Server installation base shows a surge in the number of phase 2 deployments during 2008-09. Recent challenges in marketing are quickly being overcome as IBM launches initiatives and packages to reduce the complexity of installation and customization to attain a 1:1 software to services ratio while not forcing customers to sacrifice time-to-value vs. long term product functionality and business value. Despite turbulence in the decoupling of the WebSphere Product Center mastering capabilities from the planned integration with WebSphere Customer Center, IBM now has defined and begun rapid execution on a roadmap to provide product mastering capabilities within InfoSphere MDM Server for operational MDM as well as best-of-breed product mastering capabilities to better address new product introduction (NPI) and other collaborative MDM user cases.

Strengths

- Advanced "Party" data model
- Multi-domain/form/entity support for dynamic product mastering
- SOA architecture provides for hub swap-out and cross-domain services
- Industry model expertise and focus on "business-level services"
- Integration with Information Server pro-active DQ processing and data integration
- Integration with Enterprise Analytics, Content Management and FileNET Market
- High-end production sites – Bell Canada Enterprises, Citi, MetLife, ...
- Channel leverage via IBM GBS channel + *major* SI partners ... ACN; CAP; CTSH; CSC; Deloitte; INFY; SAY;; TCS; WIT

Weaknesses

- Data governance strategy maturing
- Business process management (BPM) strategy is maturing for process hubs
- Registry strategy still maturing (Foundations, Rapid Deployment Program, et al)

Initiate Master Data Service – v8.5 Field Report

Initiate Systems has rapidly evolved out of its enterprise master patients index (EMPI) origins to become a major MDM solution focused on party data such as customer, citizen, organization, and patient. Its 40% year-to-year growth is often attributed to its relatively fast “time-to-value“ however this same rapid deployment is arguably the result of a less powerful MDM platform (fewer functions and architectural options) than the mega vendors IBM, Oracle, and SAP.

Moreover many of its blue chip high-end references have yet to deploy more than out-of-the-box registry style MDM services. The product does indeed support hybrid deployments as well as operational/transactional styles but less than 25% of its customers have taken advantage of the features beyond its sophisticated cross reference and matching capabilities. Although it positions itself as multi-entity MDM, its core competency is in party data – B2C customer, patient, and citizen in particular. Initiate Systems is a leader in helping industries launch data exchanges among multiple organizations.

Strengths

- Fast time-to-value
- Real-time probabilistic match scalability
- Web-based data stewardship for complex relationship management
- Scalable references – Humana, Intuit, Microsoft, Sun Int'l, Wells Fargo, ...
- Healthcare/Health Insurance expertise
- Hospitality, Retail Pharmacy, Government expertise
- SI channel primed ... Accenture, Capgemini, CSC, IBM GBS, ...
- 50% growth in customer base – from 100 to 140+ customers ... new customers in 2008 – Dell, Suncorp, Tower Insurance, Vancity, Walgreens, Zurich Insurance, ...

Weaknesses

- Product entity support limited / still maturing
- Limited transactional hub references
- Data governance strategy still maturing
- Lacks support for more complex/ collaborative data governance processes
- Industry-specific business services capabilities just emerging
- Lack of formal integrated data quality

Kalido MDM 8.4 Field Report

This company successfully transformed itself into an international software firm the last several years by growing its North American presence to greater size than its UK origins. Although an early pioneer in analytical MDM capabilities, Kalido has been challenged to grow into the broader MDM market – especially operational or transactional MDM. More recently It has once again transformed itself to focus on its original/core business intelligence/ data warehouse strengths. We have most often seen Kalido in business intelligence/reporting areas where sophisticated, time sensitive data warehouses are analyzed to provide insights into cross subjects. Strengths include its sophisticated workflow and support for modest data stewardship and data governance – although this is not a true automated data quality capability. Kalido does support product mastering albeit primarily in support of analytical MDM – definitely not high-volume operational MDM or NPI-like collaborative MDM.

Strengths

- Time-to-value/ROI
- Analytical MDM focus with modest number operational MDM users
- Visual business modeler
- Out-of-the-box multi-entity
- Process flows and workflow engine for data governance/stewardship
- Focus on MDM for analytics and corporate performance management
- MDM methodology
- Model flexibility for customization
- Time variance support for change management
- Analytical MDM references

Weaknesses

- Lack of strong SI channel
- Marketing still ramping up for analytical MDM
- Enterprise data warehouse positioning vs. early MDM proponent

Microsoft MDM (Stratature +EDM) 1.0 Field Report

Microsoft has had a slow start in this fast moving market but we expect it to fully catch up to provide robust MDM capabilities for the small-to-medium enterprise. Part of its strategy to catch up is to acquire some of the more difficult technologies. For example in the past two years of Microsoft has acquired Stratature and Zoomix – two interesting companies whose products enjoyed modest success and will now proliferate greatly due to Microsoft's distribution as part of a formal Microsoft MDM product family and related integrated solutions.

Microsoft is expected to accomplish multiple goals with a singular MDM solution: (1) enable its Office Products software to provide consistent data sharing across the SQL Server, Business Intelligence, SharePoint, and PerformancePoint product families; (2) provide master data infrastructure for sharing universal views of customer/product/supplier etc. across its Dynamic family of ERP and CRM application packages; and (3) provide a standalone MDM capability to enable small-to-medium enterprises to integrate a diverse data sources into consistent master views and hierarchies. For this latter capability it is expected that SQL Server's DDIS will play a major role. Despite being late to market and slow in building up steam, we fully expect Microsoft to dominate in the small-to-medium enterprises over the next two to five years due to a price point and packaging that is very appropriate to this market

Strengths

- Hierarchy management a.k.a. "Enterprise Dimension Management"
- Customer, product, financial, supplier, employee, KPI, etc.
- Microsoft software stack Integration with SharePoint and MS Office
- Support for dynamic ERP and CRM
- Support for PeopleSoft, SAP BW, and SAP R/3 hierarchy import
- Low cost of ownership

Weaknesses

- Lacks identity resolution (to be ameliorated by Zoomix long term)
- Not enterprise scalable
- Lack of strong SI channel
- Under invested in marketing

Oracle Customer Data Hub r12 Field Report

Oracle necessarily envisions MDM as more than discrete infrastructure as such capabilities are fundamental to the successful execution of its Fusion application package strategy. Moreover, Oracle Customer Data Hub (CDH) is currently a foundation-level integration layer for Oracle's e-Business Suite (EBS) application family. We estimate that CDH has benefited from 20% per annum growth across its 250+ known installations. Simply put, CDH and its sister product PIM Data Hub are the best match for EBS users, however, it is infrequently seen in standalone evaluations.

For integration of customer and product master data processes, there is considerable synergy between CDH and Oracle Product Information Management (PIM) Data Hub. EBS's Global Single Schema provides such environments these common capabilities: data model extensibility; UI look and feel; Integration Repository for all open APIs and Web Services interfaces; single adapter for BPEL process management integration; plus a consistent application development environment for composite hub extensions. Based on our interviews and market research, we have documented more than 10% of CDH customers having acquired Oracle PIM data hub with the plan to leverage these commonalities.

During the next eighteen months Oracle is expected to develop in multi-entity and multi use case MDM capability to be marketed as Fusion MDM. Meanwhile Oracle customers are leveraging such capabilities as Oracle's Application Integration Architecture (AIA) to integrate, for example, Oracle PIM Data Hub with Oracle Universal Customer Master (the former Siebel UCM product) for high end operational environments.

Strengths

- Strong enterprise MDM vision and roadmap
- Multi-entity platform
- Trading Community Architecture (TCA)
- Mid-market references
- High-tech mfg expertise
- Integrated data quality and analytics
- Global reach
- Upgrade path to Fusion MDM via automation – not migration

Weaknesses

- Minimal high-end references
- Best fit is B2B and mid-market
- Lack of industry-specific data models

Oracle Universal Customer Master 8.0 (formerly Siebel Universal Customer Master (UCM)) Field Report

While Oracle CDH is a strong performer in high tech, manufacturing, regional government, distribution and retail industries, Oracle Universal Customer Master leverages Siebel CRM's historical strong successes in telecommunications, utilities, financial services, and government. Specifically, UCM's data model and software stack affinity make it the logical choice for such high-end Siebel users. Additionally, its proven support for high volume transactional workloads makes it attractive to those same users. Like its cousin CDH, UCM will benefit from of the Oracle roadmap for Fusion MDM. Unlike CDH, UCM does not yet have a comparable multi-entity capability such as CDH's integration with Oracle PIM Data Hub. UCM also is behind In terms of registry style packaging and data governance integration relative to the majority of the market. Our estimate is that the number of UCM sites increased 30% year-to-year during 2008.

Strengths

- Strong enterprise MDM vision and roadmap
- First to market with process hub – Privacy Management Policy Hub
- Momentum and expertise in Telco and Retail Banking
- High-end production sites: Home Depot, KPN, Royal Caribbean Cruise Lines, Toyota Financial Services, Turkcell, Westpac, ...
- Proven performance Integrated data quality and analytics
- Integration architecture ... Fusion Middleware, Web Services and Application Integration Architecture
- Strong SI channel
- Future Oracle DB integration
- Upgrade path to Fusion MDM via automation – not migration

Weaknesses

- Integration and extensibility strategy for product master evolving
- Data governance strategy maturing
- Registry strategy still maturing

SAP NetWeaver MDM v7.1 Field Report

Just as IBM and Oracle tend to dominate in certain vertical industries with their MDM solutions, so does SAP dominate in manufacturing and consumer packaged goods. Our estimates are that SAP MDM grew 50% year-to-year for deployments supporting B2B customer requirements (150+ new installations). We expect during 2009 that the number of SAP MDM sites implementing B2C will possibly double or triple that number given the backlog in demand for such capability that SAP was unable to address the past five years. SAP understands that MDM is a primal requirement for its application package strategy. In fact, SAP understood this far before any of the other vendors but was challenged to execute and deliver B2C capabilities until this fall 2008. In any case, the number of live SAP MDM installations significantly trails the number of sales – paralleling the world-at-large's experience with SAP application packages. SAP NetWeaver MDM is more of a PIM vendor than CDI packaged MDM application vendor given its historical shortcomings in supporting B2C party data.

Strengths

- Analytical MDM reporting for customer/party
- Operational MDM for supplier and product
- Quantity of MDM references ... B2B CDI-related = Adidas, Intel, Nortel, Whirlpool, ...
- Supply chain expertise
- Multi-entity MDM focus and consistent product strategy ... including full product information management (PIM) capability and support for material, vendor, etc.
- Future integration with BOBJ data quality and integration (ETL)
- SAP underpinnings for systems/change management
- Data governance tools, structure and methodology ... workflow, modeling, and validation rules, etc.

Weaknesses

- Unproven operational MDM for 'customer/party'
- "Customer" data type still maturing
- Limited SI channel support for 7.1 ... primarily Accenture and Hindustan Computing Limited

Siperian MDM Hub XU Field Report

Siperian appears to be well positioned to break out of its image of pharmaceutical-centric MDM. Like other party centric MDM solutions, Siperian does support multi-entity MDM but its core capabilities address B2C requirements best and lack the functional depth of best-of-breed PIM data hubs. At present outside of life sciences, Siperian has enjoyed success primarily in non-retail banking, i.e. wealth management, capital markets and institutional banking. We estimate that Siperian grew to 30 plus customers at a year-to-year growth rate of 30%+. The company does enjoy strong customer support where IT organizations appreciate the innovation in Siperian's architectural approach to MDM and its derivative impact on decentralized or distributed organizations

Strengths

- Field-tested multi-entity support ...
Products/Customers; B2B/B2C/B2B2C;
Employee/Contractor/Clinical Protocol/Product
- Entity lifecycle mgmt – esp. data governance
- Multiple implementation architectures
- Federated architecture + high-speed match and link
- Strong partnership with Identity Systems
- Pharmaceutical expertise/momentum ...
Allergan, Astra Zeneca, Forest Labs, Johnson
& Johnson, Pfizer, Shire
- Financial Services expertise/ momentum ...
Deutsche Bank, DTCC, Glitnir Bank, Merrill
Lynch, State Street, Vhi
- Multiple projects within same enterprise

Weaknesses

- Under invested in marketing
- Perceived as “pharma-centric”
- Lack of global presence

Sun Microsystems MDM Suite R6 Field Report

In the past year, Sun's MDM strategy has broadened beyond the capabilities inherited via its acquisition of SeeBeyond Technologies. Sun's overall expertise with Open Source and "try before you buy" sales model (a.k.a. "pay after you deploy") plays well with the traditional Unix/Linux crowd – i.e., engineering labs, health care organizations, capital markets, and the government. Its primary affinity is for party data, i.e. customer, supplier, and citizen and as a result cannot overtly claim strong capabilities and product mastering. As would be expected of a Sun product it does provide high scalability at relatively low cost – at the expense of primarily supporting a registry-style approach. Our estimate is that some grew its customer base about 10% year to year giving it about 100+ installations.

Strengths

- Open source (Mural, JCAPS)
- SeeBeyond heritage
- High scalability albeit via toolkit approach

Weaknesses

- Open source
- Under invested in marketing
- Perceived as "healthcare- and government-centric"
- Inability to invest due to poor company financials

Teradata Master Data Management Field Report

Given its data warehouse heritage and market strengths, Teradata positions MDM as a strategic direction for its existing active data warehouse customers as well as an opportunity to build upon its data mart consolidation programs. To gain quick traction in this rapidly evolving market, Teradata was wise to acquire the software assets (as well as many of the people) for the i2 Technologies MDM platform. The i2 solution was well architected and had enjoyed modest success within the supply-chain and retail customer base of i2 Technologies.

After the acquisition in middle of 2006, however, Teradata was becalmed in its IPO run up and did not invest in marketing or development for this product. Providentially, after the successful IPO Teradata's executive management reaffirmed the strategic importance of MDM and gave this product a renewed commitment. In 2008, version 2.0 included functionality to address the previous lack of CDI capabilities and also provided additional capabilities for master product data. Market uptake for this substantial product has not however been as great as would be expected. In fact, despite two years on the market there are only slightly more than a handful of known installations.

Strengths

- Analytical and operational MDM + party and product
- Full lifecycle and process flows for multi-entity support
- Proven data models with industry expertise
- Consolidated EDW and MDM platform
- Integration with Teradata DB, Miner, et al
- New hierarchy viewer flexibility and power based on real world DW
- New CDI application with strong leverage of relationships
- Data quality integration with Trillium Software, SAP (Business Objects/Firstlogic), and (soon) DataFlux

Weaknesses

- Modest references given its newness ... Anheuser-Busch; Hershey; Intel; CZ Bank; Wachovia
- Operational DG strategy evolving
- App Dev environment moving to Eclipse

TIBCO Collaborative Information Manager (CIM) Field Report

As might be expected given TIBCO's emphasis on SOA-related infrastructure the TIBCO MDM offerings resemble infrastructure more so than a packaged MDM application placeholder. The actual MDM product (TIBCO CIM.) is derived from the acquisition of one of the leading PIM data hub vendors (Velosel) during 2005. Despite its staunch supporters in the SOA and related middleware camps, we have seen noticeable attrition due to TIBCO's lack of interest in evolving the product mastering side of multi-entity MDM. Like Kalido, Tibco CIM provides strong analytical MDM capabilities via its event-driven architecture. Despite its recent emphasis on customer/party MDM, there are few CDI-like to date.

Strengths

- Operational and collaborative MDM
- Full lifecycle and process flows for multi-entity support
- Multi-hub, multi-application MDM deployment
- Data governance focus – rules and processes
- Architecture fits well with real-time and distributed services nature of SOA
- Import/export of hierarchical data from multiple sources simultaneously
- Intelligent MDM-integrated search

Weaknesses

- Missing formal CDI solution
- Operational data governance strategy evolving
- Minimal references given it is a new solution ... Brinker, Merck, Merrill Lynch, Shell Oil, Wachovia, ...
- Loss of Velosel product data hub momentum and references

The remainder of the section will briefly discuss solution providers who are either too small or focused on a single geography.

Amalto Technologies – The Xtantis MDM solution is from a small French company whose customers are primarily B2B organizations in France. The combination of open source technologies and a native XML database provides a non-intrusive solution that is appropriate for operational B2B MDM user cases. Although it lacks data quality capabilities, the solution does support multi-entity modeling. The vendors' "b2box" leverages Arriba to provide a software-as-a-service MDM capability to act as a software appliance for B2B transactions and systems integration between trading exchanges (and between buyers and suppliers) regardless of data format, protocol or business document type.

Data Foundations OneData – This solution has a tool kit orientation rather than a packaged solution approach. Among its strengths: data model flexibility; focus on MDM and reference data; integrated customer, product and vendor master data; fast time to value with pre-packaged templates; full lifecycle with data governance framework; sophisticated hierarchy management — e.g., relationship charts, rules management and full SOA support. References include: Avon, Eurotax, Novartis, PepsiCo, and Wellpoint. Among the weaknesses we include: primarily a tool kit; process hub capabilities evolving via new rules engine; lack of data cleansing integration; lack of strong SI channel; under invested in marketing; and relative lack of CDI references. This product has been successful in the U.S. and Netherlands primarily

Human Inference Hlquality Suite – Although primarily known as a Dutch data-quality vendor whose customers are European financial services, telecommunications and energy providers, this vendor has been providing a registry MDM style solution for CDI projects in the Netherlands. The solution set is comprised of a broad set of data quality capabilities including a matching engine, however, most organizations turn to third parties for data models with Human Inference providing substantial systems implementation services to round out the MDM capabilities.

i2 MDM – This was one of the original MDM solutions to come to market which occurred because I2 Technologies realized the benefits of having a common MDM infrastructure to support their supply chain and retail packaged applications. Strengths include: full lifecycle; integrated enterprise MDM – customer, product & vendor; full SOA including reference workflows; Retail, manufacturing, PIM and vendor management expertise; data model flexibility; with+ years and over 1K implementations experience in data models, data semantics and data management. Weaknesses include: lack of strong SI channel; under investment in marketing (name recognition and market awareness issues); lack of CDI references; and long term vendor viability issue given the last several year's of financial difficulties for the vendor. Note that the source code to this product was sold to Teradata two years ago where it became the basis for Teradata's own MDM product line.

Orchestra Networks EBX – Orchestra Networks is a small French MDM vendor whose solution is geared towards master reference data for entities such as products, prices, and regulatory data. The vendor is dominant in France, however just launching operations in the UK (in the U.S., Software AG OEMs this product as part of its WebMethods MDM product). To date, we have primarily seen this solution in financial services and government. One of the strengths relative to other products is that the EBX Platform has a strong workflow capabilities to manage the full master data life-cycle – including versioning and intelligent un-merge capabilities. This MDM solution uses an XML schema and relational database combination to model complex reference data relationships – which is especially useful for bill-of-material hierarchies. Although the product is natively multi-entity, we've yet to see high volume or complex B2C operational deployments. Relative to the mega vendor solutions, EBX Platform represents a lesser price and lesser complex solution that is often augmented with other capabilities such Informatica's data quality tools.

VisionWare MultiVue – This vendor dominate the public sector in the United Kingdom with its MultiVue Identification Server (several sales have recently taken place in the U.S. through consultancy partners). Its strengths include: analytical-capable and operational-focused MDM; multi-entity support for people, property and assets; public sector

expertise; sophisticated, yet well-packaged core MDM functionality – e.g., database partitioning, web services, and business process management (BPM); mid-market pricing; Microsoft as a channel partner; full Microsoft software stack affinity; and, longevity – e.g., 100+ installations. Its weaknesses include: initial strategy beyond public sector just beginning ; UK-centricity; currently mid-market scalability – e.g., millions vs. 10s of millions of master records; matching algorithms for data custodianship evolving – not automated self-tuning level yet; operational data governance strategy is just evolving ; and it is more of a registry-orientation more than persisted data hub.

Enterprise MDM forecast for 2008-12

Combined revenue for software and services will nearly double over the five year period, reaching US\$6 billion by 2012:

- The MDM Institute forecasts that the aggregate enterprise MDM market (customer and product hubs, plus systems implementation services) totaled US\$730 million at YE2007 and will reach US\$2 billion by the end of 2012. Software sales are but one portion as MDM systems integration services reached US\$510 million alone during 2007 and are projected to exceed US\$1.3 billion per year by 2012.
- Furthermore, the overall MDM market (including data service providers and hosted MDM services but not data quality, extract-transform-load and other related middleware) to grow from US\$2.8 billion to US\$4 billion over the forecast period (2008-2012), slowing down from the 11% compound annual growth rate of the prior five years to a more modest CAGR of 7%. It is significant to note that IBM by itself will have grossed over US\$1 billion in enterprise MDM software sales during the decade ending 2012.
- During this same 2008-12 period, the annual market for enterprise MDM packaged software (CDI hubs and PIM hubs only) will grow from US\$250 million to US\$715 million for a CAGR of 24%.
- Revenue for MDM systems integration services revenue will grow from US\$750 million to US\$1.25 billion over the forecast period (2008-2012), a compound annual growth rate of 11%. This is a slower growth rate than the packaged software, reflecting the increasing approachability in combination with a less frenzied job market for “all MDM skills”.
- Pipeline reports from the major MDM vendors shows a definite softening in the demand for new projects during 2H2008; however, that softening is ameliorated in sales revenues by the momentum of 1-3 year old MDM programs that are going “live to the enterprise” during 2008 – in turn resulting in significant revenue enhancement to the vendors for this enterprise-scale upgrading. In fact, this bubble in the pipeline (wherein today’s early phase MDM projects go enterprise-wide in 2-3 years) will continue to show pronounced effect on the market sizing through the period projected in this report.

The MDM Institute model for sizing and forecasting the MDM software market considers the following factors:

- The CDI hub market sizing specifically includes software capable of building Citizen Hubs, Supplier Hubs, etc. but does not cover OEMed or value added packaged solutions that provide such hubs as commercial off-the-shelf solutions (COTS).
- The PIM hub market sizing includes product hubs only, not non-industry-specific hubs such as auto parts reference databases; however this definition of PIM hub differs from other market sizing reports in that it includes IBM WPC, Oracle PIM Hub, and SAP MDM – not just pure play PIM hubs such as Heiler Software, QAD/Fulltilt, Riversand Technologies, Stibo Catalog, et al.
- The hosted MDM market is defined to include firmographic and demographic, not industry specific software-as-a-service providers; there will be significant growth in software as a hosted service during 2009-10 due to Microsoft MDM being offered as hosted solution; also note that the majority of the data service provider (DSP) revenue is from Acxiom (stabilized revenues at approximately US\$1.3 billion for 2004-2007); in addition other significant solutions providers include: Equifax/Austin Tetra; Experian (stable at US\$280 million); Dun & Bradstreet; and, Harte-Hanks Data Services.

The MDM Institute model for sizing and forecasting the MDM services market is derived from the software forecast, calculating expected changes in the services-software ratio. Over the future forecast five year period (2008-12), the mix across the universe of MDM projects begins to shift toward the more complex scenarios (tending to increase the services-software ratio), while the use of purpose-built MDM packaged software increases (tending to decrease the

services-software ratio). Furthermore, Microsoft will be shipping its MDM solutions during 2009-10 which are expected to provide both a much lower price point as well as a more approachable usage scenario which in turn will allow thousands of organizations to benefit from MDM solutions with only modest consulting assistance. The Microsoft MDM solution will tie heavily into the SharePoint architecture as well as potentially provide packaged MDM capabilities to the Microsoft dynamic software solutions (ERP and CRM).

Enterprise MDM Software Market (total \$)

Each of the various analyst research firms has put together some market sizing data and analysis. As might be expected, based on the various definitions of MDM, the market sizing historical analysis and future projections can vary widely from several hundred millions projected by both Gartner and the MDM Institute across the past several years to more than US\$10 billion according to IDC wherein they projected the grander MDM market scope (all related software such data quality, identity resolution algorithms, etc. etc..

The MDM Institute's research and consulting focus has historically been centered around customer hubs, and as a result this analyst firm has quite the definitive installation and revenue database of any research firm for this particular segment. Secondly as more organizations have begun to evolve their CDI hubs to include support for such master entities as product, supplier, and pricing then this installation/revenue database reflects such multi-entity or enterprise MDM coloration of the market. Furthermore, the MDM Institute partitions this data along classic market lines into the following segments:

- **Customer data integration (CDI) hubs** – These packaged MDM solutions include attorney stations where end an organization will take a CRM or ERP application instance and dedicate that application as the “system of record”. This has become an historical artifact as the rival onto the market of packaged MDM solutions that supersede such permutations by providing fine tuned specific functionality as opposed to contorted general purpose functionality. Examples of CDI packaged applications (a.k.a. CDI hubs) range from IBM's Client Information Integration Solution (CIIS) from years past to the current rendition known as IBM InfoSphere MDM Server (formerly DWL Customer and IBM WebSphere Customer Center).
- **Product information management (PIM) hubs** – These packaged MDM solutions focus on product related information and sometimes will expand into supplier, location, and pricing masters. One major variation within the PIM hub market is for the class of applications which managed catalog data, i.e. formerly print catalogs which are now overwhelmingly hybrid online/print catalogs.
- **Data service providers (DSP)** – Also known as service bureaus, these vendors provide aggregation and enrichment of an organization's master data as a service. Historically these DSPs have been very active in the database marketing solutions space. With the explosive growth of data warehouse Solutions that going onsite, as well as many organizations wishing to minimize the possibility of lapses of data security, of the market word such data services has been evolving from a hosted model to an online “by the drink” model where end a given record or a small set of records have their unique identifier sent to the service provider and in return additional enrichment content given back to the business about that individual or group of individuals. The DSPs have also historically and cyclically attempted to provide and onsite software offering to both diversify and strengthen their core offerings. It is not uncommon for such onsite software solutions to also be hosted by the DSP if that is a requirement for the customer. Examples of this include Acxiom, Equifax/Austin Tetra, Experian, Harte-Hanks Data Services, etc.
- **Hosted MDM** – Not only might a DSP provide hosting services for their own software but also systems integrators will provide hosting services for a wide range of software. For example, Alliance Consulting, Epsilon Data Management, and Unisys provide this capability for certain major CDI hub solutions.
- **Implementation services** – Also known as global service providers, these consultancies provide the implementation services that are often required by very large enterprises to define an MDM strategy, perform

the software evaluations, install and customize the software, and train both business and IT users in the new optimized master data processes. Historically for packaged MDM solutions from the mega vendors (IBM, Oracle, SAP) the ratio of service to software has been in the 4:1 range, that is for every US\$1 of software, the large enterprises typically spend another US\$4 in services the first year to install, customer, and optimize such an enterprise MDM system.

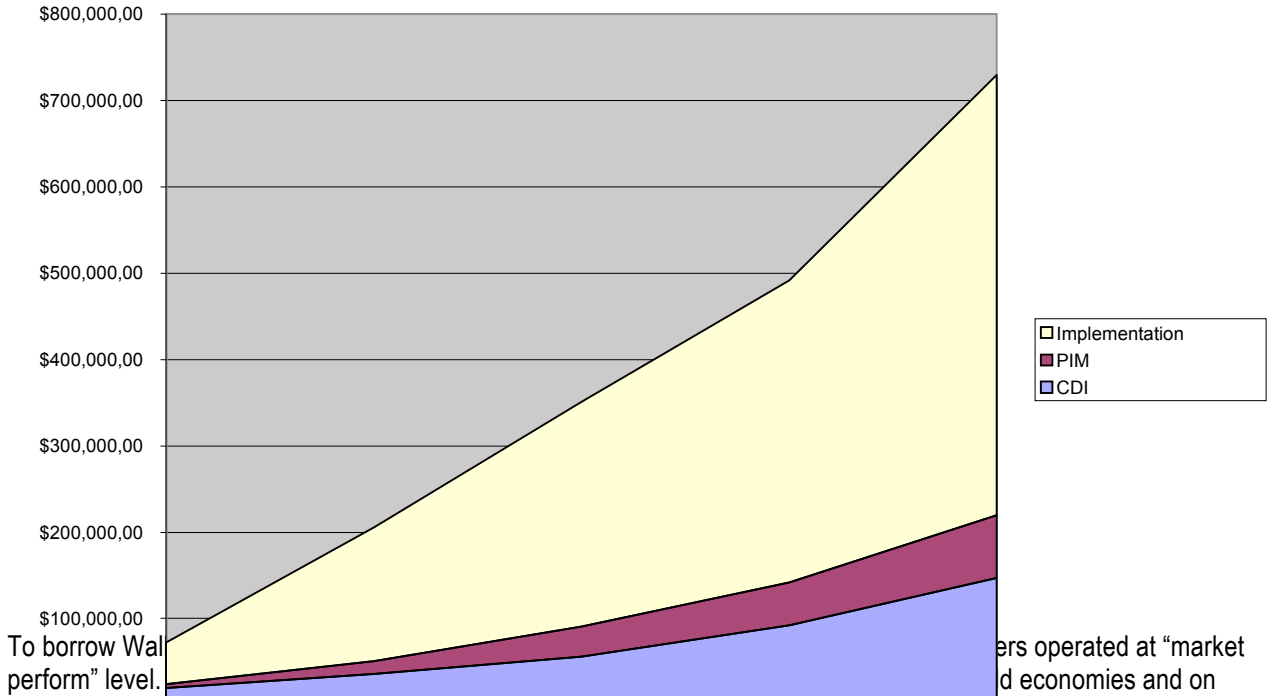
Note also what the market sizing data in this report does not provide data or analysis for:

- Maintenance revenues (ranging between 12-22% of initial software license)
- Vertical industry-specific application hubs, i.e. securities master systems for capital markets, anti-money laundering hubs for commercial and retail banking, etc.
- Specific horizontal hubs, i.e. financial hubs, location/site masters, pricing masters, etc.
- Middleware for extract-transform-load (ETL), data profiling, data quality, data cleansing, identity resolution or another piece-part components of an IT-crafted MDM solution.

It has been a particular focus of the MDM Institute to capture, document, and revalidate the installed base of the more prevalent MDM solutions. Thus the MDM Institute has definitively documented the locations and installation timeframes for the major packaged MDM solutions as of fall 2008. Note that this is an area which most research firms do not invest in. To that end, the MDM Institute has captured data on the below number of MDM installations:

- IBM – 25+ CIIS (pre-MDM “Client Information Integration Solution”) sites, 150+ DWL/WCC/MDM Server sites
- Oracle – 250+ Customer Data Hubs sites, 75+ Hyperion DRM sites; 100+ Universal Customer Master sites
- SAP – 150+ SAP NetWeaver MDM sites
- Initiate Systems – 100+ sites; of which a large portion are Enterprise Medical Patient Identifier or EMPI systems
- Kalido – 50+ sites
- Purisma – 25+ sites
- Siperian – 40+ sites
- Sun – 15+ sites
- Teradata – 5+ sites
- Tibco – 30+ sites
- VisionWare – 50+ sites; almost entirely within the UK

This data capture in turn permits the MDM Institute to arguably provide a definitive breakdown of the MDM software market for the past five years.



To borrow Wal-Mart's success, retailers operated at "market perform" level. In emerging and developing economies and on average collectively grossed US\$1.5 billion per year. Other huge winners in this early adopter market were the systems integrators (implementation services) who benefited from the complexity and strategic importance of these early MDM projects wherein the service spend was four times greater than the software spend on average. During this same period, the total MDM market grew at a compounded annual growth rate of almost 11% from US\$1.5 billion in 2003 to slightly more than US\$2.5 billion in 2007. While it is of interest to note the size of the DSP industry, this market report will focus on the smaller, yet faster growing (and arguably more business-strategic) market defined as "enterprise MDM". This enterprise MDM market consists of MDM packaged applications capable of supporting both "party" and "product" master data; therefore standalone PIM hub solutions such as QAD/Fulltilt and Riversand do not qualify. Additionally, while the market measurement will not include data service provider or hosted revenues, it will include implementation services as these are considered part of the solution cost.

Enterprise MDM Software Market (2008-12)

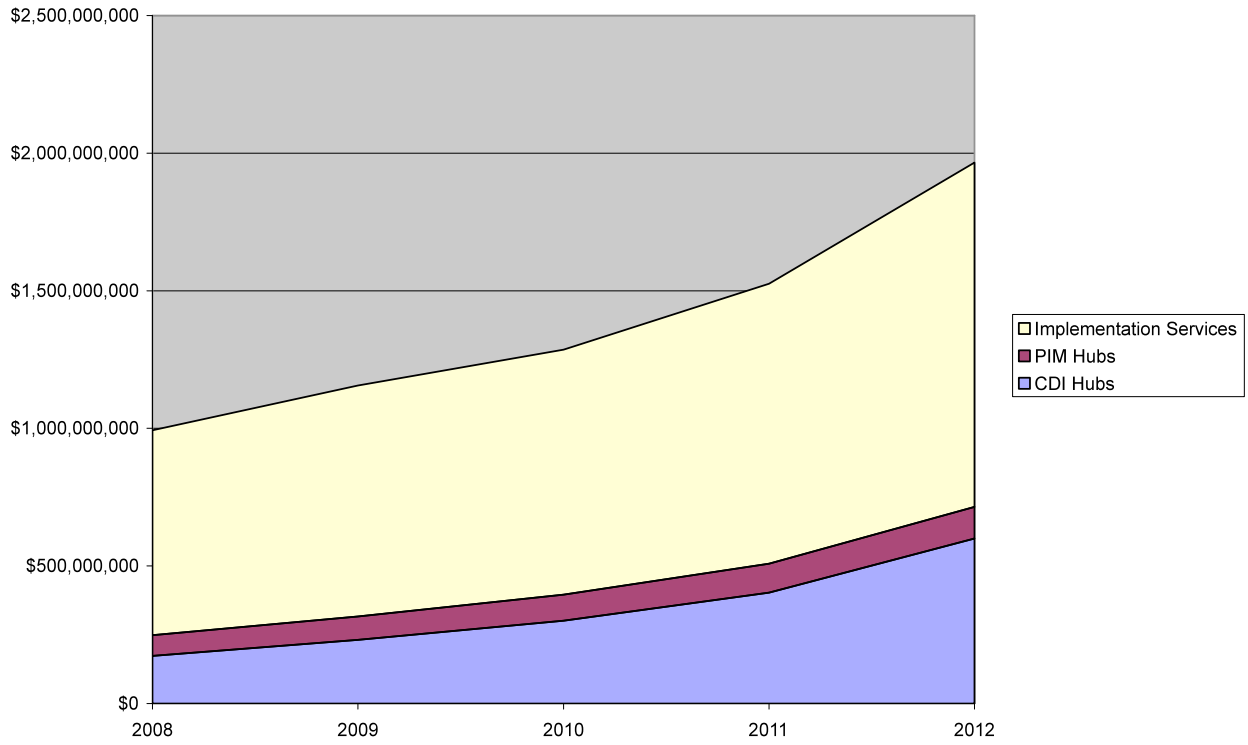


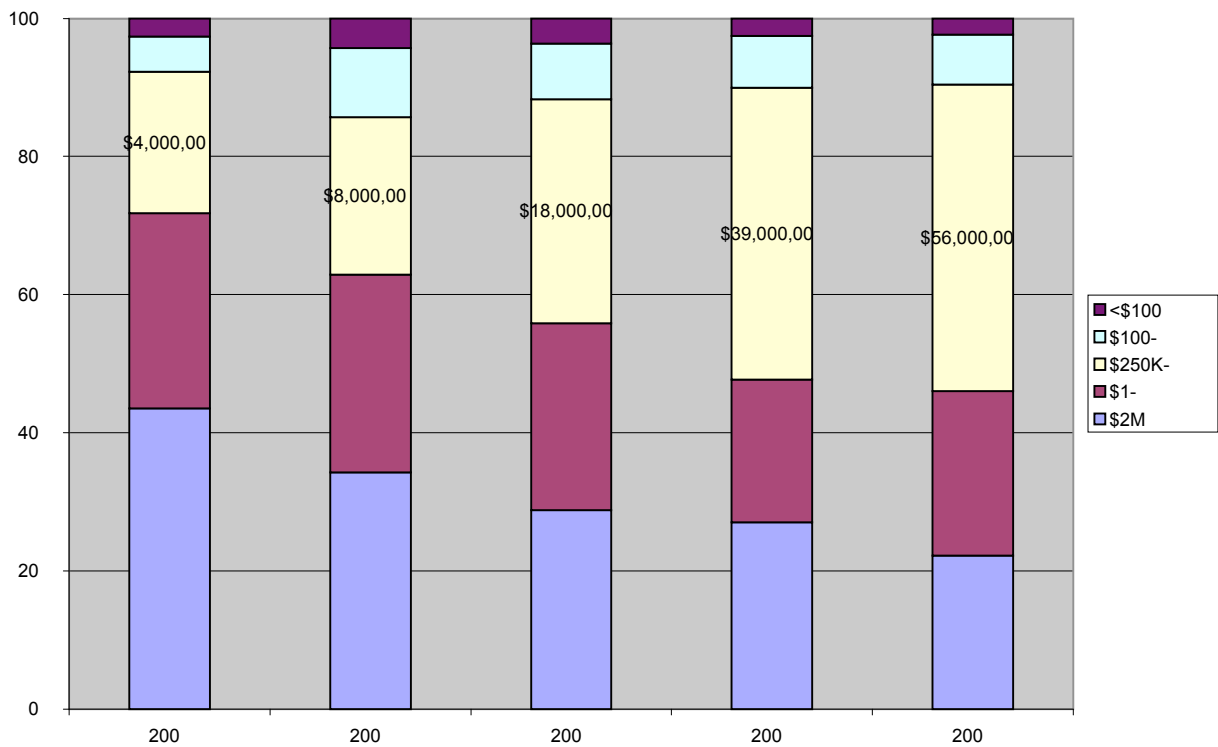
Figure 2 - Enterprise MDM Software Market (2008-12)

Therefore the enterprise MDM market grew from US\$ 72 million in 2003 to US\$730 million by YE2007 for compounded annual growth rate of 59%. This is not uncommon for early adopter markets making the transition in mainstream adoption. Additionally, while the PIM hub market grew faster than the CDI hub market at CAG of 75%, the significantly higher price points for CDI hubs and a CAG of 49% led the CDI hub market to more than double the size of the PIM hub market by YE2007. The fast growth of the PIM hub market was primarily due to the marketing and influence of SAP with its SAP NetWeaver MDM solution within its own SAP customer base.

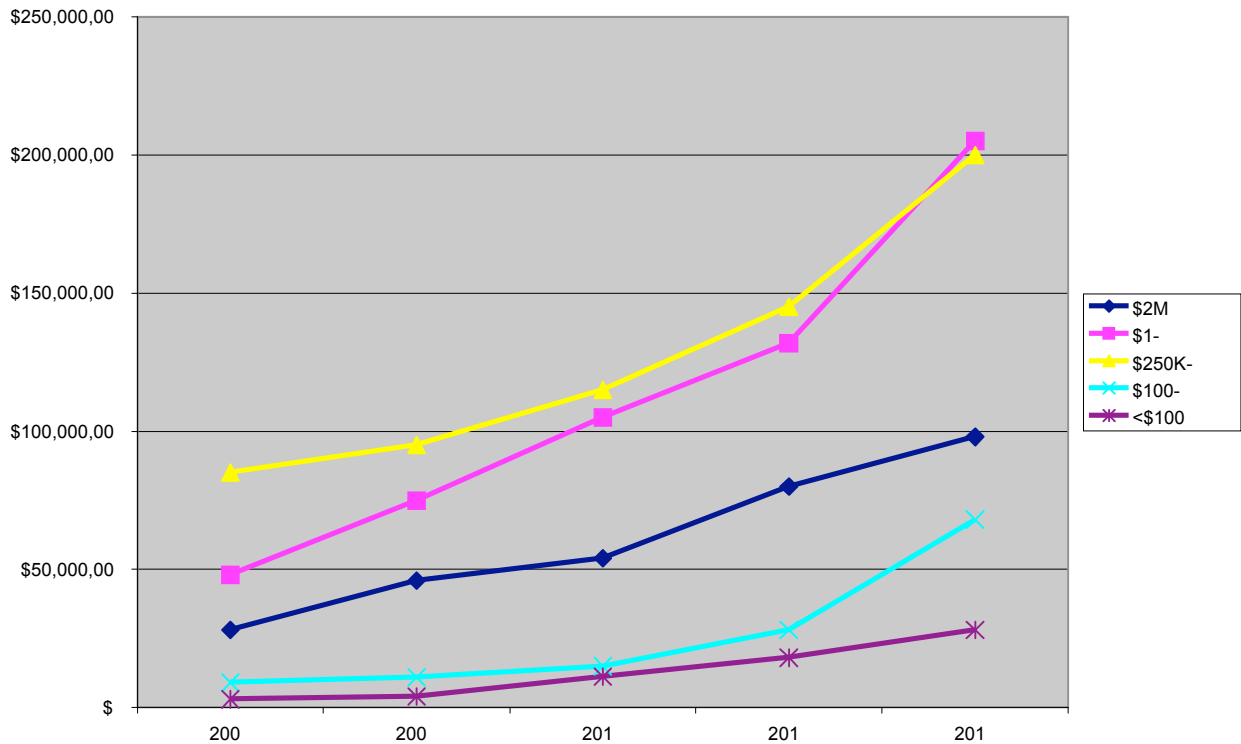
	2003	2004	2005	2006	2007
<i>CDI Hubs</i>	\$19,835,000	\$35,580,000	\$55,745,000	\$92,120,000	\$146,995,000
<i>PIM Hubs</i>	\$4,500,000	\$15,000,000	\$35,000,000	\$50,000,000	\$73,000,000
<i>Implementation Services</i>	\$48,000,000	\$155,000,000	\$260,000,000	\$350,000,000	\$510,000,000

Enterprise MDM Market Price Points (2003-07)

The market for enterprise MDM solutions during 2003 – 07 was initially a highly and, early adopter technology sale. That is price points were typically above US\$1 million during 2003 –05. During 2006 with Best-of-Breed vendors such as Initiate Systems, Purisma, and Siperian coming to market there was price pressure from these relatively Hungary upstarts to regularly bring prices down to between US\$500K and US\$1M. These best-of-breed vendors frequently sold a lighter weight and therefore lesser priced set of functionality (i.e., registry hubs) such that even the mega vendors IBM and Oracle repackaged and repriced to meet this competition. The suffice to say however that through a series of pricing algorithms and account management strategies, of these same mega vendors are usually able to make up the pricing difference when the client organization “goes enterprise”.

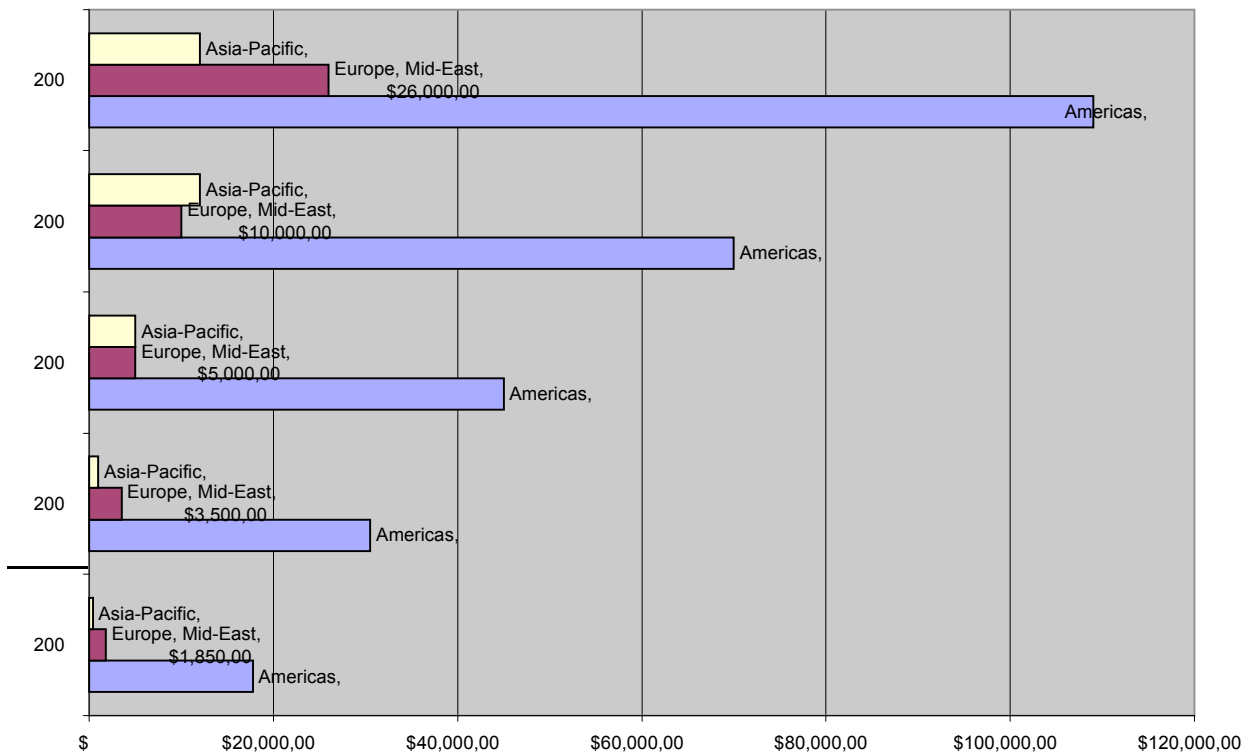


While the market for enterprise MDM solutions continues to evolve (and will shortly include hosted MDM IT software as a service as well), based on the forecast data the largest piece of the enterprise MDM revenue pie will consist of those deals with software licenses ranging between US\$1-2M. Even the large number of small to medium sized businesses which we believe will take up Microsoft MDM and similar opposite end of the spectrum priced solutions, the sheer number of global 5000 sized firms (i.e. those enterprises with annual revenues of US\$1 billion or more) that have yet to crystallize their enterprise MDM strategy will provide a steady pipeline of software licenses each in excess of US\$1 million during 2008-12.



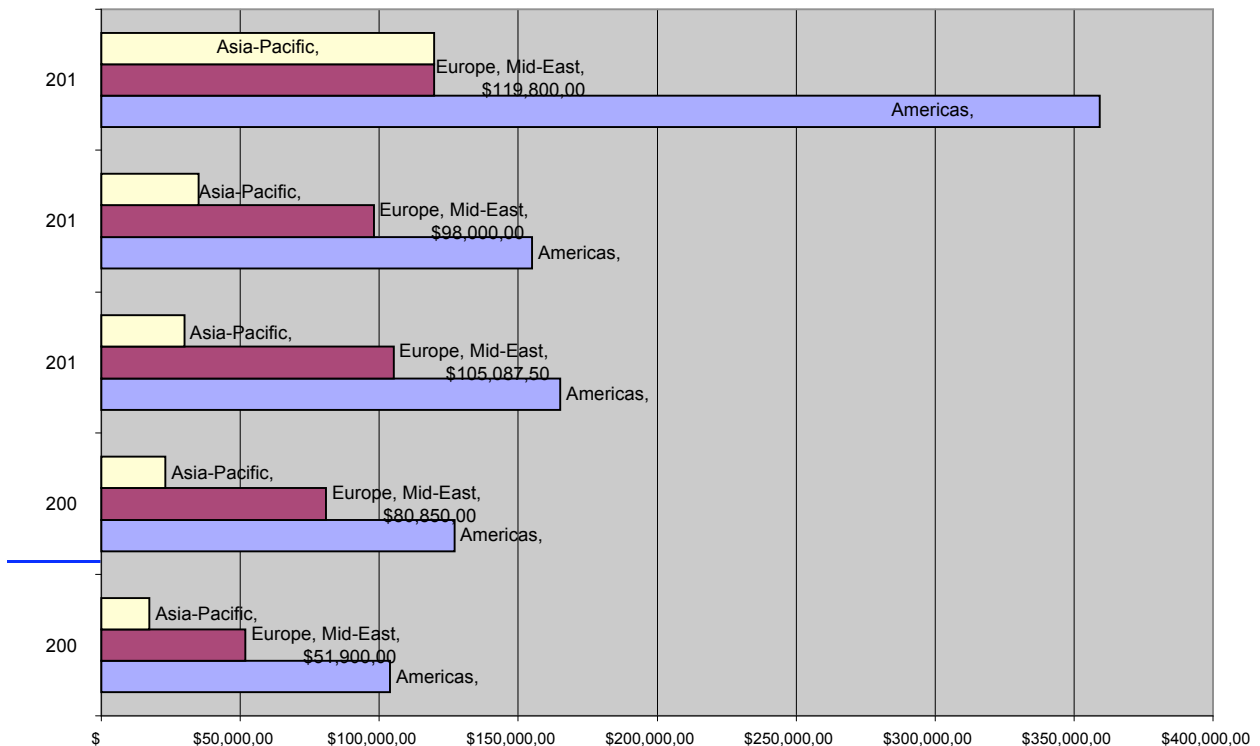
Geographic Growth of MDM Market (2003-07)

During 2003-07, the early adopter market for all things MDM was primarily a North American market with northern Europe not far behind. The early adopter industries included telecommunications, pharmaceutical, financial services, and high tech manufacturing. During 2005-06, the market broadened graphically as large banks, insurers, and Telcos worldwide began to embrace MDM. Furthermore as price points dropped below US\$1 million and best-of-breed vendors Initiate Systems and Siperian launched international operations (i.e. United Kingdom and Australia) the market further broadened. Moreover, the vendors such as IBM, Oracle, and Teradata also began to enjoy considerable success in China albeit it with different price points than America and northern Europe.



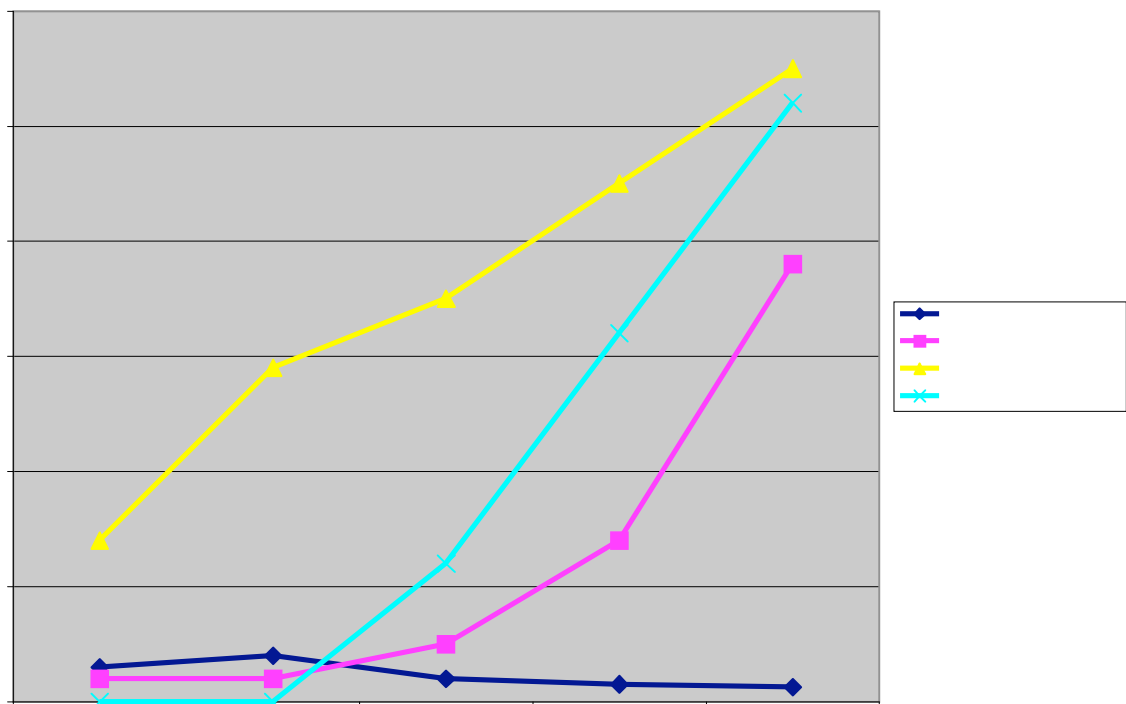
Geographic Growth of MDM Market (2008-12)

There are multiple factors as to why MDM went global so fast. One of the main catalysts was IBM's acquisition of best-of-breed vendor DWL and in turn the quick paced ramp up of IBM's global services organizations as well as its global sales and marketing teams. Additionally the reduction in price points that was experienced during 2006-07 as well as currency fluctuations enabled so-called second and third world countries' large enterprises to take up this technology initiative. Suffice to say that while only several hundred of the global 5000 largest enterprises have purchased or begun to install their enterprise MDM solutions this telegraphs to all that there's a huge uptake in the pipeline remaining for such enterprise MDM projects. Additionally, markets within China, India, and the Middle East have yet to be truly explored. And with the global reach that vendors such as Microsoft extend when entering the market as well as systems integrators such as Accenture, Cognizant, Tata Consultancy Systems, and Wipro Technologies – all busy marketing “single view of the customer,” “know your supplier” etc. to the large enterprises.



MDM Architecture/Platform Growth (2003-07)

During 2003-04, most MDM deployment styles mirrored the application packages which they meant to serve up master data to. In fact most of the MDM solutions at that time were indeed based upon the data models and software stacks of the enterprise applications they were designed to provide master data to, i.e. IBM Insurance Application Architecture, Hogan Banking Systems, Oracle Trading Community Architecture, SAP R/3, etc. Additionally many organizations depended upon the data service providers to either host their master data or to condition and prepare the master data and then return it to the safe side of the enterprise's firewall. Concurrently, enterprise portals as well as enterprise information integration (EII) middleware provided means to aggregate universal views of customer or product on-the-fly. Additionally as noted previously during 2006-07, at that point Registry-Style MDM solutions gained considerable favor in the marketplace and in particular took market share away from the Fully-Persisted/ application-centric MDM solutions.

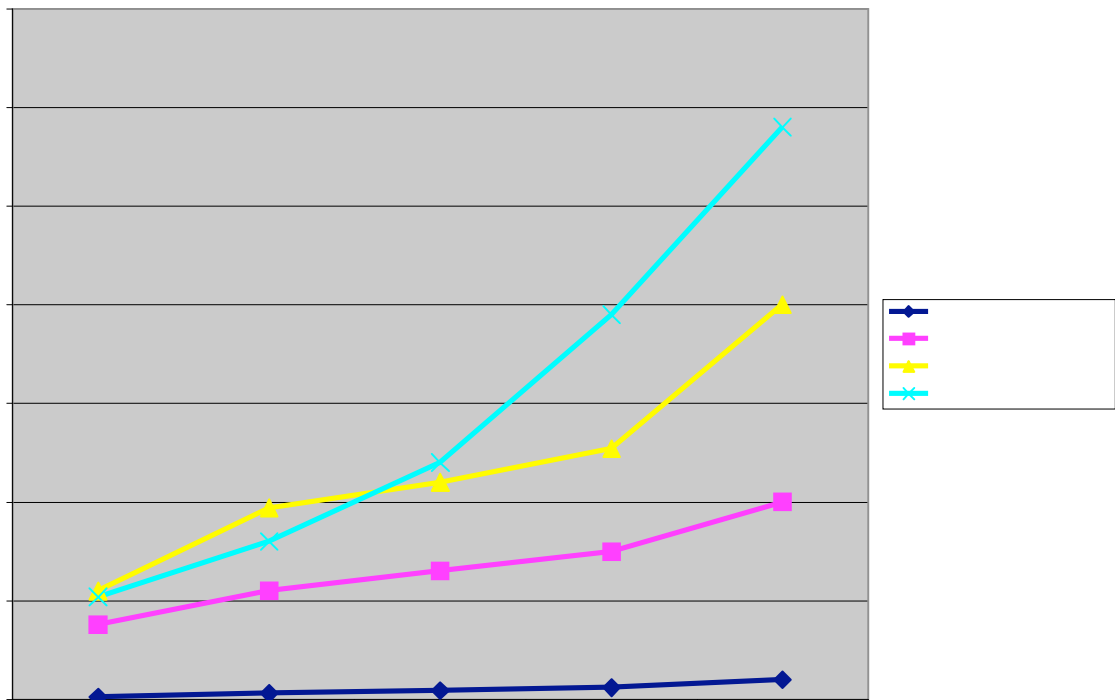


MDM Architecture/Platform Growth (2008-12)

The contemporary favored MDM deployment style during 2007–08 was the “hybrid” style. This architecture provided for the best of both worlds – both Fully Persisted and Registry Style. Such hybrids permitted the enterprise to both centralize a hub and share data as well as aggregate master data on the fly from trusted sources. During 2008–09 we can expect Fully-Persisted MDM solutions and Registry-Style to both flourish because of their relative strengths. However on the horizon are certain technologies that will revive the portal style. For example, enterprise “mash ups” offer the capability to materialize master information not just from traditional structured databases but also from unstructured sources such as e-mail systems and XML web pages and even certain aspects of deep web search.

Moreover, enterprise search itself offers some tantalizing technologies that obviate the need for much of the procedural efforts currently undertaken to capture, document, and enforce the rules surrounding corporate use of data.

Even further on the horizon (always teasing us but not getting closer) is the technology of semantic databases. Such capability promises to embed the meaning of information within the information such that users and systems will be able to understand, communicate, and integrate information on a use case basis. Clearly, such fundamental capabilities are potentially a “change the game” scenario for MDM solutions; however, businesses cannot wait for the next miracle technology pragmatists must garner near-term ROI using tools at hand while keeping an eye on the newer developing technologies.



Enterprise MDM market share of revenues and installations (2003-07)

During the past five years, the mega vendors quietly dominated the enterprise MDM market despite the necessary and effusive marketing of the best-of-breed vendors. Note that the combination of mega vendors IBM, Oracle, and SAP totally overwhelms the software license revenues of the “MDM brat pack”. Note also that the same mega vendors have tremendous resources to apply to the research and development, and sales and marketing, of their enterprise MDM initiatives – which each vendor truly believes to be strategic to their long-term health. We should also remind ourselves that being a mega vendor implies mega issues regarding internal politics as well as R&D coordination of the many research labs and acquired companies (as well as their legacy software stacks and architectures). Additionally, it is noteworthy that most analyst firms and consultancies believed that the best-of-breed vendors have for the most part attained critical mass and are not considered “at risk” at this point.

Installations MDM Market Share (2003-07)

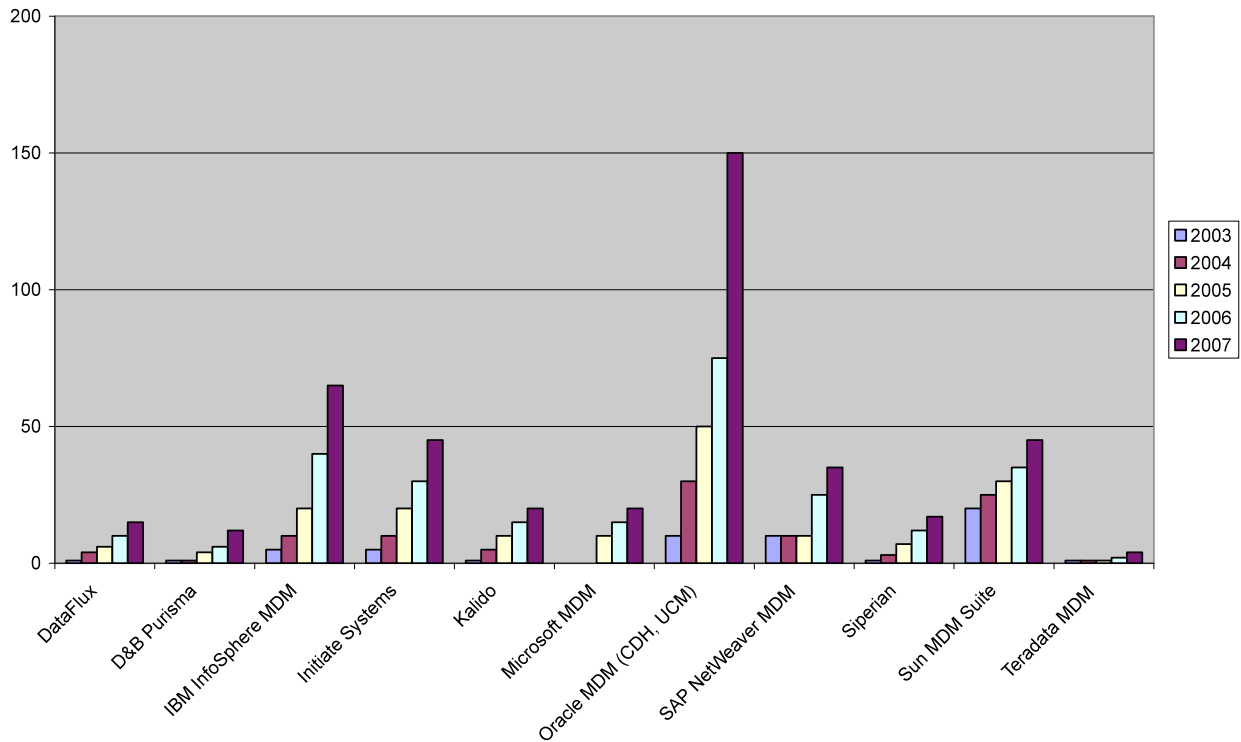


Figure 9 - MDM Market Share by Number of Installations (2003-07)

Enterprise MDM Market Revenues Share (2003-07)

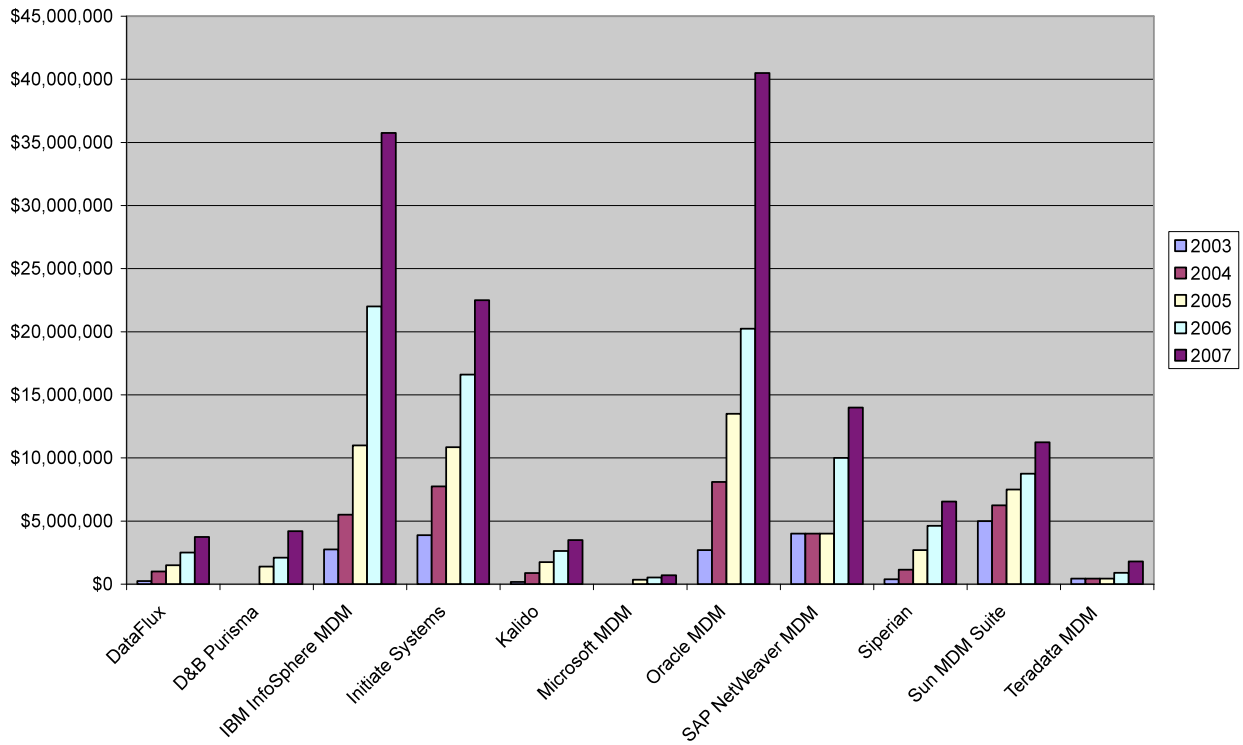


Figure 10 - MDM Market Share by Revenues (2003-07)

Enterprise MDM market share of revenues and installations (2008-12)

During the next five years, the mega vendors will continue to dominate in terms of number of installations as well as revenues. This is normal and healthy capitalism. At the same time, best-of-breed vendors will continue to evolve its defensive markets via horizontal and vertical enterprise MDM solutions. Even vendors that might appear dwarfish relative to the mega vendors during 2008-12 will find healthy revenues and successful customers. Yes there will be mergers and acquisitions as well as industry consolidation; however the core group of fifteen to twenty enterprise MDM solution providers should find safe harbor either in specific industries or vertical best-of-breed niches.

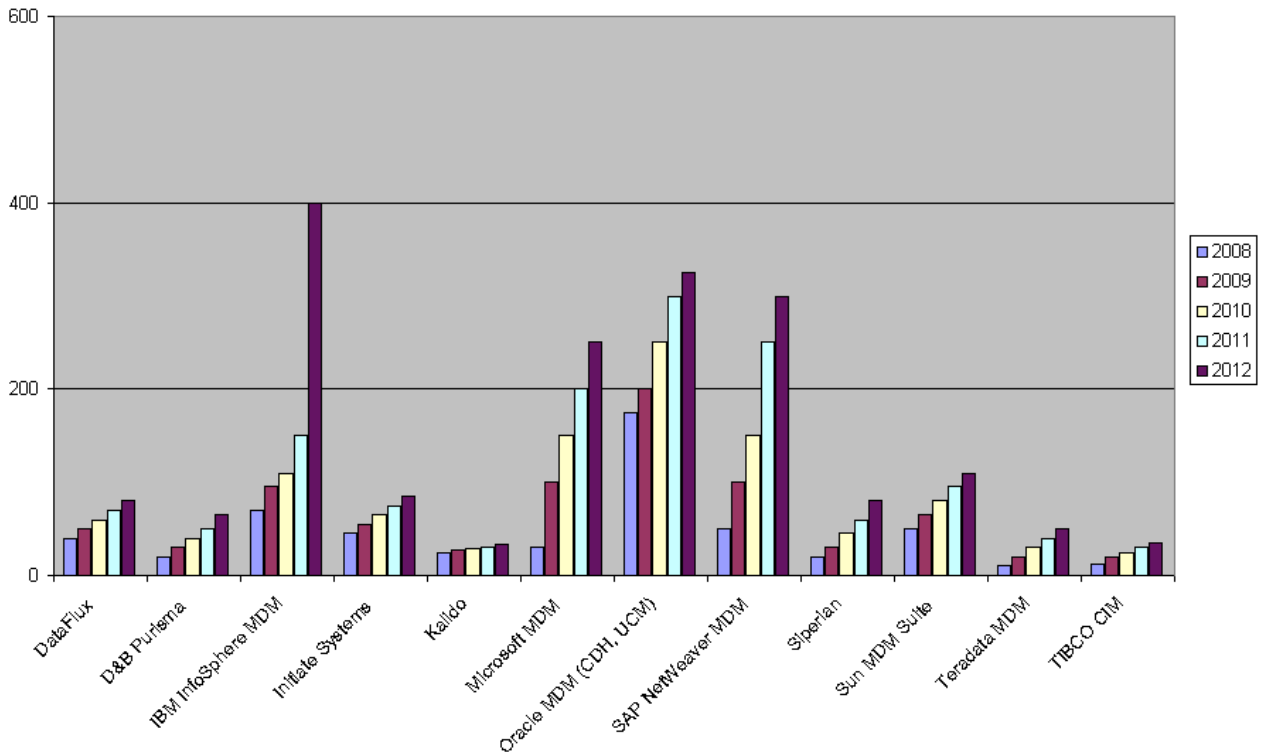


Figure 11 - MDM Market Share by Number of Installations (2008-12)

MDM Revenues Market Share (2008-12)

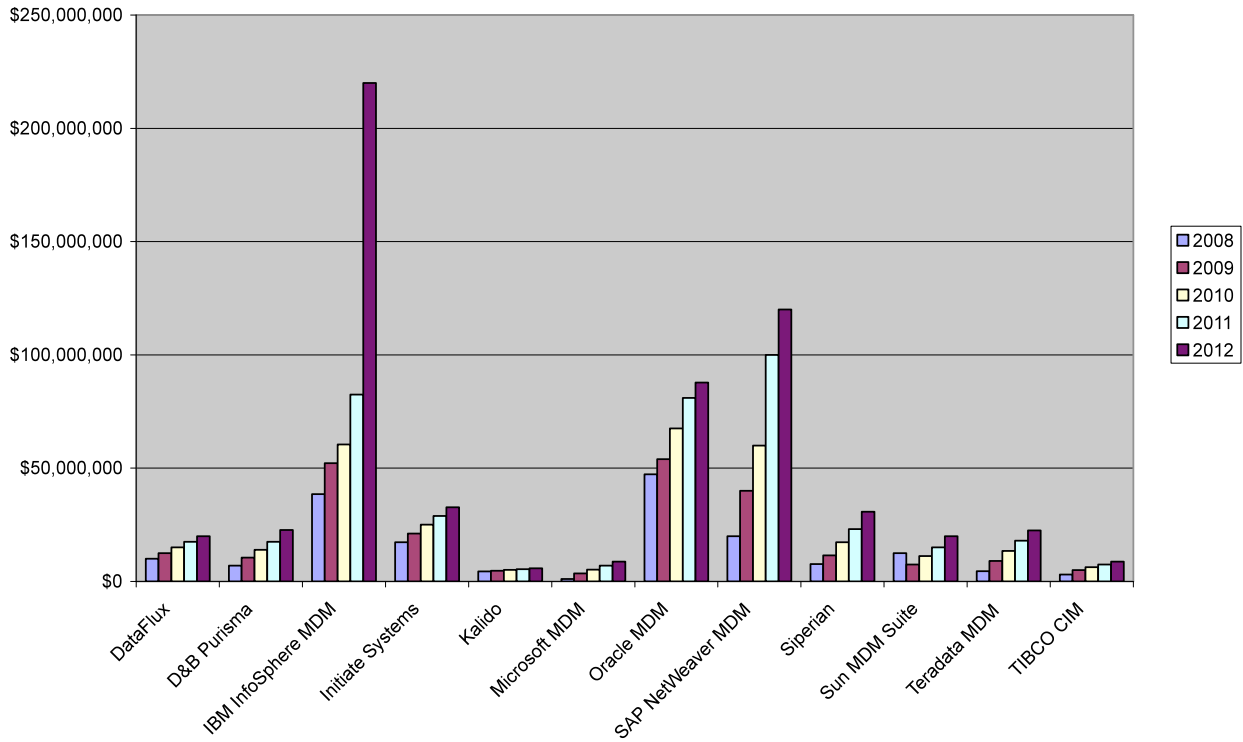


Figure 12 - MDM Market Share by Revenues (2008-12)

MDM MarketPulse™ Conclusion

With a 4th generation enterprise MDM solution, an enterprise will be better able to:

- Identify and provide differentiated service to its most valuable customers via their relationships (households, hierarchies); also cross-sell and up-sell additional products to these customers
- Introduce new products and product bundles more quickly across more channels to reduce the cost of New Product Introduction (NPI)
- Provide improved enterprise-wide transparency across customers, distributors, suppliers, and products to better support regulatory compliance processes

Additionally, the future MDM landscape will be influenced by these “multiples”:

- Multiple data domains
- Multiple relationships
- Multiple usage styles – analytical, operational, and collaborative
- Multiple views/roles of master data consumers including linkages between operational data domains (e.g., using collaborative or analytical MDM to integrate the processes)
- Multiple phases of implementation that are suited to the enterprise’s unique needs

Clearly, the future direction is to also grow all reference masters into operational masters, e.g., pricing and location style masters into transactional support roles via operational, analytical, and collaborative MDM linkages.

Through 2008-09, Global 5000 enterprises will broaden their MDM business initiatives from single use case, single entity to multi-style, multi-entity. By 2010-11, enterprises without a long-term multi-entity MDM strategy run the ironic risk of building “MDM silos” which will need to be patched/fused together via middleware – in effect, recreating the original MDM problem associated with master data segregated and isolated within ERP and CRM instances.

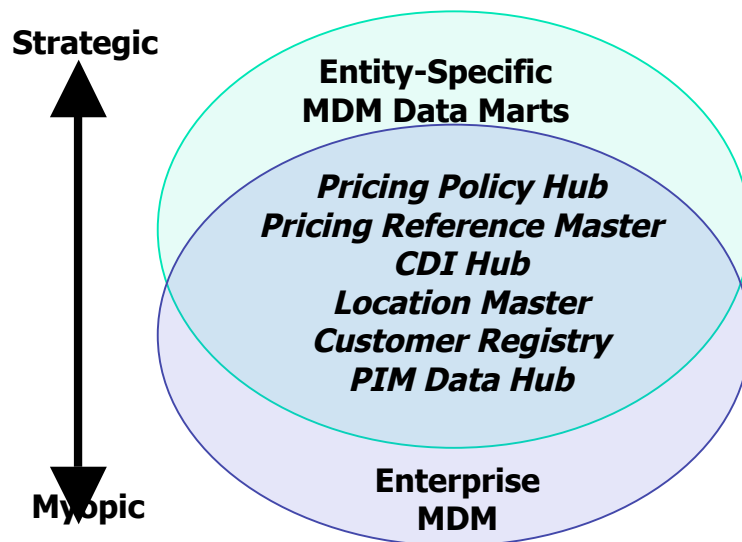


Figure 13 – Myopic vs. Strategic MDM Road Map

This MDM Institute MarketPulse™ market report has highlighted some of the most representative experiences and lessons learned concerning the evolution towards and the business for multi-entity MDM.

To summarize these as prescriptions, the MDM Institute recommends that Global 5000 size enterprises:

- Promote MDM as essential business strategy with IT deliverables to leverage high-value info used repeatedly across many business processes
- Position MDM as enabler of key business activities such as improving customer communication and reporting – rather than an important infrastructure upgrade
- Begin MDM projects focused on either customer-centricity or product/service optimization
- Plan for multi-entity MDM solutions evolving from “early adopter” status into “competitive business strategy”
- Insist on MDM software capable of evolving to multiple usage styles and data domains (“multi-entity MDM”)

The value of multi-entity MDM can be intuitively recognized in a range of business initiatives – from short-term fixes to a narrow set of problems such as capturing customer privacy preferences across product lines to long-term enterprise-wide initiatives to delivering infrastructure agility by embracing SOA.

Clearly enterprises must plan now to realize economic value and competitive differentiation via multi-entity MDM during the next 2-5 years. The evaluation process of such an enterprise MDM solution needs to accommodate the reality that such infrastructure is “mission-critical”.

Raison de etre of this MDM MarketPulse™ report

When we wrote the first market-defining study for master data management (MDM) in 2004, the focus was on customer data integration or CDI. Since that time other analysts firms such as Forrester and Gartner have greatly contributed to the body of research via their Wave and Magic Quadrant research products. Rather than belabor what is now acknowledged to be common understanding of the master data management market (i.e. what are they use cases, what are the architectures, and what are the technical evaluation criteria) the focus of this market review and forecast is to once again project what is new, what are the compelling technology dynamics that global 5000 enterprises must be aware of – i.e., what are the key trends that will shape the direction and focus of the dominant MDM solutions.

The MDM Institute's credentials for taking up this research challenge are multiple. Specifically, our analysts' approach includes these key factors:

1. MDM Institute analysts are focused only on MDM and its primary sub domains (customer data integration, product information management, and data governance). While there are clearly analysts and consultants who have a great deal of valuable insight to contribute regarding MDM, they are challenged to keep their vision clear as all too often these same analysts and consultants are performing alter ego roles as "leading authorities" in other domains such as enterprise resource planning (ERP), customer relationship management (CRM), or operational business intelligence/data warehouse.
2. Our analysts also are not limited to a subset of MDM. We believe that to approach MDM solely on the basis of customer or product master data is myopic. Moreover it is a disservice to not totally embrace the notion that data governance drives all aspects of MDM. While there may be considerable value in focusing solely on customer service industries such as financial services and retail or focusing heavily on product master data in manufacturing and distribution industries, increasingly both of these worlds are in the predicament where they need to apply MDM principles and solutions across the majority of their inter- and intra -enterprises infrastructure – i.e. to marry "party" and "product" notions of master data..
3. Additionally, there are camp follower technologies such as extract-transform-load (ETL) and enterprise information integration (EII) middleware which serve dual purpose; these overlay both operational and analytical solution architectures. But these technologies by themselves are ancillary and not primarily to solve the business problems which MDM addresses. And increasingly MDM solutions are taking on more of the trappings of a classical application package (hence the term "packaged MDM solution") in addition to the infrastructure role they often provide. We like the term "applistructure" which has been invoked by both application and infrastructure vendors as a very good characterization of where the contemporary MDM products are headed.
4. Lastly we all owe homage to those analysts and consultants who have pioneered this practice research into such "enterprise" topics such as enterprise architecture ITIL ((IT Infrastructure Library), governance, and service-oriented architecture or SOA. But many of the pioneering concepts, principals, and best practices related to these IT areas also have a major influence on the best practices and technologies of MDM. However, many of the analysts and consultants who have shown such great vision and clarity in these key practice areas have indeed become dogmatic and rather confrontational with their viewpoints that their specific domain is the cure all. Indeed many such consultants and analysts show little cognizance or tolerance of other software solutions which have quite successfully subsumed and involve the same primary research domains
5. Concurrently, our MDM Institute research is focused on attaining business value given the complex operating some areas that the 21st century global enterprise must endeavor under as there are certainly fortunate enterprises that have a green field as startups when deploying their business applications yet the vast majority of the global 5000 size enterprise must accommodate a tremendous set of legacy data and processes. In other words, web 2.0 and software as a service (SaaS), etc. are compelling in their own right but do not yet adequately address the business realities that the vast majority of large corporations and governmental enterprises are burdened with.

Lastly, given the emphasis on the references and market momentum, the MDM Institute is the only analyst firm or consultancy that maintains a rigorous database that tracks successes and failures of both MDM solutions vendors as well as the systems integrators that are instrumental to the success or failure of these enterprise initiatives. Our organization is the only research firm that in addition to working directly with several hundred organizations in their MDM efforts also benefits from the data collected via surveys of the world's largest community of MDM professionals.

Specifically, the MDM Institute is the driving force behind the global conference series known as the MDM Summits held annually in Frankfurt, London, New York, San Francisco, Sydney, and Toronto. Since 2006, the MDM Institute has semi-annually hosted in North America, Europe and Asia-Pacific the world's largest gathering of IT professionals focused specifically MDM, CDI, and data governance. These sold-out events offer MDM professionals and their business partners opportunities to: (1) create and grow a strong network of data integration colleagues; (2) validate and further their understanding of best practices and potential pitfalls; and, (3) stay current with the latest research, trends and technologies.

During 2006–08 we gathered data from over 5,000 attendees via this conference and trade show series. This represents by an order of magnitude the largest body of serious MDM practitioners and practitioners-to-be (i.e. evaluators) available to any research organization. While other surveys may purport to represent the pulse of the global market regarding MDM, in reality under the covers these are surveys of web page day trippers or data warehouse/ IT governance broad audiences and clearly not the vanguard of the global 5000 organizations that have either embraced MDM or are engaged in serious MDM evaluations. Our name for this ongoing series of analytical reports and white papers is therefore known as "MDM MarketPulse™" research.

For more information

To learn more about applying master data management to generate business value and achieve competitive advantage, send an email to: mdm@tcdii.com or visit: www.the-MDM-Institute.com.

About the MDM Institute

Aaron Zornes is chief research officer of the MDM Institute. For additional info on this topic or other MDM Institute offerings, please contact info@the-MDM-Institute.com.

To provide feedback on our client's MDM initiatives we have two levels of sponsorship for IT organizations: (1) free membership (by invitation) in our MDM Institute Advisory Council providing unlimited MDM consultation by phone, and (2) free membership in our MDM Institute Business Council (survey base) which provides bi-weekly updates on key MDM trends and issues via an email newsletter.

- **MDM Advisory Council™** of fifty organizations who receive unlimited MDM advice to key individuals, e.g. CTOs, CIOs, enterprise architects, and MDM project leads.
- **MDM Business Council™** of 8,500+ Global 5000 IT executives who receive a limited distribution, bi-weekly newsletter with MDM industry updates.
- **MDM Alert™** bi-weekly newsletter provides IT organizations, MDM vendors, and investors hard-hitting insights into best practices as well as market observations derived from interactions with the MDM Advisory Council™ and the MDM Business Council™. Initially free to qualified individuals, the MDM Alert™ is expected to become a fee-based product 2H2009. The intended audience includes: enterprise architects, MDM project managers, CIOs, CTOs, chief customer officers, chief privacy officers, data quality managers, data stewards, and project teams responsible for MDM solutions and infrastructure.
- **MDM MarketPulse™** monthly survey results, e.g. budgets, success/failure rates, mindshare based on ongoing surveys of the MDM Advisory Council and the MDM Business Council.
- **MDM Fast Track™** quarterly 1-day workshop – fee-based and rotating through the major North American, European and Asia-Pacific metropolitan areas.
- **MDM SUMMIT™** quarterly 3-day conference and exposition – rotating through east and west coast North America, Frankfurt, London, Madrid, and Sydney.