Magic Quadrant for Master Data Management Solutions

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Summary
This new Magic Quadrant addresses the current focus of the MDM market on all-encompassing solutions as more clients recognize their digital business platform should be built on trusted master data. It will help data and analytics leaders find the best vendor and solution for their needs.

Strategic Planning Assumption
By 2020, 80% of all master data management (MDM) solution revenue will be driven by support for all of the buying organization's requirements around industries, data domains, use cases, organizations and MDM implementation styles, up from less than 15% in 2015.

Market Definition/Description
Please note that this document was revised on 23 January 2017. The document you are viewing is the corrected version; the "as of" date of the Magic Quadrant graphic was changed to August 2016 to reflect when the data collection period was concluded. There were no other changes resulting from this revision.

For a definition of MDM, see Note 1.

MDM solutions are software products that:

- Support the global identification, linking and synchronization of master data across heterogeneous data sources through semantic reconciliation of master data.
- Create and manage a central, persisted system of record or index of record for master data.
- Enable delivery of a single view of one or more subject areas to all stakeholders, in support of various business initiatives.
- Support ongoing master data stewardship and governance requirements through workflow-based monitoring and corrective-action techniques.

MDM implementations, and their requirements, vary along each of the following dimensions:

- The instantiation of master data, ranging from maintenance of a physical "golden record" to a more virtual, metadata-based, indexing structure.
- The usage and focus of master data, including use cases for design (information architecture), construction (building the business), operations (running the business) and analytics (reporting the business).
- Different organizations' structures, ranging from small, centralized teams to global, distributed organizations.
- The latency and accessibility of master data, ranging from real-time, synchronous reading and writing of master data in a transactional scenario between systems, to message-based, workflow-oriented scenarios involving distributed tasks across an organization, and legacy-style batch interfaces for moving master data in bulk file format.
- The complexity of the business environment and therefore of the use cases they must satisfy. These require appropriate levels of governance, risk management and control.
- The physical and logical location of the hub or the source of the golden record, whether on-premises, in memory or in the cloud.

Organizations use MDM solutions as part of an MDM strategy (see "The Seven Building Blocks of MDM: a Framework for Success" ). This strategy should itself be part of a wider enterprise information management (EIM) strategy (see "Gartner's Enterprise Information Management Maturity Model"). An MDM strategy potentially encompasses the management of multiple master data domains, such as customer, product, asset, person or party, supplier and financial master data domains.

Relationship to Historical Domain-Specific MDM Magic Quadrants
This is Gartner's first Magic Quadrant for MDM solutions. We will also publish a Critical Capabilities document on this topic. We are retiring the Magic Quadrants for MDM of customer data solutions and product data solutions, and their respective Critical Capabilities documents.

The inclusion and exclusion criteria for this new Magic Quadrant address the entire MDM solution market, which is broader and more demanding than ever. Consequently, this Magic Quadrant should in no way be considered a combination or a continuation of the retiring Magic Quadrants.

The revenue requirement for inclusion in this Magic Quadrant is $15 million for MDM implementations in 2015. We no longer exclude from consideration revenue derived from implementations that solely support analytical MDM, provided the vendor in question also generated some operational MDM revenue in 2015. These criteria reflect the larger size and broader scope of the market addressed by this new Magic Quadrant, which considers all master data domains (as opposed to the customer or product data domains alone).

In this Magic Quadrant, each vendor receives a single profile in the Vendor Strengths and Cautions section and a single dot in the Magic Quadrant graphic (Figure 1). We will highlight any situations involving multiple MDM products from a single vendor in a new Critical Capabilities document. The new Critical Capabilities document will take a use-case-based approach to evaluate capabilities in relation to specific scenarios involving customer and/or product data, as well as support for multidomain and multivector MDM.

To clarify further the significant differences between the two retiring MDM Magic Quadrants and this new Magic Quadrant, the following elaboration may be helpful. This new Magic Quadrant is not:

**Solely about “multidomain MDM”** — Multidomain MDM is just one of six new use cases that we have evaluated. However, vendors that support more than one domain (in any of multiple ways) probably fared better than those that concentrate on just one, as they would have scored higher in more of the six new use cases.

**A consolidation of the two retired MDM Magic Quadrants** — Although customer and product data are still the predominant domains supported by MDM solutions by a significant margin, all other domains (for example, supplier, asset and location data) are considered in this Magic Quadrant. A single MDM revenue threshold covering all master data domains is an inclusion criterion.

The shift in the MDM market toward a more holistic set of solution capabilities, and the resulting set of new evaluation criteria and weightings, has produced a significantly different view of the market. This shift in focus is described in detail in the Context and Market Overview sections. As the market's requirements have shifted toward all-encompassing solutions, vendors have not kept pace at a macrolevel, which has resulted in a significant amount of empty space in the top right of the Leaders quadrant.

Other significant factors independent of — but concurrent with — this shift include changes in vendors' product and sales strategies in relation to the demand (as well as the lack of demand) apparent to us from hundreds of client interactions, and to the scores awarded by the reference customers we surveyed (see Note 2).

Where vendor-originated changes independent of the shift in Gartner's research focus significantly influenced a vendor's position, details are given individually in that vendor's Strengths and Cautions.

For more details about the change to a single MDM Magic Quadrant, see the Context section.

**Revenue and License Count Estimates**

As part of the research process for this Magic Quadrant, Gartner solicited data from MDM software vendors regarding their revenue in the calendar year 2015 and their license counts by data domain as of the end of March 2016. If a vendor declined to supply all or some of this data, or if we possessed information that contradicted the data provided by a vendor, we formulated revenue and/or license count estimates for that vendor, which the vendor had an opportunity to review and comment on before publication. The results of this process are given for each vendor below. This data is estimated in all cases.

Gartner's 2015 MDM market share analysis was strongly affected by currency fluctuations. Most major currencies saw a substantial decline against the U.S. dollar for most of 2015. This meant that non-U.S.-dollar revenue was reduced when viewed in current currency. (For more details, see "Market Insight: New Dynamics Drive Strong Growth and New Opportunities for Master Data Management Software Vendors." (http://www.gartner.com/document/3495017))

For this reason, in this Magic Quadrant Gartner calculates market sizes and vendor revenue in constant currency — that is, using an averaged currency rate that normalizes currency effects. In this Magic Quadrant, in situations where the change in a vendor's real (that is, unadjusted) estimated annual revenue for 2015 was significantly affected by international currency fluctuations, we describe the change in both real U.S. dollars and in constant currency that has been adjusted for this fluctuation.
Magic Quadrant

Figure 1. Magic Quadrant for Master Data Management Solutions

Source: Gartner (August 2016)

Vendor Strengths and Cautions

EnterWorks

EnterWorks (http://www.enterworks.com/) is headquartered in Sterling, Virginia, U.S. EnterWorks Enable v.8.1 entered general availability (GA) in March 2016. EnterWorks’ total estimated MDM software revenue was $17.4 million in 2015. Its top-three data domains and estimated license counts as of March 2016 were finished product (240 licenses), asset (231) and supplier (226). EnterWorks has an estimated 235 customers managing multiple data domains.

STRENGTHS

Financial position: Continued backing by Black Dragon Capital has enabled further investment in EnterWorks. This is shown, for example, by its hiring of five new senior executives in 2015, several of whom have previous experience of MDM vendors.
Understanding of target markets: EnterWorks’ understanding of business-to-business-to-consumer scenarios is evidenced by notable reference customers addressing those scenarios. EnterWorks achieved the top survey scores from reference customers for its understanding of the business application of its MDM solution.

User interface: EnterWorks Enable tied for the highest reference customer survey score for UI and workflow support for its implementation and maintenance across multiple data domains, use cases, implementation styles and integration scenarios. There is a direct correlation between users’ satisfaction with an enterprise solution and its rate of adoption.

CAUTIONS

Product strategy: EnterWorks intends to move toward product content life cycle management. However, neither this (admittedly compelling) intention nor the acquisition of Digital Foodie has yet led to a practical intersection with the core MDM market. With respect to MDM, judging by the responses of surveyed reference customers, EnterWorks has yet to establish its capability for mastering customer and human capital data.

Market momentum: The frequency with which EnterWorks is mentioned in end-user inquiries received by Gartner remains low, relative to competing MDM vendors. Its reported revenue shows less than 1% growth in real dollars, although it is higher on a constant-currency basis.

Partner network: Reference customers’ survey responses indicate that, of the vendors in this Magic Quadrant, EnterWorks uses the fewest partners for implementation work. Respondents also pointed to challenges in identifying resources with EnterWorks expertise. Our 2016 research into the MDM external service provider (ESP) market revealed no formal partnerships with any responding ESP vendor.

IBM

IBM (http://www.ibm.com/) is headquartered in Armonk, New York, U.S. InfoSphere Master Data Management v.11.5 entered GA in November 2015. IBM’s total estimated MDM software revenue was $177.5 million in 2015. Its top-three data domains and estimated license counts as of March 2016 were customer/citizen (504 licenses), finished product (296) and supplier (89). IBM has an estimated 280 customers managing multiple data domains.

Not rated due to incomplete information: IBM InfoSphere Master Data Management Custom Domain Hub.

STRENGTHS

Information management platform: IBM provides an information integration and governance platform that can broadly support an organization’s information management strategy. IBM sells MDM offerings both on a stand-alone basis and as bundles of workflow, stewardship and information governance capabilities. It has an extensive and robust network of implementation partners.

Domain-specific product depth: IBM has deep, discrete solution capabilities in support of the customer/citizen and product/thing master data domains. These include workflow, data quality and data integration capabilities. IBM also has a best-in-class data-matching engine.

Flexible pricing and deployment options: IBM now offers a monthly subscription pricing option for its on-premises licenses. It also offers the option of privately hosted deployment in its cloud environment, including a significantly simplified tiered pricing model.

CAUTIONS

Challenges with revenue growth: Gartner estimates that IBM’s MDM 2015 revenue grew well below the market average of 4.4%. This follows below-average growth in 2014 and a contraction in 2013.

Market presence and alignment: The frequency of Gartner’s MDM client interactions regarding IBM has declined over the past year, and we have seen it pre-emptively excluded from comparative evaluations (based on its pricing and product footprint) in favor of smaller vendors. IBM intends to develop a “cloud-native” MDM capability with more SaaS-like characteristics, but our interactions with Gartner clients regarding MDM point to low demand for cloud deployment capabilities. (Should this low level of demand persist in the long term, the potential exists for investment to shift once again in the future.) IBM still relies on a volume-based pricing model for on-premises MDM licensing (including monthly), which has incurred disfavor with existing and prospective customers.

Reference customer survey scores: IBM’s vendor-level reference scores were among the lowest of the qualifying vendors in all categories except total cost of ownership (TCO) and pricing transparency. Its lowest scores were for future roadmap visibility and support for deployment and implementation of product upgrades. Its product-level scores ranged from average to low, with particularly low scores for batch integration and initial load support, manageability and security, data stewardship support, and support for multivector MDM. IBM did not identify reference customers for its Custom Domain Hub product.

Informatica
Informatica (http://www.informatica.com/) is headquartered in Redwood City, California, U.S. Informatica MDM v.10.2 entered GA in October 2016. Informatica Product 360 v.8.0.5 entered GA in June 2016. Informatica Supplier 360 v.10.1 HF1 entered GA in September 2016. Informatica's total estimated MDM software revenue was $157.9 million in 2015. Its top-three data domains and estimated license counts as of March 2016 were customer/citizen (425 licenses), finished product (405) and supplier (80). Informatica has an estimated 512 customers managing multiple data domains.

**STRENGTHS**

**Information management vision:** Informatica continues to develop its vision for the Intelligent Data Platform (IDP). It is rationalizing its various MDM offerings, while integrating them with a new semantic offering to provide new composite capabilities. It has released an option for deployment in its private cloud environment. It has invested in the most extensive network of implementation partner firms of any vendor in this Magic Quadrant.

**Investment:** Informatica continues to invest substantially in its core multidomain MDM platform and industry solution accelerators. It has released "master-data-fueled applications" to provide 360-degree views of the supplier and customer data domains, so that clients can govern both master and nonmaster data related to these domains. It plans a common administration capability covering its multiple products to support the latest release of its core MDM solution.

**Reference customer survey scores:** Informatica's vendor-level reference scores were among the highest in all categories except pricing transparency, initial implementation and deployment support, and local presence, for which its scores were still above average. Product-level scores ranged from above average to high, with particularly high scores for batch integration, data quality and high-availability support.

**CAUTIONS**

**Market perception:** Based on Informatica's initial messaging, many Gartner clients believed that the IDP would be a physical product, when it is in fact a vision and a strategy involving multiple products. Informatica has made its marketing more specific to mitigate this initial confusion.

**Portfolio execution:** Gartner's interactions with clients indicate limited consideration of simultaneous purchase of Informatica MDM and Product 360 solutions, as well as confusion between Product 360 and its predecessor, Informatica PIM. (Informatica's sales staff have also shown confusion about this.) Product 360 will not be fully rewritten to run on the core MDM platform until later in 2017, meaning that an enterprisewide "solution" will require more than one physical installation. Informatica also lacks a unified capability within its MDM solution to support stewardship and governance, which require additional Informatica tools.

**Revenue growth:** Informatica's overall estimated MDM revenue growth has slowed materially over the past three years, although at 5.3% in real dollars in 2015 it was still above the market average of 4.4%. Its estimated 2015 revenue for MDM of customer data (traditionally its strongest performer) declined by almost 29% from 2014. Informatica relies on a data domain and volume-based perpetual licensing model, which has incurred disfavor with existing and prospective clients.

Magnitude Software

Magnitude Software (http://magnitudesoftware.com/) is headquartered in Austin, Texas, U.S. Kalido MDM v.9.1 SP3 and Magnitude One entered GA in April 2016. Magnitude's total estimated MDM software revenue was $17.4 million in 2015. Its top-three data domains and estimated license counts as of March 2016 were finished product (70 licenses), customer/citizen (41) and location/site (37). Magnitude has an estimated 66 customers managing multiple data domains.

Not rated due to incomplete information: Magnitude One.

**STRENGTHS**

**Flexible, user-friendly platform:** Magnitude Kalido MDM customers frequently mention its data model flexibility in support of multidomain MDM implementations. In addition, its workflow and data modeling UIs are often considered friendly enough for business users in implementations of modest complexity and data volume.

**Product innovation:** Magnitude One is a new prepackaged MDM of customer data solution based on Kalido MDM, with a limited subset of functionality targeted at the midmarket. It can be implemented in a private cloud or on-premises. It contains an out-of-the-box integration capability for many common business applications through Scribe Online, and online training for data stewards and administrators.

**Revenue growth:** We estimate that Magnitude's 2015 MDM revenue grew at 5.0% in real dollars, compared with the market average of 4.4%. Its growth in constant currency was 13.2%, just below the market average of 14.3%.

**CAUTIONS**

**Reference customer survey responses:** Magnitude achieved a well-below-average response rate to the reference customer survey, and no reference customers responded about the B2C customer data domain. Magnitude's vendor-level scores ranged from average to well below average, with low scores for industry understanding, TCO, information
governance support, initial implementation and deployment, local presence, and support for change management. Product-level scores were among the lowest in most categories, except for hierarchy management. Magnitude did not identify reference customers for its Magnitude One product.

Revenue profile: The vast majority of Magnitude's MDM revenue originated from maintenance fees for perpetual software licenses purchased prior to 2015. A substantial portion also appears to have originated from implementations that solely support analytics, which renders Magnitude vulnerable to replacement by non-MDM technology solutions in those situations. Magnitude relies on a pricing model based on anticipated usage, which has incurred disfavor with existing and prospective clients.

Market presence: Inquiries about Kalido MDM from Gartner clients have been virtually nonexistent for several years, except for isolated inquiries about its continued viability when the formation of Magnitude Software was announced in April 2014. Gartner's 2016 research into the MDM ESP market revealed only a single formal implementation partnership for Kalido MDM among the responding vendors.

Oracle

Oracle (http://www.oracle.com/) is headquartered in Redwood Shores, California, U.S. Oracle Product Hub, Oracle Supplier Hub, and Oracle Site Hub v.R12.2.5 entered GA in September 2015. Oracle Product Hub Cloud Service and Oracle Customer Data Management Cloud Service v.R11 entered GA in April 2016. Oracle Customer Hub v.IP2016 entered GA in May 2016. Oracle Data Relationship Management (DRM) v.R11.1.2.4.340 entered GA in April 2016. Oracle’s total estimated MDM software revenue was $238.7 million in 2015. Its top-three data domains and estimated license counts as of March 2016 were product (570 licenses), customer/citizen (360) and financial (291). The number of Oracle customers managing multiple data domains is unknown.

Not rated due to incomplete information: Oracle Product Hub Cloud Service and Oracle Customer Data Management Cloud Service.

STRENGTHS

Domain-specific product depth: Oracle has deep, discrete solution expertise and capabilities in support of the major data domains, as a result of capabilities developed for its E-Business Suite ERP offering and continued investment in Siebel and Hyperion.

Industry support: Oracle is committed to providing solutions targeting specific industries, such as retail and telecommunications. These solutions are based on its MDM offerings, particularly its data-domain-specific solutions.

Business application support: Oracle effectively positions its domain-specific MDM offerings as part of its larger business application ecosystem, particularly in the areas of customer experience, supply chain management and financial performance management. Coupled with its industry-oriented efforts, this positioning communicates a strong understanding of the business uses of MDM.

CAUTIONS

Market presence and alignment: As part of a broad cloud-centric strategy, Oracle began redirecting its domain-specific MDM solution set into the cloud in 2015, largely by restricting the sale of its on-premises MDM solutions (particularly those that master customer data). Our interactions with MDM clients continue to indicate very low demand for cloud deployment capabilities in the short and medium term, and the roster of Oracle’s reference customers bears this out. The frequency of Gartner's MDM client interactions regarding Oracle has declined over the past year, and those clients we have engaged with about Oracle have shown a corresponding reluctance to move MDM to the cloud.

Product positioning: Oracle has broadened the positioning of Oracle DRM to "multidomain MDM," despite it mainly being used as a hierarchy management tool (according to reference customers’ responses). Oracle DRM lacks the deeper functional capabilities of other multidomain MDM vendor offerings with regard to specific domains such as customer data and product data. Oracle also has no unified vision across its various products for solution support for information governance and stewardship.

Reference customer survey scores: Oracle's survey scores at the vendor level for its on-premises solutions were average, but low for pricing transparency, sales process, user onboarding and training. Oracle was unable to identify end-user reference customers for its currently emphasized cloud offering for MDM of customer data, and only one for its product data counterpart. This indicates that most of its 2015 revenue and reference customers originated from solutions that it no longer promotes.

Orchestra Networks

Orchestra Networks (http://www.orchestranetworks.com/) is headquartered in Paris, France. EBX5 v.5.7.0 entered GA in February 2016. Orchestra's total estimated MDM software revenue was $20.4 million in 2015. Its top-three data domains and estimated license counts as of March 2016 were finished product (103 licenses), customer/citizen (84) and financial (52). Orchestra has an estimated 142 customers managing multiple data domains.
STRENGTHS

**Market momentum:** Orchestra's revenue grew by 23.6% in 2015 on a constant-currency basis (compared with the market average of 14.3%) — the second-highest rate among the vendors in this Magic Quadrant. In real dollars, its revenue grew by 10.9% (compared with the market average of 4.4%) — the third-highest rate in this Magic Quadrant.

**Integrated product:** Orchestra's EBX5 is a single, integrated MDM solution that scored strongly in the reference customer survey for most of the elements surveyed. It did so across the broadest spectrum of reference customers, in terms of industries and data domains mastered. Moreover, it achieved the top score for TCO.

**Multidomain strength:** Orchestra received solid references across a spectrum of data domains. It stands out for its reference customers' responses about competitive selection, based on detailed proofs of concept for multiple data domains, and for its receipt of the highest survey scores for multidomain support.

CAUTIONS

**Geographic coverage:** Although Orchestra has strong and deep resources in EMEA, and has focused on investing in achieving the same in the Americas, it still has work to do to achieve such resources globally, and particularly in Asia/Pacific.

**Partner network:** There is a strong trend for vendors to develop diverse partner networks and ecosystems with respect to both technology and provision of service, but Orchestra has yet to demonstrate maturity or extensiveness in this regard, in comparison with other vendors.

**Product performance:** Orchestra's reference customer survey scores indicate certain areas where EBX5 lags behind its strongest competitors: support for high availability, batch system integration and synchronization, and monitoring of master data quality.

Riversand

Riversand (http://www.riversand.com/) is headquartered in Houston, Texas, U.S. MDMCenter v.7.8 entered GA in August 2016. Riversand's total estimated MDM software revenue was $23.3 million in 2015. Its top-three data domains and estimated license counts as of March 2016 were finished product (80 licenses), supplier (13) and customer/citizen (10). Riversand has an estimated 25 customers managing multiple data domains.

STRENGTHS

**Leadership team:** Riversand's leadership team has remained intact since its founding, which has enabled the company to achieve a continuity of vision and purpose. This has proven to be rather exceptional in the MDM market.

**Product strategy:** Riversand is diverging from the incremental innovation that characterizes most of the MDM market. Its MDM 2.0 vision is essentially a fundamental shift from an application-centric approach to an outcome-based, data-centric approach to MDM, providing for discovery, management, governance and analysis of master data through on-premises and cloud delivery options and industry-specific solutions.

**Market momentum:** Riversand recorded the highest rate of MDM revenue growth in 2015 in both real dollars (15.3%) and constant currency (23.7%). Its real-dollar growth rate was almost 11 percentage points above the market average.

CAUTIONS

**Execution:** Reference customers’ survey scores indicate that Riversand's ability to execute is weakening for MDMCenter at the product level. This may indicate lagging investment in core capabilities, relative to that of competitors. Riversand needs monitoring to ensure that it balances the demands of very rapid growth with effective execution.

**Reference customer survey scores:** Product-level survey scores for MDMCenter showed a weakening, compared with our past experience with this solution in the MDM of product data market segment. Riversand received the broadest range of scores regarding the level of personal recommendation of its MDM solution, including some isolated low scores in industries outside its historical bases of retail and oil and gas.

**Implementation complexity:** An apparent strength of Riversand MDMCenter is its flexibility, but this is also a source of concern for several respondents, as the extensive need for configuration increases the complexity, and therefore also the cost, of implementation.

SAP

SAP (http://go.sap.com/index.html) is headquartered in Walldorf, Germany. SAP Master Data Governance (MDG) v.9.0 entered GA in September 2016. SAP Hybris Product Content Management (PCM) v.6.2 entered GA in October 2016. SAP's total estimated MDM software revenue was $265.7 million in 2015. Its top-three data domains and estimated license counts as of March 2016 were finished product (1,120 licenses), supplier (810) and customer/citizen (358). SAP has an estimated 750 customers managing multiple data domains.

STRENGTHS

https://www.gartner.com/doc/reprints?id=1-3RH2O6C&ct=170120&st=sb
Market share and revenue growth: SAP has achieved a leading share of the MDM market for three consecutive years. In 2015, it recorded year-over-year growth of 19.5% in constant currency, and revenue growth above the market average in real dollars, on the largest MDM revenue base.

Broad industry experience: Estimated license counts, reference customer survey responses and users of Gartner's client inquiry service indicate deep penetration by SAP MDG across several industries. SAP is estimated to have the highest number of customers managing multiple data domains. In addition, its partner network has begun developing MDG solutions for custom data domains for industries such as retail and oil and gas. SAP MDG can also manage customized data models.

Solution integration: SAP end users have previously expressed concern about solution integration for MDM offerings and components. SAP appears, however, to have addressed this concern by demonstrating a comprehensive capability for user-developed integration across SAP MDG domains and instances, as well as SAP Hybris PCM, through its Fiori user experience platform's capabilities. SAP MDG and SAP Hybris PCM can be deployed in Hana environments. SAP MDG makes use of the in-memory and information management service capabilities of that platform.

CAUTIONS

Solution complexity: Fulfilling robust organizational information governance requirements in support of MDM will likely require SAP Information Steward, in addition to SAP MDG. Furthermore, substantial functional overlap is reported between SAP MDG and SAP Hybris PCM, which causes confusion in the market, including among end users. Although integration by end users has been made easier through data object mapping between the two offerings (for customer and product data), there is yet no packaged functionality to provide for out-of-the-box application integration between SAP MDG and SAP Hybris PCM.

Proprietary orientation: SAP has a proprietary procedural programming language called ABAP. Unless organizations are already invested in SAP, and thus have access to ABAP-literate resources, this probably represents a barrier to adoption. This Caution does not apply to SAP Hybris as it is built on a Java-based platform.

Customer reference survey scores: SAP received average scores from reference customers across the spectrum of areas surveyed, at both vendor level and product level. Respondents noted specific weaknesses regarding internal workflow facilities and support for hierarchy maintenance.

Stibo Systems

Stibo Systems (http://www.stibosystems.com/) is headquartered in Aarhus, Denmark. Stibo Enterprise Platform (STEP) Trailblazer v.8.0 entered GA in April 2016. Stibo's total estimated MDM software revenue was $68.6 million in 2015. Its top-three data domains and estimated license counts as of March 2016 were finished product (253 licenses), supplier (49) and location/site (33). Stibo has an estimated 75 customers managing multiple data domains.

STRENGTHS

Market momentum: Stibo achieved year-over-year MDM revenue growth in 2015 of 23.6% in constant currency, compared with the market average of 14.3%, and a large market share, despite challenging currency exchange effects. It achieved the second-highest rate of growth in real dollars among the vendors in this Magic Quadrant — 12.1%, compared with the market average of 4.4%.

Product and product strategy: Stibo's STEP Trailblazer has proven itself a capable MDM platform, with a claimed in-memory capability, as well as strengths in multichannel e-commerce and improving multidomain capabilities. Reference customers' scores indicate strength across a broader range of MDM solution capabilities than any other vendor in this Magic Quadrant.

Reference customers' survey scores: Stibo excels in customer satisfaction, although its reference customers were exclusively implementers of MDM of product data. Stibo received the highest scores of any vendor in this Magic Quadrant for its ability to support business initiatives and the number of customers who would personally recommend its MDM solution.

CAUTIONS

Organizational dynamism: Recent changes in leadership responsibilities within product management reflect continued flux for Stibo in this critical area. Additionally, Stibo is effecting a change in strategy from primary solution delivery via internal professional services to a partner-led growth strategy.

Product capabilities: Stibo needs additional data points in support of its capability to master objects across the full range of data domains and implementation styles monitored by Gartner. Moreover, this capability needs to be reflected by reference customers who are not mainly focused on MDM of product data. Stibo's information governance and stewardship capabilities continue to lag behind those of most other MDM software vendors.
Pricing strategy: In contrast to its reference customer survey scores in most other areas, Stibo received some of the lowest scores of the vendors in this Magic Quadrant for pricing transparency. This could prove a significant source of friction with existing and prospective clients.

TIBCO Software

TIBCO Software (http://www.tibco.com/) is headquartered in Palo Alto, California, U.S. TIBCO MDM and Cloud MDM v.9.0.0 entered GA in January 2016. TIBCO's total estimated MDM software revenue was $45.4 million in 2015. Its top-three data domains and estimated license counts as of March 2016 were finished product (209 licenses), customer/citizen (125) and location/site (45). TIBCO has an estimated 121 customers managing multiple data domains.

Not rated due to incomplete information: TIBCO Cloud MDM.

STRENGTHS

Product capability: TIBCO MDM has solid multidomain capabilities, and Visual MDM is a differentiating feature that directly integrates data quality dashboarding with stewardship. TIBCO has added machine-learning capabilities for improved data matching, and has released the second version of its private cloud MDM software. Reference customers gave TIBCO high scores for its workflow, integration, business service and high-availability capabilities. TIBCO now offers a multidomain MDM solution (encompassing customer and product data) for the retail industry.

Large non-MDM installed base: TIBCO has a large customer base in the application integration and business process management (BPM) markets. It has proven its ability to capitalize on this significant population when marketing TIBCO MDM.

Service-oriented architecture (SOA) focus: Surveyed reference customers and other users reported that TIBCO MDM is a strong solution when coupled with the rest of the TIBCO technology stack, which spans SOA and BPM.

CAUTIONS

Revenue and pricing profile: TIBCO's overall estimated 2015 MDM revenue contracted by 8.5% in real dollars (compared with the market average of 4.4% growth) — the only estimated contraction among the vendors in this Magic Quadrant. It contracted by 1.0% in constant currency, compared with the market average of 14.3% growth. The recently introduced MDM for Retail, an optional industry-focused offering, uses a data-volume-based pricing model — a type that has incurred disfavor among the existing and prospective customers of other vendors.

Reference customer survey responses: TIBCO was unable to supply a full set of reference customers to meet the requirements of this Magic Quadrant, and the response rate of those it did identify was well below the average for the qualifying vendors. TIBCO received below-average vendor-level scores for its support for deployment and implementation of product upgrades, as well as for its user onboarding and training. It received below-average product-level scores for its hierarchy management capability. TIBCO identified only a single reference customer for its Cloud MDM product.

Support presence: Reference customers expressed specific concerns about a lack of availability of skilled professional services and partner resources. We have also dealt with TIBCO clients in EMEA and Asia/Pacific who reported substantially increased difficulty during the past year in procuring local implementation and support resources for TIBCO MDM.

Vendors Added and Dropped

We review and adjust our inclusion criteria for Magic Quadrants as markets change. As a result of these adjustments, the mix of vendors in any Magic Quadrant may change over time. A vendor's appearance in a Magic Quadrant one year and not the next does not necessarily indicate that we have changed our opinion of that vendor. It may be a reflection of a change in the market and, therefore, changed evaluation criteria, or of a change of focus by that vendor.

Added

None. This is the first Magic Quadrant on this topic.

Dropped

None. This is the first Magic Quadrant on this topic.

Inclusion and Exclusion Criteria

Inclusion Criteria

In terms of market traction and momentum, to be included in this Magic Quadrant vendors had to have:

Generated at least $15 million in total software revenue (license and maintenance) relating to MDM solutions for all master data domains in the calendar year 2015.
Sales and support operations in at least two of the following regions: Americas, Europe and Middle East, Africa, Asia and Australasia.

Sales operations, support operations and customers in multiple industries.

Although not part of the formal inclusion criteria, we also collected or estimated additional data to ascertain the level of activity and stability of each vendor in the market. This included, but was not limited to:

At least 20 live reference customers for MDM solution functionality. Each vendor had to supply details of 20 reference customers that:

Represented the broadest and deepest fulfillment of the use cases and critical capabilities described in this document. We assumed that if a scenario was not represented (including representation of each MDM solution within the vendor's MDM portfolio, if there are multiple MDM solutions), it had not been fulfilled since 1 January 2015. No consideration was given to reference survey data from the retired MDM Magic Quadrants.

Included at least seven reference customers willing to participate in a telephone discussion of 30 minutes' duration. We did not necessarily call all reference customers who would accept a phone call. We sent an online survey to any reference customers whom we did not call. We did not both phone and execute the online survey for a reference customer unless we specifically requested an exception from that reference customer due to an unusual situation (for example, other reference customers not attending their scheduled phone calls).

Included only customers running one of the latest two release levels of the solution(s).

Included only customers that had gone live since 1 January 2014. An exception was if a customer had upgraded to one of the latest two release levels in the same period, specifically to gain access to features not implemented prior to those releases — any such customers were eligible for consideration. Upgrades performed simply to maintain product support were not considered.

At least 10 new customers for MDM solutions in the four quarters ending in March 2016.

Sufficient professional services resources to fulfill customer commitments for the six months following the submissions for this research.

Enough cash to fund a year of operations at the current "burn rate" — that is, if no revenue were achieved during a full year of normal operations.

Vendors may have multiple products in the MDM solution market; in these cases, each vendor is evaluated as a whole for the Magic Quadrant and Critical Capabilities research, and the products examined separately in the Critical Capabilities research.

Exclusion Criteria

This Magic Quadrant excludes the following vendors and revenue sources because they are tangential to the main focus of MDM programs, which is to master data within and across an organization:

Vendors that focus solely on analytical (downstream) MDM requirements.

Vendors that resell another vendor's MDM solution without extending its functionality. Likewise, royalties from an OEM arrangement or from resale by another vendor are not credited to the provider of the OEM technology; software revenue originating from end-user acquisitions is credited to the reselling vendor.

Marketing service providers, data aggregators, data brokers and other data providers that provide trusted reference data external to the enterprise but that do not provide an MDM solution that meets Gartner's definition of MDM.

Application data management (ADM) tools that solely perform data management functions for use in a specific business application's data store. We exclude these, whether or not the business application is sold by the same vendor as the ADM solution. We exclude these tools whatever their implementation infrastructure (such as on-premises, cloud and in-memory). Some MDM solutions can be configured optionally as ADM tools; we also exclude revenue from these configurations.

Software development license revenue generated from the sale of MDM technology for use in a specific business application, effectively resulting in an ADM tool (as described above).

Description of Master Data Management Solutions

This market is characterized by packaged software solutions that bring together a range of technologies and capabilities that help sustain the idea of a single "golden record" for master data. These are the focus of this analysis.

The range of functional capabilities included in these products includes:
Workflow/BPM — These solutions do not need to include business process management suite (BPMS) technology, but they do need to interoperate with third-party BPMS technology in order for their stewardship (enforcement) and integration (services) capabilities to be consumed in actual business process orchestrations. Necessary capabilities include business process modeling, master data flow modeling and documentation, and support for analytics for key performance indicators and other benchmarking efforts.

Loading, synchronization, business services and integration — The MDM solution needs to provide facilities for loading master data in a fast, efficient and accurate manner. There is also a need for integration middleware, including publish and subscribe mechanisms. These provide a communication backbone for the bidirectional flow of master data between the central repository and the spoke systems, be they copies or subsets of the repository, or remote applications (coexistence style). These facilities may be provided directly by the MDM solution vendor or via tight integration with products from specialist middleware partners. The MDM solution should support, as necessary, the four MDM implementation styles, which each use loading, integration and synchronization in different ways.

Data modeling — The applicability of the data model to an organization is a fundamental requirement; the ability of the MDM solution to effectively and flexibly support an end-user organization’s master data model requirements is essential. The solution must model the complex relationships between application sources inside the organization and between its products and services, as well as with intermediaries and other parties. A bitemporal modeling and processing capability should also be provided or supported in order to support business-level-effective dating, as well as transaction or visibility dating. This may be accomplished through either or both of the client-driven or prepackaged data model styles defined by Gartner. The solution must also manage data, business rules, sources, ownership and so on for data governed by the MDM program using flexible, dynamic and business-consumable metadata management capabilities.

Information quality and semantics — A good data model is of little value unless it contains accurate, up-to-date and semantically consistent data about each customer. An MDM solution should have strong facilities, in batch and real-time modes, for profiling, cleansing, matching, linking, identifying and semantically reconciling master data in different data sources, to create and maintain a “golden record.” The solution should support configuration of business and data rules for comparing, reconciling and enforcing semantics across data sources, matching and linking data, as well as managing the merging and unmerging of records, with support for full auditability, survivability and data lineage. It should also ensure that business rules and associated metadata relating to data cleansing are sufficiently visible to satisfy compliance requirements. These facilities may be provided directly by the MDM solution vendor or via tight integration with products from specialist data quality partners.

Performance, scalability, availability and security — If the MDM solution supports operational and analytical applications, and is tightly integrated with established systems and new applications, serious demands are likely to be made on its performance, scalability and availability. The MDM solution should have proof points — through live references — of different aspects of performance and scalability that match current and future requirements. It should have appropriate availability characteristics regarding planned and unplanned downtime. On the security and data privacy management front, it should possess the ability to manage the policies and rules associated with potentially complex privacy access rights, and to configure and manage different rules of visibility to provide different views for different roles.

Hierarchy management — The MDM solution should be able to model and store multiple hierarchies within and across in-scope data domains, in order to comprehensively classify all instances of master data for various business requirements, as well as for broad-based functions such as searching and reporting. This functionality should include support for multiple linked or stand-alone hierarchies relating to a single domain or combinations of master data from multiple data domains. A bitemporal modeling capability should also be supported or provided for hierarchy data. The solution should also provide support for balanced, unbalanced and recursive hierarchies; a visualization capability to facilitate maintenance and presentation of hierarchical data; and a versioning capability to provide an audit trail and recoverability capability during hierarchy creation and maintenance.

Information stewardship support — The MDM solution needs to support a range of capabilities, from information policy evaluation to the day-to-day operation and management of MDM. The resulting focus of this functionality will be the role of the business-led information steward. Among the different user roles that interact with MDM, the information steward role requires a suitable UI through which services are provided. These services include:

- Analytics and performance measures relating to a range of processes and activities taking place within MDM.
- Status and management tools to enable the information steward to monitor to-do lists of users.
- Systemwide master/meta models to help identify which users, roles, applications and systems are responsible for which master data, and the state of the master data and/or business rules that are generating exceptions in that data.
- Services to manage workflows, business rules and audit trails related to these functions.

This support should be provided on a range of applicable UIs on PCs, smartphones and tablets (see "Market Guide for Information Stewardship Applications").
**Information governance support** — The MDM solution should provide support for information governance functions such as policy evaluation, creation and collaboration, as well as policy change management and impact analysis. This support may be provided directly via prebuilt capabilities — including application logic, workflows and UIs — or indirectly by providing a service interface that allows these functions to be provided and transmitted by software and services external to the MDM solution. An MDM solution should be capable of providing or supporting information governance functions such as governance policy collaboration and creation, as well as policy change management and impact analysis, and of reacting to changes made in an internal or external information governance layer by facilitating updates to current data stewardship functionality.

**Multiple implementation style support** — The MDM solution should be capable of supporting all four of the MDM implementation styles recognized by Gartner, as well as hybrids of those styles, as required. The four implementation styles are:

- **Registry**: In this style, the MDM hub is used mainly as a central index to master data that is authored in a distributed fashion and remains fragmented across those systems. MDM is generally not the authoritative system of record for the master data attributes of the in-scope domain. That status remains with the operational data sources.

- **Consolidation**: In this style, the MDM hub is used primarily to support data warehousing and other analytics initiatives. MDM is applied downstream of the operational systems. MDM is generally not the authoritative system of record for the master data attributes of the in-scope domain. That status remains with the operational data sources.

- **Coexistence**: In this style, master data authoring, storage and access is distributed, and a golden copy of a portion of the master data attributes is maintained and accessed in the MDM hub. The hub publishes this golden copy to subscribing systems. MDM is generally only the authoritative system of record for a portion of the master data attributes for the in-scope domain. The operational data sources retain that status for the remainder of those attributes.

- **Centralized**: In this style, master data is authored, stored and accessed from a central system, either in a workflow or a transactional use case. MDM is generally the authoritative system of record for all the master data attributes of the in-scope domain.

**Multiple usage scenario (operational/analytical) support** — The MDM solution should be able to support both operational and analytical MDM requirements, and any required integration between them; that is, both the operational and analytical usage of the data being mastered within the MDM solution. These two scenarios are as follows:

- **Operational MDM**: This scenario describes the operational side of the business — where business users first create the data that is then used in a transactional system (for example, an ERP, order management or accounting system). Two scenarios have emerged that primarily relate to specific data domains. Many early implementations of MDM of customer data focused on transactional integration environments (near-real-time messages between data stores and applications), whereas many early implementations of MDM of product data focused on workflow or collaborative environments. These are both examples of operational MDM. The requirements for workflow and collaboration now are increasingly beyond product data — they extend to an increasing roster of data domains that need to be integrated with transactional systems.

- **Analytical MDM**: Much of the technology used in MDM (for extraction, transformation and loading [ETL], data integration, data quality, normalization, entity resolution, harmonization and transformation, for example) is also used when building a data warehouse to support a business intelligence (BI) initiative. The major difference is that in a BI environment there is no “closed loop” intent or process to clean up the data or the processes that create “rogue” data (or that allow it to be created), and therefore no improvement in data quality or consistency in the upstream, business-application-oriented or operational systems. Analytical MDM still cleans up and ensures a single view of master data and much other data, but there is no intent or program to clean up the data or the processes in the source systems that allow the rogue data into the system.

**Multiple and multidomain support** — Multiple and multidomain MDM technology is purpose-built to address the requirements of an MDM program that spans more than a single data domain from a master data perspective. It has the following characteristics:

- It can be implemented in a single instance or multiple preintegrated instances.

- The data model is uniform or interoperable and able to manage cross-domain intersections.

- The workflow and UI elements are uniform or interoperable.

It supports at least one usage scenario, implementation style and organization/governance model for specific industry requirements.
Evaluation Criteria

Ability to Execute

We evaluate vendors on the quality and efficacy of the processes, systems, methods or procedures that enable IT providers’ performance to be competitive, efficient and effective, and to positively impact revenue, retention and reputation. Ultimately, technology providers are judged on their ability to capitalize on their vision and their success in doing so.

Product or Service: Software products offered by the vendor for the MDM solution market. This criterion covers product capabilities, quality, feature sets, skills and so on, whether offered natively or through OEM agreements and partnerships.

Vendors are measured on the ability of their products to support the following use cases for MDM solutions:

**MDM of B2C customer data** — The mastering of individual customers during the process of creating trusted master records that support business processes centered on individuals or organizations treated as individuals. These implementations enable the authoring of institutional customer master data in workflow-, batch- or transaction-oriented processes that conform to one or more MDM implementation styles (or a hybrid of those styles). It is common for B2C customer master data to be managed in a consolidation-style environment, where the entry points of the master data are not directly controllable by the MDM technology. More mature MDM of B2C customer data programs may progress to a more workflow-oriented environment over time, as operational data and systems are rationalized with the support of MDM.

**MDM of B2B customer data** — The mastering of institutions, which often manifest themselves as hierarchical data, during the process of creating trusted master records that support business processes centered on organizations. These implementations enable the authoring of customer master data in workflow-, batch- or transaction-oriented processes that conform to one or more MDM implementation styles (or a hybrid of those styles). It is common for B2B customer master data to be managed in a workflow-oriented environment, where the entry points of the master data are controllable by the MDM technology.

**MDM of buy-side product data** — The mastering of product or material data during the process of creating trusted master records in support of business processes focused on supply chain management. These implementations commonly serve as the point of capture for product data, as received from suppliers and mastered at an enterprise level in support of supply chain management and optimization. Often serving as a system of record in a centralized implementation style, this master product data is typically managed in a workflow-oriented environment.

**MDM of sell-side product data** — The mastering of product or material data during the process of creating trusted master records in support of business processes focused on provision of product data to customers. These implementations commonly handle the enriched product data required in support of customer requirements, including its publication and syndication to customer-facing channels, e-commerce platforms and websites. Often serving as a primary system of reference in a centralized implementation style supporting product systems of record, such as product life cycle management (PLM) or ERP systems, this master product data is typically managed within a workflow-oriented environment.

**Multidomain MDM** — The mastering of critical data objects across multiple domains concurrently in the process of creating trusted master records in support of business processes dependent on them. A master data domain encompasses related data entities that are of critical importance to an organization, such that they should be mastered at the enterprise (as opposed to application) level to provide for semantic consistency across the business. These entities will prove central to how the organization does what it does; the actual observations represented by master data will be of significant interest to business executives — even if they do not use the term "master data." Several patterns have emerged whereby "customer," "party," "product" or "thing" master data have become the highest priority for a large number of companies. The MDM solution should be capable of supporting all domains that are "in scope" for an MDM program, whether through client-driven or prepackaged data model styles as defined by Gartner (or a combination of the two). The more common master data domains include:

- Customer/consumer/patient/citizen
- Vendor/supplier
Other data domains have been identified in MDM programs, spanning many industries.

**Multivector MDM** — The mastering of data across all five vectors of MDM complexity concurrently in the process of creating trusted master records that support business or mission requirements. These solutions provide an integrated set of facilities for ensuring the uniformity, accuracy, stewardship, semantic consistency and accountability of an enterprise's official, shared master data assets. Multivector MDM solutions contain comprehensive facilities for data modeling, data quality, data stewardship, data governance, data services and data integration in workflow and transactional usage scenarios. They also offer high levels of scalability, availability, manageability and security. These meet the needs of the business across all five vectors of MDM complexity:

- **Industries** — for example, product-centric industries, service industries and government
- **MDM data domains** — for example, customer, supplier, partner, location, product, item, material, asset, ledger, account, person and employee
- **MDM use cases** — for example, design/construction, operational and analytical
- **Organizational structures** — for example, centralized, federated and localized
- **MDM implementation styles** — for example, registry, consolidation, coexistence and centralized

**Overall Viability**: This includes an assessment of the MDM solution vendor's financial health, the financial and practical success of the business unit or organization in generating business results in the MDM solution market on a global basis, and the likelihood that the organization or business unit will continue to invest in developing the product, offering the product and advancing the state of the art within the organization's product portfolio.

**Sales Execution/Pricing**: A vendor's capabilities in all MDM-solution-related presales activities on a global basis, and the structure that supports them. This includes deal management, pricing and negotiation, presales support and the overall effectiveness of the sales channel.

**Market Responsiveness/Record**: A vendor's ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customers' needs evolve and market dynamics change within the MDM solution market. This criterion also considers the vendor's history of responsiveness.

**Marketing Execution**: The clarity, quality, creativity and efficacy of programs designed to deliver the vendor's message on a global basis, in order to influence the MDM solution market, promote the vendor's brand and business, increase awareness of its products, and establish a positive identification with its product, brand and organization in the minds of buyers. This "mind share" can be driven by a combination of publicity, promotional, thought leadership, word-of-mouth and sales activities.

**Customer Experience**: Relationships, products, services and programs that enable clients to be successful on a global basis with the products evaluated. This includes implementation and support, and the way customers receive technical and account support. It also includes measures of clients' success in implementing MDM solutions: customer references and TCO.

**Operations**: The organization's ability to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

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<thead>
<tr>
<th>Evaluation Criteria</th>
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<tr>
<td>Product or Service</td>
<td>High</td>
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<td>Overall Viability</td>
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<tr>
<td>Sales Execution/Pricing</td>
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<td>Market Responsiveness/Record</td>
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<td>Marketing Execution</td>
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<td>Customer Experience</td>
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<tr>
<td>Operations</td>
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Source: Gartner (January 2017)

Completeness of Vision

Gartner analysts evaluate providers on their ability to convincingly articulate logical statements about current and future market direction, innovation, customer needs and competitive forces, as well as how well they map to Gartner's position. Ultimately, providers are rated on their understanding of how market forces can be exploited to create opportunity for the vendor.

Market Understanding: A vendor's ability to understand buyers' needs and to translate those needs into products and services. Vendors that show the highest degree of vision listen to and understand buyers' wants and needs, and can shape or enhance those wants and needs with their added vision. Vendors should demonstrate a strategic understanding of MDM solution opportunities (for example, new application functionality or customer segments) and ongoing vendor market dynamics (for example, consolidation trends) on a global basis, and translate that understanding into products and services. Additionally, we consider a vendor's understanding of the wider implications of, and the position of MDM in relation to, other categories of data within an organization's multidomain, multiuse case and multi-implementation style program; an understanding of the relationship to enterprise information architecture and EIM initiatives is also valuable for customers taking a strategic view.

Marketing Strategy: A clear, differentiated set of MDM solution messages consistently communicated throughout the organization and externalized globally through a website, advertising, customer programs and positioning statements. Intersection with multidomain and multivector MDM and wider MDM and industry challenges, as expressed by Gartner clients, is important.

Sales Strategy: A vendor's strategy for selling an MDM solution that uses its, or a partner's, global network of direct and indirect sales, marketing, service and communication affiliates to extend the scope and depth of its market reach, skills, expertise, technologies, services and customer base.

Offering (Product) Strategy: A vendor's approach to product development and delivery, which should emphasize differentiation, functionality, methodology and feature set as they map to current and future requirements. A vendor's published "statement of direction" (or Gartner's understanding thereof) for the next two product releases needs to keep pace with, or surpass, Gartner's vision for the MDM solution market. Gartner's main product-oriented criteria focus on the degree to which the following capabilities are being developed to meet both current and future MDM program strategies and implementation requirements:

- Workflow and BPM
- Loading, synchronization, business services and integration
- Data modeling
- Information quality and semantics
- Performance, scalability, availability and security
- Hierarchy management
- Information stewardship (that is, policy enforcement) support
- Information governance (that is, policy setting) support
- Multiple implementation style support
- Multiple usage scenario (operational/analytical) support
Multiple domain support

Product suite internal integration

Each vendor needs to offer an MDM solution that can be configured for a range of architectural styles, in terms of instantiation, latency, search and usage of master data, to enable it to satisfy different use case scenarios, such as B2B customer data, B2C customer data, buy-side product data, sell-side product data, multidomain MDM and multivector MDM.

Each vendor must also understand major technological and architectural shifts in the market, and communicate a plan to address them, including migration issues that may affect customers on current releases. Specifically, a vendor should have a vision to support mainstream software infrastructure technology, as opposed to a proprietary stack, and have an evolutionary path toward SOA.

**Business Model:** The soundness and logic of an MDM solution vendor's underlying business proposition. Vendors should have a well-articulated strategy for revenue growth and sustained profitability. Key elements of strategy include the sales and distribution plan, internal investment priority and timing, and partner alliances, such as with ESPs.

**Vertical/Industry Strategy:** A vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including industries. Included are reviews of the vendor's strategy for meeting the needs of specific industries, such as banking, manufacturing, communications and government.

**Innovation:** Vendors need to be able to lead the market and, in so doing, provide customers with an innovative solution and approach to meet their needs in a complex, heterogeneous environment. Innovation implies leading the way with regard to MDM issues both now and in the future. We look for understanding of, and support for, the most complex and broadest MDM environments and the growing requirements of multidomain and multivector MDM in general. We also examine how vendors plan to support key initiatives such as the cloud, social data and other kinds of big data, and mobile communications in the context of MDM.

**Geographic Strategy:** A vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside its "home" or native geography, either directly or through partners, channels and subsidiaries, as appropriate for that geography and market. This includes sales, marketing and support for complex global companies.

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<thead>
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<td>Market Understanding</td>
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<td>Offering (Product) Strategy</td>
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<td>Business Model</td>
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*Source: Gartner (January 2017)*

**Quadrant Descriptions**

**Leaders**

Leaders have strong results and strong delivery capabilities. They typically possess a large, satisfied customer base (relative to the size of the market) and enjoy high visibility in the market. Their size and financial strength enable them to remain viable in a challenging economy. Leaders have mature offerings and track records of successful deployment, even in the most challenging environments, in at least two geographies and in many industries. Leaders have the strategic vision to
address evolving client requirements; however, they are not always the best choice. As the market's requirements have shifted to more all-encompassing solutions, vendors have not kept pace at a macrolevel, resulting in a significant amount of empty space in the top right of the Leaders quadrant.

Challengers

Challengers demonstrate a clear understanding of today's MDM solution market, but they have either not demonstrated a clear understanding of its direction or are not well-positioned to capitalize on emerging trends. They often have a strong presence in other application areas.

Visionaries

Visionaries display healthy innovation and a strong potential to influence the direction of the MDM solution market, but they are limited in terms of execution or demonstrated track record. Typically, their products and market presence are not yet complete or established enough to merit Leader status. MDM visions are taking shape along a diverse set of vectors, and many vendors have not kept pace in formulating a cohesive view of the direction in which they and the market are heading. For this reason, there is only a single Visionary in this Magic Quadrant.

Niche Players

Niche Players either do well in specific segments of the MDM solution market, or have limited ability to innovate or to outperform other vendors. They may be focused on specific functionalities, domains or industries, or they may have gaps in relation to broader functionality requirements. Niche Players may have limited implementation and support services, or they may not have achieved the scale necessary to solidify their market positions.

Context

Most of the MDM solution market is still driven by buyer evaluations based on a single data domain — usually customer or product data. However, a steadily growing proportion of organizations now bases purchasing decisions on vendors' ability to address their MDM program requirements holistically, across multiple vectors of complexity, such as data domain, use case and implementation style. This year, for the first time, the majority of the MDM survey respondents reported giving some consideration to candidate vendors' capabilities for supporting multiple master data domains, although, again, most did not perform a formal evaluation of those capabilities.

Note that, although each business application or suite (whether for ERP, CRM or PLM, for example) may store its own data and offer its own application data management capabilities, an MDM solution acts as the "middle hub" that mediates, manages, exchanges and governs the core master data shared by all applications. For many years, organizations have tried to achieve a "single view" using ERP or other operational systems; these, however, were not designed to support MDM, so they either failed or proved too costly to maintain — hence the emergence of MDM solutions.

Over the past four years, a significantly larger percentage of vendor-supplied reference survey respondents have expressed these broader requirements for Gartner's now-retired "Magic Quadrant for Master Data Management of Customer Data Solutions" and "Magic Quadrant for Master Data Management of Product Data Solutions." Between 2013 and 2015, the percentage of reference customers who voiced some level of requirement for the mastering of multiple data domains increased from 42% to 50%, though the percentage of the total that actually tested candidate vendors' abilities in this area prior to purchase held steady at 22%. The survey results for this new Magic Quadrant show an acceleration in the percentage expressing some level of this requirement, to 57% (a clear majority), although the percentage that actually tested vendors' capabilities as a condition of purchase rose more modestly, to 24%. The slower growth in the latter case may well be due to the increased overhead incurred by the purchasing organization (in engaging with multiple business areas, for example) in order to test multiple data domain capabilities before selecting a vendor and a solution.

Analysis of Gartner's MDM client inquiry interactions yields an even more telling data point. The percentage of the thousands of interactions that expressed some level of requirement for multiple master data domains more than quadrupled, from 3.0% to 13.0%, over the five calendar quarters ending in the fourth quarter of 2015. Within this group, the percentage that formally tested for these capabilities rose from 0.5% to 3.1% (a sixfold increase) in the third quarter of 2015, before receding to 0.8% in the following quarter, while the percentage that required these capabilities, but did not test for them, more than quadrupled, from 3.0% to 12.0%, by the end of 2015. During 2016, the percentage that expressed some level of requirement for multiple master data domains peaked at 14.6% in the second quarter, before ending the third quarter at 13.5%. The percentage that formally tested for these domains more than quadrupled, from 3.0% to 12.0%, by the end of 2015. During 2016, the percentage that expressed some level of requirement for multiple master data domains peaked at 14.6% in the second quarter, before ending the third quarter at 13.5%. The percentage that formally tested for these capabilities peaked at 1.8% in the third quarter, while the percentage that required, but did not test for them, peaked at 13.7% in the second quarter, before ending the third quarter at 11.0%.

It is clear that a slow but steady shift in the MDM market is underway. Gartner believes that this will continue and that it is likely to gain momentum as awareness increases that the benefits of MDM are most transformational at the level of business process. Bolstering this position is the fact that MDM of customer data and MDM of product data have reached the Slope of Enlightenment in "Hype Cycle for Information Governance and Master Data Management, 2016." They are
considered early mainstream technologies therein, even though we believe that the overall market penetration of MDM solutions of this type is still below 10%. This apparent dichotomy is explained by the challenges inherent in implementing MDM and the ways in which these are evolving. A growing number of organizations are seeing their MDM requirements more holistically across multiple vectors of complexity, and are requiring incumbent and candidate MDM vendors to address more or all of them in the same manner. However, this trend will not alleviate the traditional inhibitors of market penetration, as these relate more to nontechnical considerations, such as the business justification for MDM and the establishment of an information governance organization and process (see “Top Four Reasons Your MDM Program Will Fail, and How to Avoid Them”).

While the majority of Gartner’s identifiable data points relate to specific master data domain requirements, we have long seen anecdotal evidence during our interactions with clients and event attendees that additional separate but related factors significantly affect organizations’ MDM visions and strategies. These additional “vectors” are industry, use case, organization and implementation style (see “The Five Vectors of Complexity That Define Your MDM Strategy” and “Accelerate Business Value Using Gartner’s Master Data Management Implementation Styles”).

Support for varying complexity levels across all these MDM vectors is now a critical requirement for MDM solution vendors. For example, although it may be feasible to implement multiple master data domains concurrently, it is highly unlikely that the same level of implementation style maturity will be reached simultaneously across those domains at any point prior to the strategic end state being reached (see “Select the Best Master Data Management Implementation Styles for Your Needs”). This is due to the overall size and complexity of programs that seek to implement multiple master data domains concurrently, and the breadth of business engagement that must take place to support their implementation.

Market Overview

Businesses of all sizes and in many industries continue to struggle to maintain a consistent, shareable and accurate single version of master data across their organizations — a requirement that is growing in importance. With the increasing focus on the digitalization of enterprises, management of their key master data is also becoming more important. The ability to achieve and maintain a single, semantically consistent version of customer master data is crucial for customer-centric organizations. More importantly, trusted data (which starts with trusted master data) sits at the center of a digital business platform, so demand for effective MDM will continue to increase in the next few years.

The overall MDM market continues to evolve in complex ways. Examples of the more dynamic factors include:

The number of implementations of MDM continuing to increase rapidly. The number of client inquiries about MDM that Gartner has received has increased over the past year. This is probably partly a reflection of the increasing number of failed and struggling implementations — successfully implementing MDM, like many other complex programs, requires a significant amount of change management. The increase in inquiries is also consistent with Gartner’s understanding of the level of hype about MDM — this technology is entering the Trough of Disillusionment in “Hype Cycle for Information Governance and Master Data Management, 2016.”

Confusion about how buyers search for solutions and how vendors position themselves and compete. Individual scenarios supported by this technology are increasing. So, too, are the technological capabilities being developed to support them — developments range from the addition of ADM capabilities to ERP, CRM and PLM solutions, to solutions that facilitate a 360-degree view of the master data domain in question (for example, customer, product or supplier), based on an MDM hub. Additionally, some organizations target enterprisewide deployment, others only departmental or business-unit-level deployment.

The long time that can be required to realize the success of an MDM program, due to the need for accompanying organizational change management and the inadequacy of technological support for operational information governance and stewardship. Some reference customers are beginning to report significant business benefits only several years after their hub has gone live — though others report fairly swift benefits, often achieved by intelligent sequencing of the MDM implementation styles in the roadmap (see “Accelerate Business Value Using Gartner’s Master Data Management Implementation Styles”).

The growing number of companies looking to expand their MDM programs, perhaps by adding content or unstructured data (such as graphics and documents), additional application-specific data, social data, or other (master and nonmaster) data domains. In this way, MDM is often seen as the starting point for a broader EIM program within an organization (see “Gartner’s Enterprise Information Management Maturity Model”).

The survey of vendors’ reference customers conducted for this Magic Quadrant asked for details about the business value generated from the use of MDM solutions. This data is clearly not of audit quality, but more anecdotal. We asked for responses in bands of benefit — such as “between $500,000 and $1 million.” When we added up the figures for those that said they achieved over $500,000 in benefits (there was a low response rate of 125 out of 298 surveyed online), totaling the lowest end of each band, the collective business benefit reported came to approximately $931 million.
Market Growth Continues

Gartner estimates that overall software revenue from the MDM solution market came to $1.786 billion in 2015, an increase of 4.4% from 2014 (this revenue increased by 14.3% in constant currency). Over the same period, we estimate that the enterprise application software market grew by 3.4% in real U.S. dollars.

Beneath these overall numbers are some interesting data points. For example, the total estimated revenue for the customer data domain decreased, year over year, in real dollars for the first time since Gartner began tracking this data. Revenue from this domain fell by 2.7% in real dollars (ostensibly due partly to fluctuations in non-U.S. currencies), although in constant currency it increased by 5.1%. We have also seen acceleration in the revenue growth of several of the traditionally smaller domains, such as employee, supplier, and financial master data, all of which grew at rates more than double the market average in real dollars.

How the Vendors Stack Up

Together, we estimate that the top-six vendors by unadjusted revenue (SAP, Oracle, IBM, Informatica, Stibo Systems and TIBCO Software) accounted for over 80% of the MDM solution market in 2015. For more details of Gartner's MDM market share analysis for 2015, see “Market Insight: New Dynamics Drive Strong Growth and New Opportunities for Master Data Management Software Vendors.”

Smaller (but rapidly growing) vendors have continued to progress in diverse ways. Orchestra Networks has continued to improve its unique technical capabilities for fulfilling multiple MDM use cases and data domains, and continues to implement a strong roadmap for implementing both data stewardship and information governance capabilities for MDM. Vendors that once focused on managing product data, such as Stibo Systems and Riversand, continued to adopt a more multidomain product and marketing position in 2015. EnterWorks has benefited from its acquisition by Black Dragon Capital, which has provided a solid investment footing and expansion opportunities, including the follow-on acquisition of Digital Foodie and the development of a content life cycle management strategy. Magnitude Software was formed in mid-2014 by the merger of the former Kalido and a non-MDM vendor (Noetix), and continues to market the Kalido MDM solution under that name.

Other vendors, such as Agility Multichannel, Ataccama, Information Builders, inRiver, Profisee, SAS, Sigma Systems, Software AG, Talend, Teradata and VisionWare, remain active in this market, but their presence is not large enough in one or more respects for them to be included in this Magic Quadrant. Additionally, Microsoft has not yet had a major impact on the MDM market with its SQL Server MDS technology, other than in supporting end users’ plans to build their own MDM solutions or by being incorporated into third-party channel partners’ solutions (for example, those of Profisee). Although Microsoft’s MDS toolset provides several capabilities expected of vendors in this Magic Quadrant, it does not provide the degree of out-of-the-box integration between those capabilities that is typical of an MDM software solution. However, the survey conducted for this Magic Quadrant showed that a significant proportion of the reference customers who purchased another vendor’s solution considered MDS before doing so. This was especially the case with reference customers of smaller vendors that did not qualify for inclusion in this Magic Quadrant.

Many other vendors, some small, are innovating in and around the fields of multidomain MDM and MDM of customer data. Semarchy is a small but growing vendor focused on helping clients with an “evolutionary” approach to scaling MDM. Reltio is a vendor specializing in nimble cloud-based capabilities to master and integrate data from enterprise applications, third-party data feeds and social media. Pitney Bowes has built an MDM solution based on the graph database paradigm, with an emphasis on modeling, visualizing and exploring highly connected data. Dell Boomi has introduced a solely cloud-based MDM platform. Uniserv continues to grow its MDM of customer data capabilities with Smart Customer MDM, available in both cloud and on-premises versions.

The catalyst for innovation among vendors with a historical or current focus on MDM of product data is the requirement for product information management in support of omnichannel and e-commerce. Agility Multichannel continues to drive the value of MDM into small- and midsize-business markets with a capable, affordable MDM solution that also provides substantive integration capabilities for publication and syndication. Lansa addresses this requirement via a cloud-only offering, in addition to its traditional on-premises solution. inRiver has consistently differentiated itself by focusing on business users who directly address this requirement, such as marketing managers, product marketing managers, brand managers and similar. Viamedici offers a configurable solution that is fully web-based with integrated media asset management capability.

MDM and the Cloud

Judging from the hundreds of MDM client interactions we conduct each year, interest in cloud-based MDM solutions of any type remains extremely low. The percentage of MDM client inquiries in which the cloud was mentioned peaked at 9.0% in the second quarter of 2016 (which might be due to exploration by organizations whose fiscal year ends on the last day of
that quarter), before contracting to 4.6% in the third quarter. Furthermore, anecdotal evidence suggests that much of what interest there is results from simple curiosity about the overall market penetration of cloud solutions, as opposed to firm intentions to implement such a solution.

We have written extensively on this topic in documents such as “The Impact of Cloud-Based Master Data Management Solutions,” “Master Data Management — No Headlong Rush to the Cloud” and “Five Factors for Planning Cloud-Enabled MDM.” Even in the midmarket, where one might expect to see more interest in cloud MDM solutions, our clients appear to gravitate toward ADM solutions involving applications such as CRM, ERP and/or product content management systems (both in the cloud and on-premises) enhanced with sufficient MDM capabilities to fulfill their business requirements. Those cloud MDM solutions that do exist generally cluster around infrastructure-as-a-service solutions involving nonpublic hosted versions of standard offerings, and SaaS offerings based either on static/extensible physical data models or nonrelational (NoSQL) database technologies. In the case of NoSQL database technologies, it is possible that the currently available technologies are inappropriate for MDM scenarios that require the level of transactional integrity generally provided by relational databases.

MDM and the Internet of Things

The embedding of sensors and other technologies into Internet of Things (IoT) end devices, thereby enabling them to directly generate data and communicate, will increase both the visibility of these devices (“things”) and their status. Things will serve as a source for many data objects that will be new to information infrastructure. Furthermore, several categories of IoT-enabled thing will assume the role of “customer” in the context of ordering services or support based on current or predicted status.

The propagation of new master data objects will primarily originate from two categories: new things resulting from innovation (such as wearables) and things previously modeled but not mastered (such as locomotive engines and their major components and subsystems). To the extent that there is a need for data associated with these things — both data about the things themselves and the data generated by them — to be incorporated into organizational business value chains, there will be a requirement to provide for semantic consistency across the distributed information architecture that this data traverses. MDM remains the principal means by which to accomplish this on an application-neutral basis (see “Mastering the ‘Things’ in the Internet of Things”).

The IoT is projected to grow to almost 21 billion connected devices by 2020, with associated spending estimated to be $3 trillion (see Note 3). The projected economic value generated by the IoT ranges from $3.9 trillion to $11.1 trillion per annum (see Note 4). The forecast growth of IoT-enabled things and the data generated by them, along with the projected economic value generated by the IoT, will increase associated master data requirements and their impact on organizations — and do so on an accelerated basis.

MDM and Big Data

Just as more traditional system integrations involving structured data provide suboptimal results when mixing semantics (or simply data quality levels) for master data during integration for operations and analytics, attempts to incorporate big data sources (whether internal, such as instrument-generated data, or external, such as social network data) will yield profoundly inaccurate results when linked to unmanaged master data values within structured data platforms. Several MDM vendors offer capabilities either to perform MDM functions directly against copies of big data sources (such as social network data copied into a Hadoop environment), or to link their traditionally structured master data to those sources. So far, there have been very few successful attempts (from a business value perspective) to implement the former use case, mostly as a result of an inability to perform governance on the big datasets in question. Implementations of the latter use case are also sparse, but more common and more readily able to prove their value. The latter use case is also gaining some traction with other types of unstructured data, such as content, audio and video. (For more information, see “The Impact of Big Data on Master Data Management and How to Survive It.”)

Acronym Key and Glossary Terms

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<tr>
<th>Acronym</th>
<th>Definition</th>
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<tr>
<td>ADM</td>
<td>Application data management tools solely perform data management functions for use in a specific business application's or application suite's data. These solutions require the presence of that specific application or suite to function; may store data locally in that business application or suite, or remotely; and will operate on all data in use by that application or suite, including shared master data.</td>
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Evidence

The analysis in this document is based on information from a number of sources, including:

Extensive data on functional capabilities, customer base demographics, financial status, pricing and other quantitative attributes gained via a “request for information” process engaging vendors in this market.

https://www.gartner.com/doc/reprints?id=1-3RH2O6C&ct=170120&st=sb
Interactive briefings during which vendors provided Gartner with updates on their strategies, market positioning, recent key developments and product roadmaps.

A telephone and web-based survey of reference customers identified by each vendor. This captured data on usage patterns (for example, data domains and implementation styles), levels of satisfaction with major product functionality categories, various nontechnological vendor attributes (such as pricing, product support and overall service delivery), and more. In total, 351 organizations across all major regions provided input on their experiences with vendors and tools in this manner.

Feedback about tools and vendors captured during conversations with users of Gartner's client inquiry service.

Market share and revenue growth estimates developed by Gartner, as of March 2016.

Inquiry analysis and inquiry share estimates developed by Gartner, based on the volume of inquiries received from clients about this market (these estimates are not representative of the entire market). This data was captured as of the end of March 2016.

Results from a survey of vendors' reference customers.

Note 1
Definition of Master Data Management

Master data management (MDM) is a technology-enabled discipline in which business and IT work together to ensure the uniformity, accuracy, stewardship, semantic consistency and accountability of an enterprise's official, shared master data assets.

Master data is the consistent and uniform set of identifiers and extended attributes that describes the core entities of an enterprise, such as existing customers, prospective customers, citizens, suppliers, sites, hierarchies and the chart of accounts.

Note 2
Survey of Reference Customers

As part of the Magic Quadrant research process, we sought the views of vendors' reference customers (20 per vendor) via a survey conducted online and via telephone. The survey included requests for feedback on vendor maturity (for example, understanding of industries, provision of innovation, responsiveness to new requests, TCO and pricing) and product capabilities (for example, flexibility in data modeling, support for data quality, UI support for data stewardship, internal workflow and support for multiple architectural styles).

In total, 351 organizations, representing all the featured vendors' reference customer bases, were contacted for this survey. The reference customers were generally pleased with their vendors and products, but they gave relatively low marks in some areas, which we have detailed in the analysis of each vendor. Some of these issues may be historical, as not all organizations were on the latest product versions.

Note 3
Internet of Things Forecast

IoT endpoints will show a compound annual growth rate (CAGR) of 32% for the period 2013 to 2020, to amount to an installed base of 21 billion units, almost two-thirds of them for consumer applications.

Spending on networked consumer and business endpoints will displace spending on non-networked, and grow at a 22% CAGR to $3 trillion. See "Forecast Analysis: Internet of Things — Endpoints, Worldwide, 2015 Update."

Note 4
Economic Value of the Internet of Things

In addition to the incremental added value of increased efficiencies, such as those associated with big data, the IoT will enable step-level changes in economic value chains — for example, predictive maintenance for high-value assets. It will also be a catalyst of the transformation of business models — for example, the evolution from “guaranteed performance” to “guaranteed outcomes.”

The McKinsey Global Institute, among other sources, forecasts IoT economic value (inclusive of both direct value, such as cost savings, and indirect value, such as end-user benefit) in the range of $3.9 trillion to $11.1 trillion per annum by 2025. See "The Internet of Things: Mapping the Value Beyond the Hype” (http://www.mckinsey.com/insights/business_technology/the_internet_of_things_the_value_of_digitizing_the_physical_world) (McKinsey Global Institute, June 2015).
Evaluation Criteria Definitions

Ability to Execute

Product/Service: Core goods and services offered by the vendor for the defined market. This includes current product/service capabilities, quality, feature sets, skills and so on, whether offered natively or through OEM agreements/partnerships as defined in the market definition and detailed in the subcriteria.

Overall Viability: Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood that the individual business unit will continue investing in the product, will continue offering the product and will advance the state of the art within the organization's portfolio of products.

Sales Execution/Pricing: The vendor's capabilities in all presales activities and the structure that supports them. This includes deal management, pricing and negotiation, presales support, and the overall effectiveness of the sales channel.

Market Responsiveness/Record: Ability to respond, change direction, be flexible and achieve competitive success as opportunities develop, competitors act, customer needs evolve and market dynamics change. This criterion also considers the vendor's history of responsiveness.

Marketing Execution: The clarity, quality, creativity and efficacy of programs designed to deliver the organization's message to influence the market, promote the brand and business, increase awareness of the products, and establish a positive identification with the product/brand and organization in the minds of buyers. This "mind share" can be driven by a combination of publicity, promotional initiatives, thought leadership, word of mouth and sales activities.

Customer Experience: Relationships, products and services/programs that enable clients to be successful with the products evaluated. Specifically, this includes the ways customers receive technical support or account support. This can also include ancillary tools, customer support programs (and the quality thereof), availability of user groups, service-level agreements and so on.

Operations: The ability of the organization to meet its goals and commitments. Factors include the quality of the organizational structure, including skills, experiences, programs, systems and other vehicles that enable the organization to operate effectively and efficiently on an ongoing basis.

Completeness of Vision

Market Understanding: Ability of the vendor to understand buyers' wants and needs and to translate those into products and services. Vendors that show the highest degree of vision listen to and understand buyers' wants and needs, and can shape or enhance those with their added vision.

Marketing Strategy: A clear, differentiated set of messages consistently communicated throughout the organization and externalized through the website, advertising, customer programs and positioning statements.

Sales Strategy: The strategy for selling products that uses the appropriate network of direct and indirect sales, marketing, service, and communication affiliates that extend the scope and depth of market reach, skills, expertise, technologies, services and the customer base.

Offering (Product) Strategy: The vendor's approach to product development and delivery that emphasizes differentiation, functionality, methodology and feature sets as they map to current and future requirements.

Business Model: The soundness and logic of the vendor's underlying business proposition.

Vertical/Industry Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of individual market segments, including vertical markets.

Innovation: Direct, related, complementary and synergistic layouts of resources, expertise or capital for investment, consolidation, defensive or pre-emptive purposes.

Geographic Strategy: The vendor's strategy to direct resources, skills and offerings to meet the specific needs of geographies outside the "home" or native geography, either directly or through partners, channels and subsidiaries as appropriate for that geography and market.