Magic Quadrant for Data Quality Tools

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Growth, innovation and volatility (via mergers and acquisitions) continue to shape the market for data quality tools. Investment on the part of buyers and vendors is increasing as organizations recognize the value of these tools in master data management and information governance initiatives.

WHAT YOU NEED TO KNOW

This document was revised on 9 June 2008. For more information, see the Corrections page on gartner.com.

The market for data quality tools continues to enjoy significant growth, but experiences ongoing volatility in the form of acquisitions (both direct acquisitions of stand-alone vendors in this market, as well as the acquisition of larger vendors for which this market represents one of many competitive fronts). Most vendors have evolved to full-function data quality tool suites that address a broad range of data quality requirements. This is a clear indication of the blending of data profiling, data-cleansing operations and domain-specific management. Specialist vendors, with a focus on a single functional competence, provide narrow functionality at a lower cost but are increasingly pressured to expand capabilities as more consolidation occurs. A macro trend of convergence of the data quality tools market and the related market for data integration tools continues, as organizations recognize that data integration activities must provide more than simply data delivery – they must ensure the quality of the data being delivered enhances the value of data integration investments.

When evaluating offerings in this market, organizations must consider the breadth of functional capabilities (for example, data profiling, parsing, standardization, matching, monitoring and enrichment) relative to their requirements. Other key criteria include the degree of integration of these capabilities into a single architecture and product – specifically, integration at the metadata level, for example, a single unified metadata repository or the ability to apply findings from one toolset to create inference outcomes in another. Finally, consider nontechnology characteristics, such as the availability of preferable deployment and pricing models, and the size, viability and partnerships of the vendors.

MAGIC QUADRANT

Market Overview

Organizations of all sizes and in all industries are recognizing the importance of high-quality data and the critical role of data quality in information governance and stewardship driven by broader enterprise information management initiatives. As a result, their interest in the role of tools and technology for data quality improvement continues to grow. Fueled by a market of purpose-built, packaged tools for addressing various dimensions of the data quality discipline, data quality functionality is readily available from a variety of providers, both large and small. Data quality functionality is also being recognized as a fundamental component of offerings in many related software markets, such as data integration tools, master data management (MDM) solutions and business intelligence (BI) platforms.

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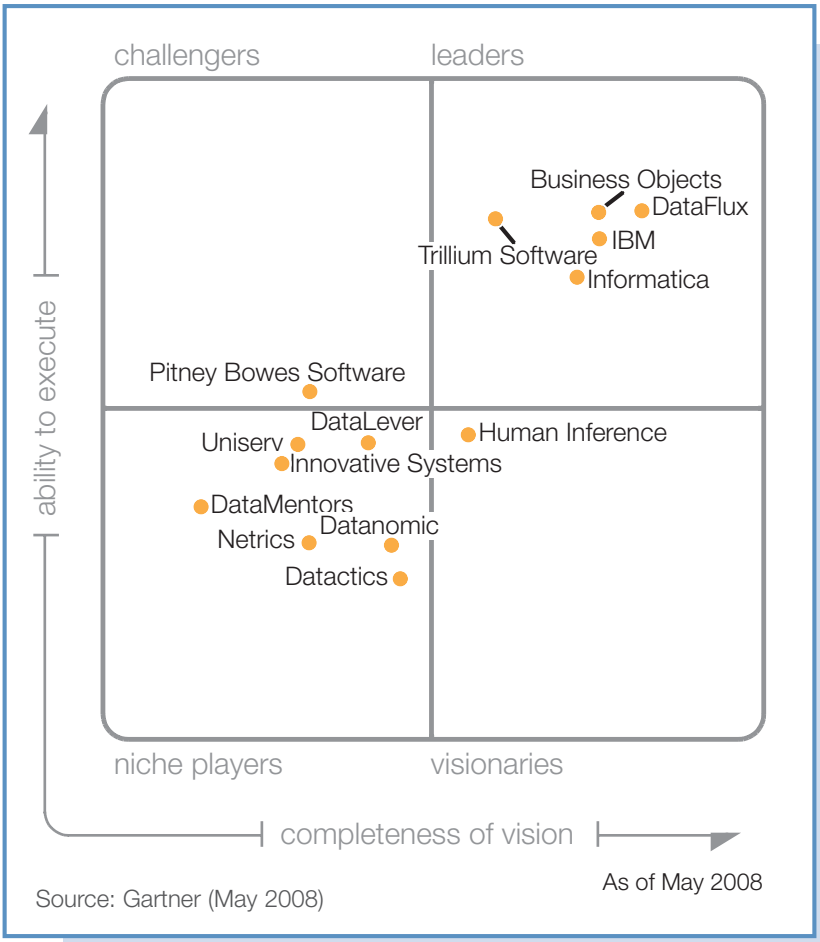
The vendors in this market offer a broad range of data quality functionality, ranging from data quality analysis and profiling, to data-cleansing operations such as parsing, standardization and matching, through to data enrichment. Much convergence of technology has occurred, and today vendors offer more functionality within a smaller number of discrete products – most vendors have consolidated the bulk of their core data quality functionality into a single data-cleansing platform, with data profiling remaining the only major functional component commonly sold as a separate product. However, specialized add-on capabilities (such as global name and address support, application-specific knowledgebases and dashboards for data quality metrics) for their core platforms persist, and even grow in number, as vendors adapt their packaging and pricing models to suit a wider range of potential buyers.

Figure 1. Magic Quadrant for Data Quality Tools



One of the most significant trends in this market is the continued expansion of the tools' capabilities beyond the basic data quality operations of parsing, standardization and matching of structured data assets in a narrow set of data domains (for example, customer data only). Increasingly, both new entrants and longtime competitors are delivering technology with a focus on data quality analysis, pervasive deployment of data quality controls, ongoing data quality monitoring and flexibility to address a range of data subject areas. The technology is evolving rapidly in various ways, including:

Data quality assessment and monitoring technology is coming to the fore. One of the most significant areas of R&D investment and innovation in the data quality tools market relates to technology to help organizations measure and monitor levels of data quality. Data profiling tools were a first step toward these goals, but more holistic solutions are emerging.

Data quality capabilities will be deployed and consumed as services. As service-oriented architecture (SOA) and alternative delivery models such as software as a service (SaaS) gain traction, data quality capabilities will be increasingly deployed as services, both internal and external to the organization. Many vendors of data quality tools that have traditionally sold technology only for on-premises deployment by their customers will start to offer hosted solutions for certain types of data quality operations.

Domain-agnostic technology is beginning to dominate. As organizations continue to view data quality in multiple domains (beyond the traditional arena of customer contact data), vendors are building new products or adapting existing ones so that they can address the new range of demands. Vendors with optimized technology for a specific data domain may retain lucrative niches in the market, but will find limited success in enterprise-class scenarios.

Data quality concepts and approaches will emerge for less-structured data. As with data integration tools, data quality technology will expand to address quality assurance of data types beyond the traditional structured variety. The concepts and approaches for applying data quality techniques to these nontraditional data types will evolve in the next couple of years.

In time, vendors that do not act on these trends – and instead continue to focus solely on customer data and traditional approaches to data quality improvement – will fall behind their competition and lose market share.

The market for data quality tools is modest in size (approximately $365 million in software revenue) but will grow at a compound annual rate of 17% or more between 2006 and 2011, which is stronger than the growth of many other software markets. Much of the innovation continues to come from outside the United States. As a result, the veteran data quality tool vendors are being challenged by entrants that have a more significant international focus. Many new entrants focus on domain-agnostic data quality services (stand-alone or embedded in applications), based on a centrally managed set of business rules. However, with the increasing trend toward embedding data quality capabilities in business applications, data integration tools and other software offerings from larger vendors, these small competitors will face significant challenges as they attempt to survive and grow. Also, acquisition activity in this and related markets continues to change the competitive landscape for data quality tools. For example, SAP's acquisition of Business Objects brings significant data quality tools into the SAP portfolio for the first time, while Informatica's acquisition of Identity Systems continues the trend of small data quality specialists being subsumed into the portfolios of larger players in this market.

Market Definition/Description

The data quality tools market comprises vendors that offer stand-alone software products for addressing the core functional requirements of the data quality discipline:

- **Profiling:** Analysis of data to capture statistics (metadata) that provide insight into the quality of the data and aid in the identification of data quality issues.
- **Parsing and standardization:** Decomposition of text fields into component parts and formatting of values into consistent layouts based on industry standards, local standards (for example, postal authority standards for address data), user-defined business rules and knowledge bases of values and patterns.
- **Generalized "cleansing":** Modification of data values to meet domain restrictions, integrity constraints or other business rules that define sufficient data quality for the organization.
- **Matching:** Identification, linking or merging related entries within or across sets of data.
- **Monitoring:** Deployment of controls to ensure ongoing conformance of data to business rules that define data quality for the organization.
- **Enrichment:** Enhancing the value of internally held data by appending related attributes from external sources (for example, consumer demographic attributes or geographic descriptors).

In addition, these products provide a range of related functional capabilities that are not unique to this market but are required for executing many of the data quality core functions, or for specific data quality applications:

- **Connectivity/adapters** – Ability to interact with a range of different data structure types.
- **Subject-area-specific support** – Standardization capabilities for specific data subject areas.
- **International support** – Relevance for data quality operations on a global basis.
- **Metadata management –** Ability to capture, reconcile and interoperate metadata related to the data quality process.
- **Configuration environment** – Capabilities for creation, management and deployment of data quality rules.
- **Operations and administration** – Facilities for supporting, managing and controlling data quality processes.
- **Service-enablement** – Service-oriented characteristics and support for SOA deployments.

The tools provided by vendors in this market are generally consumed by technology users for internal deployment in their IT infrastructure, although hosted data quality solutions are continuing to evolve and grow in popularity.

Inclusion and Exclusion Criteria

For vendors to be included in the Magic Quadrant, they must meet the following criteria:

- Offer stand-alone (not only embedded in, or dependent on, other products and services) packaged tools that are positioned, marketed and sold specifically for data quality applications.
- Deliver functionality that addresses, at a minimum, profiling, parsing, standardization, cleansing and matching. Vendors offering only narrow functionality (for example, only address cleansing and validation or only matching) are excluded because they do not provide complete data quality tool suites.
- Support this functionality for data in more than one language and specific to more than one country (in the case of address standardization).
- Maintain an installed base of at least 50 production customers for their data quality products.
- Demonstrate, via customer references, use of the tools at an enterprise (cross-departmental or multiapplication) level.

A vendor that does not meet the above criteria may be considered for inclusion if it is a new entrant that is demonstrably different from established vendors and represents a future direction for data quality tools.

There are many data quality tools vendors but most do not meet the above criteria and are, therefore, not included in the Magic Quadrant. Many vendors provide products that address one very specific data quality problem, such as address cleansing and validation, but cannot support other types of applications, or lack the full breadth of functionality expected in today's data quality solutions. Others provide a range of functionality, but operate only in a single country or support only narrow, departmental implementations. Others may meet all the functional, deployment and geographic requirements but are at a very early stage in their

"life span" and, therefore, have few, if any, production customers. The following vendors may be considered by Gartner clients alongside those appearing in the Magic Quadrant when deployment needs are aligned with their specific capabilities, or are newer entrants beginning to gain visibility in the market but lacking a significant customer base:

- **AddressDoctor**, Maxdorf, Germany, www.addressdoctor.com – specializes in international address standardization and validation, supporting 240 countries and territories.
- **AMB Dataminers**, Chicago, Illinois, www.payasyougodataquality.com – provides profiling, standardization and cleansing functionality for deployment in Windows environments.
- **Anchor Software**, Plano, Texas, www.anchorcomputersoftware.com – provides a range of data quality utilities supporting common customer list management operations such as file splitting, deduplication and suppression.
- **BackOffice Associates**, Harwich, Massachusetts, www.boaweb.com – offers services and technology for governance of master data within SAP applications.
- **BCC Software** (a division of Bowe Bell + Howell), Rochester, New York, www.bccsoftware.com – provides a range of data quality utilities supporting common customer list management operations such as address validation, change of address, deduplication and suppression.
- **Business Data Quality**, London, U.K., www.businessdataquality.com – offers products focused on data profiling (BDQ Analysis) and data quality monitoring (BDQ Monitor).
- **Certica Solutions**, Wakefield, Massachusetts, www.certicasolutions.com – provides products focused on validating data against predefined data quality rules.
- **Ciant**, Richardson, Texas, www.ciant.com – provides parsing, standardization and matching functionality for customer data, in support of sales and marketing analytics.
- **Datras**, Munich, Germany, www.datras.de – focuses on the German-speaking markets, providing profiling, standardization and monitoring capabilities.
- **Datiris**, Lakewood, Colorado, www.datiris.com – provides various data profiling techniques for a range of data sources.
- **DQ Global**, Fareham, U.K., www.dqglobal.com – provides matching, deduplication and international address standardization and validation functionality.
- **Exeros**, Santa Clara, California, www.exeros.com – provides data profiling functionality with an emphasis on discovery of relationships across data sets.
- **FinScore**, Renens, Switzerland, www.finscore.com – offers technology for measuring data quality and presenting metrics in a dashboard form.
- **helpIT systems**, Surrey, U.K., www.helpit.com – provides data quality tools oriented toward customer matching, deduplication and suppression operations.
- **Infogix**, Naperville, Illinois, www.infogix.com – provides controls-based technology for auditing and validating the integrity of data within and across systems.
- **Infosolve Technologies**, South Brunswick, New Jersey, www.infosolvetech.com – provides open-source tools (with required service contract) that support profiling, standardization, matching and deduplication operations.
- **InQuera**, Tefen, Israel, www.inquera.com – specializes in technology for standardization, matching and deduplication, with a specific focus on product data.
- **Intelligent Search Technology**, White Plains, New York, www.intelligentsearch.com – develops products for profiling, matching, deduplication and U.S. address correction.
- **Ixsight**, Mumbai, India, www.ixsight.com – offers services for data quality audits, along with products for standardization and deduplication.
- **Melissa Data**, Rancho Santa Margarita, California, www.melissadata.com – supports standardization of names, addresses and phone numbers, and validation of addresses and phone numbers (both via on-premises software and hosted Web services).
- **Omikron**, Pforzheim, Germany, global.omikron.net – provides products for standardization and deduplication of customer name and address data.
- **QAS (a subsidiary of Experian)**, London, U.K., www.qas.com – offers global name and address standardization, validation and matching/deduplication functionality.
- **Silver Creek Systems**, Louisville, Colorado, www.silvercreeksystems.com – provides parsing, standardization and matching functionality, with a focus on product data applications.
- **Spad**, Paris, France, eng.spadsoft.com – offers a suite of data quality products for data profiling, monitoring and standardization.
- **SQL Power, Toronto**, Canada, www.sqlpower.ca – provides open-source tools supporting standardization, address validation and deduplication.
- **SRC**, Orange, California, www.extendthereach.com – provides data cleansing in the context of business intelligence applications with a geographic orientation.
- **Stalworth**, San Mateo, California, www.stalworth.com – offers a platform for standardization and cleansing of customer data, including international address validation.
- **TIQ Solutions**, Leipzig, Germany, www.tiq-solutions.de – provides data profiling and data quality dashboards, with a focus on banking, insurance and distribution verticals.
- **Utopia**, Mundelein, Illinois, www.utopiainc.com – offers services and technology for data quality analysis and data standardization, with a focus on product master data.
- **Veda Advantage**, Sydney, Australia, www.vedaadvantage.com – provides software to cleanse and update customer addresses, add phone numbers, merge databases into a single customer view and append segmentation data.
- **WinPure**, Reading, U.K., www.winpure.com – offers low-cost data cleansing, matching and data deduplication software on the Windows platform.
- **Zoomix**, Jerusalem, Israel, www.zoomix.com – delivers technology for adaptive matching and standardization, with a focus on product data.

Gartner will continue to monitor the status of these vendors for possible inclusion in future updates of the Magic Quadrant for Data Quality Tools.

Dropped

- **Fuzzy Informatik** – This vendor was acquired by Business Objects in 2007 and no longer exists as an independent entity.

Evaluation Criteria

Ability to Execute

We evaluate vendors' ability to execute in the data quality tools market by using the following criteria:

- **Product/Service:** How well the vendor supports the range of data quality functionality required by the market, the manner (architecture) in which this functionality is delivered and the overall usability of the tools. Product capabilities are critical to the success of data quality tool deployments and, therefore, receive a high weighting.
- **Overall Viability:** The magnitude of the vendor's financial resources and the strength of its people and organizational structure.
- **Sales Execution/Pricing:** The effectiveness of the vendor's pricing model and the effectiveness of its direct and indirect sales channels.
- **Market Responsiveness and Track Record:** The degree to which the vendor has demonstrated the ability to respond successfully to market demand for data quality capabilities over an extended period.
- **Marketing Execution:** The overall effectiveness of the vendor's marketing efforts, and the degree of "mind share," market share and account penetration the vendor has achieved as a result.
- **Customer Experience:** The quality of the vendor's general customer service, implementation service and technical support, and customers' perception of overall value.

Completeness of Vision

We assess vendors' completeness of vision for the data quality tools market by using the following criteria:

- **Market Understanding:** The degree to which the vendor leads the market in new directions (technology, product, services or otherwise) and its ability to adapt to significant market changes and disruptions. Given the dynamic nature of this market, this item receives a high weighting.
- **Marketing Strategy:** The degree to which the vendor's marketing approach aligns with and/or exploits emerging trends and the overall direction of the market.
- **Sales Strategy:** The alignment of the vendor's sales model to the way customers' preferred buying approaches will evolve over time.
- **Offering (Product) Strategy:** The degree to which the vendor's product road map reflects demand trends in the market and fills current gaps or weaknesses. We also consider the strength of the vendor's strategy regarding delivery models of different types.
- **Business Model:** The overall approach the vendor takes to execute its strategy for the data quality market. With a reasonably high degree of similarity across the vendors in this market, this item receives a low weighting.
- **Vertical/Industry Strategy:** The level of emphasis the vendor places on vertical solutions, and the vendor's depth of vertical expertise. Given the broad cross-industry nature of the data quality discipline, vertical strategies are less critical and, therefore, this item receives a low weighting.
- **Innovation:** The degree to which the vendor has demonstrated a willingness to make new investments to support the strategy and enhance product capabilities, the level of investment in R&D directed toward development of the tools and the extent to which the vendor demonstrates creative energy. With rapidly evolving technology requirements – in the face of trends such as SOA – and increased competition in the market from large vendors, this item receives a high weighting.
- **Geographic Strategy:** The global presence of the vendor and the manner in which it is achieved (for example, direct local presence, resellers and distributors) in light of the desire of multinational enterprises to exploit common tools worldwide.

Table 1. Ability to Execute Evaluation Criteria

Evaluation Criteria	Weighting
Product/Service	high
Overall Viability (Business Unit, Financial, Strategy, Organization)	standard
Sales Execution/Pricing	standard
Market Responsiveness and Track Record	standard
Marketing Execution	standard
Customer Experience	standard
Operations	no rating
Source: Gartner	

Table 2. Completeness of Vision Evaluation Criteria

Evaluation Criteria	Weighting
Market Understanding	high
Marketing Strategy	standard
Sales Strategy	standard
Offering (Product) Strategy	standard
Business Model	low
Vertical/Industry Strategy	low
Innovation	high
Geographic Strategy	standard
Source: Gartner	

Leaders

Leaders in the market demonstrate strength across a complete range of data quality functionality, including profiling, parsing, standardization, matching, validation and enrichment. They exhibit a clear understanding and vision of where the market is headed, including recognition of noncustomer data quality issues and the delivery of enterprise-level data quality implementations. Leaders have an established market presence, significant size and a multinational presence (directly or as a result of a parent company).

Challengers

Challengers in the market provide strong product capabilities but may not have the same breadth of offering as Leaders. For example, they may lack several functional capabilities of a complete data quality solution. Challengers have an established presence, credibility and viability, but may demonstrate strength only in a specific domain (for example, only customer name and address cleansing) and/or may not demonstrate a significant degree of thought leadership and innovation.

Visionaries

Visionaries in the market demonstrate a strong understanding of current and future market trends and directions, such as the importance of ongoing monitoring of data quality, engagement of business subject matter experts and delivery of data quality services. They exhibit capabilities aligned with these trends, but may lack the market presence, brand recognition, customer base and resources of larger vendors.

Niche Players

Niche Players often have limited breadth of functional capabilities and may lack strength in rapidly evolving functional areas such as data profiling and international support. In addition, they may focus solely on a specific market segment (such as midsize businesses), limited geographic areas or a single domain (such as customer data), as opposed to positioning toward broader use. Niche Players may have good functional breadth but may have an early-stage presence in the market, with a small customer base and limited resources. Niche Players that specialize in a particular geographic area or data domain may have very strong offerings for their chosen focus area and deliver substantial value for their customers in that segment.

Vendor Strengths and Cautions

Business Objects

Strengths

- Business Objects, an SAP company, has a substantial BI platform market presence and large base of data quality tools customers (the overwhelming majority of which are in North America and were obtained through its 2006 acquisition of Firstlogic). This creates significant cross-sell opportunities for the vendor to increase its data quality tools business. As a part of SAP, the vendor's growth prospects are further expanded via access to the global SAP applications customer base, where data quality challenges are prevalent. In addition, Business Objects' data quality tools will be complementary to SAP MDM, which has been lacking rich data quality functionality.
- Business Objects provides good breadth of functional data quality capabilities, including data profiling (via Data Insight XI) and common data-cleansing operations (via Data Quality XI). The core data quality functionality in Data Quality XI enables the delivery of data quality services in an SOA context, and will be used in the Business Objects Data Services product (which combines data integration and data quality functionality). Business Objects has made progress in the market in the past 12 months, actively selling Data Quality XI alongside the Data Integrator extraction, transformation and loading (ETL) tool.
- Business Objects' strength remains very much in applications of customer data quality, specifically in matching/linking, deduplication, and name and address standardization and validation. The technology is proven for applications of this type and such implementations represent most of the installed base. The acquisition of Fuzzy Informatik in 2007 has provided stronger and additional name and addressing standardization capabilities and content for Europe, the Middle East and Africa, with a specific emphasis on German-speaking and Eastern European countries.

Cautions

- Very few customer references report using the technology in data domains beyond customer data (and similar "party"-oriented subject areas such as supplier or employee). While this is because of historical optimization of the technology for customer data, the delivery of Universal Data Cleanse (UDC) in 2007 enabled broader use. However, UDC is still new and production implementations remain scarce, and it also represents an additional cost to customers beyond the base Data Quality XI functionality.
- Data profiling remains an area of relative weakness for Business Objects, with the Data Insight product continuing to see slow market adoption and customer references reporting limited use and mixed results. Specifically, reliability of IQ Insight and integration with Data Quality XI (in terms of ease of converting profiling results into rules for data cleansing and monitoring) represent an opportunity for improvement.
- The acquisition of Business Objects by SAP brings both opportunities and risks for the market presence of Business Objects' data quality tools. This technology was not a major factor in SAP's acquisition strategy, and SAP's long-term plans and product road map for the tools, including potential bundling, packaging and pricing with SAP products, are not yet finalized. The vendor must decide how to address product overlaps, such as the matching functionality from Business Objects and the matching functionality in SAP MDM. SAP should focus on using Business Objects' data quality technology to enhance the value of the NetWeaver platform and SAP applications, as well as on growing a stand-alone data quality tools business. The vendor must continue to clarify for its customers its product plans and strategic direction for data quality.

Datactics

Strengths

- Datactics is a small data quality vendor based in Belfast, Northern Ireland, and operates primarily in Europe, but there are a number of value-added resellers (VARs) in the Americas and Asia. Its software is used in a range of subject areas, not limited to typical name/address verification scenarios. Many references report use of the software beyond cleansing of customer data. Its profiling capabilities are cited as particularly strong.
- The company's flagship product, DataTrawler, is fully 64-bit and Unicode-enabled, supports most European languages, runs on many platforms and supplies broad capabilities in profiling, matching/merging, cleansing and monitoring. Data quality scorecards can be constructed to monitor quality-related metrics. Most of Datactics' reference customers are small and midsize businesses, mainly in the supply chain sector, as well as government agencies.
- Datactics has partnerships with consultancies and system integrators (SIs) that have used the DataTrawler product in some strategic data quality programs – it is quick to implement at a reasonable cost. Datactics has also built an alliance with ETI, a data integration tools vendor, and other software companies that include DataTrawler services.

Cautions

- Datactics recently underwent some management changes, including the recruitment of a CEO, generating some uncertainty about the vendor's potential strategy changes. However, the company successfully finished a funding round and is negotiating a second tranche.
- With only five sales employees, limited marketing budgets and relatively low-profile partnerships, Datactics is "flying underneath the radar" for most organizations looking for a provider of data quality tools. Datactics needs to build an even stronger OEM channel, with more visible independent software vendor (ISV) partners in the data management or BI markets.
- Although Datactics has signed up VARs in markets such as Brazil, Hong Kong and Turkey, there is no traction in those regions and all major sales or partnering opportunities remain mostly in English-speaking countries. A stronger ISV partner is required to take Datactics to new shores.

DataFlux

Strengths

- DataFlux has firmly established itself as a major brand in the market. It continues on its solid growth path, has seen good traction as a multipurpose data quality platform beyond customer data and even as an enterprisewide standard in large accounts. The company has one of the highest ratios of reinvesting revenue in R&D.
- To speed deployment, the vendor has successfully launched a set of "accelerators," for example, Customer Data Analysis and Commodity Coding, and is praised by its customers for the ease of use of its tools, including for non-IT staff, and good performance, particularly profiling and matching.
- The DataFlux platform includes profiling, matching, cleansing and monitoring capabilities in a single platform, supported by a shared metadata repository. DataFlux has leveraged its parent company SAS to expand its geographic presence and has good traction in Europe.

Cautions

- With the convergence of the data integration and data quality tools markets and the ongoing M&A activities in them, DataFlux needs to expand its portfolio and messaging beyond data quality. Despite its efforts in MDM, DataFlux has not been recognized beyond its status as a data quality technology provider, and its expansion into business process integration is still in its infancy.
- Despite the vendor's broad connectivity to commonly used data sources and applications, some customers struggle with the adapter licensing and integration of the platform into other environments, particularly SAP.
- Although DataFlux provides locale support for 36 countries and 18 languages, most customers report using the software in single-language English environments.

DataLever

Strengths

- DataLever focuses on the core requirements of data quality, providing integrated data-profiling and data-cleansing functionality in a single product. All operations can be readily deployed in both batch and real-time modes. The vendor has focused on delivering the fundamental capabilities required in virtually all data quality projects (such as parsing, standardization and cleansing) rather than attempting to expand the scope of the data quality discipline or innovate in new functional areas.
- DataLever takes a domain-agnostic view of data quality issues, enabling its technology to be applied in various data domains, including customer and product. While most of the installed base applies DataLever's technology to customer data quality issues, customer references reflect a solid percentage of implementations in other areas.
- Customers cite overall ease of use, relatively short implementation times and lower cost than alternative offerings as the main selling points of DataLever's products. Increasingly, strong performance in scenarios with large data volumes is helping DataLever to succeed in competitive situations. In addition, the lower complexity of the product enables its use by business subject matter experts in addition to IT personnel.

Cautions

- As one of the smaller and privately held providers in the market, DataLever supports a small customer base of approximately 150, with virtually no presence outside North America. Although it has wisely chosen to focus solely on its home region of North America early in its maturity, the vendor's relative weakness in

international support (the technology is not yet Unicode-compatible) will hinder its adoption by multinational enterprises and its growth in other regions. However, DataLever has begun to address this issue via a partnership that supplies international address standardization and validation functionality, and the vendor's product road map calls for delivery of Unicode support in 3Q08.

- DataLever has very limited runtime platform support (Windows and Linux only), although support for other platforms is planned for future releases. The vendor's lack of significant partnerships with SIs and complementary software vendors will limit its competitive strength – DataLever must begin to look beyond its own intellectual property and capabilities to improve its ability to execute.
- DataLever's technology has traditionally had greatest adoption by midsize businesses. However, the vendor is increasingly attracting large enterprises but these customers tend to deploy the technology within single projects or a limited set of projects rather than enterprisewide.

DataMentors

Strengths

- DataMentors specializes in customer data quality applications, providing matching, linking, standardization and cleansing operations via its DataFuse product, and data profiling capabilities via ValiData. Its partnership with smartFocus enables the vendor to offer campaign management, analytics and mapping capabilities (branded as DataMentors PinPoint). The vendor's roots are in database marketing, with the management team having been involved in large-scale applications of this type for more than 20 years.
- Customer references cite accuracy of matching, ease of use and attractive pricing relative to that of some of the more prominent vendors in the market as key strengths and reasons for their selection of DataMentors' technology. Forthcoming versions of DataFuse will introduce further advancements in ease of use, parallel processing and data quality monitoring functionality. While all the installed base is using the technology in the customer data domain, some customer references indicate use in the product data domain as well.
- The vendor's customer base reflects a higher percentage of hosted (SaaS) implementations than is seen for any other vendor in this market. DataMentors estimates that half its customers are using its technology in a hosted manner and this is reflected in the vendor's customer references.

Cautions

- With a small installed base (approximately 70 customers, all in North America) and limited resources for marketing, DataMentors will be challenged to gain mind share in a market increasingly populated by much larger providers. Its recent certification for NetWeaver MDM will help, but DataMentors will need to establish additional partnerships to expand its presence and visibility.
- DataMentors' focus on marketing applications and customer data quality issues may place it at a competitive disadvantage when prospects have broader requirements, including quality issues in noncustomer data domains. However, although it is a minority of the usage, the vendor's customer references do reflect use of the technology in product data quality and financial data quality applications.
- From a product functionality perspective, DataMentors has weaknesses in runtime platform support (Windows is the only deployment option, although DataFuse can interact with applications and data sources on other platforms) and international capabilities because of lack of Unicode support. A new partnership with a provider of international address standardization and validation functionality represents a positive first step in making DataFuse suitable for use by global organizations.

Datanomic

Strengths

- Datanomic continues to establish itself in the European data quality tools market. The vendor has just passed the 100 customers mark, most of which are in the U.K., with some in mainland Europe and a few in North America and Asia. As a relatively new player, Datanomic has been able to build its dn:Director platform on modern technology, and with an attractive user interface, without any major legacy baggage.
- The new Web services generation capability enables dn:Director users to rapidly deploy data quality components, such as matching or cleansing, into SOA environments; the new Siebel connector benefits from this new function. Datanomic has also enhanced its real-time capabilities, added new data quality processors into the product and continued to improve the presentation functionality in its data quality dashboards.
- Datanomic has a strong focus on the financial industry, with a few clients in the telecommunications and public sectors. Datanomic products are domain-agnostic and not specifically targeted at customer data.

Cautions

- Datanomic has been unable to capitalize on the international reach of its SI partners and has virtually no visibility outside its home market in the U.K.
- While the dn:Director product is built on an SOA, and its database connectivity is expanding to cover access to Oracle, Microsoft, Sybase and others, native adapters for some major database management systems such as DB2 and Teradata are not available. Hardly any references report using the product outside customer name and address cleansing.
- Although the vendor maintains an alliance with Oracle, it does not participate in a sales and marketing "ecosystem" with a number of data integration or BI platform companies, thereby missing out on OEM and channel sales opportunities.

Human Inference

Strengths

- Human Inference, based in Arnhem, the Netherlands, provides data quality solutions to large customers mostly in the European financial services, telecom and utilities industries, where it has some long-standing relationships with approximately 250 clients. New investors GIMV and Iris Capital will enable the company to extend its reach into other geographic regions.
- The HIquality components include technology for inspection and profiling, name and address cleansing, matching, merging and enrichment. One of the key differentiators for Human Inference is its maintenance of reference datasets, which are available for select countries and serve as a knowledgebase for names, addresses and other specific meanings from a variety of contexts. The vendor has partnered with T-Systems as the hosting provider for a SaaS offering of its software and has signed up its first customers.
- As one of the larger European data quality tools vendors, Human Inference has good mind share in the Netherlands and is increasingly active in other European countries, driven mostly by successful marketing programs and themed events. Reference customers cite the quality of the Dutch and Belgian knowledgebases, address validation and geocoding as particularly strong features.

Cautions

- Reference customers report a reluctance to migrate to the latest version of the product because of high complexity and cost during the migration process, but version 6 of the HIquality Suite is addressing ease-of-use and other shortcomings. A relatively high ratio of customers also indicates issues with access to skilled service personnel, software pricing and value for money.
- Human Inference's partner channel strategy is still at an early stage. The vendor needs OEM partnerships with data integration, process integration and application vendors so it can extend its presence and compete more effectively with the product offerings from large international infrastructure companies that, because of their holistic approach, regularly win deals over small providers.
- The vendor's products are repeatedly described as complex to install and configure, requiring additional service personnel from Human Inference. Despite the possibility of using Web services, integrating the data quality software into other applications is described as difficult.

IBM

Strengths

- IBM continues to push for ubiquitous data quality functionality as a key component of its integration portfolio. The Information Server acts as the host platform for the company's data quality products, but IBM also uses the components in MDM solutions with the MDM Server, as well as in data quality assessments led by IBM Global Business Services. As one of the best-known brands with worldwide consulting, service and support functions, IBM is well equipped to sell its vision of data quality to the largest organizations worldwide.
- Supporting its vision for "information on demand," IBM's Information Analyzer (discovery, profiling and analysis) and QualityStage (parsing, standardization and sophisticated matching) are repeatedly described as the enterprisewide data quality standard and are being used in several departments in customer organizations. IBM's customers have started to use its data quality products in multiple data domains, beyond customer data. IBM has also started to integrate its data quality tools with the Cognos platform, which enables the creation of data quality dashboards.
- The newly architected Information Server includes – apart from data quality tools – ETL tools, federation, replication and metadata management. The standardization and matching functions are praised by reference customers for their accuracy, performance and scalability.

Cautions

- IBM's overarching information-on-demand theme takes away some of the focus on the data integration and data quality products in the Information Server. Despite IBM's continuous efforts through data quality seminars worldwide, mind share in the market grows relatively slowly.
- The adoption rate of the Information Server and customers' willingness to upgrade to the latest versions of the data quality products continues to be somewhat slow. Few references have reported running the latest version of a data quality product in production.
- Although smaller competitors have embarked on a SaaS model for data quality, IBM has not, despite its extensive hosting capabilities, addressed this new market segment.

Informatica

Strengths

- Informatica increased its market presence in the past 12 months, adding a significant number of new customers for data quality tools. Most of these additions were via cross-selling of data quality tools to the existing PowerCenter installed base, a strategy that Informatica is executing very well. The installed base of its core data quality products (Informatica Data Quality and Informatica Data Explorer) is estimated at approximately 400 customers.
- Informatica's data quality tools portfolio includes strong data profiling functionality (Data Explorer) and domain-agnostic parsing, standardization and matching capabilities (Data Quality). The company's recent acquisition of Identity Systems indicates the strategic importance it places on this market. The acquisition will expand the matching and identity resolution functionality of Informatica's data quality offerings.
- Customer references reflect a range of data quality application types, with strong indications of multidomain adoption across customer, product financial and other types of data. Ease of use of the products and positive service and support experience are also cited by customer references as significant strengths.

Cautions

- Having successfully completed the organizational integration of its major 2006 acquisition to enter the data quality tools market, Informatica now faces the challenge of integrating an even larger entity now that it has completed its purchase of Identity Systems. Key to success will be integration at a technology level and clearly articulating to customers the appropriate use of Identity Systems' matching technology relative to that in the Data Quality product.
- Acquisition activity in related markets continues to degrade the value of Informatica's indirect sales channels for its data quality products, while at the same time increasing competitive pressure on pure-play vendors like Informatica. For example, the recent acquisition of Cognos by IBM negates the data quality tools reseller agreement that Informatica established with Cognos. However, the acquisition of Identity Systems adds existing reseller and OEM partnerships in the CRM and customer data integration hub (customer MDM) markets.
- Customer references reflect extremely limited use in multilanguage, multicountry implementations, as well as relatively low satisfaction with functionality for related operations such as address validation and geocoding. Informatica must continue to improve its competence in these areas and says it is increasing its focus through more dedicated resources and a new leader of its address validation and enrichment team.

Innovative Systems

Strengths

- Innovative Systems has been in this market longer than any other vendor, with a history spanning nearly 35 years. Innovative's i/Lytics platform provides proven capabilities based on its deep experience in customer data-matching and cleansing applications. i/Lytics provides strong support for both mainframe and distributed platforms, and enables data quality functionality to be exposed via service interfaces.
- Innovative's customer base (approximately 200 customers, most of which are large enterprises) reflects the vendor's strong experience in the banking and insurance industries – these verticals include about two-thirds of the vendor's customers. While most of these customers are in North America, Innovative also supports customers in Europe and is experiencing growth in Latin America (a region in which it has significant experience). Customer references report a very favorable service and support experience, and success with enterprisewide deployments.
- Complementary to its financial services experience, Innovative continues to focus on its Fin-Scan compliance watchlist screening offerings, an area showing continued strong demand. In addition, it is placing more emphasis on delivery of i/Lytics functionality in a SaaS model, which is in line with an early-stage trend toward hosted and hybrid (combination of on-premises and hosted) deployments in this market.

Cautions

- With a strong emphasis on customer data quality issues, Innovative will be challenged to win new business or expand its presence in existing accounts when multidomain data quality improvement initiatives are required. Customer references reflect no use of the technology in other data domains, such as product data or financial data.
- Given its long history in the market, Innovative's relatively small installed base indicates limited growth in recent years. It has been generally successful in retaining its long-standing customers, but will need to increase the pace of new customer acquisition to remain competitive. A stronger emphasis on marketing, establishing partnerships with SIs and complementary software vendors, and expanding product functionality toward multidomain capabilities will have a positive impact.
- Innovative's data profiling capabilities appear to have limited market adoption so far, although this is a relatively new and immature offering in the vendor's portfolio. Customer references reflect less adoption of profiling capabilities than those of major competitors in this market. In addition, while Innovative's technology can support multilingual data, the lack of full Unicode capabilities limits Innovative's ability to compete on a global basis.

Netrics

Strengths

- Netrics, a relatively new entrant to the data quality tools market, provides a range of capabilities with a specific focus on matching. The vendor uses a machine learning approach to implementing matching and standardization, based on the customer "teaching" the technology about the characteristics of matches by working through a sample set of data.
- Netrics' technology is essentially an embeddable data quality and matching engine, enabling the deployment of data-quality-related services inside any type of application. This is a significant differentiation from most other vendors in the market, and enables Netrics to focus primarily on an indirect channel strategy with OEM and system integration partners. The most recent release of the technology added a Web services application programming interface for applications to communicate with the engine, as well as the addition of "information theory scoring" capabilities that add to Netrics' repertoire of matching algorithms.
- Customer references claim better accuracy in highly complex matching problems compared with more traditional matching approaches, with a shorter time to implementation because comparatively less "programming" is needed. References also reflect the lack of domain bias in Netrics' technology – customers are working with various types of data, including customer, product and financial – and growing use of the technology in an off-premises hosted delivery model. In addition, references report a very positive experience with ease of use and performance of the technology.

Cautions

- Netrics' strong emphasis on matching comes at the expense of other data quality operations, such as profiling and address validation, in which it has limited capabilities compared with most other vendors in this market. The lack of a user interface, other than a Web-based console for administration of engine operations, means the vendor does not provide "out of the box" functionality for exposing profiling results, matching results or runtime statistics – capabilities that are increasingly important as organizations focus more strongly on ongoing information governance.

- Netrics' product road map includes mostly technical enhancements – additional functionality that will improve the scalability or matching flexibility of the engine. However, the road map is limited in enhancements that would fill critical gaps relative to larger competitors, such as robust data profiling functionality, or support for richer parsing, standardization and validation rules (in particular for the customer data domain, a mainstay of demand in the data quality tools market).
- With a small installed base (approximately 100 customers) and limited resources for marketing, Netrics will be challenged to gain mind share in a market increasingly populated by much larger providers. Customer references are generally midsize organizations, although some of the applications in which Netrics' tools are embedded (including applications delivered by some of its OEM partners) support very large numbers of users.

Pitney Bowes Software

Strengths

- Pitney Bowes Software, which competes in the data quality tools market as a result of the acquisition of Group 1 Software by Pitney Bowes, continues to focus on its traditional positioning of "customer data quality." The vendor specializes in global name and address standardization and validation, matching-related capabilities (including linking and deduplication) and geocoding. This functionality is supported on a range of platforms, including the mainframe. Although the vendor's underlying technology can be considered domain-agnostic, customer data quality applications are its sole focus, as is clear from the Customer Data Quality (CDQ) Platform product naming.
- Pitney Bowes Software retains a large installed base (more than 2,400 customers), making it one of the market-share leaders for data quality tools. Customer references reflect a highly North-American-centric installed base, although the vendor has established a foothold in Asia/Pacific, where it now has several hundred customers.
- With the significant financial resources of Pitney Bowes, the vendor continues to expand its capabilities through acquisitions – such as its 2007 addition of MapInfo, which brings further geospatial and mapping services to the CDQ product. The vendor continues to fund organic development of its core data quality technology, with the latest version of CDQ adding, among other enhancements, an improved user interface for data stewardship activities, integration with MapInfo services for location intelligence and improved visibility in matching results. Its product road map includes additional enhancements, such as monitoring and integration of profiling and cleansing functionality, which represent "must have" capabilities in this market.

Cautions

- Pitney Bowes Software's focus on customer data will place it at an increasingly significant competitive disadvantage compared with providers with multidomain-capable tools. Customer references rarely report use of the technology in noncustomer data domains, which is consistent with the vendor's product positioning. The announcement of a partnership with Silver Creek Systems provides the potential for Pitney Bowes Software customers to begin addressing data quality issues in the product data domain. In addition, the recent delivery of a data profiling product has enabled Pitney Bowes Software to expand its functional capabilities; however, customer references reflect minimal uptake of this offering.
- Lack of clarity about the product road map and migration paths from older Group 1 Software and Pitney Bowes data quality products to CDQ have created frustration on the part of customers. References report an inconsistent experience with customer service and support. With the creation of the Pitney Bowes Software business unit and a stronger focus on aligning the various software assets of Pitney Bowes, the vendor is beginning to solidify the product road map and has the opportunity to rationalize and strengthen its interactions with customers.
- While Pitney Bowes Software offers a range of pricing models and options, mainframe-based customers (which represent the core of its customer base) continue to report challenges in negotiating the cost of upgrades and ongoing support/maintenance, and working through renegotiations of enterprise licenses, including mainframe products.

Trillium Software

Strengths

- Harte-Hanks Trillium Software provides a broad data quality tool suite, including data profiling (TS Discovery), core data quality components (TS Quality) and a data quality dashboard offering (TS Insight). Its data enrichment capabilities are focused on customer data (addresses, geocoding and watchlist compliance). Trillium is attempting to expand its positioning and capabilities beyond core data quality capabilities toward what it calls "data intelligence," with a product road map calling for richer metadata discovery and management, semantic understanding and business user interaction.
- Trillium continues to enjoy strong brand recognition and customer retention, and remains a market-share leader with a large installed base of approximately 700 customers, most of which are in North America. Customer references report a high level of satisfaction with performance and scalability of Trillium's tools, and a very positive service and support experience. The company has a high-profile partnership with Oracle – with Trillium's data quality functionality an option in the Oracle Data Integration Suite – that represents Trillium's most significant channel opportunity in recent times. A new reseller partnership with Teradata further expands the size and quality of Trillium's indirect channels.
- Trillium has disbanded its Diamond Data offering, which provided the TS Quality functionality in a hosted model for customers of SaaS application providers such as salesforce.com. Trillium is redirecting the resources allocated to that service into its own SaaS offering, TS On-Demand, and increasing its focus on hosted deployments. However, customer references do not yet reflect use of these capabilities.

Cautions

- Trillium's functionality, marketing and product road map have historically been largely geared toward data quality issues in customer data. A minority of customer references indicate that they are applying TS Quality in other data domains, although with the introduction of Universal Data Libraries (prebuilt functionality for common data attributes including units of measure, currencies and package types) in the v.11 release, this is beginning to change. Trillium must continue to expand its capabilities and experience in this direction to remain competitive with vendors delivering multidomain functionality.
- To ensure long-term market leadership, the vendor will need to continue to generate significant growth in other regions in response to competition from larger and more globally visible vendors. It is beginning to do this, with 28% of its customer base now outside North America. In addition, while it has relationships with a number of high-profile SIs, it must continue to expand the depth of these partnerships to generate more traction on a global basis.
- Harte-Hanks' acquisition of U.K.-based address-cleansing specialist Global Address has created some redundancy of functionality with TS Quality, specifically in the area of address standardization for certain countries. Harte-Hanks faces the challenge of rationalizing the product sets, but also has the opportunity to upsell Global Address customers to TS Quality as their needs expand beyond address-cleansing activities.

Uniserv

Strengths

- Uniserv has been a provider of data quality solutions for more than 30 years. The vendor – which has its headquarters in Pforzheim, Germany – focuses almost exclusively on customer data, name and address verification, and geocoding. About 75% of Uniserv's revenue and customers are in Germany and France, but the vendor has also sold in other European countries and the U.S.
- Uniserv is one of only a few data quality vendors adopting a SaaS delivery model. This amounts to only a small slice of the vendor's revenue – and no reference customers have indicated this deployment model – but the SaaS portion has enjoyed growth of more than 40% in the past 24 months. Uniserv's installed base is growing faster internationally than in its domestic market.
- Uniserv has more than 60 employees in technical roles, such as product development, professional services and technical support. A relatively low average software license fee per implementation makes it easy for customers to deploy Uniserv software.

Cautions

- As many organizations start to view data quality as a domain-agnostic issue, Uniserv's strong customer data focus will put it at a disadvantage compared with other providers that market themselves with a broader data quality view toward, for example, product data or financial data.
- Uniserv is an established brand for matching, merging, cleansing, and address and bank data verification technologies, but it does not serve increasingly popular areas such as data quality dashboards and quality monitoring. However, the vendor recently signed an OEM agreement to fill the data profiling gap in Uniserv's portfolio. Only an English version of the profiling tool is available currently but German and French user interfaces are planned for later in 2008.
- Uniserv's strong concentration on its direct sales force, and its lack of large international alliances with SIs and ISVs that use Uniserv technology as OEMs, put the vendor under increasing pressure from larger international competitors. In addition, both its partners SAP and Oracle have either acquired or embedded data quality technology from Uniserv's competitors.

Vendors Added or Dropped

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

Acronym Key and Glossary Terms

BI	business intelligence
CDQ	Customer Data Quality
ETL	extraction, transformation and loading
ISV	independent software vendor
MDM	master data management
SaaS	software as a service
SI	system integrator
SOA	service-oriented architecture
UDC	Universal Data Cleanse
VAR	value-added reseller

Evaluation Criteria Definitions

Ability to Execute

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

Overall Viability (Business Unit, Financial, Strategy, Organization): Viability includes an assessment of the overall organization's financial health, the financial and practical success of the business unit, and the likelihood of the individual business unit to continue investing in the product, to continue offering the product and to 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 and Track 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, 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 and service-level agreements.

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 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 Web site, advertising, customer programs and positioning statements.

Sales Strategy: The strategy for selling product 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 set 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 verticals.

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.