Chartis

Chartis RiskTech Quadrant™ for Data Management and BI for Risk 2013

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In this research paper

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Executive summary

For financial institutions, the main technology challenge has been and always will be the problem of providing clear, relevant information on the whole enterprise to senior management. In large, multi-national institutions with multiple technology systems, gaining a coherent view of the financial position and risk faced by the organization will always be difficult. At the same time, this viewpoint is vital for effective risk management and improving performance.

The particular circumstances of the financial services sector make this challenge especially difficult for financial institutions. The increased speed and volume of transactions have led to the spiraling growth in the three Vs of data (volume, variety, velocity) and firms need to be able to process and respond to this data quickly to tackle risks and seize market opportunities. Regulatory pressures are also forcing firms to submit more information more often. Regulators have also introduced data management standards and have increased sanctions for non-compliance.

This means that while improving data management and business intelligence (BI) has been on the horizon of financial institutions for some time, it is now becoming a matter of urgency. Regulatory requirements mean that firms need to do more with less for compliance, ensuring that they are able to organize and submit more data at more frequent intervals. More importantly, there are pressing business needs. With profit margins under pressure and significant threats to the sector remaining, firms need to become risk intelligent to enhance risk management and improve performance.

To achieve this, financial institutions need to ensure they have an enterprise view of risk. This will need to be supported by reliable data to ensure that decision-makers get the information they need. The goals of data management and business intelligence systems must be first to ensure that all relevant data is collected, validated, and available, and then that this data is converted into practical information that is available to support senior management. This will mean integrating data from across the enterprise and breaking down silos.

This will require firms to invest in technology projects that have long been put off. Firms will need to invest seriously in robust data management and BI solutions that can give them an enterprise viewpoint. However, firms will also want to retain flexibility and not get locked into a legacy system. This report covers the competitive landscape for data management and business intelligence systems for risk management. The range of solutions and functionalities offered by vendors can make it difficult for buyers to decide which solution best suits their needs.

This report uses Chartis's RiskTech Quadrant™ to explain the structure of the market. The RiskTech Quadrant™ uses a comprehensive methodology of in-depth independent research and a clear scoring system to explain which technology solutions meet an organization's needs. The RiskTech Quadrant™ does not simply describe one technology solution as the best data management and business intelligence solution; it has a sophisticated ranking methodology to explain which solutions would be best for specific buyers and which vendors have better functionality in data or BI.

This report covers the leading vendors offering data management and BI solutions for risk management in financial services, including Axiom SL, Empowered, GoldenSource, IBM, Markit EDM, Misys, Moody's Analytics, Numerix, OpenLink, Oracle, Panopticon, Quartet FS, SAP, SAS, Wolters Kluwer FS, and Xenomorph.

Chartis RiskTech Quadrant™ for Data Management and BI for Risk

Figure 1: Chartis RiskTech Quadrant™ for Data Management and BI for Risk

Best-of-Breed | Category Leaders

MARKET POTENTIAL (Low → High)

COMPLETENESS OF OFFERING (Low → High)

Point Solutions | Enterprise Solutions

Vendors plotted: Numerix, GoldenSource, Quartet FS, Panopticon, YarcData, Empowered Systems, QlikView, Informatica, Xenomorph, Markit EDM, OpenLink, WKFS, IBM, SAP, SAS, Misys, Oracle, Axiom SL, Moody's Analytics

● = Primary focus on banking book

● = Primary focus on trading book

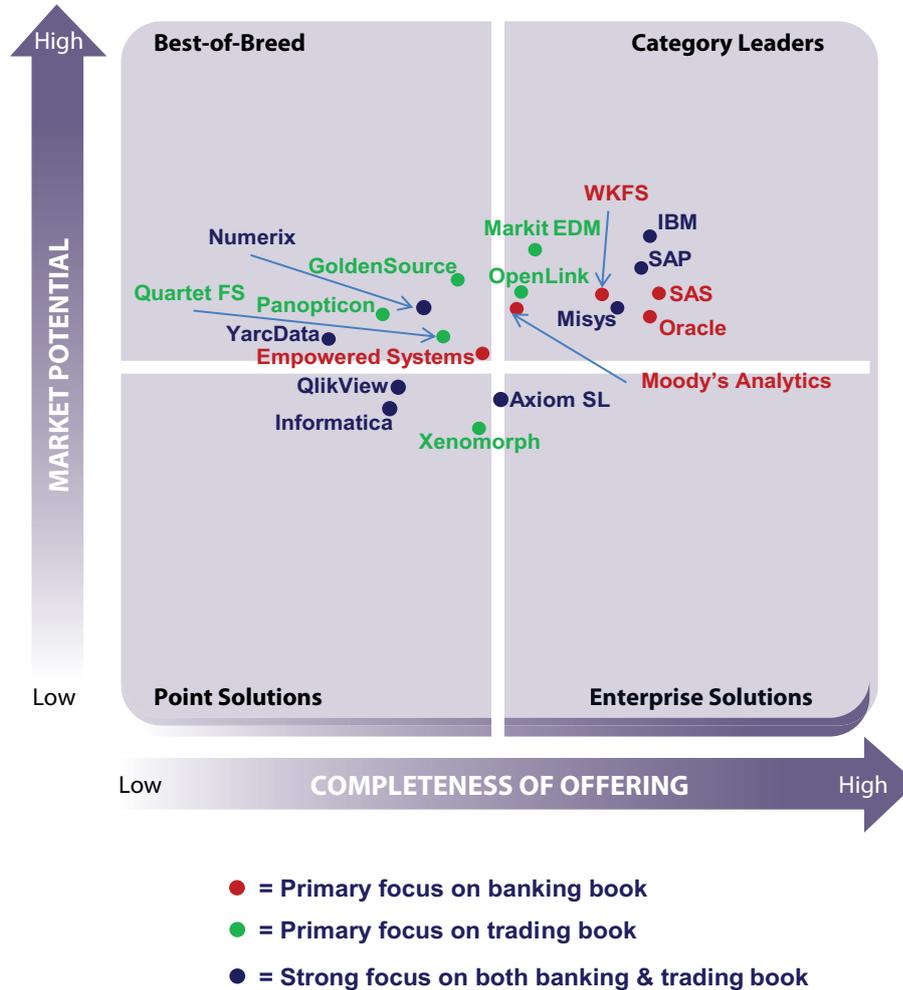● = Strong focus on both banking & trading book

Figure 1, above, describes Chartis's view of the vendor landscape for Data Management and BI for Risk. The RiskTech Quadrant™ is a proprietary methodology developed specifically for the risk technology marketplace. It takes into account product and technology capabilities of vendors, as well as their organizational capabilities. Appendix A sets out the generic methodology and criteria used for the RiskTech Quadrant™. Appendix B sets out the detailed Vendor Evaluation Form used by Chartis to assess the capabilities of DM and BI vendors with respect to risk aggregation and reporting. Specifically, we have considered the following criteria as particularly important:

1- Completeness of offering

- Standards, support, integration
- Data quality management (query optimization, exception resolution, mapping, taxonomies)
- Big Data strategy
- Performance and scalability of the core technology (use of high performance computing and analytics capabilities, advanced database technologies, in-memory analytics, grid computing, cache, on the fly)
- Flexible analytics and integration (applicable to liquidity risk, CVA/DVA, counterparty credit risk, operational risk, capital and collateral optimization, and integrated stress testing)
- Flexible reporting (report types, filtering, formatting, self-service, MS Integration)
- Visualization and end-user experience, usability, and strategy
- Data model
- Mobile capabilities
- Strength of the offering within a stack or functional area
- Risk data aggregation and data quality management
- Out-of-the-box features and functions for Basel 3, liquidity risk, counterparty credit risk, regulatory capital calculations, stress testing, and reporting
- Risk governance BI capabilities, including interactive dashboards, reports, alerts, workflows, etc.

2- Market potential:

- Existing overall client-base
- Basel 2, Basel 2.5, Dodd-Frank, Basel 3 implementations
- Customer satisfaction and organizational strength
- Brand recognition
- Uniqueness in market place and innovation
- Barriers to entry
- Implementation, post-sales implementation and support capabilities
- Domain knowledge and thought leadership in risk and finance
- Potential volume of Basel 3, Dodd-Frank, and EMIR related wins
- Scalability of business model (i.e. repeatable sales, delivery, markets)
- Geographical reach
- Financial strength

Quartet FS Data Management and BI for Risk capabilities and market position

Quartet FS, founded in 2005, is an independent company that has been profitable for the last 5 years. The company has demonstrated strong growth (50%+ from 2010 to estimated 2012) and is headquartered in London with offices in New York, Paris, Singapore. Its core functional areas cover analytical in-memory database management systems, business activity monitoring, complex event processing, business intelligence, OLAP, and multidimensional analysis.

Quartet FS's ActivePivot is an in-memory multi-dimensional aggregation and calculation engine, targeted for business users in capital markets, exchanges, hedge funds, and asset managers who require near/real-time Big Data analytics. Business intelligence is supported by ActivePivot's ability to process multi-dimensional queries on data that is updated in real-time and accessed in memory and on the fly. With a spreadsheet type interface, ActivePivot allows end-users to perform what-if simulations on real-time data. Polymorphic distribution accelerates the time to market by simplifying the data architecture and enables the efficient management of multiple cubes for different business areas.

Competitive advantage is achieved through multi-dimensional analysis performed in a mixed workload environment. Efficient data compression algorithms and minimum-bit usage for number representation allow ActivePivot to store billions of records. ActivePivot has a proprietary multidimensional Bitmap index for selecting records on any number of dimensions to provide outstanding performance for complex multi-dimensional analytical queries. Data structures are stored in in-memory columnar stores next to the in-memory business-rules engine. Multi-threaded parallel algorithms enable ActivePivot to maximize use of computer cores and to scale on a single box. Updates to the analytical environment are done incrementally, and ActivePivot can process tens of thousands updates per second per core to support real-time application integration.

Quartet FS targets its in-memory analytical database for the following areas:

- Vertical software applications that include front-office/risk management functionality, as a replacement for analytics modules which are adjacent to the core application, e.g. real-time position keeping, initial margin, or incremental exposure as modules in trading systems
- Pure-play BI to support new applications requiring high performance
- High speed end-user information delivery to supplement database/infrastructure, analytics appliances, or specialized analytics database management systems.

ActivePivot's strengths lie in the database management capabilities and OLAP cube construction. Common risk applications are in support of VaR, stress testing, CVA, aggregation of sensitivities, and ALM. They recently added the CME Group as a client to support a platform for real time credit risk and have announced an alliance with Markit Partners. Markit will license ActivePivot within its Markit Analytics platform, targeting margin calculations for cleared and un-cleared products as well as other risk calculations. Whilst Quartet FS has developed its own front-end web-based interface ActivePivot Live, the company has also validated the compatibility of MDX/XMLA compliant visualisation tools, including Tableau, Tibco Spotfire, and Microsoft Excel with its ActivePivot server.

Appendix A – RiskTech Quadrant™ Methodology

Independence

Chartis is a research and advisory firm that provides technology and business advice to the global risk management industry. Chartis provides independent market intelligence regarding market dynamics, regulatory trends, technology trends, best practices, competitive landscapes, market sizes, expenditure priorities, and mergers and acquisitions. Chartis's RiskTech Quadrant™ reports are written by experienced analysts with hands-on experience of selecting, developing, and implementing risk management systems for a variety of international companies in a range of industries including banking, insurance, capital markets, energy, and the public sector.

Chartis's research clients include leading financial services firms and Fortune 500 companies, leading consulting firms, and risk technology vendors. The risk technology vendors that are evaluated in the RiskTech Quadrant™ reports can be Chartis clients or firms with whom Chartis has no relationship. Chartis evaluates all risk technology vendors using consistent and objective criteria, regardless of whether or not they are a Chartis client.

Where possible, risk technology vendors are given the opportunity to correct factual errors prior to publication, but cannot influence Chartis's opinion. Risk technology vendors cannot purchase or influence positive exposure. Chartis is authorized and regulated by the Financial Services Authority (FSA) in the UK for providing investment advice and adheres to the highest standards of governance, independence, and ethics.
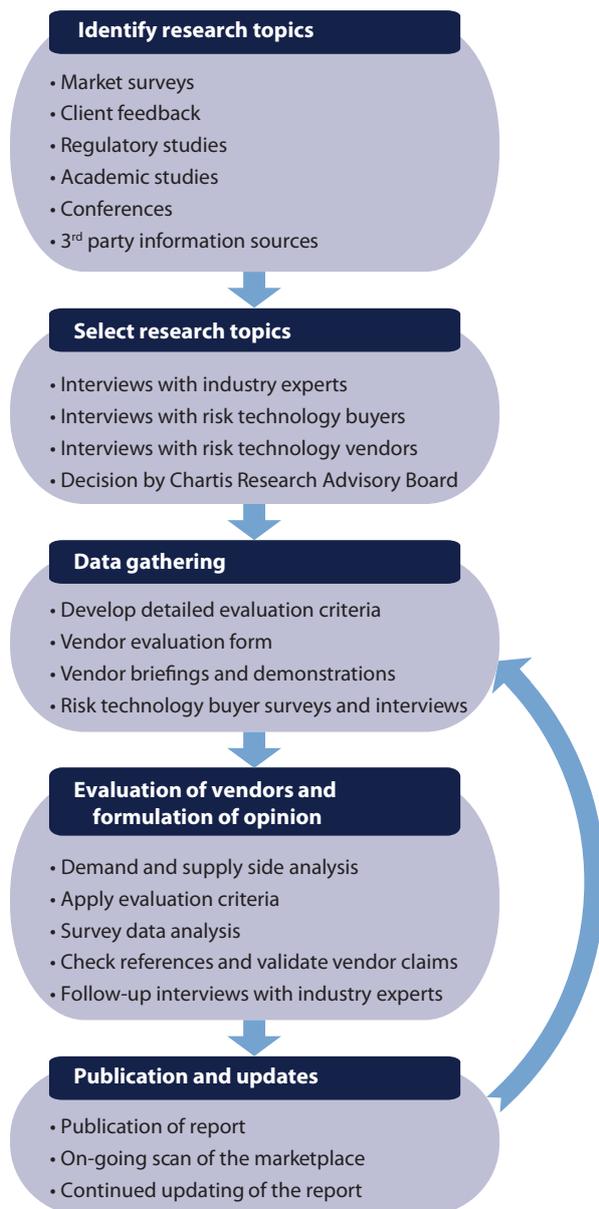
Inclusion in the RiskTech Quadrant™

Chartis seeks to include risk technology vendors that have a significant presence in a given target market. The significance may be due to market penetration (e.g. large client-base) or innovative solutions. Chartis does not give preference to its own clients and does not request compensation for inclusion in a RiskTech Quadrant™ report. Chartis utilizes detailed and domain-specific "vendor evaluation forms" and briefing sessions to collect information about each vendor. If a vendor chooses not to respond to a Chartis vendor evaluation form, Chartis may still include the vendors in the report. Should this happen, Chartis will base its opinion on direct data collated from risk technology buyers and users, and from publicly available sources.

Research Process

The findings and analyses in the RiskTech Quadrant™ reports reflect our analysts' considered opinions, along with research into market trends, participants, expenditure patterns, and best practices. The research life cycle usually takes several months, and the analysis is validated through several phases of independent verification. Figure 2, below, describes the research process.

Figure 2: Chartis RiskTech Quadrant™ research process

Identify research topics

- Market surveys
- Client feedback
- Regulatory studies
- Academic studies
- Conferences
- 3rd party information sources

Select research topics

- Interviews with industry experts
- Interviews with risk technology buyers
- Interviews with risk technology vendors
- Decision by Chartis Research Advisory Board

Data gathering

- Develop detailed evaluation criteria
- Vendor evaluation form
- Vendor briefings and demonstrations
- Risk technology buyer surveys and interviews

Evaluation of vendors and formulation of opinion

- Demand and supply side analysis
- Apply evaluation criteria
- Survey data analysis
- Check references and validate vendor claims
- Follow-up interviews with industry experts

Publication and updates

- Publication of report
- On-going scan of the marketplace
- Continued updating of the report

Chartis typically uses a combination of sources to gather market intelligence. These include (but are not limited to):

- *Chartis Vendor Evaluation Forms* – A detailed set of questions covering functional and non-functional aspects of vendor solutions, as well as organizational and market factors. Chartis's vendor evaluation forms are based on practitioner level expertise and input from real-life risk technology projects, implementations, and requirements analysis.

- *Risk Technology User Surveys* – As part of its on-going research cycle, Chartis systematically surveys risk technology users and buyers, eliciting feedback on various risk technology vendors, satisfaction levels, and preferences.

- *Interviews with Subject Matter Experts* – Once a research domain has been selected, Chartis undertakes comprehensive interviews and briefing sessions with leading industry experts, academics, and consultants on the specific domain to provide deep insight into market trends, vendor solutions, and evaluation criteria.

- *Customer Reference Checks* – These are telephone and/or email checks with named customers of selected vendors to validate strengths and weaknesses, and to assess post-sales satisfaction levels.

- *Vendor Briefing Sessions* – These are face-to-face and/or web-based briefings and product demonstrations by risk technology vendors. During these sessions, Chartis experts ask in-depth, challenging questions to establish the real strengths and weaknesses of each vendor.

- *Other Third Party Sources* – In addition to the above, Chartis uses other third party sources of information such as conferences, academic and regulatory studies, and collaboration with leading consulting firms and industry associations.

Evaluation Criteria

The RiskTech Quadrant™ evaluates vendors on two key dimensions:

1. Completeness of offering
2. Market potential

Figure 3: Chartis RiskTech Quadrant™

RiskTech Quadrant™
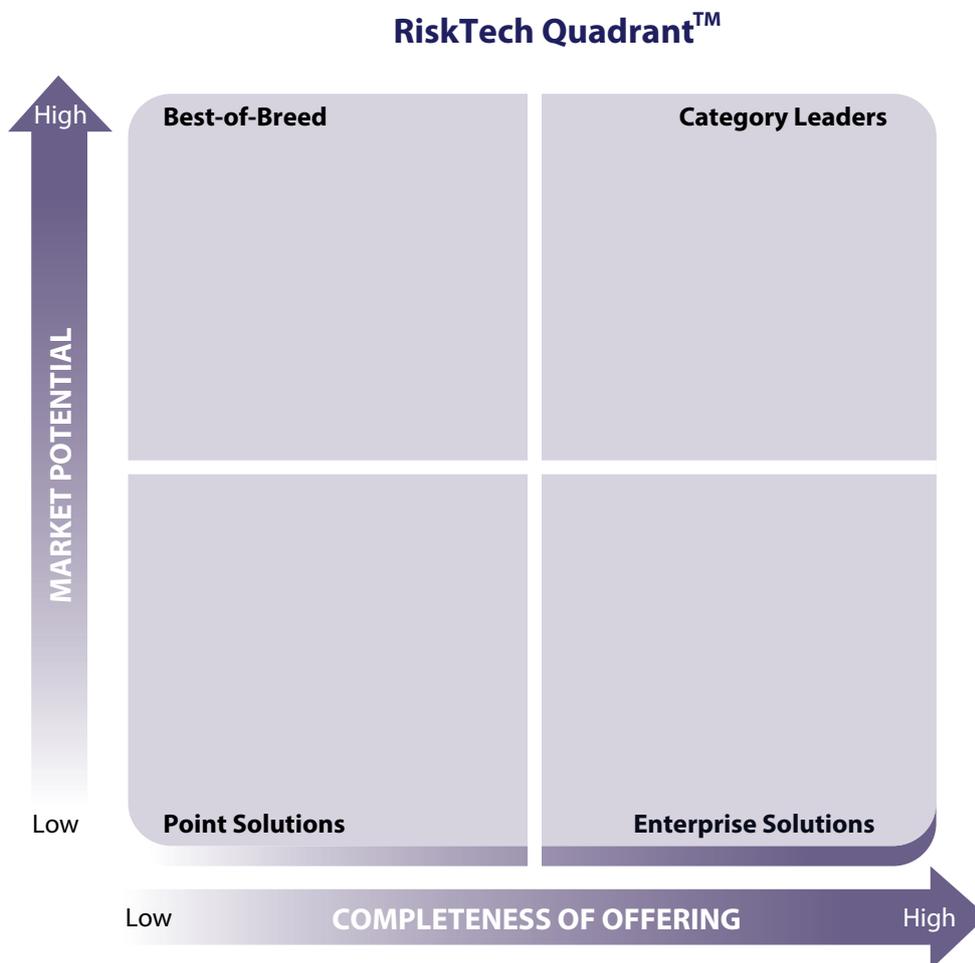
The generic evaluation criteria for each dimension are set out below. In addition to the generic criteria below, Chartis utilizes domain-specific criteria relevant to each individual risk. These are detailed in the individual Vendor Evaluation Forms, which are published as an appendix to each report. This ensures total transparency in our methodology and allows readers to fully appreciate the rationale for our analysis.

Completeness of offering:

- *Depth of functionality* – The level of sophistication and amount of detailed features in the software product (e.g. advanced risk models, detailed and flexible workflow, domain-specific content). Aspects assessed include: innovative functionality, practical relevance of features, user-friendliness, flexibility, and embedded intellectual property. High scores are given to those firms that achieve an appropriate balance between sophistication and user-friendliness. In addition, functionality linking risk to performance is given a positive score.

- *Breadth of functionality* – The spectrum of requirements covered as part of an enterprise risk management system. This will vary for each subject area, but special attention will be given to functionality covering regulatory requirements, multiple risk classes, multiple asset classes, multiple business lines, and multiple user types (e.g. risk analyst, business manager, CRO, CFO, Compliance Officer). Functionality within risk management systems and integration between front-office (customer-facing) and middle/back office (compliance, supervisory, and governance) risk management systems are also considered.

- *Data management and technology infrastructure* – The ability of risk management systems to interact with other systems and handle large volumes of data is considered to be very important. Data quality is often cited as a critical success factor and ease of data access, data integration, data storage, and data movement capabilities are all important factors. Particular attention is given to the use of modern data management technologies, architectures, and delivery methods relevant to risk management (e.g. in-memory databases, complex event processing, component-based architectures, cloud technology, software-as-a-service). Performance, scalability, security, and data governance are also important factors.

- *Risk analytics* – The computational power of the core system, the ability to analyze large amounts of complex data in a timely manner (where relevant in real-time), and the ability to improve analytical performance are all important factors. Particular attention is given to the difference between "risk" analytics and standard "business" analytics. Risk analysis requires such capabilities as non-linear calculations, predictive modeling, simulations, scenario analysis, etc.

- *Reporting and presentation layer* – The ability to present information in a timely manner, the quality and flexibility of reporting tools, and ease of use are important for all risk management systems. Particular attention is given to the ability to do ad-hoc "on-the-fly" queries (e.g. what-if-analysis), as well as the range of "out-of-the-box" risk reports and dashboards.

Market potential:

- *Market penetration* – Both volume (i.e. number of customers) and value (i.e. average deal size) are considered important. Also, rates of growth relative to sector growth rates are evaluated.

- *Brand* – Brand awareness, reputation, and the ability to leverage current market position to expand horizontally (with new offerings) or vertically (into new sectors) are evaluated.

- *Momentum* – Performance over the previous 12 months is evaluated, including financial performance, new product releases, quantity and quality of contract wins, and market expansion moves.

- *Innovation* – New ideas, functionality, and technologies to solve specific risk management problems are evaluated. Developing new products is only the first step in generating success. Speed to market, positioning, and translation into incremental revenues are critical success factors for exploitation of the new product. Chartis also evaluates business model or organizational innovation (i.e. not just product innovation).

- *Customer satisfaction* – Feedback from customers regarding after-sales support and service (e.g. training and ease of implementation), value for money (e.g. price to functionality ratio) and product updates (e.g. speed and process for keeping up to date with regulatory changes) is evaluated.

- *Sales execution* – The size and quality of sales force, sales distribution channels, global presence, focus on risk management, messaging, and positioning are all important factors.

- *Implementation and support* – Important factors include size and quality of implementation team, approach to software implementation, and post-sales support and training. Particular attention is given to "rapid" implementation methodologies and "packaged" services offerings.

- *Thought-leadership* – Business insight and understanding, new thinking, formulation and execution of best practices, and intellectual rigor are considered important by end-users.

- *Financial strength and stability* – Revenue growth, profitability, sustainability, and financial backing (e.g. the ratio of license to consulting revenues) is considered as key to scalability of the business model for risk technology vendors.

Quadrant Descriptions:

Point Solutions – Providers of point solutions focus on a relatively small number (typically two or three) of component technology capabilities. These vendors meet a very important need in the risk technology market by solving specific risk management problems with domain-specific software applications and technologies. Point solution providers also provide a strong engine for innovation as their deep focus on relatively narrow subject areas generates thought leadership and intellectual capital. These vendors often have gaps relating to the broader enterprise risk management functionality and do not have the integrated data management, analytics, and business intelligence capabilities found in enterprise technology platforms. Furthermore, these vendors have not yet developed the organizational characteristics for capturing significant market share. Their growth is often constrained by lack of financial and human resources, or relatively weak sales and marketing execution.

Best-of-Breed – Providers of best-of-breed solutions have best-in-class point solution capabilities together with the organizational characteristics to capture significant market share in their chosen target markets. Providers of best-of-breed solutions usually have a growing client-base, superior sales and marketing execution, and a clear strategy for sustainable profitable growth. Best-of-breed solution providers can also demonstrate a healthy rate of investment in research and development, and have specific product or "go-to-market" capabilities that give them a competitive advantage. Best-of-breed solution vendors have depth of functionality, but lack the breadth of technology and functionality required to provide an integrated enterprise-wide risk management system. Best-of-breed solutions are often considered as a subset of more comprehensive risk technology architecture and are required to co-exist with other third party technologies or in-house systems to provide an integrated solution to a given risk management problem.

Enterprise Solutions – Enterprise solution providers have a clear strategy and vision for providing risk management technology platforms. They are characterized by the depth and breadth of their technology capabilities, combining functionally rich risk applications with comprehensive data management, risk analytics, and business intelligence technologies. A key differentiator is the openness and flexibility of their technology architecture and their "tool-kit" approach to risk analytics and reporting. Enterprise solution providers support their technology solutions with comprehensive infrastructure and service capabilities, ensuring best-in-class technology delivery. Moreover, enterprise solution providers have clear strategies for combining risk management content and data with their risk management software to provide an integrated "one-stop-shop" for risk technology buyers.

Category Leaders – Category leaders are risk technology vendors that have the necessary depth and breadth of functionality, technology, and content, combined with the organizational characteristics to capture significant market share by volume and value. Category leaders can demonstrate a clear strategy for sustainable, profitable growth, matched with best-in-class solutions. Category leaders also have the range and diversity of offerings, sector coverage, and financial strength to be able to absorb demand volatility in specific industry sectors or geographic regions. These vendors benefit from strong brand awareness, a global reach, and strong alliance strategies with leading consulting firms and systems integrators. Category leaders can also demonstrate an appetite for on-going investment in innovation, often matched by deep pockets and a strong financial performance. Ultimately, category leaders combine deep domain knowledge in various risk topics with deep technology assets and capabilities. They can demonstrate this by addressing the needs of very large clients with complex risk management and technology requirements, as well as addressing the needs of smaller clients with standardized requirements looking for integrated solutions from a single vendor.

Further reading

- Operational Risk Management Systems for Financial Services 2013
- Enterprise GRC Solutions 2012
- Collaborative Risk Management
- Basel 3 Technology Solutions 2012: Horses for Courses
- Global Risk IT Expenditure 2011
- RiskTech100® 2012

For all of these reports see: www.chartis-research.com