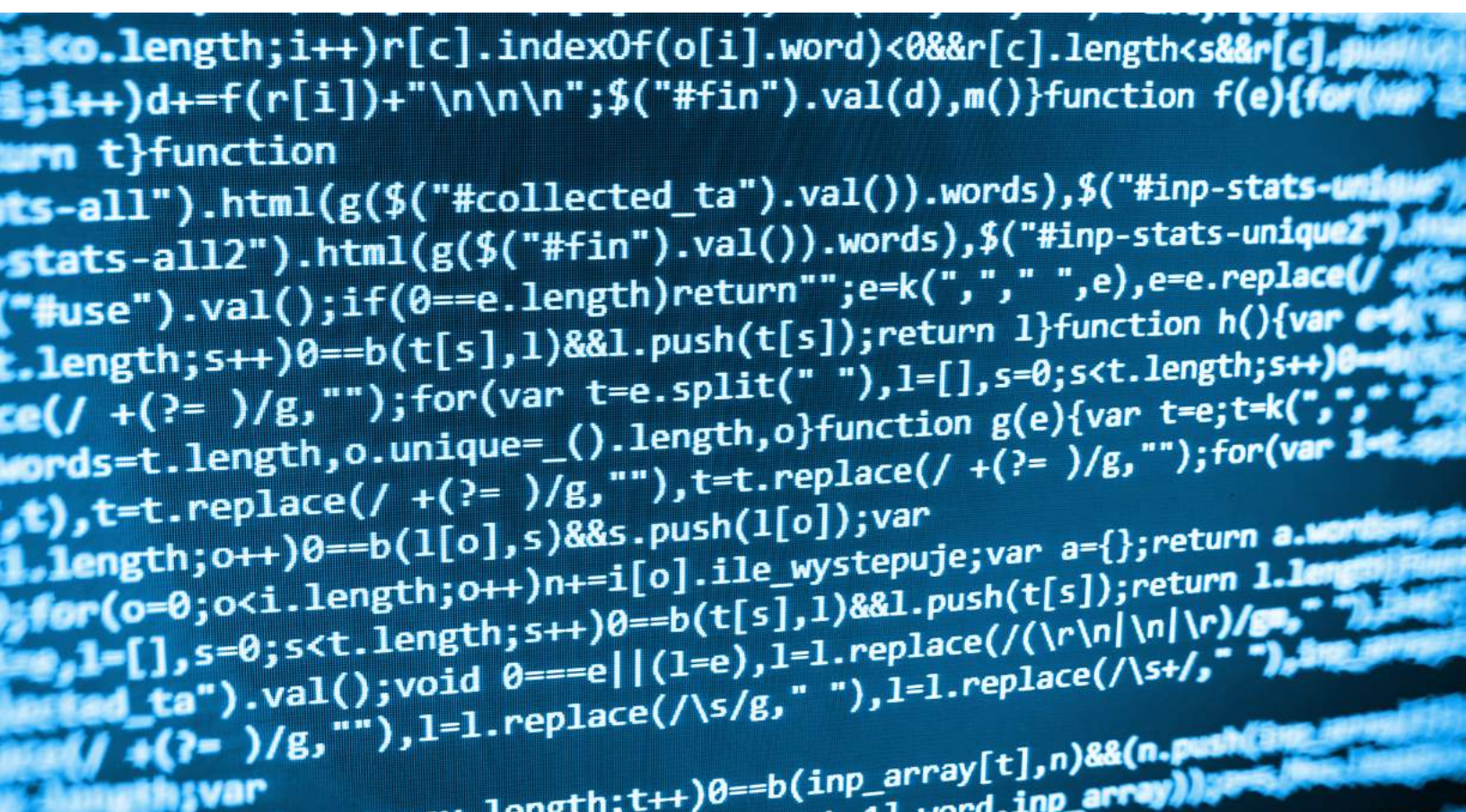


RiskTech 100[®]

2017

Vendor Highlights: Ayasdi



About Chartis

Chartis is the leading provider of research and analysis on the global market for risk technology and is part of Incisive Media which has market leading brands such as Risk and Waters Technology. Chartis's goal is to support enterprises as they drive business performance through better risk management, corporate governance and compliance and to help clients make informed technology and business decisions by providing in-depth analysis and actionable advice on virtually all aspects of risk technology. Areas of expertise include:

- Credit risk
- Operational risk and governance, risk and compliance (GRC)
- Market risk
- Asset and liability management (ALM) and liquidity risk
- Energy and commodity trading risk
- Financial crime including trader surveillance, anti-fraud and anti-money laundering
- Cyber risk management
- Insurance risk
- Regulatory requirements including Basel 2, Basel 3, Dodd-Frank, MiFID II and Solvency II

Chartis is solely focused on risk and compliance technology giving it significant advantage over generic market analysts.

Chartis has brought together a leading team of analysts and advisors from the risk management and financial services industries. This team has hands-on experience of implementing and developing risk management systems and programs for Fortune 500 companies and leading consulting houses.

Visit www.chartis-research.com for more information.

Join our global online community at www.risktech-forum.com.

© Copyright Chartis Research Ltd 2016. All Rights Reserved. Chartis Research is a wholly owned subsidiary of Incisive Media Ltd.

No part of this publication may be reproduced, adapted, stored in a retrieval system or transmitted in any form by any means, electronic, mechanical, photocopying, recording or otherwise, without the prior permission of Chartis Research Ltd.

The facts of this report are believed to be correct at the time of publication but cannot be guaranteed.

Please note that the findings, conclusions and recommendations that Chartis Research delivers will be based on information gathered in good faith, whose accuracy we cannot guarantee. Chartis Research accepts no liability whatever for actions taken based on any information that may subsequently prove to be incorrect or errors in our analysis. See Chartis "Terms of Use" on www.chartis-research.com.

RiskTech100[®], RiskTech Quadrant[®], FinTech Quadrant[™] and The Risk Enabled Enterprise[®] are Registered Trade Marks of Chartis Research Limited.

Unauthorized use of Chartis's name and trademarks is strictly prohibited and subject to legal penalties.

Table of contents

1. Introduction.....	5
2. Vendor profile: Ayasdi	6
3. Ranking	7
4. How to read the RiskTech100® rankings.....	9
5. RiskTech 100® taxonomy and research methodology	11
6. How to use research and services from Chartis.....	13
7. Further reading.....	15

List of figures and tables

Figure 1: RiskTech100® Taxonomy	11
Figure 2: RiskTech100® research methodology.....	12
Table 1: Ayasdi rankings by assessment category	7
Table 2: RiskTech100® assessment criteria	9

1 Introduction

This report provides an independent evaluation and description of Ayasdi's ranking in Chartis's RiskTech100® 2017 report. It contains:

- A vendor profile for Ayasdi.
- Ayasdi's ranking in each assessment category, with supporting explanation.

In RiskTech100® 2017, Ayasdi was winner in the **Artificial Intelligence category** (a new category in this year's rankings). And in its RiskTech100® debut, Ayasdi was ranked **27th overall**.

RiskTech100® 2017

Chartis's RiskTech100® report is globally acknowledged as the most comprehensive independent study of the world's major players in risk and compliance technology.

Chartis is the leading provider of research and analysis on the global market for risk technology.

2 Vendor profile

The company

Ayasdi is an advanced analytics company that helps financial services firms use artificial intelligence to solve problems using big and complex data. Founded in 2009 and headquartered in Menlo Park, California, Ayasdi also has offices in New York and London.

The offerings

Ayasdi has built an artificial intelligence platform that can be customized to solve very specific business problems. It supports a broad range of use cases spanning regulatory compliance, risk management, market conditions / trading and client experience. The platform is built to address complex problems where the data is highly dimensional (up to millions of variables) or the data is very large and frequently changing (such as for fraud / AML). Its platform is also being used to industrialize the process of developing and validating mathematical models of risk and then putting them into production. Clients use the platform to model their current business and predict risk based on internal and external scenarios.

Using multiple machine learning, statistical and geometric algorithms, Ayasdi automatically identifies and recommends variables that are most pertinent to what is being modeled, drawing on large volumes of internal, market and / or third-party data to develop risk models. Businesspeople and analysts can then review its recommendations and, based on their own experience, adjust the selection of suitable variables. Ayasdi's Artificial Intelligence (AI) engine then builds, tests and validates all possible models, ranking them by statistical fit to the data. In the final step, the business person and analyst together select and publish a final model. For example, with Ayasdi's system, banks can reduce the time required to develop a new credit risk model – a process that can take thousands of hours using manual processes – to a single afternoon.

For some applications, such as Anti-Money-Laundering (AML), Ayasdi uses historical data to build very fine-grained predictive models. These help to lower the number of false positives, reducing the number of potential instances of AML that have to be manually investigated, and thus decreasing the number of employees required to create and process Suspicious Activity Reports (SARs). In cases of fraud and cyber-attack, these techniques can find anomalies that existing security processes might miss, and highlight emerging and potentially fraudulent behavior that would otherwise go unnoticed.

The market for AI in financial services is at a relatively early stage in terms of adoption. Chartis views this as a very important emerging sector, one in which Ayasdi – with its specific focus – is well placed to take advantage. Unlike many other AI in risk players, Ayasdi delivers proof points and practical use cases. As part of developing this report, Chartis analysts spoke to multiple globally significant financial services firms, and Ayasdi came up as one of a few AI players that is actually delivering real applications with real business value. Partnerships with several major system integrators, and a key sales partnership with Deloitte, aid Ayasdi's ability to execute and are beginning to foster a variety of packaged solutions for key industry problems.

3 Ranking

Table 1 details Ayasdi’s rankings for each of Chartis’s RiskTech100® assessment categories, with supporting explanations.

Table 1: Ayasdi’s rankings by assessment category

Assessment category	Ayasdi ranking	Explanation
Functionality	69	<i>Depth of functionality.</i> Ayasdi provides a platform on which its clients and business partners can build custom solutions that enable them to address specific areas in depth. These application areas include Comprehensive Capital Analysis and Review (CCAR) and stress testing, credit risk, internal surveillance, client intelligence, market intelligence, fraud detection and AML. Ayasdi’s collaborative workflow also enables technical and business users to work together. Ayasdi and its partners are currently in the process of developing packaged applications for many of these areas.
Core technology	9	Ayasdi’s range of advanced analytics gives it a top-ten score for core technology. Ayasdi’s core platform is based on a topological data analysis (TDA) framework layered on the top of a variety of applications including machine learning, cluster analysis and other statistical analytical models allowing for efficient analysis of multi-dimensional problems. REST APIs and python SDK allow the platform to communicate with applications and other internal and external systems. The core platform can access data from a broad range of data sources such as databases, Hadoop file systems, data warehouses and even third party applications.
Strategy	13	<i>Vision and leadership.</i> Ayasdi has a scalable platform with an open architecture. This allows Ayasdi to have a scalable product strategy: increasing the number of use cases with specific banks and then selling the solutions it develops as products for wider consumption. It is well positioned globally to help financial services firms use AI to address their pressing challenges. <i>Ability to execute.</i> Ayasdi has partnerships with several major system integrators, and a key sales partnership with Deloitte. Unlike many other AI in risk players, Ayasdi delivers proof points and practical use cases. Ayasdi has over 300 clients. <i>Financial performance.</i> Ayasdi is growing rapidly, and is funded by top-tier venture and private equity firms.

Assessment category	Ayasdi ranking	Explanation
Customer satisfaction	55	<p><i>Value for money.</i> Ayasdi solves problems that cannot be addressed by traditional technology solutions, therefore it delivers return on investment for its clients in terms of regulatory compliance, cost reduction and value creation.</p> <p><i>After-sales service and support.</i> Ayasdi provides extensive training for clients, in person and online. Virtually all Ayasdi's clients implement the solutions on-premise, typically in private cloud deployments, although the offerings are also available in the public cloud.</p>
Market presence	50	<p><i>Market penetration.</i> Ayasdi has a growing client base of 300+ and implementation partnerships with major advisory firms.</p> <p><i>Market potential.</i> The market for AI in financial services is at a relatively early stage in terms of adoption. Chartis views this as a very important emerging sector, one in which Ayasdi – with its specific focus – is well placed to take advantage.</p>
Innovation	3	<p><i>New product development.</i> Ayasdi's agile platform approach to using AI in financial services earns it a high ranking in innovation. Its key differentiator is automation, in two main areas:</p> <ul style="list-style-type: none"> • Industrializing existing analytical processes. • Helping firms to deploy data-driven and autonomous business processes. <p>In addition, rather than adopting the traditional practice of validating models annually, Ayasdi allows models to be validated and improved continuously.</p> <p><i>New business models.</i> Ayasdi delivers custom solutions to address FIs' specific needs. Generally this approach is being driven by C-level executives and the board, as key strategic imperatives.</p>

Note that each ranking is out of 100.

Source: Chartis Research

4 How to read the RiskTech100® rankings

The RiskTech100® assessment criteria comprises six equally weighted categories:

- Functionality
- Core technology
- Strategy
- Customer satisfaction
- Market presence
- Innovation

Within each category, we have weighted a number of sub-categories according to the level of importance end users and system integrators attach to these aspects of risk technology provision (see Table 2).

Table 2: RiskTech100® assessment criteria (sub-category weightings are shown in brackets)

Functionality	<ul style="list-style-type: none">• Depth of functionality (0.5). The level of sophistication and detailed features in the software product. Aspects assessed include: innovative functionality, practical relevance of features, user-friendliness, flexibility and embedded intellectual property. High scores are given to those firms that achieved an appropriate balance between sophistication and user-friendliness. In addition, functionality that links risk to performance is given a positive score.• Breadth of functionality (0.5). The spectrum of risks covered as part of an enterprise risk management solution. The risk spectrum under consideration includes treasury risk management, trading risk, market risk, credit risk, operational risk, energy risk, business / strategic risk, actuarial risk, asset-liability risk, financial crime and compliance. Functionality within and integration between front-office (customer-facing) and middle-back office (compliance, supervisory and governance) risk management systems are also considered. High scores are given to those firms achieving (or approaching) integrated risk management – breaking the silos between different risk management functions.
Core technology	<ul style="list-style-type: none">• Chartis evaluates a vendor’s overall technology stack by benchmarking it against latest best practice. Key considerations this year have been the use of Cloud and Big Data technologies, as well as the agility and openness of the overall technology architecture.• Data management (0.4). The ability of enterprise risk management systems to interact with other systems and handle large volumes of data. 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.• Risk analytics (0.35). The computational power of the core system, the ability to analyze large amounts of data in a timely manner (e.g., real-time analytics), and the ability to improve analytical performance are all important factors.• Reporting and visualization (0.25). The ability to surface risk information in a timely manner. The quality and flexibility of visualization tools, and their ease of use, are important for all risk and compliance management systems.

Strategy

- **Vision and leadership** (0.3). Market understanding, a scalable business model, product strategy, technology strategy and go-to-market strategy are critical success factors. Both organic and inorganic growth strategies are considered, as well as strategic alliances and partnerships.
- **Ability to execute** (0.4). The size and quality of the sales force, the sales distribution channels, the global footprint, partnerships, differentiated messaging and positioning are all important factors. Specific consideration is given to the quality of implementation and support functions, post-sales support and training.
- **Financial performance** (0.3). Revenue growth, profitability, sustainability, financial backing and the percentage of recurring revenues. The ratio of license to consulting revenues is key to business scalability.

Customer satisfaction

- **Value for money** (0.4). The price to functionality ratio, and the total cost of ownership versus license price.
- **After-sales service and support** (0.4). Important factors include the ease of software implementation, the level of support and the quality of training.
- **Product updates** (0.2). Important considerations for end users include how often vendors issue updates, and how well they keep pace with best practice and regulatory changes.

Market presence

- **Market penetration** (0.4). The number of customers in chosen markets, and the rate of growth relative to sector growth rate.
- **Market potential** (0.3). Brand awareness, reputation, thought-leadership, and the vendor's ability to use its current market position to expand horizontally (with new offerings) or vertically (into new sectors).
- **Momentum** (0.3). Performance in the past 12 months, including financial performance, new product releases, quantity and quality of contract wins and market expansion moves.

Innovation

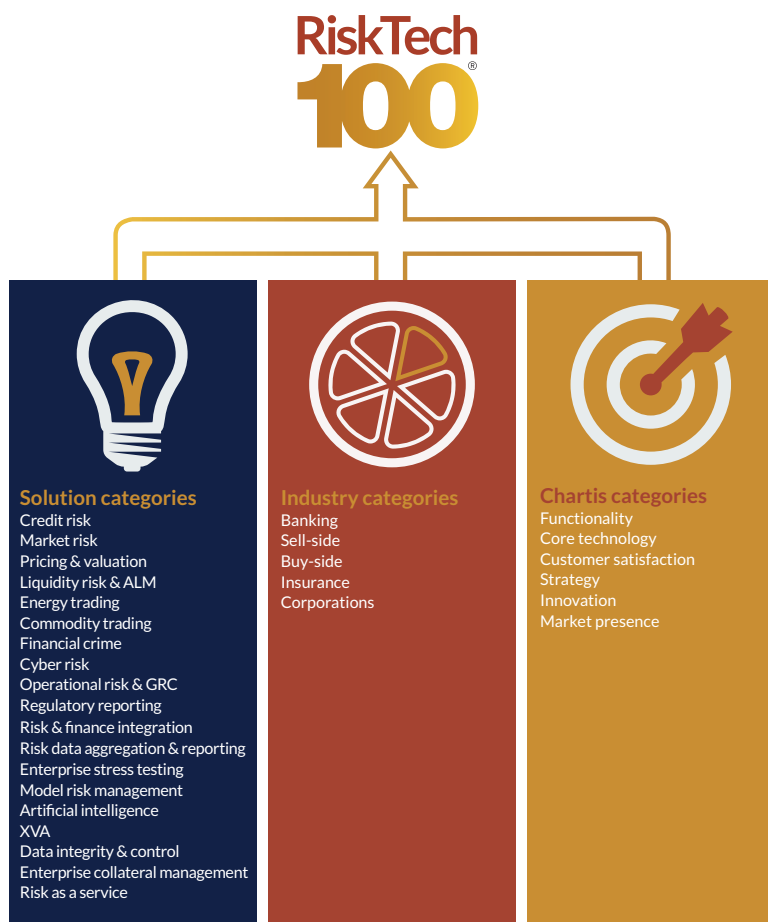
- **New product development** (0.4). New ideas, functionality and technologies to improve risk management for target customers. Chartis assesses new product development not in absolute terms, but in relation to a vendor's closest competitors.
- **Exploitation** (0.4). Developing new products is only the first step in generating success. Speed to market, positioning of new products and translation to incremental revenues are critical success factors.
- **New business models** (0.2). Innovation is not limited to the product dimension. Some risk technology vendors are also actively working toward new business models for generating profitable growth.

5 Research taxonomy and methodology

Taxonomy

The companies featured in RiskTech100® are drawn from a range of risk technology specialisms, and meet the needs of both financial and non-financial organizations. However, they share a number of qualities that rank them among the top 100 risk technology providers in the world. The rankings are determined based on the classifications illustrated in Figure 1, which this year focus on solutions, industry segments and success factors.

Figure 1: RiskTech100® Taxonomy

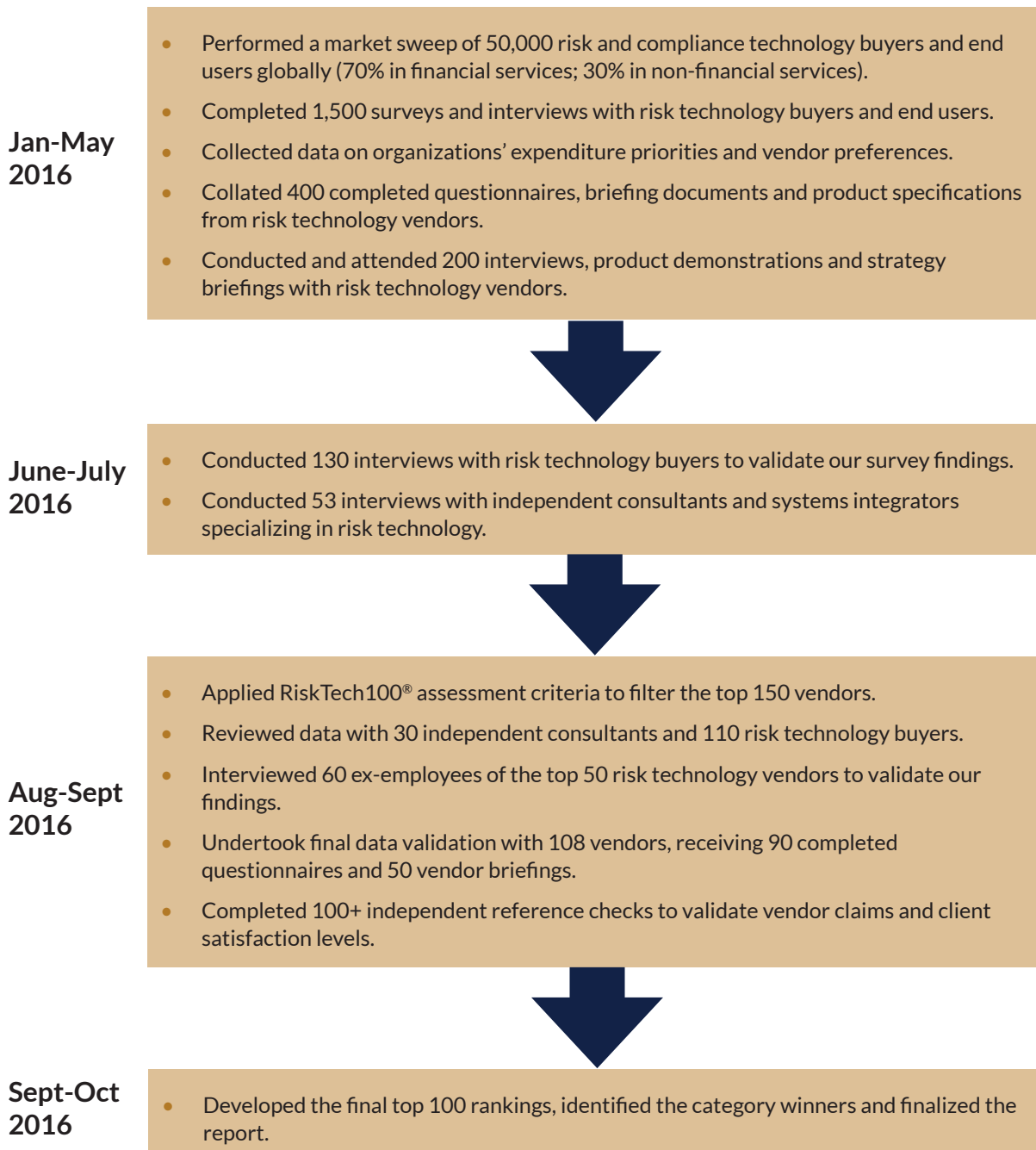


Source: Chartis Research

Methodology

Chartis's RiskTech100® report is the most comprehensive study of its kind, and is a core element of our annual research cycle. The rankings in the report reflect our analysts' expert opinions, along with research into market trends, participants, expenditure patterns and best practices. We started collecting the data for this study in January 2016, and validated the analysis through several phases of independent verification.

Figure 2: RiskTech100® research methodology



Source: Chartis Research

6 How to use research and services from Chartis

In addition to our flagship industry reports, Chartis offers customized information and consulting services. Our in-depth knowledge of the financial technology market and best-practice allows us to provide high-quality and cost-effective advice to our clients. If you found this report informative and useful, you may be interested in the following services from Chartis.

For risk technology buyers

If you are purchasing risk management software, Chartis's vendor selection service is designed to help you find the most appropriate risk technology solution for your needs.

We monitor the market to identify the strengths and weaknesses of the different risk technology solutions, and track the post-sales performance of companies selling and implementing these systems. Our market intelligence includes key decision criteria such as TCO (total cost of ownership) comparisons and customer satisfaction ratings.

Our research and advisory services cover a range of risk and compliance management topics such as credit risk, market risk, operational risk, governance risk and compliance (GRC), financial crime, liquidity risk, asset and liability management, collateral management, regulatory compliance, risk data aggregation, risk analytics and risk business intelligence.

Our vendor selection services include:

- Buy vs. build decision support.
- Business and functional requirements gathering
- Identification of suitable risk and compliance implementation partners
- Review of vendor proposals
- Assessment of vendor presentations and demonstrations
- Definition and execution of Proof-of-Concept (PoC) projects
- Due diligence activities

For risk technology vendors

Strategy

Chartis can provide specific strategy advice for risk technology vendors and innovators, with a special focus on growth strategy, product direction, go-to-market plans, and more. Some of our specific offerings include:

- Market analysis, including market segmentation, market demands, buyer needs, and competitive forces
- Strategy sessions focused on aligning product and company direction based upon analyst data, research, and market intelligence
- Advice on go-to-market positioning, messaging, and lead generation
- Advice on pricing strategy, alliance strategy, and licensing / pricing models

Thought leadership

Risk technology vendors can also engage Chartis to provide thought leadership on industry trends in the form of in-person speeches and webinars, as well as custom research and thought-leadership reports. Target audiences and objectives range from internal teams to customer and user conferences. Some recent examples include:

- Participation on a 'Panel of Experts' at a global user conference for a leading Global ERM (Enterprise Risk Management) software vendor
- Custom research and thought-leadership paper on Basel 3 and its implications for risk technology
- Webinar on Financial Crime Risk Management
- Internal education of sales team on key regulatory and business trends and engaging C-level decision makers

Visit www.chartis-research.com for more information.

7 Further reading

- RiskTech100® 2017
- Global Risk IT Expenditure in Financial Services 2016
- IFRS 9 Technology Solutions 2016
- Spotlight on BCBS 239
- Financial Crime Risk Management Systems 2016
- Data Integrity and Control Solutions in Financial Services 2016

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