Vendor
Analysis

Vendor Analysis: Moody's
Credit Risk Reporting Solutions, 2023

Chartis

About Chartis

Chartis Research is the leading provider of research and analysis on the global market for risk technology. It is part of Infopro Digital, which owns market-leading brands such as Risk and WatersTechnology. Chartis' goal is to support enterprises as they drive business performance through improved 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 management 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.
- Wealth advisory.
- Asset management.

Chartis focuses on risk and compliance technology, giving it a significant advantage over generic market analysts.

The firm 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 developing and implementing risk management systems and programs for Fortune 500 companies and leading consulting firms.

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

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

Table of contents

List of figures and tables

1. Report context

This Vendor Analysis is based on the Chartis quadrant report *Credit Risk Reporting Solutions, 2023: Market and Vendor Landscape* (published in May 2023). This section summarizes the key theses in that report; subsequent sections take a detailed look at Moody's quadrant positioning and scoring, and Chartis' underlying opinion and analysis.

Key thesis

Credit risk reporting is a critical component of the financial services industry. It enables lenders and investors to assess the likelihood of default or financial distress for a particular borrower or portfolio of borrowers. The credit frameworks built by financial institutions are going through a technological revolution in how they are used and analyzed. The influence of emerging and innovative technologies is reshaping the credit landscape, as financial institutions adopt cloud and managed services and add data and analytics elements to the entire credit value chain. This is making the credit lending business more efficient and profitable, while at the same time mitigating the associated credit risk and enabling firms to comply with regulatory requirements.

By harnessing the power of data and analytics, banks have been able to optimize their operations and increase profit margins while effectively managing credit, liquidity and other associated risks. Advanced analytics play a crucial role in preventing fraud and related risks. By applying analytics techniques to detect patterns and anomalies in large volumes of data, banks can identify potential fraudulent activities and take preventive actions promptly. Furthermore, the implementation of targeted sales strategies based on sophisticated analytics enables banks to offer tailored products and services to their customers, enhancing customer engagement and satisfaction.

The solution landscape, meanwhile, has changed significantly in the past couple of decades. Historically, financial institutions relied on and invested in a combination of in-house and standalone solutions before switching to specialist offerings that cover enterprise-wide risk. Firms now try to manage and grow their portfolios by employing a strategy that balances risk, liquidity and profitability.

Demand-side takeaways

Key market dynamics and trends

As a complex and dynamic solutions market, credit risk reporting is being shaped by a wide range of factors. To navigate the market effectively and make informed decisions about their credit risk reporting strategies, market participants must have a thorough understanding of these factors. This means staying abreast of key trends and dynamics: *regulatory trends*, *emerging-risk trends* that overlap with credit risk, *data and analytics trends*, and *RegTech trends*. With the right understanding of the market, participants can position themselves to succeed in this rapidly evolving field.

Chartis has identified several key dynamics in these areas (see Figure 1).

Figure 1: Key market trends in credit risk reporting

Source: Chartis Research

- **Regulatory trends** play a significant role in shaping credit risk reporting practices. Market participants need to stay informed about evolving regulations, compliance requirements and reporting standards imposed by regulatory bodies. This includes understanding the evolving landscape of capital adequacy frameworks, stress testing requirements and the integration of new regulations into credit risk reporting processes.

- **Emerging risk trends** that overlap with credit risk, such as cybersecurity risks, climate change risks and geopolitical risks, must be monitored. They can impact the creditworthiness of borrowers and introduce new dimensions of risk to credit portfolios.

- **Data and analytics** are helping to transform the credit risk reporting landscape. The availability of Big Data, advances in data management technologies and the proliferation of analytics tools have opened up new possibilities for effective risk assessment, modeling and reporting.

- **RegTech** (technology designed to facilitate regulatory compliance) constitutes an emerging trend in the financial services industry. RegTech solutions offer innovative ways to streamline and automate various aspects of credit risk reporting, such as data aggregation, validation and reporting workflows.

In addition, infrastructure plays a vital role in the credit risk reporting solutions market, helping to ensure the accuracy, efficiency and scalability of credit risk reporting processes. We can identify three key components within the credit risk framework: *data management*, *credit risk calculations* and *credit risk reporting* (both internal reporting within organizations and external reporting to regulatory bodies).

Effective infrastructure ensures seamless integration between these components. By enabling smooth data flows, automated processes and robust reporting mechanisms, it can help to minimize manual errors, enhance efficiency and support scalability. Infrastructure should also incorporate security measures to protect sensitive credit risk data from unauthorized access, and to ensure data integrity and confidentiality.

Moreover, with the increasing adoption of cloud computing and managed services, organizations can leverage scalable infrastructure solutions offered by technology providers. Cloud-based infrastructure allows for flexible and cost-effective resource allocation, while managed services provide specialized expertise, reducing the burden on internal resources.

Supply-side takeaways

A growing vendor market

Multiple processes and system components in the credit risk reporting framework have their own markets and competitors. Credit risk reporting has evolved well beyond a standardized reporting framework to include the entire credit risk value chain, from credit risk assessments to measurement, mitigation and monitoring frameworks, analytics and last-mile reporting. Credit risk reporting is also integrated with credit lending operations, credit portfolio management and credit analytics, and now caters to different geographies, institution types and market areas. This can be a challenge for vendors, which have to integrate disparate technology tools to provide comprehensive and marketable solutions that meet the evolving needs of market participants.

However, opportunities for strategic partnerships also exist, allowing vendors to combine their expertise and capabilities to deliver more robust and marketable solutions. A vendor specializing in advanced analytics and machine learning (ML) techniques, for example, can partner with a data management provider to offer a comprehensive solution that combines robust data management capabilities with cutting-edge analytics for more accurate credit risk assessments.

Market participants should closely evaluate vendors' capabilities to identify those that offer integrated solutions to address their specific requirements. Some vendors have demonstrated the ability to deliver end-to-end solutions that encompass data management, risk assessment, modeling, mitigation strategies and reporting. Their comprehensive offerings can enable market participants to streamline their credit risk reporting processes, enhance decision-making and ensure compliance with regulatory requirements.

2. Quadrant context

Introducing the Chartis RiskTech Quadrant®

This section of the report contains:

- The Chartis RiskTech Quadrant® for credit risk reporting solutions, 2023.

- An examination of Moody's positioning and its scores as part of Chartis' analysis.

- A consideration of how the quadrant reflects the broader vendor landscape.

Summary information

What does the Chartis quadrant show?

The RiskTech Quadrant® uses a comprehensive methodology that involves 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 option as the best credit risk reporting solution; rather it has a sophisticated ranking methodology to explain which solutions are best for specific buyers, depending on their implementation strategies.

The RiskTech Quadrant® is a proprietary methodology developed specifically for the risk technology marketplace. It takes into account vendors' product, technology and organizational capabilities. Section 4 of this report sets out the generic methodology and criteria used for the RiskTech Quadrant®.

How are quadrants used by technology buyers?

Chartis' RiskTech Quadrant® and FinTech Quadrant™ provide a view of the vendor landscape in a specific area of risk, financial and/or regulatory technology. We monitor the market to identify the strengths and weaknesses of different solutions and track the post-sales performance of companies selling and implementing these systems. Users and buyers can consult the quadrants as part of their wider research when considering the most appropriate solution for their needs.

Note, however, that Chartis Research does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Chartis Research's publications consist of the opinions of its research analysts and should not be construed as statements of fact.

How are quadrants used by technology vendors?

Technology vendors can use Chartis' quadrants to achieve several goals:

- Gain an independent analysis and view of the provider landscape in a specific area of risk, financial and/or regulatory technology.

- Assess their capabilities and market positioning against their competitors and other players in the space.

- Enhance their positioning with actual and potential clients and develop their go-to-market strategies.

In addition, Chartis' vendor analysis reports, like this one, offer detailed insight into specific vendors and their capabilities, with further analysis of their quadrant positioning and scoring.

Chartis Research RiskTech Quadrant® for credit risk reporting solutions, 2023

Figure 2 illustrates Chartis' view of the credit risk reporting vendor landscape, highlighting Moody's position.

Quadrant dynamics

General quadrant takeaways

Vendors in the financial services industry have recognized the growing demand for credit risk analytics tools, and in response have adapted to the evolving trends in the market. They have taken several steps to align their offerings with the needs of financial institutions and to provide comprehensive solutions that address the challenges posed by regulations, as well as early warning system (EWS) frameworks, credit risk optimization and the integration of credit data. Some of the ways in which vendors have adopted to these trends include the following:

Figure 2: RiskTech Quadrant® for credit risk reporting solutions, 2023

Source: Chartis Research

- **Expanded product offerings**. Vendors have expanded their product portfolios to encompass a wide range of credit risk analytics tools, offering solutions that cater to such specific regulatory requirements as International Financial Reporting Standard (IFRS) 9, Current Expected Credit Losses (CECL) and Basel IV. These solutions give financial institutions the necessary capabilities to comply with regulatory guidelines and ensure accurate credit risk measurement and reporting.

- **Integration of advanced analytics techniques**. Vendors have incorporated advanced analytics techniques, including machine learning, natural language processing (NLP) and network analysis, into their offerings. By leveraging

these techniques, financial institutions can gain deeper insights from credit data, enhance their risk models and identify emerging risks more effectively. Consequently, vendors have invested in research and development to stay at the forefront of analytical innovation, and to provide cutting-edge solutions to their clients.

- **Customization and scalability**. Vendors understand that different financial institutions have unique requirements and operate on different scales. As a result, they offer customizable solutions that can be tailored to meet the specific needs of each institution. Vendors have also focused on developing scalable solutions that can handle large volumes

of data and accommodate the growth and expansion of their clients' credit portfolios.

- **Seamless integration and interoperability**. To address the challenge of integrating disparate technology tools, vendors have made it a priority to ensure seamless integration and interoperability with existing systems and infrastructure. As a result, they increasingly provide solutions that can easily integrate with core banking systems, credit portfolio management platforms and risk management frameworks. This enables financial institutions to adopt new credit risk analytics tools without disrupting their existing operations.

- **Partnerships and collaborations**. Vendors have recognized the potential for strategic partnerships in the market, and increasingly collaborate with other technology providers, data vendors and consulting firms to offer integrated credit risk solutions that cover all key processes in the credit risk cycle.

Vendor positioning in context – completeness of offering

The key strengths of Moody's credit risk management and reporting platform are its flexibility in modeling and data integration, cloud-based scalability, expert model workflows, support for multiple programming languages and seamless integration capabilities. By leveraging these strengths, risk management professionals can make data-driven decisions, manage credit risk effectively and achieve their risk management goals.

Our analysis recognizes Moody's leading capabilities in credit risk modeling and data integration, which give its clients the flexibility to manage their credit risk processes. The company's platform helps risk management professionals to create, validate, deploy and monitor internal credit risk models using their own data, and enables them to customize their methodologies and align them with their specific business and risk management objectives. This flexibility ensures that clients have full control over their modeling processes and can adapt them to their unique needs.

In addition to using their own data, clients can incorporate Moody's proprietary data and modeling frameworks from various solutions. This ability to integrate additional insights and expertise enhances the depth and robustness of the credit risk analysis offered. By combining internal data

with Moody's data and frameworks, clients can gain a more comprehensive understanding of credit risk, enabling them to make more informed decisions and manage their portfolios effectively.

One of the key strengths of Moody's offering is its ability to provide scalable computing power and expert model workflows via a cloud-based platform. This infrastructure supports the entire analytics development process, offering firms the necessary computational resources to handle complex credit risk modeling tasks. Risk management professionals can manage their models and analytics efficiently, ensuring timely updates and monitoring.

Moody's platform also offers key performance indicators (KPIs) that provide deeper insights into risk management. These serve as valuable metrics for evaluating portfolio performance, identifying potential risks and supporting informed decision-making. By leveraging these indicators, risk management professionals can gain a better understanding of their credit risk exposures and take proactive measures to mitigate potential threats.

Acknowledging the diverse modeling needs and preferences of its clients, Moody's supports both proprietary and open-source programming languages. This versatility enables clients to work with their preferred programming languages and leverage existing modeling frameworks. By accommodating different programming languages, the platform also facilitates a seamless integration of clients' existing workflows and systems, ensuring a smooth transition to the Moody's platform without disruption to established processes.

The solution's flexible and real-time application programming interface (API) functionality further enhances its integration capabilities. Clients can easily integrate credit risk models housed on the platform with their own systems and other Moody's tools. This functionality supports both batch processing and interactive use cases, ensuring efficient data flow and calculation processes. Seamless integration also enables clients to leverage credit risk models within their existing systems and workflows, enhancing operational efficiency and enabling timely risk-management actions.

Table 1 shows Chartis' rankings for the vendor's coverage against each of the completeness of offering criteria.

Vendor positioning in context – market potential

Moody's credit risk reporting solution exhibits strong market potential supported by a broad client base, market leadership, a cross-selling growth strategy and strategic partnerships. With its established position and ability to meet evolving requirements, Moody's is positioned to capture market share and maintain its growth.

Moody's strong market potential rating for its credit risk reporting solution is the result of several key factors. First, the vendor has achieved a significant market presence with a broad client base that is already using elements of its solution, indicating a relatively high level of market acceptance and adoption.

The company's market leadership in the growing area of credit risk reporting is based on a fully featured platform that has been rolled out to a select group of clients. Positioning Moody's as an industry leader in the space, it also gives the company a competitive advantage, and signals its ability to meet client demands effectively.

As for growth strategy, Moody's employs a cross-selling approach, offering a suite of solutions that cover the entire credit risk management value chain. This strategy enables the company to address various aspects of an enterprise's credit risk management needs, ultimately providing a holistic and integrated solution. By meeting financial institutions' evolving requirements, Moody's is well placed to capture market share and maintain its growth.

Moody's also benefits from strategic partnerships that can help to enhance its market potential. These leverage Moody's expertise in credit risk reporting, and enable the company to offer additional services (such as managed solutions).

Looking ahead, as formalized requirements in credit risk reporting gain prominence, Moody's will be well-prepared to meet emerging demands. The company's comprehensive solution, recognized expertise and established customer base position it favorably to attract interest from leading financial institutions. As the industry evolves, Moody's can leverage its market position and reputation to capitalize on emerging opportunities and maintain its market leadership.

Table 1: Completeness of offering – Moody's (credit risk reporting solutions, 2023)

Completeness of offering criterion	Coverage
Platform capabilities	High
Product capabilities	High
Workflow management; integration with other credit operation areas/processes	High
Analytical models: descriptive, diagnostic, prescriptive, predictive	High
Adoption of emerging technologies	High
Use cases linked to credit lifecycle	High

Source: Chartis Research

Table 2 shows Chartis' rankings for the vendor's coverage against each of the market potential criteria.

Table 2: Market potential – Moody's (credit risk reporting solutions, 2023)

Market potential criterion	Coverage
Customer satisfaction	High
Market presence	High
Growth strategy	High
Business model	High
Financials	High

Source: Chartis Research

3. Vendor context

Overview of relevant solutions/ capabilities

Table 3 provides an overview of the vendor and its credit risk reporting offerings.

Solution overview

Banking Platform (see Figure 3 on page 11) is an ecosystem of solutions for measuring and managing risk via Moody's experience in credit risk analysis, economic research and financial risk management. Solutions combine software, research, data and risk analytics (such as transactional reporting, credit risk, liquidity risk, impairment and asset and liability management [ALM]) in order to help helps banks and financial institutions tackle the main challenges of risk management effectively and efficiently.

Main capabilities/key features

1. A common platform with a modular solution approach that ensures consistency in computation and provides a comprehensive view of credit risk. Powered by software as a service (SaaS).

Banking Platform is a multi-tenant web-based platform that sits on a SaaS cloud technology infrastructure, and which hosts different applications. Each application serves a specific functional purpose. With Banking Platform, banks have a single, hosted solution that automates the computation of risk metrics, including the generation of regulatory reports. This SaaS, on-demand model provides a secure solution that centralizes the process and eliminates the need for software installation or maintenance. Banks receive a flexible design that allows them to configure risk analytics; the cloud-based software can also conform to an organization's regulatory processes.

Banking Platform comprises multiple credit risk, ALM and capital risk solutions. All of these are integrated natively, allowing them to fully leverage Moody's rich datasets. This can help to reduce operational costs and automate and streamline the steps, leading to uniform, informed decisions and accurate calculations.

Table 3: Moody's – company information

Company	Moody's
Headquarters	New York, US
Other offices	Moody's Analytics has major locations across the globe, with its main offices in New York, San Francisco, Omaha (NE), West Chester and King of Prussia (PA), Montreal, Toronto, Brussels, London, Paris, Grenoble, Edinburgh, Singapore, Hong Kong, Tokyo, Shenzhen, Beijing, Gurgaon (India), and Sydney.
Description	Moody's provides financial intelligence and analytical tools. Its risk expertise, information resources and application of technology help its clients navigate an evolving marketplace. The company is known for its industry-leading and award-winning solutions that are made up of research, data, software and professional services, assembled to deliver a seamless customer experience.
Solution	Moody's credit risk reporting solutions offer tools for measuring and managing risk, employing the company's experience in credit risk analysis, economic research and financial risk management. By combining software, research and data, Moody's helps banks address the main challenges of risk management and specific regulatory-driven business challenges.

Source: Moody's

**Figure 3: Banking Platform – solutions within the software as a service (SaaS)
risk and finance platform**

Source: Moody's

As Moody's is a financial data provider in additional domains such as environmental, social and governance (ESG) scores, counterparty data, structured finance data and economic scenarios, Banking Platform can leverage all datasets to ease customer extract, transform and load (ETL) efforts and provide a packaged solution with a holistic view of risk. This interoperability, interconnectivity and integrated view of risk is a key differentiator for the solution.

2. Data management that instills confidence in the whole process – from data integration to validation to governance.

• Supports various methods of data ingestion.

• Uses a flexible data lake to support different input formats.

• Employs data validation rules that include own-validation and supervisor-defined validation rules.

• Features post-validation steps that ensure ultimate accuracy: consolidation and reconciliation.

• Employs data lineage and adjustment.

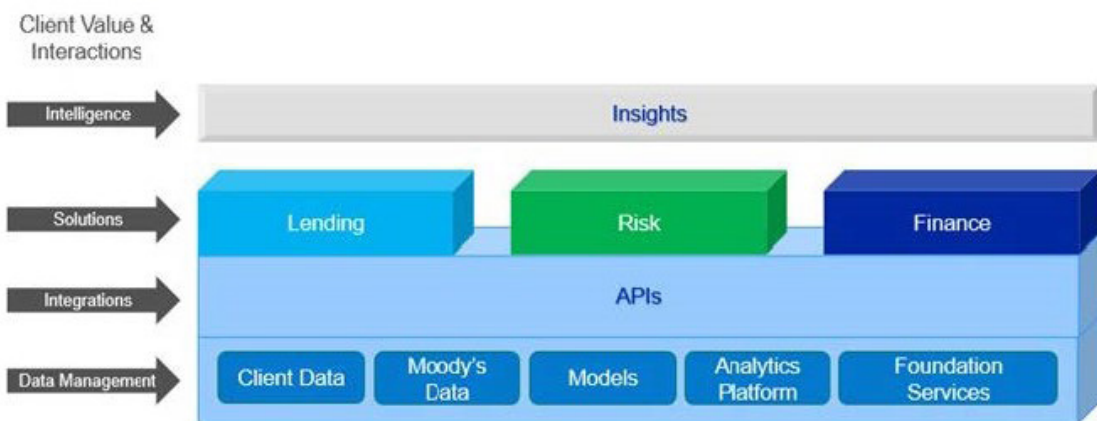• Uses workflow management to help firms automate the data management process.

3. Adding value in each part of the overall process (see Figure 4).

Figure 4: Banking Platform – value in each part

Source: Moody's

Vendor leading practices

Differentiating attributes

The following attributes are key differentiators of Banking Platform.

Regulatory expertise

Reporting integration and maintenance

Moody's regulatory solutions streamline and accelerate the entire regulatory calculation and reporting process, including report production, validation and submission. Clients benefit from advanced and intuitive data management and validation capabilities for loading, transforming, mapping and reconciling data. The company's solutions also ensure data quality, auditability and governance of the whole process.

Moody's addresses the regulatory reporting process in its entirety in what the company calls 'comprehensive compliance'. It tackles governance, ensures auditability and offers validation capabilities, including smart adjustments and tools dedicated to variance and the analysis of calculation results.

Its solution comes with out-of-the-box capabilities, including regulatory rules for more than 50 jurisdictions and more than 80 reporting frameworks.

Moody's can update its systems as appropriate, and has been able to support its customers with their migrations to the new Basel IV regulations in a timely manner. This ensures the resilience of their reporting, in terms of both infrastructure and functionality.

To achieve this, Moody's can promote new, required configurations on a monthly basis through a robust software development lifecycle (SDLC)

process that focuses on CI/CD workflow. The company also monitors all relevant regulatory changes, adjusts the configuration accordingly and publishes it on time in a bank's environment.

Clients also benefit from a range of services offered as part of the annual subscription, including regulatory updates and training, 'what's new' videos, technical upgrades, and software maintenance and support. Moody's continuously monitors regulatory updates, adjusts its solution's configuration, and regularly implements and integrates these changes to ensure that its clients remain compliant.

Seamless integration with Moody's capabilities

Clients can integrate Moody's solutions into their existing upstream architecture. The company's regulatory calculation engines are natively integrated with its regulatory reporting tools, IFRS 9, ALM and stress testing solutions. This integration allows users to generate reports using the results of its calculation engines in a seamless, end-to-end experience. As a result, there is no need for additional data mapping or transformation. Once the data is loaded for the calculation, the reports are produced without any further configuration.

Compliance

Regulatory compliance has been extended in the past decades, and there is an expectation that firms should do more than just comply. Regulators are also giving clear guidelines to banks to develop a fully resilient, automated, auditable system, and to be in control of their own processes. Through its robust data lineage, audit trail, reconciliation, data controls and data aggregation possibilities, Banking Platform addresses data governance policy (see Figure 5).

Figure 5. Moody's feature set aligns with regulatory compliance pillars
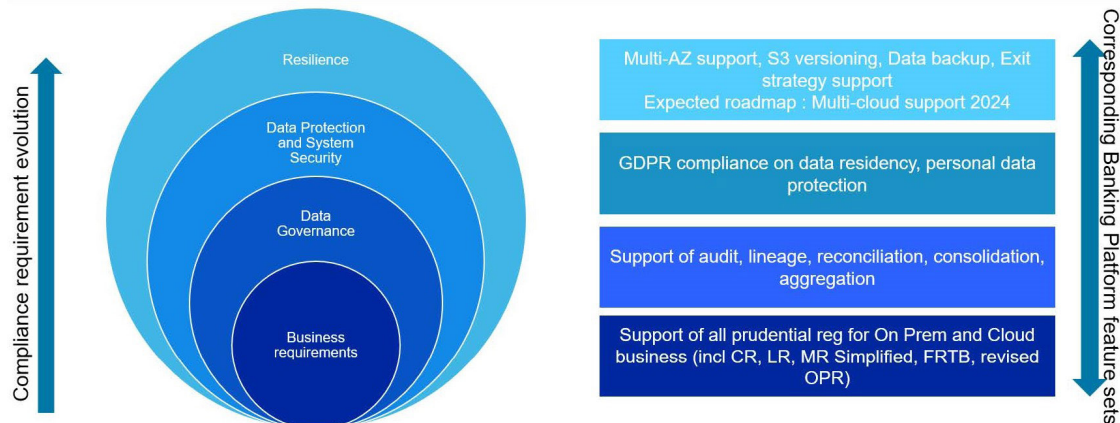
Source: Moody's

Moody's supports different requirements for resilience by providing a system that can produce required figures even in stressed solutions. Indeed, the solution is replicated in multiple availability zones and regions where data protection is allowed. Some Moody's solutions also can be run on-premise in case of severe and non-repudiable discrepancies with cloud service providers.

The company also supports data-residency compliance by storing and calculating customer data in the region where residency of the impacted data is applied. The company is also complying with General Data Protection Regulation (GDPR) rules regarding personal data management, while honoring the US Clarifying Lawful Overseas Use of Data (CLOUD) Act.

Regulatory partnerships

Moody's has participated in several working sessions with the European Central Bank (ECB) about the implementation of the Integrated Reporting Framework (IReF), and is in direct communications with some supervisors to ask questions proactively about the interpretation of complex or confusing regulatory rules where its clients might need guidance. For example, during the migration from the European Banking Authority (EBA) 2.9 taxonomy to 3.0, Moody's was able to identify several inconsistent rules a few weeks before they were deactivated by the EBA.

In parallel, the company is closely following – and, whenever possible, participating in – new regulatory initiatives. It is a member of XBRL France, and gives regular feedback on its implementation to improve the overall submission process.

Regulatory roadmap

Moody's is preparing (and in some cases has already prepared) for the following initiatives: the Banks' Integrated Reporting Dictionary (BIRD), IReF, European Integrated Regulatory Reporting and UK Digital Transformation.

For IReF, for example, Moody's existing transactional reporting tool will allow the company to support IReF (combining transactional and statistical reports into one single framework) swiftly. It is therefore planning to propose an IReF solution for its clients in advance of the 2027 implementation date.

Connection to various regulatory portals

As a financial software service provider, Moody's is creating test accounts with supervisors when they agree to work with a software vendor, and is using these during its development process to test the final output of its configuration. The company has, for example, created test accounts with the Bank of England's OSCA and BEEDs, CNB SDAT and NBB OneGate.

Expertise beyond regulations

Moody's assets to support regulatory activities

Moody's is a financial data provider in such domains as ESG data, counterparty data, structured finance data and economic scenario data. Banking Platform can leverage these sources of data to ease customer ETL and provide a packaged solution. Multiple credit risk, ALM and capital risk applications provided under Banking Platform already leverage these datasets to integrate them natively. The long-term objective is to integrate step-by-step all the required data in all of the company's banking applications to provide a comprehensive risk management solution.

Credit risk modeling

Moody's solution portfolio comprises a comprehensive model management platform (see Figure 6) responsible for:

Figure 6. Moody's CAP model management
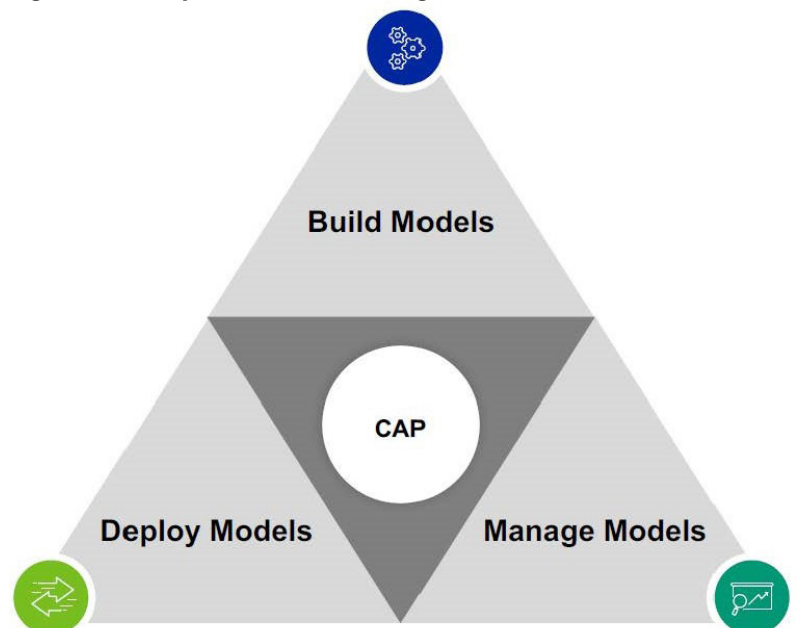
Source: Moody's

- Hosting Moody's or custom models.

- Model execution.

- Support for the lifecycle of each model.

The solution is already used in different credit risk applications (such as economic capital management, CECL reporting, etc.). Basel reporting will integrate this component in 2023.

The key functions of this solution are to:

Manage models. Integrates model inventory and workflow, and offers off-the-shelf and custom applications for model validation and monitoring.

Deploy models. Optimizes model execution and integration with other solutions in Moody's portfolio.

Build models. Offers capabilities to develop credit and any other type of model with the customer's own data, supplemented with Moody's data.

Stress testing and scenarios

Moody's supports firms' stress testing needs in various ways. Thanks to its Capital Risk Analyzer solution, Moody's can execute some stress-testing scenarios based on macroeconomic changes applied to output data. Users can also apply some 'what if' analysis on generated results to better understand the cascading effects of an atomic change in the underlying data.

GCorr model

The cornerstone of Moody's portfolio solutions is the multi-factor global correlation (GCorr) model. It is built and validated for multiple asset classes, including corporate, emerging markets, commercial real estate, sovereigns, small and medium enterprises, and retail. The GCorr model also covers a range of instrument types, including loans, bonds, derivatives, equities, leases and structured instruments.

The GCorr model has been expanded to capture correlations between macroeconomic variables (such as equity index movements, GDP changes and inflation), using Moody's underlying credit factors for expanded analysis capabilities around stress testing. This expansion lets clients define their own macroeconomic scenarios and run conditional Monte Carlo simulations to compare stressed results with their unstressed portfolios. In addition, the macroeconomic factor model

also supports such applications as reverse stress testing, capital planning and limit setting for user-defined scenarios.

Other GCorr model capabilities include trade optimization, detailed trial-by-trial outputs and a range of combined profitability and risk metrics to enable portfolio optimization and deal allocation.

Technology

SaaS

As a SaaS provider, Moody's oversees:

- Deployment of the infrastructure.

- Deployment of new software and configurations.

- Monitoring and support of the solution.

- Troubleshooting of production issues.

- Disaster recovery testing.

To provide its regulatory expertise at the foundation of each customer's regulatory journey, Moody's offers to use its SaaS ongoing service to analyze the impact of each new Moody's delivery or regulatory evolution on a customer's anonymized dataset. This operation allows customers to adopt a new version of Moody's delivery quickly by lowering the associated adoption risk.

Data analytics and business intelligence

Thanks to the data produced and broadcast, Moody's is also creating a large set of predictive analytics software that can set up models and compute various indicators.

In addition, Moody's has set up a partner alliance program, in which customers can share anonymized data for analysis through Moody's data mining and AI.

As an example, the program has been set up for CECL calculations so that multiple customers in the US now have access to analyses of their impairment positioning versus that of their peers.

To add business intelligence capabilities, Banking Platform leverages Sisense third-party products to produce off-the-shelf reports in various applications. The Sisense integration allows Moody's customers to benefit from a native integration with single sign-on (SSO) and native access.

At the end of the year, Moody's customers will be able to build their own reports on the platform.

Strategic partnerships

Moody's is working with various partners at different phases of product development and implementation. These partnerships are helping the development of Moody's solution across multiple axes, from cloud hosting (with AWS and Azure) to product-feature integration (Qlik or Sisense for business intelligence; FINCAD for pricing). The company has built a strong relationship with EY, for example, to deliver a better regulatory reporting solution to clients.

Innovation

AI/ML

A central group inside Moody's, focused on new technologies, is overseeing and helping each organization evaluate the business interest of each new tool. AI and ML are considered strategic domains of development that will provide additional insights to customers, as well as helping to drive the evolution of Moody's software toward a predictive regulatory toolset that can detect useful patterns.

In particular, the emergence of AI models allows Banking Platform to innovate in different domains, such as:

- Predictive data quality checks and data segmentation.

- A regulatory compliance chatbot.

- An automated regulatory report analyzer.

A proof of concept (POC) for predictive data quality checks has been set up to assess whether some data patterns can be identified for each bank's profile to detect any invalid data ingestion process before execution. The results have been promising, since Moody's has found that it is possible to establish a classification of data to determine customer profiles.

The objective of the regulatory compliance chatbot is to help customers better analyze regulations by offering answers to simple questions about specific regulatory topics. The chatbot will also be able to map the analysis to the appropriate paragraph in the regulation, and correlate with a configuration rule in Moody's software.

The regulatory report analyzer will provide analysis (of correlations between indicators) and comparison benchmarks with previous reporting dates.

4. Methodology

Overview

Chartis is a research and advisory firm that provides technology and business advice to the global financial services 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' RiskTech Quadrant® and FinTech Quadrant™ reports are written by experienced analysts with hands-on experience of selecting, developing and implementing financial technology solutions for a variety of international companies in a range of industries, including banking, insurance and capital markets. The findings and analyses in our quadrant reports reflect our analysts' considered opinions, along with research into market trends, participants, expenditure patterns and best practices.

Chartis seeks to include RiskTech and FinTech vendors that have a significant presence in a target market. The significance may be due to market penetration (e.g., a large client base) or innovative solutions. Chartis uses detailed vendor evaluation forms and briefing sessions to collect information about each vendor. If a vendor chooses not to respond to a Chartis request for information, Chartis may still include the vendor in the report. Should this happen, Chartis will base its opinion on direct data collated from technology buyers and users, and from publicly available sources.

Chartis' research clients include leading financial services firms and Fortune 500 companies, leading consulting firms and financial technology vendors. The vendors evaluated in our quadrant reports can be Chartis clients or firms with whom Chartis has no relationship.

Chartis evaluates all vendors using consistent and objective criteria, regardless of whether they are Chartis clients. Chartis does not give preference to its own clients and does not request compensation for inclusion in a quadrant report, nor can vendors influence Chartis' opinion.

Briefing process

We conduct face-to-face and/or web-based briefings with each vendor.[1] During these sessions,

Chartis experts ask in-depth, challenging questions to establish the real strengths and weaknesses of each vendor. Vendors provide Chartis with:

- A business update – an overview of solution sales and client satisfaction.

- A product update – an overview of relevant solutions and R&D roadmaps.

- A product demonstration – key differentiators of their solutions relative to those of their competitors.

In addition to briefings, Chartis uses other third-party sources of data, such as conferences, academic and regulatory studies, and publicly available information.

Evaluation criteria

We develop specific evaluation criteria for each piece of quadrant research from a broad range of overarching criteria, outlined below. By using domain-specific criteria relevant to each individual risk, we can ensure transparency in our methodology and allow readers to fully appreciate the rationale for our analysis. The specific criteria used for credit risk reporting are shown in Table 4.

Completeness of offering

- **Depth of functionality**. The level of sophistication and number 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 varies for each subject area, but special attention is given to functionality covering regulatory requirements, multiple risk classes, multiple asset classes, multiple business lines and multiple user types

---

[1] Note that vendors do not always respond to requests for briefings; they may also choose not to participate in the briefings for a particular report.

Table 4: Evaluation criteria for Chartis' credit risk reporting solutions report

Completeness of offering	Market potential
• Platform capabilities	• Customer satisfaction
• Product capabilities	• Market presence
• Workflow management; integration with other credit operation areas/processes	• Growth strategy
• Analytical models: descriptive, diagnostic, prescriptive, predictive	• Business model
• Adoption of emerging technologies	• Financials
• Use cases linked to credit lifecycle	

Source: Chartis Research

(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 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, and 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

• **Business model**. Includes implementation and support and innovation (product, business model and organizational). 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. Also evaluated are new ideas, functionality and technologies to solve specific risk management problems. Speed to market, positioning and translation into incremental revenues are also important success factors in launching new products.

• **Market penetration**. Volume (i.e., number of customers) and value (i.e., average deal size) are considered important. Rates of growth relative to sector growth rates are also evaluated. Also covers brand awareness, reputation and the ability to leverage current market position to expand horizontally (with new offerings) or vertically (into new sectors).

• **Financials**. Revenue growth, profitability, sustainability and financial backing (e.g., the ratio of license to consulting revenues) are considered key to the scalability of the business model for risk technology vendors.

• **Customer satisfaction**. Feedback from customers is evaluated, 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).

- **Growth strategy**. Recent performance is evaluated, including financial performance, new product releases, quantity and quality of contract wins, and market expansion moves. Also considered are the size and quality of the sales force, sales distribution channels, global presence, focus on risk management, messaging and positioning. Finally, business insight and understanding, new thinking, formulation and execution of best practices, and intellectual rigor are considered important.

Quadrant construction process

Chartis constructs its quadrants after assigning scores to vendors for each component of the completeness of offering and market potential criteria. By aggregating these values, we produce total scores for each vendor on both axes, which are used to place the vendor on the quadrant.

Definition of quadrant boxes

Chartis' quadrant reports do not simply describe one technology option as the best solution in a particular area. Our ranking methodology is designed to highlight which solutions are best for specific buyers, depending on the technology they need and the implementation strategy they plan to adopt. Vendors that appear in each quadrant have characteristics and strengths that make them especially suited to that category and, by extension, to particular users' needs.

Point solutions

- Point solutions providers focus on a small number of component technology capabilities, meeting a critical need in the risk technology market by solving specific risk management problems with domain-specific software applications and technologies.

- They are often strong engines for innovation, as their deep focus on a relatively narrow area generates thought leadership and intellectual capital.

- By growing their enterprise functionality and utilizing integrated data management, analytics and business intelligence (BI) capabilities, vendors in the point solutions category can expand their completeness of offering, market potential and market share.

Best-of-breed

- Best-of-breed providers have best-in-class point solutions and the ability to capture significant market share in their chosen markets.

- They are often distinguished by a growing client base, superior sales and marketing execution, and a clear strategy for sustainable, profitable growth. High performers also have a demonstrable track record of R&D investment, together with specific product or go-to-market capabilities needed to deliver a competitive advantage.

- Because of their focused functionality, best-of-breed solutions often will be packaged together as part of a comprehensive enterprise risk technology architecture, co-existing with other solutions.

Enterprise solutions

- Enterprise solution providers typically offer risk management technology platforms, combining functionally rich risk applications with comprehensive data management, analytics and business intelligence.

- A key differentiator in this category is the openness and flexibility of the technology architecture and a 'toolkit' approach to risk analytics and reporting, which attracts larger clients.

- Enterprise solutions typically are supported with comprehensive infrastructure and service capabilities, and best-in-class technology delivery. They also combine risk management content, data and software to provide an integrated 'one stop shop' for buyers.

Category leaders

- Category leaders combine depth and breadth of functionality, technology and content with the required organizational characteristics to capture significant share in their market.

- They demonstrate a clear strategy for sustainable, profitable growth, matched with best-in-class solutions and the range and diversity of offerings, sector coverage and financial strength to absorb demand volatility in specific industry sectors or geographic regions.

- They will typically benefit from strong brand awareness, a global reach and strong alliance strategies with leading consulting firms and systems integrators.
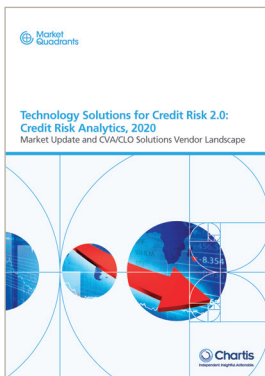
Further reading
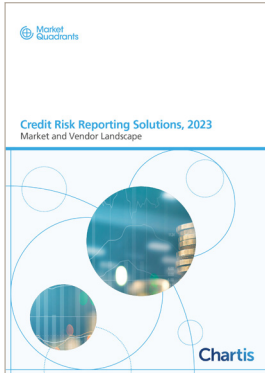
**Credit Risk Reporting
Solutions, 2023: Market
and Vendor Landscape**

**Credit Lending Operations,
2022: Market and
Vendor Landscape**

**Credit Data Solutions, 2022:
Market and Vendor Landscape**

**Technology Solutions for
Credit Risk 2.0: Credit Risk
Analytics, 2020; Market
Update and CVA/CLO
Solutions Vendor Landscape**

**Technology Solutions for
Credit Risk 2.0: Vendor
Landscape, 2019**

RiskTech100 2023

For all these reports, see **www.chartis-research.com**