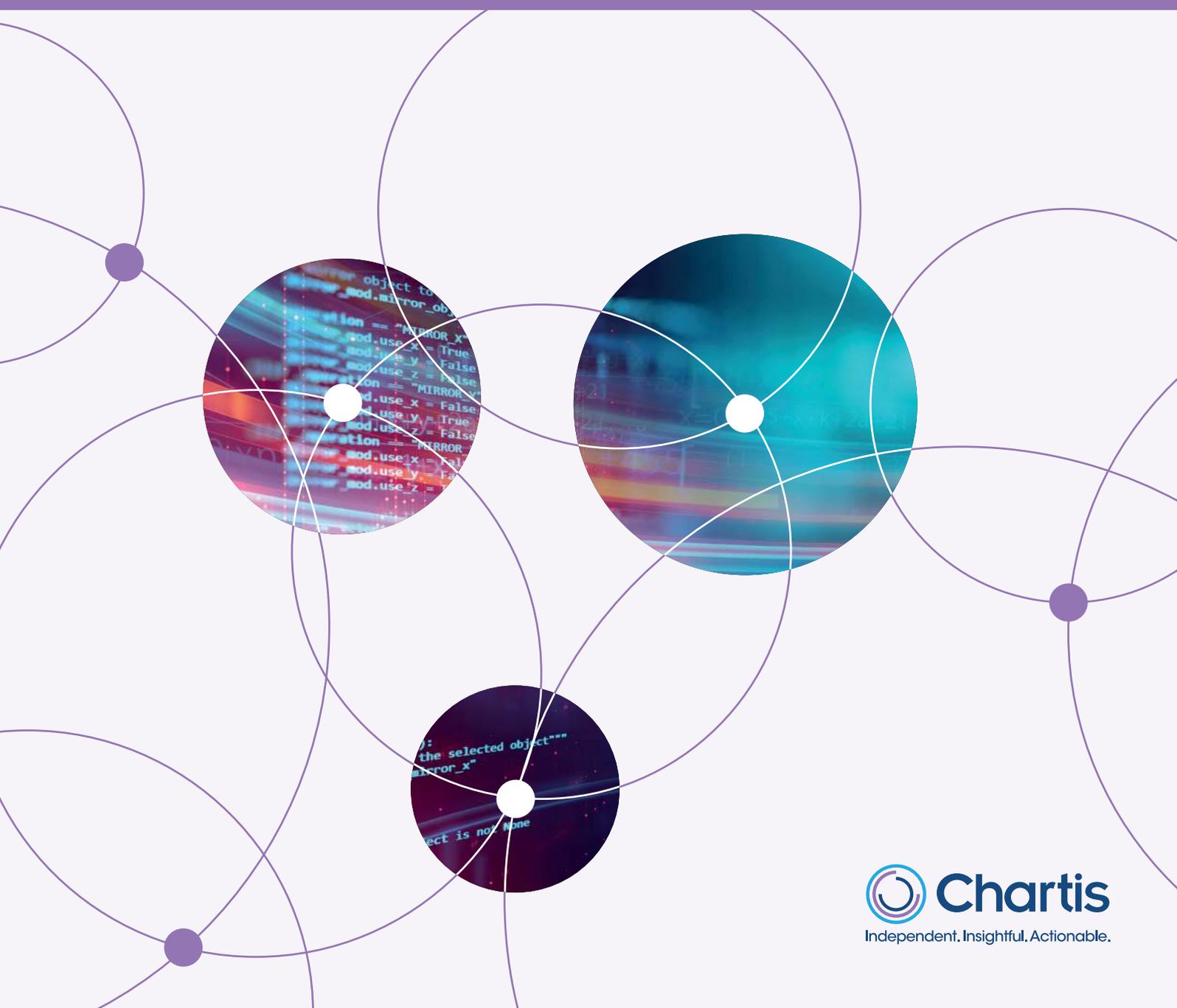


Vendor Analysis: GBG

AML and Watchlist Monitoring Solutions, 2019



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- 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 and 3, Dodd-Frank, MiFID II and Solvency II.

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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 implementing and developing risk management systems and programs for Fortune 500 companies and leading consulting houses.

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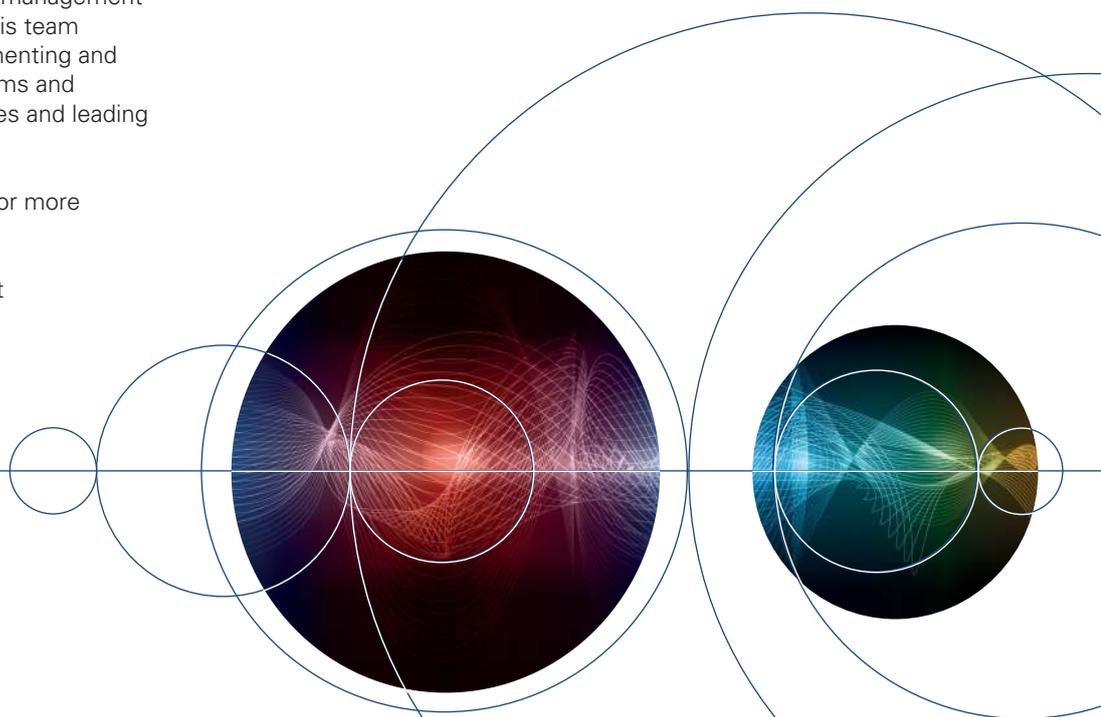


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1. Report context

This Vendor Analysis is based on the Chartis quadrant report *Financial Crime Risk Management Systems: AML and Watchlist Monitoring; Market Update and Vendor Landscape, 2019* (published in March 2019). This section summarizes the key theses in that report; subsequent sections take a detailed look at GBG's quadrant positioning and scoring, and Chartis' underlying opinion and analysis.

Key thesis

Market update

The anti-money laundering (AML) market landscape varies in its maturity and depth – while AML is well-established in western banks, for example, it is less mature in other geographies and industries. Within financial institutions (FIs), AML capabilities increasingly function on a continuum: centralized within specific compliance departments, but also present in other operational areas such as Know Your Customer (KYC) and customer lifecycle management (CLM).

In areas like retail banking where AML is relatively mature, FIs have reached an equilibrium. They are onboarding fewer suspicious customers, and growth in suspicious activity reports (SARs) – the primary AML indicator – has flattened. But these developments have come at the cost of large and hugely inefficient compliance departments, often containing thousands of employees.

FIs now want to reconfigure their existing AML processes to make them more efficient and valuable. But there has also been a shift toward understanding and quantifying AML solutions, rather than creating ever more complex tools and systems. This has sharpened the focus on model risk management and validation capabilities, to enable FIs to interrogate and authenticate existing models. Vendors and FIs are also considering new ways to express AML information, such as delivering it as a single headline figure (a 'compliance score' similar to a credit score).

As AML use matures in investment and retail banking, it is spreading into other areas, notably trade finance, gambling and the FinTech sector. Trade finance is an especially complex area for AML, with many constraints and a reliance on sometimes limited data that can vary across geographies. Nevertheless, trade-based AML is having a significant business impact on FIs, and is a valuable potential market for new vendors.

Vendor landscape

Packaged solution vendors and data providers remain the backbone of the AML marketplace. But new entrants, such as commercial workflow and advanced analytics vendors, pose a threat, especially to packaged solution vendors. FIs, especially large and complex ones, are looking to establish core case management functionalities with additional components. End-to-end solutions will increasingly be used by smaller firms with less complex data and customer requirements.

While the new players are unlikely to challenge incumbents in their core area of case management, they are increasingly likely to attack the 'edges' of their capabilities, in areas such as transaction monitoring, entity resolution and segmentation analytics.

Finally, as AML moves beyond its core compliance areas, solution vendors are having to consider ancillary sectors where it is relatively immature, such as trade finance, gambling and the burgeoning FinTech sector (with technology companies providing financial services). While these areas offer new opportunities, they also bring their own challenges and impacts for the vendor landscape, in addressing the wide range of firms and requirements they contain.

Demand-side takeaways

FIs remain concerned about AML sanctions and fines, and not just for actual breaches. Failure to act on prior warnings can also lead to hefty penalties. The global strength of the dollar means that US regulators – with the potential to deny access to dollar swaps or the SWIFT¹ network (or both) – are among the most feared. Among US financial crime and sanctions monitoring bodies, the New York Department of Financial Services (NYDFS) has been relatively aggressive in penalizing non-US firms. But it is not unique – in March 2018 the Federal Reserve urged the

¹ The Society for Worldwide Interbank Financial Telecommunication.

Industrial and Commercial Bank of China (ICBC) to improve its AML controls; two months later the bank was hit with a fine of \$5.3 million from the Financial Industry Regulatory Authority (FINRA)².

As part of their AML process FIs must now monitor their correspondents and subsidiaries with the same level of diligence as they use for their primary business lines. Sensitivity to AML compliance has led some FIs to sever many of their correspondent banking relationships, cutting clients and shifting their business focus from global to regional, and to territories where they are comfortable taking on risk.

Against this background, three trends are changing the AML market and vendor landscape:

- As AML software components are embedded in areas of the business outside compliance, FIs are looking for ways to reconfigure pre-existing AML processes, to drive more value from them and/or make them more efficient.
- For risk-averse FIs facing heavy regulatory pressure, using advanced analytics is becoming an area of increasing uncertainty. The success of an AML system is usually measured by the amount of time it saves and its reduction of false positives. Fearing an adverse reaction from regulators, however, FIs are reluctant to lower their SARs levels or try new technology solutions. So false positives remain high and true positives elusive. This situation creates challenges in the use of advanced analytics, and in particular machine learning (ML).
- AML requirements and capabilities are moving into adjacent sectors and industries, notably trade finance, gambling, and the FinTech sector.
 - Trade-based money laundering has a genuine impact on FIs, which lose business if they cannot confirm KYC capabilities with their trading counterparties.
 - In recent years, fines issued to gambling and gaming companies for AML-related violations have increased exponentially, and are unlikely to drop significantly, not least because the underlying market is set to expand.
 - As FinTech firms become more established across the financial services value chain, they look likely to mirror existing FIs in terms of their structure. As a result, their AML

requirements are likely to resemble those of incumbent FIs.

Supply-side takeaways

Many vendors provide AML as part of their solution set, because AML components are increasingly incorporated into a wide range of processes (including operational processes such as KYC and CLM). Incumbent and established providers tend to dominate among specialist AML and sanctions solutions providers, and the combination of analytics challenges and FIs' low risk appetites means that 'trusted' vendors have significant and durable market presence.

The market changes outlined in the previous section – especially the growing challenge of analytics and AMLs move into other sectors – are driving changes in the relevant technology. Much of the change in the AML marketplace comes in areas such as the adoption of innovative analytics and model risk management, and the services and technology mixtures of the vendors.

Much of FIs' AML expenditure typically goes to services firms, so a question facing many vendors is how to balance services and technology, and how to divide the human elements of their offerings from the technological ones. A firm that provides only technology components, and which relies on partners or third parties to provide services for an AML project, risks missing out on efficiencies and synergies between services and technology (depending on the services teams' familiarity with the technology, for example, or how it can be reconfigured). Conversely, a firm that offers services opens itself up to 'scope creep', and to shouldering the ballooning costs of implementation.

² <http://www.finra.org/newsroom/2018/finra-fines-icbcs-53-million-anti-money-laundering-compliance-deficiencies-and-other>

2. Quadrant context

Introducing the Chartis RiskTech Quadrant®

This section of the report contains:

- The Chartis RiskTech Quadrant® for AML/watchlist monitoring solutions, 2019.
- An examination of GBG'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 AML/watchlist monitoring 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 and FinTech quadrants 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 AML/watchlist monitoring solutions, 2019

Figure 1 illustrates Chartis' view of the AML/watchlist monitoring vendor landscape, highlighting GBG's position.

Figure 1: RiskTech Quadrant® for AML/watchlist monitoring solutions, 2019



Source: Chartis Research

Quadrant Dynamics

General quadrant takeaways

Incumbent vendors continue to dominate the AML market, but face a greater threat from new players. Those providing packaged AML solutions which cover a wide range of financial crime risk management capabilities retain a significant market presence, largely built on their dominance in case management and workflow capabilities. In many cases these are enhanced with robotic process automation (RPA), and by integrating new analytics capabilities such as segmentation analytics. Their main threat comes from advanced analytics and infrastructure firms

from neighbouring areas (such as anti-fraud and commercial workflow vendors) targeting the areas they cover.

Data provision vendors are notably durable in the market, as network effects lead firms to dominate in given areas (such as negative news, corporate data and sanctions) and become industry standards within given geographies. This translates to a strong market presence, as well as an underlying experience with data management. Other firms in the space provide either specific analytics capabilities that can be integrated with pre-existing case management functionality, or unique AML scoring capabilities.

The quadrant indicates that there is still space for new players. Vendors looking to establish their AML solutions have several choices. Smaller FIs may wish to invest in a solution that provides integrated headline AML information, while larger FIs may want more complex information, delivered with model validation capabilities and RPA to maximize gains in efficiency. Large FIs will often utilize an incumbent with enterprise capabilities to provide the case management ‘heart’ of their solution, and establish application programming interface (API) connections to data-provision specialists. They may have to choose whether they supplement these choices with other vendors.

Vendor positioning in context – completeness of offering

GBG provides a wide range of AML capabilities, including name screening and transaction monitoring. The company offers AML solutions with a configurable workflow within its fraud, risk and compliance software.

GBG has strong case management and analytics functionality. Watchlist monitoring is a strength, including fuzzy and rule-based matching. The sensitivity of fuzzy matching can be adapted to users’ requirements, while Instinct-matching algorithms indicate similarity between entities, and soundex matching detects similar-sounding names. GBG also provides anomaly detection for scorecard and ML models and network analysis.

The vendor also offers a broad range of name screening sources, including Russian, Thai and Chinese matching. Customer filtering can be done against multiple lists, such as politically exposed person (PEP), sanction, unwanted or vigilance. The company also partners with Dow Jones and Accuity for its watchlist monitoring capabilities.

GBG provides AML screening through Instinct. Internal workflow is built in, such that end-points can be configured, and data ingest is considered a main differentiator. However, the vendor has a less extensive offer around regulatory compliance reporting and controls, and for visualizations and dashboarding, which was why it scored lower in those areas.

Table 1 shows Chartis’ rankings for GBG’s coverage against each of the relevant criteria.

Vendor positioning in context – market potential

GBG scored relatively well across the market potential criteria – it represents a scalable business

Table 1: Completeness of offering – GBG (AML/watchlist monitoring solutions, 2019)

Completeness of offering criterion	Coverage
Name and transaction screening capabilities	Medium
Breadth of name screening sources offered	Medium
Transaction monitoring capabilities	Medium
Regulatory compliance reporting and controls	Low
Alert/case management	Medium
Advanced analytics	Medium
Visualizations and dashboarding	Low

Source: Chartis Research

with proprietary technology and a software as a service (SaaS) offering.

The company has strong presence in Asia-Pacific, especially China – a market relatively impenetrable to Western firms – where several of its clients are based. It also has an extensive sales force, with offices in the US, Mexico, Spain, Germany, Netherlands, the UK, Dubai, China, Malaysia, Indonesia, Singapore and Australia.

GBG has been experiencing notable growth, especially in Indonesia, Malaysia and China, across a broad spectrum of clients, from Tier 1 FIs to payday lenders. GBG’s financial stability is also strong, with good revenues and profitability from its fraud risk and compliance solutions.

Table 2 shows Chartis’ rankings for GBG’s coverage against each of the relevant criteria.

Table 2: Market potential – GBG (AML/watchlist monitoring solutions, 2019)

Market potential criterion	Coverage
Customer satisfaction	Medium
Market penetration	Medium
Growth strategy	Medium-High
Financials	High

Source: Chartis Research

3. Vendor context

Overview of relevant solutions/capabilities

Table 3 gives an overview of GBG and its AML/watchlist monitoring solution.

GBG’s technology operates throughout the customer lifecycle, covering a variety of product

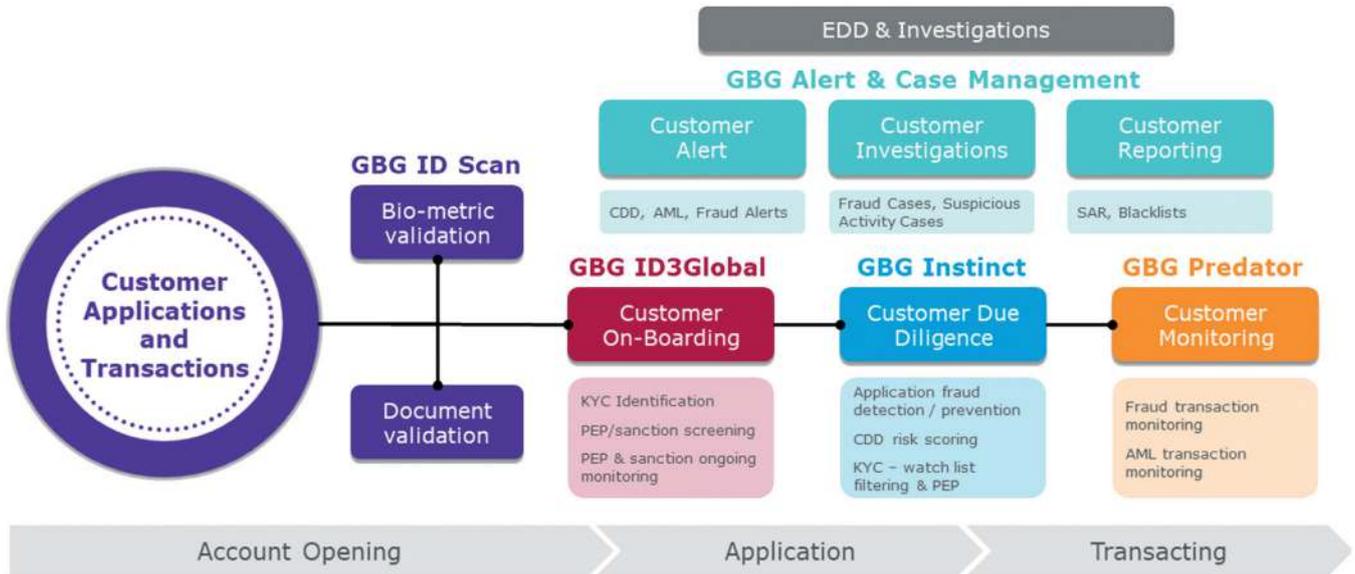
and solution areas (see Figure 2). When a customer decides to open an account with a bank, credit lender, gaming organization or other service provider, GBG can instantly review identity documents to ensure they are authentic, valid and unaltered (see Figure 3).

Table 3: GBG plc – company information

Company	GBG plc (click here for more information)
Headquarters	Chester, UK
Other offices	New York, San Mateo, Atlanta, Melbourne, Sydney, Beijing, Shanghai, Kuala Lumpur, Jakarta, Dubai, Barcelona, London, Worcester, Singapore, Canberra
Description	<p>GBG is a global specialist in fraud, location and identity data intelligence with offices in 16 locations worldwide. For over 30 years, GBG has been accessing and verifying identities, to the standards set by financial regulators, of more than 4.4 billion people worldwide, or 57% of the world’s population. GBG has a network of over 200 global partnerships working to provide data with accuracy and integrity.</p> <p>In the fraud category, GBG manages end-to-end fraud and compliance needs across a range of industries including financial services (international, regional and local banks, auto finance companies, P2P lending firms, mutual companies, and credit unions), government services, retail, betting and wagering. Among its customers are 90% of top-tier banks in Malaysia, regional banks, and major wagering players.</p>
Solution	<p>To help users keep up with the complexity of digital transformation and the data deluge, GBG’s digital risk management and intelligence platform unifies digital and data to provide an end-to-end integration, from cyber to fraud and compliance digital onboarding, to transaction monitoring across SaaS, mobile and on-premise setups. GBG’s customer-focused analytic hub exchanges information across vertical and departmental silos to reduce repeat financial and cybercrime incursions from fraudsters. An adaptive and contextual algorithm embedded in the platform helps users maintain a frictionless digital customer experience.</p> <p>The solution is structured as a multi-layered defense architecture, so users are able to activate instant access to a series of modular solutions. Layered risk defense enhancements are made available on-demand. These include ML, cyber threat intelligence, identity verification, identity authentication and personalization, and any other third-party calls desired.</p>

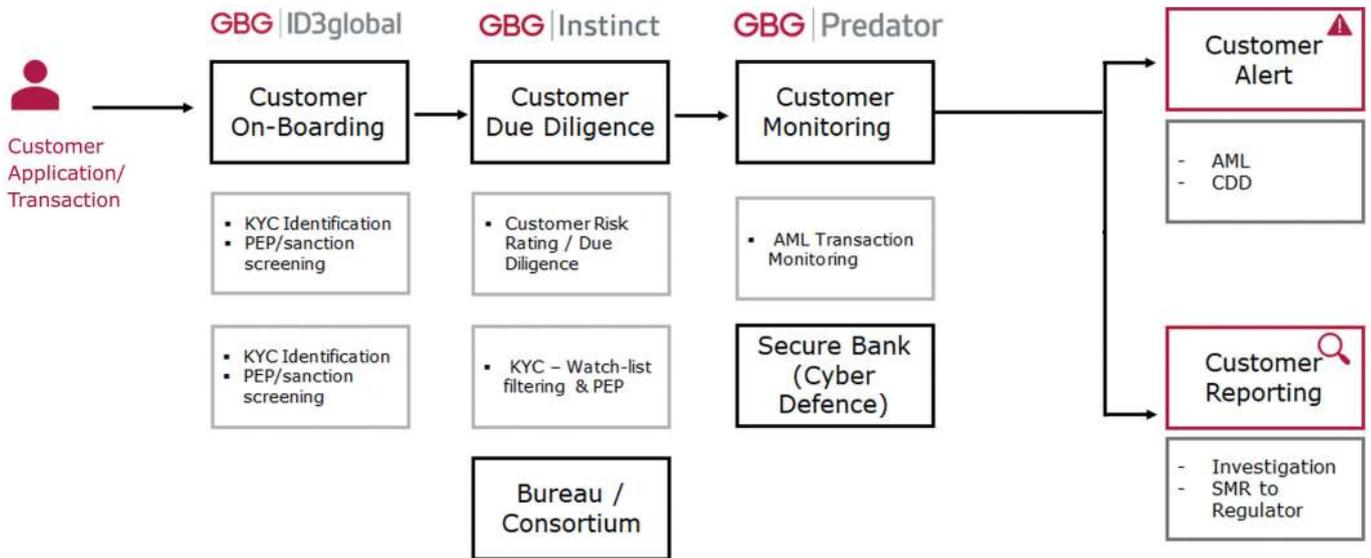
Source: GBG

Figure 2: Overview of GBG’s AML/watchlist monitoring solution



Source: GBG

Figure 3: GBG’s end-to-end compliance offering



Source: GBG

The vendor’s identity verification solution spans 240 countries and territories to help ensure users’ KYC, client due diligence (CDD) and AML requirements are met. Its solutions are used by customers in more than 50 countries, including China, Malaysia, Indonesia, the US, Australia, the UK, France and the UAE.

To further satisfy any CDD and enhanced due diligence (EDD) regulatory requirements, GBG’s technology consolidates an unlimited number of

data sets – including up-to-date PEP/sanctions lists – to create a complete picture of the applicant.

As part of its integrated data and technology solution, GBG offers sanction and PEP-list screening by leveraging trusted global sources that screen customers against solid, reliable and extensive data. Minimum standards such as KYC and CDD provide a risk-based approach to ensure that a clear customer profile is considered across the customer

lifecycle. This is vital to the successful adherence to regulations in areas such as AML and counter-terrorist financing (CTF). The customer profile goes beyond a single individual, incorporating risk associated with a range of affiliate data, such as:

- Spouse or de facto partner.
- Child, child's spouse or child's de facto partner.
- Parents/grandparents.
- Close associates (individuals with ownership or interest in an entity with benefits to the PEP).
- Entities that are closely connected to the PEP.

In addition to name, document number, or address, GBG also offers open-source intelligence based on individuals' social behavior. The solution uses global data from multiple social media sources and provides millions of social posts every day. The channels available for use are:

- Twitter.
- Tumblr.
- VK.
- Flickr.
- YouTube.
- Foursquare.
- Snapchat.
- Vimeo.
- Medium.
- Pinterest.
- Reddit.
- Wikipedia.

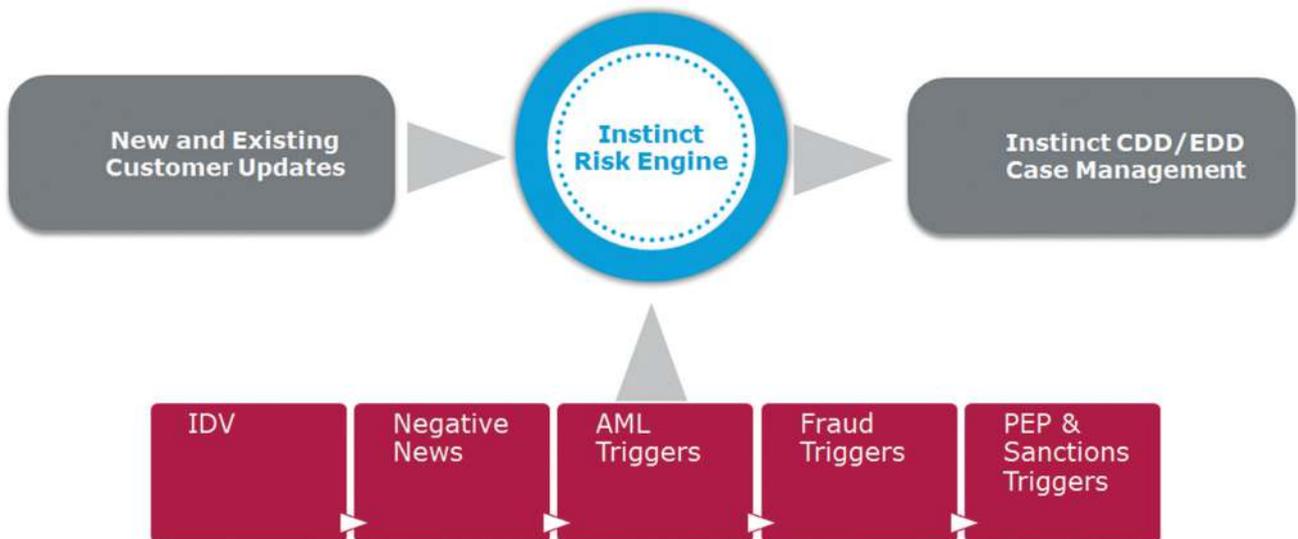
Given the wealth of data available in the market, GBG's data and technology partnerships simplify the ongoing flow of intelligent data through an organization's compliance ecosystem (see Figure 4). These data points are run through a robust risk engine that analyzes the data in real time (see Figure 5).

GBG's proprietary software utilizes 18 unique algorithms, customized business rules and tailored

scorecards to assess the authenticity and validity of each data point and generate a customer risk rating for each individual (see Figure 6). This can be updated as further insights become available.

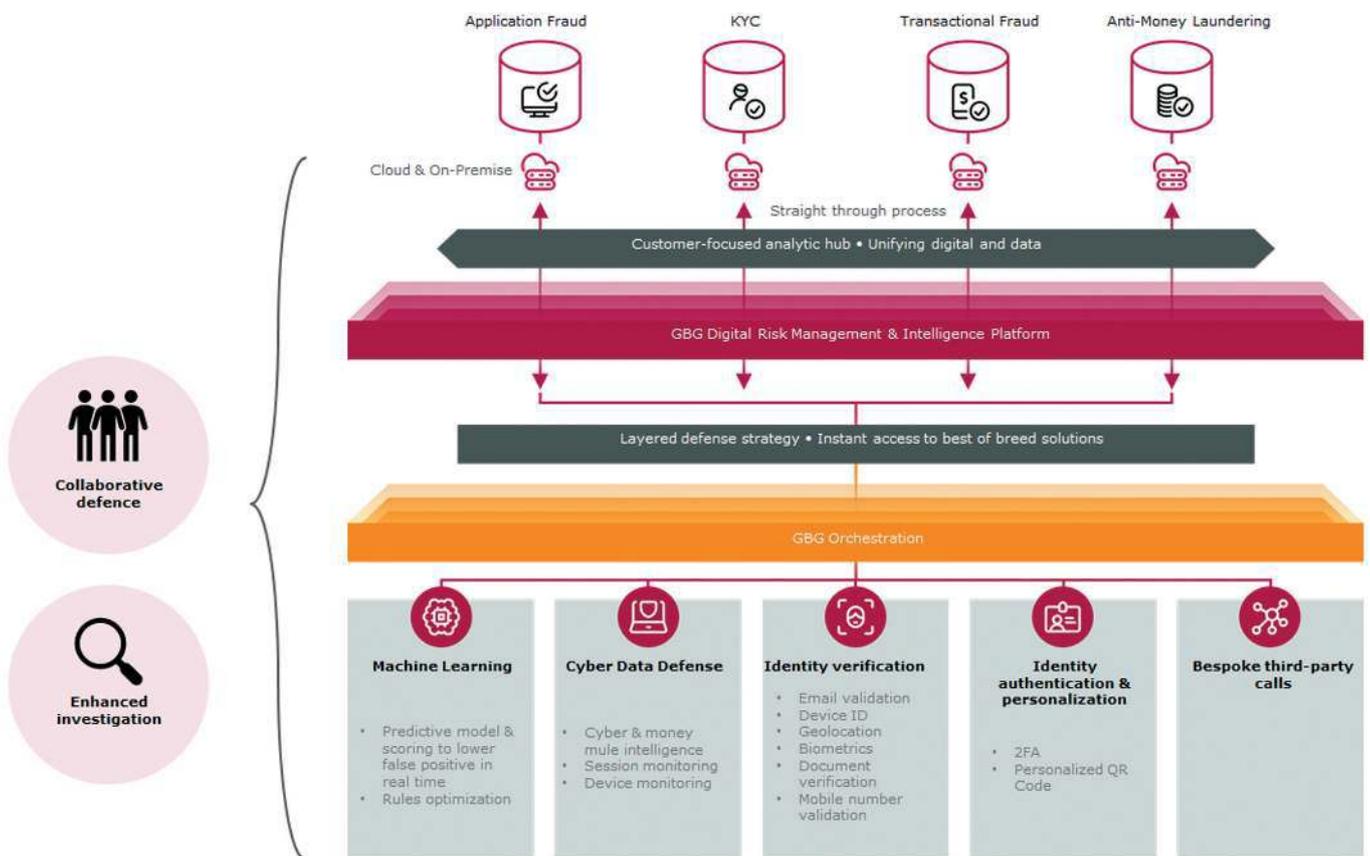
GBG's behavior monitoring capabilities provide ongoing insights to help users identify and intercept any suspicious customer transactions in real time, based on standard rules and requirements within a jurisdiction or organization (see Figure 7). The technology can use a combination of historical data and current macro and micro trends to build baseline norms that provide screening and monitoring while allowing legitimate business to progress as normal. New information is continually fed back into the compliance ecosystem to enhance the onboarding process.

Figure 4: Example process flow in a GBG solution



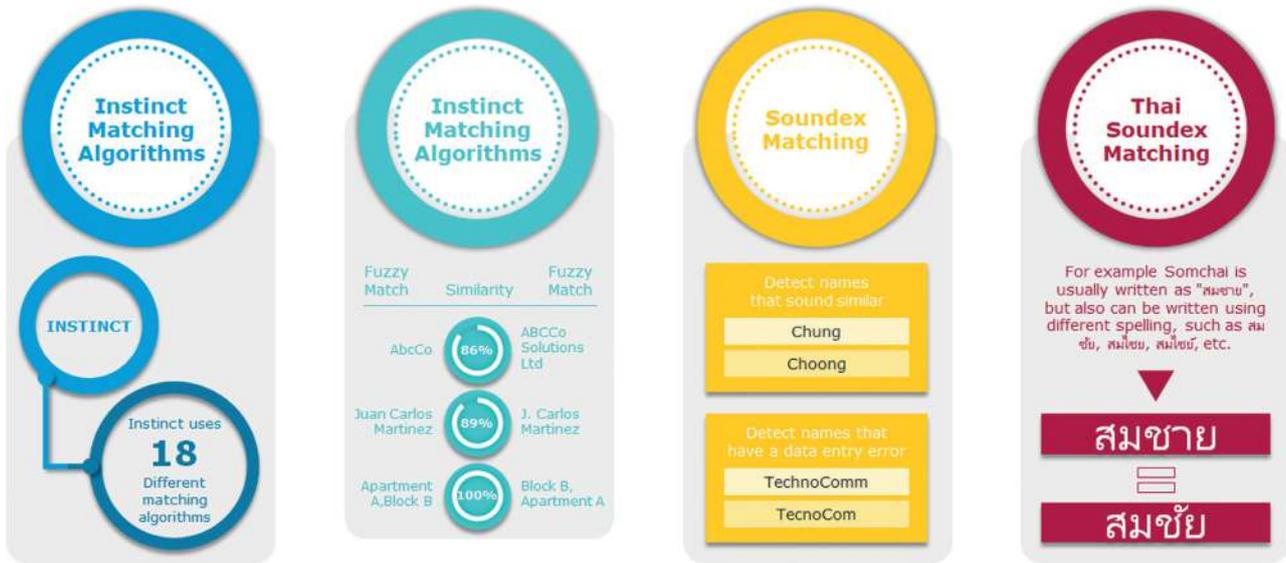
Source: GBG

Figure 5: GBG Digital Risk Management and Intelligence Platform



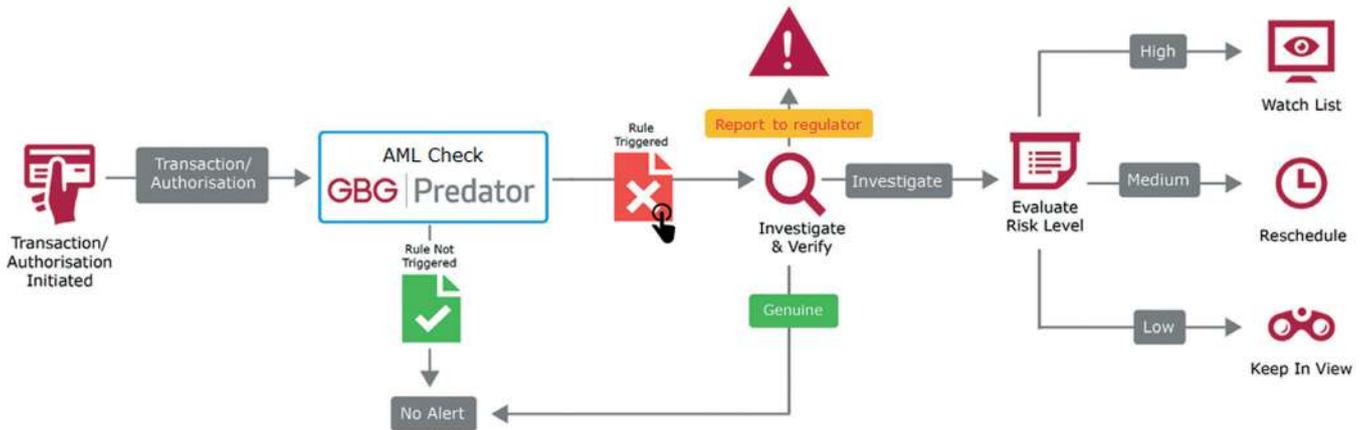
Source: GBG

Figure 6: The algorithms at the heart of GBG’s solution



Source: GBG

Figure 7: Transaction authorization by GBG’s solution



Source: GBG

The solution also includes additional tools to support compliance processes, including case-management tools and a dedicated module for AML and CDD. GBG’s solution can produce reports to demonstrate an organization’s compliance with local regulations; it also aims to keep its technology as transparent as possible.

Vendor leading practices

For GBG, a satisfactory AML and compliance management program requires three key deliverables:

- The ability to comprehensively access information, both public and non-public, to ensure data quality.
- The ability to quickly and effectively draw out, sift through, and analyze large amounts of

structured and unstructured information to reach meaningful conclusions.

- A user-friendly system that enables a compliance team to access, share and act on the insights.

GBG's end-to-end solution has access to a broad scope of international and local data, and with its portfolio of offerings GBG aims to give organizations a single source of solutions.

Its solution can also help to speed up digital onboarding by offering:

- **Document recognition.** The solution can automatically identify the type of ID document a customer has presented. Its identity document validation technology (IDVT) lifts data from the document, enabling users to pre-populate customer's information into other systems, such as registration pages and customer relationship management (CRM) platforms.
- **Smart capture.** Technology in the solution automatically detects a frame and takes a picture of the documentation.
- **Data extraction.** Using document details stored in GBG's document library, proprietary optical character recognition (OCR) technology recognizes and extracts relevant data points from a customer's ID document, including name and document number. The OCR system is designed to read data from documents that are old or outdated, or which may have been purposely designed not to be machine-readable.
- **Face match.** This validates facial features, and is optimized for comparing identity documents with 'selfies'. It takes each image, identifies a set of 68 facial landmarks, and uses this data to extract facial features. The results of each extraction can then be compared to produce a reliable judgement of how similar the two faces are. The system's algorithm is designed to recognize natural changes between the ID image and the selfie, including:
 - Changes in hair style.
 - Facial hair.
 - Makeup.
 - Skin imperfections.
 - Varying facial expressions.
- Small age gaps.
- Small changes in head pose.
- **Liveness.** The system's 'liveness' feature helps prevent users from onboarding fraudsters who are impersonating an individual. It verifies that the person using the device is live and not a static image, and that they match the presented ID document.
- **Investigation studio.** This enables organizations to quickly and easily access scanned documents in a secure, single platform, and is available as a web-based solution or integrated API.
- **Onboarding decision engine.** This configures a full onboarding journey from initial application to final decision, to help users meet current business needs and make updates as required.
- **Other features include:**
 - Reading biometric chip information.
 - Digital tamper detection.
 - Tolerance levels.
 - Online forensic document examiners.

GBG's solution aims to ensure that organizations achieve cost-effective compliance with KYC, CDD and AML regulations, by enabling them to: select only the data they require access to; and create profiles to focus the check they wish to complete:

- **KYC and CDD.** GBG's solutions integrate directly into users' systems through an API, and adapt to meet the changing standards set by the Financial Action Task Force (FATF). This helps users stay compliant without having to constantly re-engineer their compliance processes.
- **PEPs and sanctions screening.** Many national regulations demand a detailed PEPs and enhanced sanctions check. GBG solutions aim to identify high-risk individuals using real-time verification from hundreds of global data partners. This process includes data from records of more than 180,000 individuals in over 200 countries dating back to 1989.
- **AML.** GBG's market coverage helps users reduce their reliance on paper-based checks, lessen risk and lower costs.

The solution delivers information as needed, via the following features:

- Incorporated social media data.
- Metadata fully integrated into the risk rating solution.
- Ongoing monitoring.
- Cloud technology
- Cognitive computing.
- ML.
- Robotics and automation.
- Document image validation – online, at a casino, at an event, etc.
- Bank account validation – confirming the account is active.
- Driving license check – confirming age and identity.
- Geographical location – IP address and geolocation.
- Age verification.
- Identity verification referrals.
- Exception handling.

The solution offers a single, consistent, risk-based approach to AML compliance. The technology presents information, such as data used to build individual customer profiles, in a timely, usable way, and makes determinations that are evidence-based. It also evaluates multiple options, assesses large amounts of data and their connections, and evolves to account for new outcomes and actions. With the capacity to manage millions of real-time transactions through direct input from any internal or external data sources, organizations can have the breadth and depth of data (including that of customer accounts, merchant terminals and any transactional channels) to support accurate and adaptive behavioral monitoring.

Application of AML and WLM capabilities in the betting and wagering industry

GBG provides a range of verification, behavioral pattern analytics, transaction monitoring and decision solutions that have been customized to meet the specific regulatory needs of the betting and gaming industry.

GBG helps bookmakers of all sizes – from local, niche players to the world’s largest entertainment conglomerates – comply with gambling, social-responsibility and AML regulations.

During the onboarding process, GBG’s identity verification solutions automate the customer identification process. The wealth of data available to GBG allows organizations to manage their first, second and third data wash through a single vendor. This considerably improves the onboarding speed – according to some estimates, allowing secure, compliance onboarding to happen in seconds instead of weeks. GBG verifies all aspects of a customer’s identity:

- In-depth investigation.
- Criminal records check.
- PEPs, sanctions and enforcements.
- KYC verification.
- AML checks.

GBG enables organizations to look at more than gatekeeping new customers. Once a customer is approved, GBG supports ongoing monitoring of an individual’s transactions while comparing it to micro and macro trends. GBG’s solutions analyze the flow of all incoming and outgoing transactions across all channels to respond faster to risks and help businesses avoid financial penalties for non-compliance. The intelligent technology also helps to safeguard customers.

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 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 given 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 or not 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.

Selection criteria

In selecting vendors for this report, we aimed to give a representative view of the vendor landscape

and its main categories of incumbent vendors, packaged solution vendors and data solution firms, as well as emerging vendors. We also selected vendors that provide AML as part of their solution set, because AML components are increasingly incorporated into a wide range of processes (including operational processes such as KYC and CLM).

This year we also decided to combine the watchlist monitoring and AML quadrants; hence vendors offering solutions from both areas received higher completeness of offering scores. We also took a component approach to our market analysis, looking at any vendors that provided an element of transaction monitoring and name screening capabilities.

Briefing process

We conducted face-to-face and/or web-based briefings with each vendor³. During these sessions, Chartis experts asked in-depth, challenging questions to establish the real strengths and weaknesses of each vendor. Vendors provided 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 used other third-party sources of data, such as conferences, academic and regulatory studies, and publically 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

³ 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.

used for AML/watchlist monitoring are shown in Table 4.

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, 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

Table 4: Evaluation criteria for Chartis' AML/watchlist monitoring report

Completeness of offering	Market potential
Name and transaction screening capabilities	Customer satisfaction
Breadth of name screening sources offered	Market penetration
Transaction monitoring capabilities	Growth strategy
Regulatory compliance reporting and controls	Financials
Alert/case management	
Advanced analytics	
Visualizations and dashboarding	

Source: Chartis Research

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 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 particular 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 will often be packaged together as part of a comprehensive enterprise risk technology architecture, co-existing with other solutions.

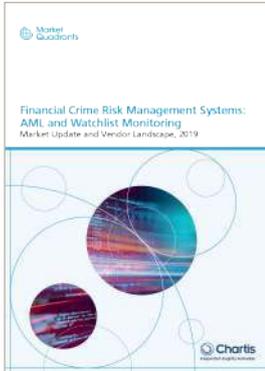
Enterprise solutions

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

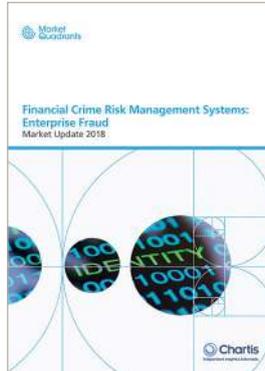
Category leaders

- 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.

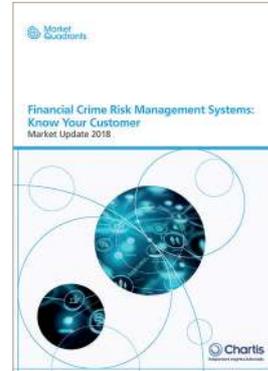
5. Further reading



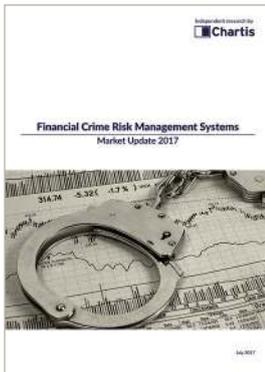
Financial Crime Risk Management Systems: AML and Watchlist Monitoring Solutions, 2019; Market Update and Vendor Landscape



Financial Crime Risk Management Systems: Enterprise Fraud; Market Update 2018



Financial Crime Risk Management Systems: Know Your Customer; Market Update 2018



Financial Crime Risk Management Systems; Market Update 2017



Model Validation Solutions, 2019: Overview and Market Landscape



Global Risk IT Expenditure in Financial Services, 2018 Update

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