AIM Evaluation: Trade Surveillance and Monitoring Solutions

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IMPACT POINTS

- The trade surveillance and compliance vendor technology market is large, diverse, and still growing. Established market leaders as well as recently founded new entrants are actively striving to provide their customers with the best and most updated tools to achieve the most effective trade monitoring results, and the market is highly competitive and highly fragmented.

- Leveraging the Aite Impact Matrix (AIM), a proprietary Aite Group vendor assessment framework, this Impact Report evaluates the overall competitive position of each vendor, focusing on vendor stability, client strength, product features, and client services.

- A total of 15 vendors were invited to participate, and 12 vendors submitted request-for-information (RFI) responses; nine vendors total qualified to be evaluated under the AIM framework. The following criteria were applied to develop a list of eligible vendor participants:
  - Product evaluated must have trade or market surveillance as its primary function
  - Product evaluated must have at least 10 existing customers that have fully implemented and are currently using the solution
  - Vendor or product must not be in the process of being acquired
  - The product submitted for evaluation must be a full comprehensive surveillance solution, as opposed to a collection of functionalities

- As firms increasingly prefer to buy rather than build their surveillance and monitoring technology, and as new customer categories—including buy-side firms, lower-tier sell-side firms, and market centers in the emerging and frontier markets—continue to become more entrenched in surveillance technology investment, the vendor market is expected to continue growing at a yearly double-digit rate for at least the next three years.

- Advancements in next-generation technology are poised to become a key differentiator in coming years, if implementation hurdles can be overcome.

- The differentiators between best-in-class firms and contenders seem to be in the areas of vendor stability and client diversity. Vendors that have a global footprint and long operating histories also have strong reputations and high client service scores.

- Aite Group estimates that trade and market surveillance technology spending has been expanding at an average growth rate of 15.5% per year since 2010 and will surpass US$1 billion by 2021.

- Achieving best-in-class status in Aite Group’s AIM are NICE Actimize Financial Markets Compliance and Nasdaq Smarts.
INTRODUCTION

Aite Group has been tracking the growth of the surveillance and compliance technology market since 2010, and for good reason: Despite being a non-profit-generating tool, surveillance technology has become a necessary area of investment to at least some degree for most financial industry firms. It’s also the largest area of compliance budget allocation for firms across financial industry segments—including buy-side firms, sell-side firms, and market centers—and surveillance technology implementation choices can hold serious sway with regulators during a firm evaluation or audit. In short, trade surveillance and monitoring systems are important, and the demand for the technology isn’t going anywhere for quite a while.

This Impact Report explores some of the key trends within the trade surveillance and monitoring market and discusses the ways in which technology is evolving to address new market needs and challenges. The report also compares and contrasts the offerings and strategies of the leading vendors and highlights their primary strengths and challenges. Finally, to help financial institutions make more informed decisions as they select new technology partners, the report recognizes specific vendors for their strengths in critical areas.

METHODOLOGY

Leveraging the AIM, a proprietary Aite Group vendor assessment framework, this Impact Report evaluates the overall competitive position of each vendor, focusing on vendor stability, client strength, product features, and client services.

The following criteria were applied to develop a list of vendors for participation:

- Product evaluated must have trade or market surveillance as its primary function
- Product evaluated must have at least 10 existing customers that have fully implemented and are currently using the solution
- Vendor or product must not be in the process of being acquired
- The product submitted for evaluation must be a full comprehensive surveillance solution, as opposed to a collection of functionalities

Participating vendors were required to complete a detailed product RFI comprising both qualitative and quantitative questions, conduct a minimum 60-minute product demo, and provide active client references. From August to November 2018, 12 vendors submitted the information required to be eligible for report participation: BAE Systems, b-next, Fidelity Information Services (FIS; Protegent), Intellect Design, London Stock Exchange Group (LSEG; MillenniumIT), Nasdaq (Smarts Trader Surveillance and Smarts Market Surveillance), NICE Actimize (Markets Surveillance Suite), OneMarketData (OneTick), Datawatch (Panopticon), Scila, SIA S.p.A., and Trillium (Surveyor).

Three vendors—FIS Protegent, Scila, and Trillium—elected not to participate in the comparative AIM ranking evaluation by omitting key sections of the RFI, so these vendors have only been included in the informational profile portion of this report.
AIM INTRODUCED

The AIM is a comprehensive proprietary vendor evaluation process designed to provide a holistic analysis of participating vendors and to identify market leaders in each evaluated vendor market. By incorporating many aspects of a vendor’s essential characteristics for success and growth, including financial and client stability, product features, and customer service, the AIM provides an actionable guide for market participants looking for viable third-party vendor solutions and services. Figure 1 highlights the key stages of the AIM methodology.

Figure 1: AIM Methodology

To ensure full transparency in terms of key areas of measurement and evaluation, Aite Group shares the entire AIM with each vendor prior to publication. Each participating vendor also provides client references to measure their overall satisfaction. Details of the client reference survey are shared with the participating vendor and client references prior to the interviews. Aite Group reserves the right to identify and interview other clients that may not be recommended by participating vendors to validate certain areas of analysis.

AIM COMPONENTS

The AIM has four key components: vendor stability, client strength, product features, and client services. Examples of the criteria that could be included in each component are listed in Figure 2.
Figure 2: AIM Key Components

VENDOR STABILITY
The vendor stability component evaluates the overall strength of the vendors in terms of financial stability, management reputation, risk management, and global presence. This component determines whether a given vendor has the basic foundation to compete and sustain its overall market presence.

CLIENT STRENGTH
The client strength component focuses on the number and diversity of customers for vendors, vendor reputation among the clients, and overall customer turnover. This component measures whether a given vendor has a strong foundation of clients and a robust client pipeline to sustain its growth trajectory.

PRODUCT FEATURES
The product features component analyzes the key features and functionality of vendor solutions and services, including implementation options, user experience, and the strength of the future product roadmap. This component measures whether the vendor offers enough key features and functionality to remain competitive.

CLIENT SERVICES
The client services component evaluates the pricing structure and its various attributes as well as the comprehensive nature of the vendor’s client support and service infrastructure. This component measures whether the vendor provides robust service and support to provide real value to its clients.
AIM

After a comprehensive analysis, Aite Group can assess participating vendors within the four key evaluation components (Figure 3).

Figure 3: Sample Assessment via Heat Map Representation

<table>
<thead>
<tr>
<th>Vendors</th>
<th>Vendor stability</th>
<th>Client strength</th>
<th>Client service</th>
<th>Product features</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vendor 1</td>
<td>81%</td>
<td>65%</td>
<td>81%</td>
<td>84%</td>
</tr>
<tr>
<td>Vendor 2</td>
<td>69%</td>
<td>70%</td>
<td>83%</td>
<td>88%</td>
</tr>
<tr>
<td>Vendor 3</td>
<td>86%</td>
<td>61%</td>
<td>81%</td>
<td>88%</td>
</tr>
<tr>
<td>Vendor 4</td>
<td>89%</td>
<td>91%</td>
<td>92%</td>
<td>91%</td>
</tr>
<tr>
<td>Vendor 5</td>
<td>81%</td>
<td>74%</td>
<td>92%</td>
<td>82%</td>
</tr>
<tr>
<td>Vendor 6</td>
<td>86%</td>
<td>96%</td>
<td>81%</td>
<td>82%</td>
</tr>
<tr>
<td>Vendor 7</td>
<td>78%</td>
<td>78%</td>
<td>92%</td>
<td>90%</td>
</tr>
<tr>
<td>Vendor 8</td>
<td>89%</td>
<td>87%</td>
<td>81%</td>
<td>84%</td>
</tr>
<tr>
<td>Vendor 9</td>
<td>69%</td>
<td>61%</td>
<td>89%</td>
<td>88%</td>
</tr>
<tr>
<td>Vendor 10</td>
<td>86%</td>
<td>74%</td>
<td>75%</td>
<td>85%</td>
</tr>
</tbody>
</table>

Source: Aite Group

The AIM leverages these four components to create a concise composite evaluation that identifies market-leading vendors:

- **Vendor strength**: Combining the scores from the vendor stability and client strength, this criterion measures the vendor’s overall long-term business viability as a product and service provider.

- **Product performance**: Combining the scores from the product features and client service components, this criterion measures the product’s ability to deliver on key product functionality and support.

Figure 4 provides a sample output of the AIM, presenting those market-leading vendors that provide robust product performance as well as showcase their ability to execute on their long-term strategies.
The AIM highlights three specific types of vendor groupings as a result of the analysis:

- **Best in class**: Vendors in this grouping represent the leaders in the particular vendor market, with strong financials, diverse client bases, and robust product offerings with industry-leading functionality and reliable client service. These are essentially the leading vendors that everyone else is chasing.

- **Contenders**: Contenders have created stable businesses and client bases as well as competitive product offerings. But they struggle at times to identify the next big market trend or product features, or lack consistent research and development (R&D) or IT investment, leading to a failure to update overall performance and infrastructure. Contenders’ overall competitive positions will vary a bit, from vendors that are having a tough time keeping up with the best-in-class vendors—due to a lack of resources or stable but outdated technology stacks—to vendors that are just inches away from joining the best-in-class grouping if only they could properly execute on the next release or successfully capture a new client segment.
• **Incumbent or emerging:** This last grouping represents vendors that either have large potential for future growth or are established vendors with stagnating offerings. This group may represent startups or vendors with limited resources. They may exhibit unstable business models, low client count, and limited client service capabilities. However, this group of vendors may also support innovative product features and transformative business models that will help them home in on the AIM framework.

The relative positions of vendors that have been bucketed into these three distinctive vendor groupings within the AIM are, of course, not static. In fact, an emerging vendor of today may, given the speed of innovation in recent years, find itself in the best-in-class grouping five years from now.

The beauty of the AIM is that by leveraging this framework, Aite Group analysts can pinpoint vendors’ strengths and weaknesses, and vendors can utilize this framework to make sure they are on the right path to reaching the coveted best-in-class position. The flexibility of the AIM is also designed to be beneficial for financial institutions looking to make vendor decisions tied to their unique set of internal requirements.
THE MARKET

The need for trade and market surveillance and compliance functionality certainly existed before the Global Financial Crisis of 2008, but it was after the ensuing global regulatory overhauls that this formerly niche area of financial technology became one of the most important decisions in most firms’ technology investment roadmaps. At the most basic level, trade and market surveillance (also referred to as monitoring) technology provides a firm, market center, or regulator with the ability to oversee trading activities in a relevant market area and generates alerts based on potentially concerning transactions or patterns over time. At a chosen point in the escalation cycle, these alerts are then reviewed by dedicated compliance personnel and, if deemed legitimate, can serve as the starting point for an investigation. If the technology fulfills its intended purpose and the alerts are properly reviewed and evaluated, an effective trade surveillance system can prevent all manner of pitfalls for a financial institution, including embarrassing and costly violations by rogue employees and their consequences as well as the cessation of operations. Surveillance technology is used in much the same way by regulators and market centers, just with different goals in mind.

This section provides information and analysis around the following issues for the trade and market surveillance space:

- Key market trends
- Key drivers for adoption and challenges
- Key purchasing factors
- Key functionality

KEY MARKET TRENDS

The following market trends are shaping the present and future of the trade surveillance compliance technology market (Table A).

Table A: The Market

<table>
<thead>
<tr>
<th>Market trends</th>
<th>Market implications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prioritization of surveillance technology investment</td>
<td>Surveillance technology will continue to be the largest regtech allocation over the next two years; there is still room in the vendor market for new product development and new implementations.</td>
</tr>
<tr>
<td>Growing preference for buy versus build</td>
<td>As long as the vendor market continues to offer the latest technology advancements at an attainable pricing structure, firms will increasingly turn to the available “buy” options.</td>
</tr>
<tr>
<td>The revised Markets in Financial Instruments Directive (MiFID II), regulatory initiatives, and enforcement that continue to drive the surveillance market</td>
<td>Firms will continue to struggle with regulatory implementation and need to pay attention to which technology advancements to incorporate.</td>
</tr>
</tbody>
</table>
Market trends | Market implications
--- | ---
Development of advanced and next-gen analytics | Vendors will seek partnerships and other ways to incorporate advanced analytics into existing offerings to remain competitive, and firms should pay attention to which offerings are ready for implementation.

Demand for e-communications monitoring integration | E-comms monitoring component integration will become a key differentiator for vendor solutions, and firms will need to judge the best ways to upgrade current infrastructures.

Growth of cloud usage in surveillance | The increasing viability of the cloud option for deployment in surveillance will change the distribution of the products and possibly make room for new entrants with compelling offerings.

Source: Aite Group

PRIORITIZATION OF SURVEILLANCE TECHNOLOGY INVESTMENT

Compliance budgets are expected to remain generous for the next two to three years, and surveillance technology continues to be the largest regtech investment priority for most firms. Therefore, spending on trade and market surveillance should remain high in the near term, reaching over US$1 billion in global spending by 2021. Detailed estimates are shown in Figure 15. While the surveillance vendor market is nearly saturated in terms of number of providers, there is still room for additional spending on new products and implementations—and possibly a new entrant or two if the offering is compelling.

GROWING PREFERENCE FOR BUY VS. BUILD

While the market was previously almost evenly split between surveillance technology purchased from a third party and monitoring systems that were homegrown within firms, firms seeking new implementations have overwhelmingly and increasingly preferred the buy option since 2015. This is due to advancements in vendor functionality as well as increased value for the cost. In fact, some financial firms now have “buy-only” policies for technology investments, as they have reduced resources to in-house IT. Moreover, regulators notoriously prefer to see regtech deployments from established vendors when auditing firms’ compliance strategies—it makes their job easier to reduce vendor risk assessment questions.

REGULATION THAT CONTINUES TO DRIVE SURVEILLANCE ADOPTION

Despite solidification of regulatory developments in the U.S. and talk of potential regulatory rollback, regulatory initiatives and enforcement actions will continue to drive compliance spending overall for at least the next two to three years. Despite continuing developments on the European side, however, firms now have the capacity to focus more on evaluating available solutions to find the best fit for their organization after MiFID II implementation—and they certainly need to, considering that less than 20% of firms consider themselves to be completely prepared for regulatory responses.
DEVELOPMENT OF ADVANCED AND NEXT-GENERATION ANALYTICS

One of the biggest challenges in achieving trade surveillance and monitoring efficacy is reducing false positives, which requires continuous improvements in technology. Such functionalities as machine learning, artificial intelligence (AI), behavioral analytics, and natural language processing (NLP) have moved from the realm of “one day” to becoming prominent inclusions in many vendors’ offering upgrades or near-term product roadmaps—though much of this functionality is still developing. However, traditional functionalities such as lexicon-generated alerts and e-comms review are still necessary until the kinks are worked out in many of the newest advancements. Early adopters should maintain vigilance in reviewing efficacy for new implementations.

DEMAND FOR E-COMMS MONITORING EVOLUTION

Due largely to previous difficulties in controlling false positives instigated by e-comms alert integration when firms implemented new e-comms review technologies before they are truly ready, many firms—especially on the buy-side, in which e-comms monitoring is most crucial to the prevention of insider trading—are significantly behind in their e-comms monitoring and integration strategies. An overwhelming number of buy-side and sell-side firms still rely solely on lexicon-based communications review (when more advanced functionality, such as NLP, is widely available) and maintain stand-alone e-comms alert systems, if they use any. Without integrating alerts from e-comms surveillance and trade surveillance platforms, firms are essentially depending only on human analysis to detect correlations between the two areas, which likely results in significant oversight and potential opportunities for missed connections. While implementation of more advanced e-comms monitoring is necessary, both firms and vendors should pay attention to the testing cycle until the advancements are solidified. However, e-comms integration is one destination on the implementation roadmap that should not continue to be ignored.

GROWTH OF CLOUD USAGE IN SURVEILLANCE

Private cloud utilization has increased in capital markets, as advancements in cybersecurity have made previously unthinkable reliance on cloud deployments almost commonplace within firm technology landscapes. This trend is now spilling over into compliance and regtech—one of the last firm areas to consider even private cloud usage for this realm of sensitive data. With the improvements in privacy and security, many firms are considering or even seeking private cloud deployments in surveillance solutions, which may cause the option to become a competitive differentiator in the imminent future, but data protection will continue to be an area of scrutiny.

FOCUS ON REPUTATIONAL RISK MANAGEMENT

The area of reputational risk management has moved to the center of firms’ compliance strategies after the last decade has witnessed the downfall or severe public opinion censure of several prominent firms after they failed to catch rogue employees and market manipulators in their ranks before the regulators were alerted. Firm executives now realize the importance of regtech investment in helping them prevent their institutions from succumbing to similar fates, which should help keep investment in surveillance and monitoring technology healthy for several years to come.
KEY DRIVERS FOR AND AGAINST ADOPTION

The following factors are contributing to overall trade surveillance technology adoption, particularly vendor solution adoption. These factors also pose challenges for vendors to penetrate additional prospects (Figure 5).

Figure 5: Factors for and Against Adoption

<table>
<thead>
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<th>Adoption promoters</th>
<th>Adoption inhibitors</th>
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<tr>
<td>Importance of preventing major regulatory violations and protecting firm reputation</td>
<td>Regulatory uncertainty and implementation delays leading to technology decision-making delays</td>
</tr>
<tr>
<td>Difficulty of navigating new and evolving regulatory mandates</td>
<td>Persistence of gray areas in regulation surrounding communication data source oversight and employee privacy concerns</td>
</tr>
<tr>
<td>Increased important of regtech utilization to prospects, clients, and regulators</td>
<td>High cost of leading vendor solutions; lack of return-on-investment (ROI) calculation ability to support regtech investment case</td>
</tr>
<tr>
<td>For buy-side firms, the need to oversee activities of sell-side partners</td>
<td>For buy-side firms, lack of scalability in some product options</td>
</tr>
<tr>
<td>Desire to use scalability to achieve competitiveness and cost reductions</td>
<td></td>
</tr>
</tbody>
</table>

Source: Aite Group

DRIVERS FOR ADOPTION

- **Preventing regulatory violations and protecting firm reputation**: This is a key area of importance for compliance managers building a surveillance technology investment case. Trade surveillance solutions may not generate profit, but they are key in loss prevention and in the prevention of serious reputational damage resulting from a highly publicized market manipulation scandal.

- **Navigating regulatory mandates**: The post-crisis regulatory overhaul has resulted in several new global regulations that are significantly more complicated and burdensome for firms to understand, much less implement. Adoption of out-of-the-box and customizable vendor solutions can help compliance officers reduce headaches and the compliance cycle, as well as improve efficacy by relying on external expertise, by diminishing the need for firm resources dedicated to designing the needed regtech infrastructures.

- **Regtech strategy importance**: In addition to the basic compliance function, regulators place heavy importance on a firm’s vendor utilization; contracting with a reputable vendor and installing a strong surveillance system can go a long way in convincing regulators that the firm has given its best efforts to protecting market and trading integrity.
• **Demand for sell-side partner oversight:** For buy-side firms, adoption of surveillance technology has the added benefit of allowing them to detect best-execution violations from their sell-side partners, such as front-running. Moreover, using a vendor for this function provides greater neutrality and legitimacy than using homegrown tools.

• **Achieving scalability and cost reduction:** Adopting a vendor regtech strategy firmwide can help firms reduce both cost and headaches in achieving a consistent compliance technology repertoire.

**DRIVERS AGAINST ADOPTION**

• **Regulatory uncertainty:** New regulatory mandates often undergo major augmentations prior to implementation, or are simply delayed for long periods of time. Although this objection has diminished following the full launch of MiFID II, it still remains as one reason firms may choose to delay regtech investment decision-making.

• **Communications monitoring challenges:** Implementation and integration of e-comms monitoring solutions is on the to-do list for many firms, but the process can be delayed by the difficulty of interpreting nonspecific regulation and navigating employee privacy concerns.

• **Cost-versus-benefit objections:** Although the benefits of installing a surveillance and monitoring system are clear, firm executives will still harbor objections to high spending limits for technology that does not contribute to profit-generating functions, thus making a true ROI calculation impossible.

• **Lack of options for low-volume firms:** Buy-side firms and small sell-side firms represent a growing customer base in surveillance technology spending, but the lack of scalable options can make their vendor search difficult. While some vendors have developed options scalable to firms with lower trading volume in recent years, the vendor community as a whole has work to do in this area.

**KEY FUNCTIONALITY**

When it comes to key functionality, a set of minimum requirements must be met in order to sustain the basic needs of the clients. These minimum requirements are typically the same across regions and are found in nearly all vendors in the market.

In order to increase overall adoption and capture additional market share, vendors are focused on developing functionality that presents competitive differentiators. Competitive differentiators might not be attractive to all potential clients, but they are driving key client adoption and often could mean the difference for those firms looking for specific functionality needs. Features noted as next generation could become the standard industry practices within a decade; on the other hand, they could be completely ignored. Given the limited resources within each vendor, it is imperative that appropriate investments are made across the needs of past, current, and future clients (Figure 6).
Figure 6: Key Functionality Trend

<table>
<thead>
<tr>
<th>Minimum requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability to capture real-time data from markets</td>
</tr>
<tr>
<td>Ability to analyze firm’s trading data against the direct data from markets</td>
</tr>
<tr>
<td>Support for analysis at firm level, account level, and trader level</td>
</tr>
<tr>
<td>Flexible workflow</td>
</tr>
<tr>
<td>Support for complete audit trail</td>
</tr>
<tr>
<td>Robust case management feature</td>
</tr>
<tr>
<td>Mobility support</td>
</tr>
<tr>
<td>Visualization features (heatmaps, etc.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Competitive differentiators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynamic update of parameters; self-calibrating solution</td>
</tr>
<tr>
<td>Ability to alter alert parameters without vendor involvement</td>
</tr>
<tr>
<td>Seamless incorporation of voice recordings and video feeds</td>
</tr>
<tr>
<td>Analysis of unstructured data within the platform’s native environment</td>
</tr>
<tr>
<td>Support for multiregion, cross-asset class analysis</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Next generation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine learning</td>
</tr>
<tr>
<td>AI integration</td>
</tr>
<tr>
<td>Behavioral benchmarking</td>
</tr>
<tr>
<td>Natural language recognition</td>
</tr>
<tr>
<td>Integrated e-comms alerts</td>
</tr>
</tbody>
</table>

Source: Aite Group
KEY STATISTICS AND PROJECTED IT SPENDING

This section provides information and an analysis of key market statistics as well as projected IT spending related to the vendor market.

ANNUAL REVENUE ESTIMATES ANALYSIS

Two-thirds of the vendors that provided revenue information in their RFI responses report an annual revenue of over US$50 million from surveillance technology products (Figure 7). These results indicate that, despite the existence of vendors considered to be market leaders in the U.S. and Europe, the surveillance vendor landscape is not consolidated, with several firms generating significant chunks of industry revenue. Aite Group expects to see industry consolidation waves grow through 2020.

Figure 7: Annual Revenue Estimates Breakdown

Annual Revenue Estimates Breakdown, 2017
(N=9 vendors)

Source: Vendors

PROFITABILITY ANALYSIS

The majority of vendors (89%) that provided this information report positive profitability results (Figure 8). Considering that some of these vendors have launched or significantly overhauled their solutions within the last five years, this is an impressive profitability report with positive implications for the ongoing health of the surveillance sector. Barriers to the surveillance market are low for existing fintech vendors, but excelling in the space after entering is a different story. Vendors—especially those that have other product lines—can be in the black with only a few customers, which is what makes this market so attractive to fintech firms, but real success takes a bit more differentiation.
GROWTH-RATE ANALYSIS

More than three-quarters of vendors providing 2016 and 2017 revenue information achieved annual growth of more than 15% in 2017, and another 11% of vendors reported growth of 11% to 15% (Figure 9). These are remarkably high figures for products not contributing to firms’ profit generation. Aite Group notes that these rates of growth cover both vendors starting from low customer bases and established vendors starting from high customer bases—industry growth is simply high overall, regardless of where vendors begin. Moreover, new implementations, which can cost up to 12 times as much as yearly licensing, subscriptions, and upgrades, does not represent the majority share of revenue growth—thus resulting in positive implications for the continuation of strong surveillance spending for several years to come.

Figure 8: Vendor Profitability

Profitability Breakdown, 2017
(N=9 vendors)

Positive 89%
Negative 11%

Source: Vendors
CLIENT BREAKDOWN BY TYPE

The institutional broker market continues to be the leading customer segment for surveillance technology vendors, but other segments have noticeably expanded since the publication of Aite Group’s last vendor evaluation series (Figure 10). In terms of number of clients, buy-side firms and market centers have grown to represent larger slices of the pie than previously anticipated, and retail brokers have grown enough to maintain market share. Aite Group expects to see future client growth coming from buy-side firms and institutional brokers (Tier-2, Tier-3, and Tier-4), although spending growth will continue to be bolstered by the largest-tier brokers, as they have the highest trading volume coverage needs. In terms of new deployments, new customers will come mostly from the buy-side (where demand has been growing due to increases in directly executed trades) and lower-tier brokers, but existing customers will continue to spend on subscriptions and upgrades.¹

CLIENT BREAKDOWN BY REGION

At almost 60% of trade surveillance platform customers, developed Europe contributes the greatest number of client firms by far, due to the size of the market and the stringency and coverage breadth of recently implemented regulatory initiatives (Figure 11). The U.S. follows in second place with 17% of client firms; even considering the relative size of the U.S. and European markets, this number indicates that U.S. firms are definitely behind European firms in vendor trade surveillance platform adoption rates. The U.S. market isn’t sufficiently small enough in size to justify that large of a difference in customer numbers. One factor here is that the majority of vendors included in this report are not U.S.-based, although client numbers from the U.S. market leaders are accounted for. Had all surveillance clients in the U.S. been included, the market share might grow by 10%, still well behind the European market.

Meanwhile, customers in the Asia-Pacific and emerging markets are growing in vendor technology spending share and are poised for future growth; Aite Group expects to see client percentages from these regions double over the next two to three years as their markets rebound and investment flows from international markets increase, thus necessitating increases in compliance infrastructure spending to satisfy the regulatory and risk management needs of developed market investment firms. Lastly, the Canadian market share appears small, at 3% of clients, but this reflects the early investment in surveillance technology from nearly all eligible Canadian firms—in 2013, Canada represented 11% of client deployments.\(^2\)

---

While new client wins do not represent a huge percentage of vendor spending growth, nearly three-quarters of vendors report over three wins per year, with one-third recording six or more wins (Figure 12). For the surveillance sector, these numbers indicate a healthy rate of new client growth, keeping in mind that very few vendors have more than 100 clients in total for trade surveillance. Additionally, new implementations generally cost in the neighborhood of US$1 million, which means that new client wins constitute significant additions to yearly revenue. However, new implementations have not been outpaced by ongoing business for the established vendors—the bulk of vendors’ yearly revenue still comes from ongoing subscriptions and upgrades.
**Figure 12: Average New Client Wins in the Last Three Years**

![Average New Client Wins](image)

*Source: Vendors*

**DEPLOYMENT OPTIONS ANALYSIS**

The majority of surveillance platform deployments (63%) are traditional on-site installations, but hosted options are growing in popularity (Figure 13) as firms become more comfortable with cybersecurity concerns in relation to compliance and trading data. However, on-site implementations will continue to dominate the landscape, as few customers are interested in changing their current deployments. A major driver of the growing preference for hosted deployments is efficiency as well as total cost of ownership (TCO) reduction.

**Figure 13: Deployment Options**

![Deployment Options](image)

*Source: Vendors*
CLIENT REFERENCE FEEDBACK

Interviews and survey analysis from client references reveal that most customers—or at least the references provided to Aite Group for this report—are satisfied with their trade surveillance technology providers (Figure 14). In all categories, average scores hover around 4.0 on a five-point scale, with four defined as “satisfied” and five defined as “very satisfied.” Most vendors score highest in features and functionality, user interface, and cost-value analysis. The lowest scores are usually given in the areas of customer service, particularly the ability to deliver on promises and support for customization. These areas are not terrible, however; results mostly infer that vendors have focused primarily on product development but will need to work on tailoring their offerings to client needs going forward. One consistent complaint is the slow response of some vendors to client customization requests and their lack of ability to respond quickly to promised upgrades.

Figure 14: Client Reference Average Scoring

<table>
<thead>
<tr>
<th>Client Reference Feedback</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Responsiveness to suggested product changes</td>
<td>4.0</td>
</tr>
<tr>
<td>Quality of features and functionality</td>
<td>4.2</td>
</tr>
<tr>
<td>Ease of upgrades</td>
<td>4.1</td>
</tr>
<tr>
<td>Ease of implementation/integration</td>
<td>4.0</td>
</tr>
<tr>
<td>Support for customization</td>
<td>4.0</td>
</tr>
<tr>
<td>User interface</td>
<td>4.4</td>
</tr>
<tr>
<td>Cost value analysis</td>
<td>4.3</td>
</tr>
<tr>
<td>Ability to deliver on promises</td>
<td>3.9</td>
</tr>
<tr>
<td>Quality of service and support</td>
<td>4.1</td>
</tr>
<tr>
<td>Vendor reputation</td>
<td>4.3</td>
</tr>
<tr>
<td>Quality of management team</td>
<td>4.3</td>
</tr>
</tbody>
</table>

Source: Vendors

Some additional customer-reference feedback of interest follows:

- For cost value, customers are generally satisfied with their vendor’s offering, but one comment that comes up consistently is the wish-list demand for true all-inclusivity. Several clients remark that they would prefer data feeds to be included in the package, particularly those that prioritized holistic solutions and that were paying for top-of-the-line platforms.

- One of the biggest areas of positive feedback centers on user interfaces. Many customers share that interfaces and visualizations are, in fact, the competitive differentiators between offering choices. The biggest factor that seems to win clients over is the depth of drill-down menus.
• Quality of service and client support ratings heavily correlate with the existence of institutionalized customer involvement, such as client feedback boards and dedicated account management.

**PROJECTED IT SPENDING**

Aite Group’s IT spending estimates on the trade surveillance market include the following key components:

- Vendor trade and market surveillance and monitoring solutions
- Supporting trade surveillance technologies, such as communications monitoring components and language analytics tools
- Implementation costs

Having expanded at a 15.5% compound annual growth rate since 2010, surveillance technology spending is likely to reach US$765 million in 2018 and surpass US$1 billion in 2021 (Figure 15). These figures take into account new client adoption from the buy-side and lower sell-side tiers, as well as continued spending on license fees, subscriptions, and upgrades from existing customer bases. Customer prioritization of surveillance spending as well as continued emphasis on compliance and regulatory concerns, as detailed in previous sections of this report, will continue to drive surveillance technology spending growth. Growth rate differentials, as shown in Figure 15, mostly follow regulatory implementation patterns, as clients will tend to hold off on two implementations when a regulatory initiative is first introduced, and then kick the spending into high gear when implementation becomes imminent directly afterward.

**Figure 15: Projected Global IT Spending in Trade Surveillance Technology Market**

![Projected Vendor IT Spending on Market Surveillance and Trade Compliance, 2010 to 2021](image)

*Source: Aite Group*
VENDOR COMPARISONS

This section presents comparative data and profiles for the individual vendors that participated in the AIM evaluation. This is by no means an exhaustive list of vendors, and firms looking to undergo a vendor selection process should conduct initial due diligence prior to assembling a list of vendors appropriate for their own unique needs. Table B presents basic vendor information for the participating solutions.

Table B: Basic Vendor Information

<table>
<thead>
<tr>
<th>Firm</th>
<th>Headquarters</th>
<th>Year founded</th>
<th>Target client role</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAE Systems</td>
<td>Guildford, U.K.</td>
<td>1999</td>
<td>Compliance, front-office control, regulatory risk or fraud investigation units (FIUs)</td>
</tr>
<tr>
<td>b-next</td>
<td>Herford, Germany</td>
<td>1989</td>
<td>Chief compliance officers (CCOs), chief risk officers, chief operating officers</td>
</tr>
<tr>
<td>FIS</td>
<td>Jacksonville, Florida</td>
<td>1968</td>
<td>CCOs, compliance IT, compliance risk, etc.</td>
</tr>
<tr>
<td>Intellect Design</td>
<td>Chennai, India</td>
<td>2003</td>
<td>Sell-side firms—chief executive officers (CEOs)/chief technology officers (CTOs)/business users—head traders, operations heads, risk managers</td>
</tr>
<tr>
<td>LSEG</td>
<td>London</td>
<td>1801</td>
<td>Financial markets infrastructure: Existing customer base is exchanges and trading venues; target market includes regulators</td>
</tr>
<tr>
<td>Nasdaq</td>
<td>New York</td>
<td>1994</td>
<td>CCOs, heads of compliance/surveillance</td>
</tr>
<tr>
<td>NICE Actimize</td>
<td>Hoboken, New Jersey</td>
<td>1999</td>
<td>Heads of compliance technology, trade surveillance, or CCOs</td>
</tr>
<tr>
<td>OneMarketData</td>
<td>Hoboken, New Jersey</td>
<td>2004</td>
<td>Compliance/regulatory solutions</td>
</tr>
<tr>
<td>Panopticon</td>
<td>Troy, Massachusetts</td>
<td>1999</td>
<td>Trading, compliance</td>
</tr>
<tr>
<td>Scilla</td>
<td>Stockholm</td>
<td>2008</td>
<td>Heads of compliance, heads of surveillance, heads of risk</td>
</tr>
<tr>
<td>SIA</td>
<td>Milan</td>
<td>1996</td>
<td>Heads of compliance</td>
</tr>
<tr>
<td>Trillium</td>
<td>New York</td>
<td>2003</td>
<td>Compliance and surveillance</td>
</tr>
</tbody>
</table>

Source: Vendors

Table C presents high-level production information.
Table C: Basic Product Information

<table>
<thead>
<tr>
<th>Firm</th>
<th>Product name</th>
<th>Launch date</th>
<th>Current version</th>
<th>Pricing structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAE Systems</td>
<td>NetReveal Unauthorised Trading behavior analytics solution</td>
<td>2012</td>
<td>UT 2.0, Advanced Analytics Platform 2.2 and Scenario Manager 4.8</td>
<td>Customer tier, and volume- and value-based pricing</td>
</tr>
<tr>
<td>b-next</td>
<td>CMC:eSuite</td>
<td>5.2.2</td>
<td></td>
<td>Annual recurring license model or perpetual one-off with maintenance</td>
</tr>
<tr>
<td>FIS</td>
<td>Protegent Market Abuse</td>
<td>2012</td>
<td>18.2</td>
<td>Customer tier and volume-based pricing</td>
</tr>
<tr>
<td>Intellect Design</td>
<td>Intellect Capital Alpha (ICA; with integrated Trade Surveillance)</td>
<td>2007</td>
<td>17.0.3.0</td>
<td>Annual license and customization fees</td>
</tr>
<tr>
<td>LSEG</td>
<td>Millennium Surveillance</td>
<td>2009</td>
<td>5</td>
<td>Annual license plus implementation and customization fees</td>
</tr>
</tbody>
</table>
<pre><code>                                                                     |                                      |                              | Smarts Trade: Annual subscription                                         |
</code></pre>
| NICE Actimize      | Markets Surveillance Enterprise and Markets Surveillance Cloud | 2007        | 5.9.2           | On-premises: Customer tier-based pricing, perpetual license
                                                                         |                                      |                              | Cloud: Volume-based pricing                                               |
| OneMarketData      | OneTick Trade Surveillance, OneTick Market Surveillance | 2015        | N/A             | Customer tier, number of asset classes, hosted or deployed, and volume-based pricing |
| Panopticon         | Panopticon Streaming Analytics                   | 1999        | 17.1            | Perpetual license with annual maintenance or annual subscription with three years minimum |
Table D presents high-level technical information associated with each product. For more detailed information, buy-side firms should consult individual vendors.

<table>
<thead>
<tr>
<th>Vendor/product</th>
<th>Programming language(s)</th>
<th>Operating system(s) supported</th>
<th>Desktop requirement</th>
<th>Methods to connect to third-party applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAE Systems</td>
<td>Java, Javascript, SQL</td>
<td>Microsoft Internet Explorer</td>
<td>Oracle RDBMS and IBM</td>
<td></td>
</tr>
<tr>
<td>FIS</td>
<td>C#, Javascript, SQL</td>
<td>Agnostic for browser versions within the last the years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intellect Design</td>
<td>Java, C, C++, HTML5, CSS, Javascript, C#</td>
<td>Processor: Pentium IV or above</td>
<td>Charting tools</td>
<td></td>
</tr>
<tr>
<td>LSEG</td>
<td>C++, Java, Python, Scala, Javascript</td>
<td>Windows</td>
<td>PostgreSQL, Oracle</td>
<td></td>
</tr>
<tr>
<td>Vendor/product</td>
<td>Programming language(s)</td>
<td>Operating system(s) supported</td>
<td>Desktop requirement</td>
<td>Methods to connect to third-party applications</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------------------</td>
<td>-------------------------------</td>
<td>---------------------</td>
<td>-----------------------------------------------</td>
</tr>
<tr>
<td>Nasdaq</td>
<td>Windows, Java 1.6 update 16 or higher</td>
<td>Windows</td>
<td>Windows</td>
<td>Windows and RHEL (unless hosted in which case RHEL is not required)</td>
</tr>
<tr>
<td>NICE Actimize</td>
<td>Scala, Java, Javascript, AIS (Actimize proprietary language written in C++)</td>
<td>Access via web browser; Chrome and Internet Explorer supported</td>
<td></td>
<td>Analytics engine: Windows or Linux</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Investigation server: Runs within a web application server such as Apache Tomcat</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Database: Oracle or Microsoft SQL server</td>
</tr>
<tr>
<td>OneMarketData</td>
<td>One Tick Query Language and Python</td>
<td>Windows, Linux</td>
<td>Reasonably modern browser</td>
<td>Linux or windows server, any desktop</td>
</tr>
<tr>
<td>Panopticon</td>
<td>Java, Javascript, C#</td>
<td>Java, standard desktop PC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scila</td>
<td>100% Java</td>
<td>Java database for the server, only Java for the client</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SIA</td>
<td>Java, Javascript, C++, Transact-SQL</td>
<td>Windows</td>
<td>Browser: Internet Explorer, Chrome, Firefox</td>
<td>Windows server (min 2012), Microsoft SQL Server (min 2014), Tomcat 7.5 (or IBM websphere, Microsoft IIS)</td>
</tr>
<tr>
<td>Trillium</td>
<td>Several</td>
<td>Windows, Linux</td>
<td>Any platform capable of running Microsoft’s Remote Desktop client (Windows, MacOS, etc.)</td>
<td>None</td>
</tr>
</tbody>
</table>

Source: Vendors

Table E presents each vendor’s standard client service offerings. For certain vendors, stronger client support will be available for an additional fee.
Table E: Client Service Support

<table>
<thead>
<tr>
<th>Vendor</th>
<th>Service-level agreement</th>
<th>Online issue tracking</th>
<th>Single point of contact*</th>
<th>24/7 support*</th>
<th>Global/localized support*</th>
<th>Onsite training*</th>
<th>Online training*</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAE Systems</td>
<td>■</td>
<td>■</td>
<td>□</td>
<td>□</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>b-next</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>FIS</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>□</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Intellect Design</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>□</td>
<td>□</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>LSEG</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Nasdaq</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>NICE Actimize</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>OneMarketData</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Panopticon</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Scila</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>SIA</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Trillium</td>
<td>□</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
</tbody>
</table>

Source: Vendors

Key: ■ = Yes; □ = Planned or partial; □ = No

* = Standard service with no additional fee

Table E presents each vendor’s ability to support deployment options.

Table F: Product Deployment Options

<table>
<thead>
<tr>
<th>Vendor/product</th>
<th>On-site</th>
<th>Hosted</th>
<th>Cloud</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAE Systems/NetReveal</td>
<td>■</td>
<td>□</td>
<td>■</td>
</tr>
<tr>
<td>b-next/CMC:eSuite</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>FIS/Protegent</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Intellect Design/ICA</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>LSEG/Millennium Surveillance</td>
<td>■</td>
<td>□</td>
<td>■</td>
</tr>
<tr>
<td>Nasdaq/Smarts Surveillance</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>NICE Actimize/Markets Surveillance Suite</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
</tbody>
</table>
Table G presents a list of key features and functionality offered by each vendor.

Table G: Key Functionality

<table>
<thead>
<tr>
<th>Vendor/product*</th>
<th>Compliance dashboard</th>
<th>Configurable workflow</th>
<th>Case management</th>
<th>Visualizations/heat map</th>
<th>Pattern detection</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAE Systems/NetReveal</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>b-next/CMC:esuite</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>FIS/Protegent</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>¶</td>
<td>□</td>
</tr>
<tr>
<td>Intelect Design/ICA</td>
<td>¶</td>
<td>¶</td>
<td>¶</td>
<td>¶</td>
<td>¶</td>
</tr>
<tr>
<td>LSEG/Millennium Surveillance</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Nasdaq/Smarts Surveillance</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>NICE Actimize/Markets Surveillance Suite</td>
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<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>OneMarketData/OneTick</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
<tr>
<td>Panopticon/Panopticon Streaming Analytics</td>
<td>¶</td>
<td>¶</td>
<td>¶</td>
<td>¶</td>
<td>¶</td>
</tr>
<tr>
<td>Scila/Scila Surveillance</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
<td>□</td>
</tr>
</tbody>
</table>
### Table H: Key Functionality (Continued)

<table>
<thead>
<tr>
<th>Vendor/product*</th>
<th>Data integration</th>
<th>Newsfeed integration</th>
<th>Unstructured data analysis</th>
<th>Market replay</th>
<th>Cross-asset alerts</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAE Systems/NetReveal</td>
<td>■</td>
<td>◼</td>
<td>■</td>
<td>◼</td>
<td>■</td>
</tr>
<tr>
<td>b-next/CMC:eSuite</td>
<td>■</td>
<td>■</td>
<td>◼</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>FIS/Protegent</td>
<td>■</td>
<td>■</td>
<td>□</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Intellect Design/ICA</td>
<td>◼</td>
<td>◼</td>
<td>◼</td>
<td>□</td>
<td>◼</td>
</tr>
<tr>
<td>LSEG/Millennium Surveillance</td>
<td>■</td>
<td>■</td>
<td>◼</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Nasdaq/Smarts Surveillance</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>NICE Actimize/Markets Surveillance Suite</td>
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<tr>
<td>OneMarketData/OneTick</td>
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<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>Panopticon/Panopticon Streaming Analytics</td>
<td>◼</td>
<td>◼</td>
<td>◼</td>
<td>□</td>
<td>◼</td>
</tr>
<tr>
<td>Scila/Scila Surveillance</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
<tr>
<td>SIA/SIA Eagle</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
<td>■</td>
</tr>
</tbody>
</table>

Source: Vendors

Key: ■ = Yes; ◼ = Planned or partial; □ = No

*All vendors provide full functionality for parameter-setting capabilities, configurable alerts, audit trail support, standard reports, and ad hoc reports
<table>
<thead>
<tr>
<th>Vendor/product*</th>
<th>Data integration</th>
<th>Newsfeed integration</th>
<th>Unstructured data analysis</th>
<th>Market replay</th>
<th>Cross-asset alerts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trillium/Surveyor</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Source: Vendors

Key: ■ = Yes; ☐ = Planned or partial; ☐ = No

*All vendors provide full functionality for parameter-setting capabilities, configurable alerts, audit trail support, standard reports, and ad hoc reports
AIM EVALUATION

This section will break down the individual AIM components, drawing out the vendors that are strong in each area and how they are differentiated in the market.

THE AIM COMPONENTS ANALYSIS

Figure 16 overviews how each vendor scores in the various areas of importance. Each vendor is rated, in part, based on its own data provided in response to the RFI distributed by Aite Group as well as product demos and follow-up discussions as part of the AIM process. Ratings are also driven by the reference customers of the examined vendors to support a multidimensional rating.

Figure 16: AIM Components Analysis by Heat Map

<table>
<thead>
<tr>
<th>Vendors</th>
<th>Vendor stability</th>
<th>Client strength</th>
<th>Client service</th>
<th>Product features</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAE</td>
<td>91%</td>
<td>66%</td>
<td>76%</td>
<td>89%</td>
</tr>
<tr>
<td>b-next</td>
<td>80%</td>
<td>83%</td>
<td>73%</td>
<td>87%</td>
</tr>
<tr>
<td>Intellect Design</td>
<td>89%</td>
<td>81%</td>
<td>66%</td>
<td>74%</td>
</tr>
<tr>
<td>LSEG</td>
<td>85%</td>
<td>77%</td>
<td>70%</td>
<td>81%</td>
</tr>
<tr>
<td>Nasdaq</td>
<td>99%</td>
<td>99%</td>
<td>87%</td>
<td>91%</td>
</tr>
<tr>
<td>NICE Actimize</td>
<td>97%</td>
<td>99%</td>
<td>86%</td>
<td>95%</td>
</tr>
<tr>
<td>OneMarketData</td>
<td>84%</td>
<td>82%</td>
<td>71%</td>
<td>94%</td>
</tr>
<tr>
<td>Panopticon</td>
<td>78%</td>
<td>90%</td>
<td>83%</td>
<td>69%</td>
</tr>
<tr>
<td>SIA</td>
<td>69%</td>
<td>96%</td>
<td>79%</td>
<td>92%</td>
</tr>
</tbody>
</table>

Legend:
- BEST IN CLASS: 91%-100%
- INCUMBENT/EMERGING: 81%-90%, 65%-80%, <65%

Source: Vendors, Aite Group

VENDOR STABILITY

Vendor stability ratings cover areas such as revenue and client size, international office presence, employee characteristics, management culture, and risk controls. NICE Actimize, Nasdaq, and BAE Systems achieve best-in-class rankings in the vendor stability category. As the historic market leaders and longest-established vendors in the surveillance space, this result is somewhat predictable—although no less meaningful—for NICE Actimize and Nasdaq, while BAE Systems, with fewer than 10 clients, is able to use its resources as a large multinational corporation to achieve strength in this area. The stability category is an important criteria for vendors. Also of note in vendor stability are the scores from LSEG, Intellect Design, and OneMarketData, with the ranking of the last being particularly impressive considering its status as a fairly new entrant to the space, while the former two are larger companies with longer operating histories.
CLIENT STRENGTH
The client strength category measures factors such as client support resources, training programs, client involvement in vendor strategy, product pricing, and client feedback on service and support as well as cost value. NICE Actimize achieves a higher score of over 99% in this category on the strength of its client retention rate, client growth, and especially customer feedback on vendor reputation. So does Nasdaq, with a flat 99% based on continual growth statistics and complimentary customer feedback, with SIA S.p.A. trailing it slightly at 96%. With the exception of BAE Systems, the rest of the vendors also perform relatively well, with scores ranging from 82% to 90%. A factor that slightly hurts some vendors here is the lack of new client wins and low customer ratings on vendor reputation.

CLIENT SERVICE
Client service proved to be a more difficult category for the vendors to excel in, but market leaders Nasdaq and NICE Actimize garner the highest scores here, with 87% and 86%, respectively. Dataview’s Panopticon placed third with 83%, and the rest of the vendors score between 70% and 80%, except Intellect Design. One factor that slightly hurts some vendors is the lack of a customer advisory board, which also tends to be reflected in their references’ feedback on client responsiveness. In general, more client-service-related features offered by the vendor correlate closely with higher customer reference ratings, so that results in a bit of double jeopardy, thus making it more difficult for vendors missing certain infrastructures, such as global support, to achieve higher scores in this area. One caveat is that because customer feedback weighs heavily in this category, it should be considered that all client opinions are not equal, but firms that provided more references generally perform better.

PRODUCT FEATURES
The product features category most heavily depends on client references, in addition to available features and functionality. NICE Actimize again leads the pack with 95%, closely followed by OneMarketData (94%), SIA S.p.A. (92%), and Nasdaq (91%). BAE Systems and b-next follow in the high 80s, with 89% and 87%, respectively. Lastly, Trillium receives an honorable mention here; had it been eligible to participate in the full AIM evaluation, its score in this category would have tied with b-next.

While most vendors scored well in their feature offerings, key differentiators for product features prove to be client feedback on the user interface and vendor responsiveness to client feedback. Early adoption of next-generation functionality is certainly a plus, and it factors into the rankings, but Aite Group places greater importance on the strength of bread-and-butter items, especially customer experience. To improve scores in features and functionality, vendors are advised to set up client feedback programs, particularly. There was a noticeable correlation between lack of customer advisory boards and lower customer feedback scores.

THE AIM RECOGNITION
To recap, the final results of the AIM recognition are driven by three major factors:

- Vendor-provided information based on Aite Group’s detailed AIM RFI document
- Participating vendors’ client reference feedback or feedback sourced independently by Aite Group
- Analyst analysis based on market knowledge and product demos provided by participating vendors

Figure 17 represents the final AIM evaluation, highlighting the leading vendors in the market.

**Figure 17: Trade Surveillance AIM**

**BEST-IN-CLASS VENDORS: NICE ACTIMIZE AND NASDAQ**

With arguably some of the longest product histories and inarguably the highest absolute number of clients across geographies, U.S.-based surveillance vendors NICE Actimize and Nasdaq see their status as market leaders reflected in the results of Aite Group’s AIM analysis, with both vendors landing in the best-in-class ranking, which requires them to garner over 90% averages from all major ranking groups.
Aite Group notes that although these two vendors are known to be market leaders and thus have the top spots in terms of market share, the size factor actually accounts for only a small portion of their high scores. A synopsis of their results is as follows:

- **Vendor strength**: An average of the vendor stability and client strength evaluations, Nasdaq and NICE Actimize score 99% and 98%, respectively, in the y-axis category of Aite Group’s AIM evaluation. Both vendors receive positive client feedback, particularly in the vendor reputation section, but the bulk of the high scores is due to their extensive client base, global footprints, and continuous high rates of new client wins. For the vendor strength measurement, it is the latter factor that sets both market leaders apart from the group; while their client reference scores are favorable, several incumbents receive similar ratings here.

- **Product performance**: An average of client service and product features, this category’s leaders are also NICE Actimize and Nasdaq, which once again come in one percentage point apart, albeit in reverse order, at 90% and 89%, respectively. The key differentiators here are the robust client service infrastructures in both vendors, which is also reflected in their client service customer reference scores as well as in the comprehensiveness of their offerings and asset class coverage. While their core features and functionality scores are not markedly higher than those of the rest of the group, again the strength of their client references, particularly in the case of NICE Actimize, gives their scores the extra boost needed to land in the best-in-class range.

**Leaders of the Contenders: OneMarketData and SIA**

While OneMarketData and SIA S.p.A. are the two leaders of the contenders—their results are summarized below—Aite Group notes that BAE Systems and b-next also score closely in the contender category, with each obtaining an overall average score of 81%.

- **OneMarketData**: OneMarketData’s OneTick trade surveillance solution scores 83% in vendor strength, which is driven by its profitability, growth rates, and third-party risk assessment infrastructure. It also scores 83% in product performance, a score that is largely driven by the 94% it received for product features—itself due mostly to high scores in breadth of available functionality, responsiveness to client feedback, and analyst experience rating. One factor that prevents OneMarketData from achieving a higher score in the client service area is its lack of pricing information, which hinders comparability to other offerings.

- **SIA S.p.A.**: SIA’s surveillance solution achieves an 82% average in vendor strength, mostly thanks to a best-in-class-level score of 96% in the client strength category, due to significant results in new client wins, retention rate, and especially customer feedback on vendor reputation—in which SIA scores higher than any other vendor. In the x-axis product performance category, SIA lands in third place with a hard-fought 85%, which was driven by a best-in-class rating of 92% in product features, due mostly to high scores for user interface, customization support, and notably customer feedback in responsiveness to client suggestions. Unfortunately, achieving full best-in-class average is prevented by lower scores in vendor stability and client...
service; if SIA were to expand its office presence to match its global footprint; improve vendor stability factors such as risk controls, business continuity planning, and insurance coverage; offer 24/7 client support; and provide more detailed pricing structure information, its overall ranking would no doubt come much closer to best-in-class status.
VENDOR PROFILES

This section provides profiles of vendors that have participated in this AIM evaluation.

BAE SYSTEMS APPLIED INTELLIGENCE

The Applied Intelligence division within BAE Systems, based in Guildford, U.K., operates across the U.K.; Europe, the Middle East, and Africa (EMEA); the Americas; and the Asia-Pacific. The vendor is focused on financial crime compliance and suspicious activity monitoring. Recently, BAE Systems has brought its expertise in analytics to the trade surveillance realm, launching the NetReveal Behavioral Analytics Solution, which has been extended from Unauthorized Trading; the latter specializes in detection of rogue trading events using sophisticated analytics. The NetReveal platform has been deployed since 2013 at five large investment banks and enables identification of both known risk scenarios and unknown abnormal patterns of trading and individual behavior.

AITE GROUP’S TAKE

BAE Systems has developed an attractive offering by using its expertise and reputation in advanced analytics to address some of the key challenges that are currently front-and-center in the trade surveillance technology market—namely, holistic coverage and integration of structured and unstructured data sources. Its solution’s features and functionality are certainly attractive and encompass the key next-gen technology features on most clients’ wish lists, in particular behavioral analytics and trader risk scoring, and client reference feedback is glowingly positive. Yet it has not gained as many clients as would be expected based on the solution’s capabilities, likely due to market saturation in the top-tier customer segment to which it has been attempting to cater. If BAE Systems’ offering could be scaled and marketed to lower-tier firms looking for top-notch trade surveillance functionality, it may find a greater amount of market share success.

All of BAE Systems’ five clients are Tier-1 global investment banks, and thus all have multinational operations across a wide range of asset classes; four of them have headquarters in western Europe, and one is based in a developed Asia-Pacific nation (Figure 18).
**Figure 18: BAE Systems Customer Geographic Distribution**

![BAE Clients by Geography](image)

Source: BAE Systems, Aite Group

**BASIC FIRM AND PRODUCT INFORMATION**

- **Headquarters**: Guildford, U.K.
- **Company founded**: BAE Systems Artificial Intelligence is a division of BAE Systems group, which was formed in 1999, from the merger of Marconi Electronic Systems and British Aerospace.
- **Product launched**: 2012 with additional functionality added in June 2018
- **Number of employees**: 83,100
- **Ownership**: Public
- **Main issues the vendor is trying to address**: BAE Systems developed its trade surveillance solution intending to leverage the corporation’s strength and expertise in advanced analytics by applying them to the market and trade surveillance use case. The vendor aims to win clients based on the allure of false positive reduction using the next-gen analytics that constitute BAE Systems’ core solution strength, combined with a holistic offering.
- **Market positioning**: BAE Systems promotes the strength of its solution as its ability to provide a holistic view of risk by aggregating multiple data sources and identifying risks from seemingly unrelated data and relationships. The solution creates a single integrated view of orders, trades, events, controls, and communications across traders, portfolios, counterparties, venues, issuers, and other entities, and it ties together disparate systems and groups for life cycle events of all transactions and versions across all asset classes.
• **Key products and services**: NetReveal Unauthorized Trading/Behaviour Analytics Solution (Scenario Manager and Advanced Analytics Platform)

• **Target customer base**: Compliance, front-office controls, regulatory risk, or FIUs

• **Number of clients**: Five

• **Implementation options**: On-site

• **Pricing structure**: Standard pricing based on customer tier, number of traders, value-based pricing, or other more applicable metrics on a case by case basis

**KEY FEATURES AND FUNCTIONALITY BASED ON PRODUCT DEMO**

• Full holistic functionality

• Calculation of cross-channel surveillance alerts using key risk indicators

• Enterprise investigation management: Multiple-source integration of both structured and unstructured data sources

• Advanced risk-driven analytics across every product type and booking model

• Risk prioritization features in Behavioural Analytics Solution, including trader risk scoring

• Intuitive and interactive drillable trade research and exploration tools, detailed reporting capabilities

Figure 19 displays NetReveal’s alert homepage, while Figure 20 displays Behavioural Analytics Solution’s trader risk scoring dashboard.

**Figure 19: BAE Systems NetReveal Alert Investigation Homepage**

![NetReveal Alert Investigation Homepage](image-url)
Figure 20: BAE Systems NetReveal Risk-Scored Trader Profiling

<table>
<thead>
<tr>
<th>Employee Rank</th>
<th>Employee Name</th>
<th>Peer Group</th>
<th>KPI Count</th>
<th>Transaction Alerts (All Periods)</th>
<th>Digital Camera Alerts (All Periods)</th>
<th>Voice Alerts (All Periods)</th>
<th>Approved Trades (All Periods)</th>
<th>Suspicious Trades (All Periods)</th>
<th>Alerted Trades (All Periods)</th>
<th>Late Trades (All Periods)</th>
<th>Rate Tester</th>
<th>Wall Cross</th>
<th>Public / Private</th>
<th>Dual Team Member</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>255 Gary Hicks</td>
<td>Trader - FX</td>
<td>10</td>
<td>14</td>
<td>16</td>
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<td>PRIVATE</td>
<td>FALSE</td>
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<td>164 Jared Wright</td>
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</tr>
<tr>
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<td>241 Mark Jenkins</td>
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</tr>
<tr>
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<td>232 Tammy Smith</td>
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<td>183 Ted Johnson</td>
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<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>6</td>
<td>173 Anna Garcia</td>
<td>Trader - FX</td>
<td>3</td>
<td>3</td>
<td>3</td>
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<td>TRUE</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
</tbody>
</table>

Source: BAE Systems

**TOP THREE STRATEGIC PRODUCT INITIATIVES OVER LAST THREE YEARS**

- To address risk problems, BAE Systems has created unique intelligence-led analytics that deliver more accurate results than competitors, as proven in trials with some of its compliance and financial crime customers.

- In capital markets, the NetReveal Unauthorized Trading solution has been extended with a data fusion capability to profile trader activity across trading and to integrate the output of email and voice monitoring tools.

- In April 2018, BAE Systems launched a managed analytics service, a new service combining human and machine intelligence to understand the behavior and associated risk of entities interacting with the financial institutions to drive efficiency and detection performance. The managed analytics service will also provide a new conduit for BAE Systems to work with multiple clients in the same domain to more quickly and frequently develop relevant insight into financial crime, behavior, and risks.

**TOP THREE STRATEGIC PRODUCT INITIATIVES IN THE NEXT 12 TO 18 MONTHS**

- Maximize the value and ROI it can deliver to the front-office controls, governance, risk, and regulatory compliance surveillance functions

- Focus on performance metrics for both positive and negative indicators by utilizing advanced analytics and reporting capabilities
• Use machine learning, supervised learning, and unsupervised machine learning across trading, e-comms, and voice-comms data with risk-driven analytics to complement existing advanced analytics, providing identification of anomalies/outliers, correlations, and confidence levels; cluster analysis to reduced false positives; and identification of unknowns across trade and market surveillance.

• Utilize advanced risk-driven analytics and machine learning to provide ROI on trading strategies and business process model efficiencies across all product lines; enable detection of anomalies/outliers, correlations, confidence levels, and unusual changes in trader strategies, product types, etc.

• Generate insight into trading activities, products, business process models, key performance indicators, and other synergies across best execution, liquidity, and Fundamental Review of the Trading Book (FRTB).

**B-NEXT CMC:ESUITE**

Headquartered in Germany, b-next is an established European software player that has been servicing capital markets participants for over two decades. Through its Capital Markets Compliance (CMC): eSuite, b-next provides a foundation platform that includes separate modules to address the various areas of a firm’s trade compliance needs. In addition to core implementation and specialized visualization through the Management Cockpit and Global Control Room, CMC:eSuite provides modules dedicated to insider (firm-level) compliance, trade before event, market abuse, foreign exchange (FX) benchmarking, over-the-counter (OTC) derivatives monitoring, best execution, conflicts of interest, and, most recently, blockchain surveillance. CMC:eSuite is available as an onsite or Refinitiv Elektron-hosted solution. Due to the company’s history, established reputation, and breadth of offerings, b-next compliance products are used by over 60% of Germany’s largest banks and are well-established among top-tier firms across Europe and Asia.

**AITE GROUP’S TAKE**

B-next is strong in its focus on consistently searching for and developing new functionality initiatives, such as AI integration, behavioral analytics, and blockchain surveillance, in recent years. The vendor also has a long-established reputation, especially in the European market, yet b-next has still managed to achieve over 10% revenue growth over the last three years—high for a mature vendor, and presumably due in large part to innovation initiatives, especially those focusing on surveillance coverage of the most recent next-gen topics in capital markets, such as blockchain. However, the vendor has received some criticism regarding the responsiveness of management to client requests and suggestions, so increased incorporation of customer feedback into its product roadmap would be a nice development to observe in the future. B-next has a notably diverse customer base, both segment-wise and geographically, so it may be understandably challenging to cater equally to all segments.

B-next’s largest customer segment is the other category, which includes retail banks (Figure 21).
Figure 21: B-next Customer Segment Distribution

Geographically, b-next clients are more concentrated, with 67% of its client base residing in Western Europe, 29% in Eastern Europe, 3% in the Asia-Pacific, and a small representation of 1% in the Middle East (Figure 22).

Figure 22: B-next Customer Geographic Distribution
BASIC FIRM AND PRODUCT INFORMATION

- **Headquarters**: Herford, Germany
- **Company founded**: 1989
- **Product launched**: 2014
- **Number of employees**: More than 70
- **Ownership**: Privately held

**Main issues the vendor is trying to address**: B-next focuses on addressing trade surveillance challenges through the use of advanced analytics and algorithms, as well as scalability, asset class coverage (including energy), usage and implementation streamlining, and TCO reduction.

**Market positioning**: B-next’s CMC:eSuite solution offers a single integrated compliance platform with over 120 different scenarios for the detection of market abuse, insider trading, conflicts of interest, FX benchmarking, derivatives/OTC monitoring, best-execution monitoring, and reporting of trading activity. It supports a diverse range of global clients, including banks, brokers, asset managers, exchanges, regulators, funds, and energy utilities.

**Key products and services**:

- Scalable and flexible platform solution; over 120 scenarios are available out of the box to be determined by clients’ needs covering global control room, conflicts of interest, insider compliance, market abuse, best execution, trade surveillance, and energy trade surveillance
- Trading before news/event market abuse scenario
- Ease of use and rapid deployment as well as low TCO

**Key statistics**:

- US$10 million to US$50 million in annual revenue, with 10% to 15% growth over the last three years
- More than 15% of revenue invested in R&D

**Target customer base**: Banks, market centers, institutional brokers, retail brokers, regulators, buy-side firms, and energy utilities

- **Number of clients**: More than 100
- **Current revenue sources**: Trade and market surveillance and compliance solutions
- **Implementation options**: Hosted, on-site, cloud
- **Pricing structure**: Annual recurring license model or perpetual one-off with maintenance
KEY FEATURES AND FUNCTIONALITY BASED ON PRODUCT DEMO

- Integrated compliance platform with over 100 different scenarios for abuse
- Automated reporting of trading and regulatory infringements
- Built-in suspicious trading alerts function, which is integrated with workflow and case management
- Single platform for multi-asset class, multiviewe capital markets surveillance and compliance
- Proven multi-instrument coverage, including OTC, with inclusion of best-execution monitoring

TOP THREE STRATEGIC PRODUCT INITIATIVES OVER THE LAST THREE YEARS

- E-comms monitoring functionality development
- Integration of AI features
- Continued advancements in behavioral analytics

TOP THREE STRATEGIC PRODUCT INITIATIVES IN THE NEXT 12 TO 18 MONTHS

- Open interface development
- Continued development of AI features
- Adoption of machine learning functionality

FIS PROTEGEN

FIS provides financial technology and outsourcing solutions to a global customer base; its wide range of products includes software, services, and solutions for retail and institutional banking, payments, asset management, wealth and retirement, and risk and compliance. The company was founded in 1968 as Systematics, which was later acquired by Alltel Information Services and subsequently bought by Fidelity National Financial in 2003, at which point it was renamed Fidelity Information Services (FIS). During the next few years, FIS acquired several other financial technology firms, including Certegy in 2006, eFunds in 2007, and Metavante in 2009, before acquiring the well-known fintech player SunGard in 2015. With the SunGard transaction, FIS acquired Protegent (along with several other established capital markets solutions), thus bringing the diversified company into the trade and market surveillance technology space.

AITE GROUP’S TAKE

Protegent is a comprehensive suite of compliance-focused solutions and technology designed for all capital markets customer segments, focusing on integration, transparency, and holistic functionality. The latest version consolidates its compliance modules into a holistic system and
brings greater integration and transparency into firms’ compliance operations. Protegent is a well-known name and is commonly used by top-tier firms; it supports broker compliance, firm-level compliance, market surveillance, regulatory reporting, employee monitoring, social media surveillance, data aggregation, and customer onboarding. Aside from emphasis on integration and cross-asset/cross-market surveillance, one of Protegent’s most attractive aspects is the integrated Thomson Reuters market data feed, as integrated market data was a commonly expressed wish-list item in the customer reference interviews conducted for this report. However, FIS elected not to participate in the competitive AIM analysis and did not provide client references, so evaluation of quality and execution of these capabilities is not available.

FIS does not release customer segmentation or geographic breakdown.

**BASIC FIRM AND PRODUCT INFORMATION**

- **Headquarters**: Jacksonville, Florida
- **Company founded**: 1968 (Systematics)
- **Product launched**: 2012
- **Number of employees**: More than 52,000
- **Ownership**: Public
- **Main issues the vendor is trying to address**: Protegent is attempting to help firms reduce false positives by combining AI and machine learning capabilities with advanced analytics and multiple-data-source integration.
- **Market positioning**: Unique selling points are its significant alert library, comprehensive case management, increasing cross-asset and cross-market coverage, and inclusion of Market Replay tool for effective investigation.
- **Key products and services**: Protegent Market Abuse and Protegent Surveillance
- **Target customer base**: Institutional brokers, retail brokers, and buy-side firms across the U.S., Canada, Western Europe, the developed Asia-Pacific, and Latin America
- **Number of clients**: Not disclosed
- **Implementation options**: On-site and hosted; most customers choose hosted
- **Pricing structure**: User- or volume-based pricing, depending on the solution deployed

**KEY FEATURES AND FUNCTIONALITY BASED ON PRODUCT DEMO**

- Integrated case management, hierarchy model, ad hoc reporting tool, and dashboard and Market Replay
- Robust out-of-the-box alert libraries
- Integrated market data feeds provided by Thomson Reuters and Morningstar
• Compliance dashboard and reporting dashboard
• Configurable alerts and workflow
• Integrated analysis of machine-readable news and unstructured data
• Market Replay feature
• Cross-asset correlated alerts
• Repeat pattern detection
• Standard and ad hoc reports

Figure 23 displays the alert interface for Protegent’s Market Abuse solution.

Figure 23: Protegent Interface

Source: FIS

TOP THREE STRATEGIC PRODUCT INITIATIVES OVER THE LAST THREE YEARS

• Performance and alert refactoring
• Market Replay revisions
• MiFID II alert expansion/coverage for cross-asset and cross-product

TOP THREE STRATEGIC PRODUCT INITIATIVES IN THE NEXT 12 TO 18 MONTHS

• Expanded surveillance alerting and asset coverage
• Improved analytics by combining artificial Intelligence and machine learning with trade surveillance
• Charting, user interface improvements, and business intelligence
INTELLECT DESIGN ARENA

Headquartered in Chennai, India, Intellect Design Arena is a provider of financial technology for banking, insurance, and other financial services. Intellect Design generated an annual revenue of US$169 million in 2018, serving more than 280 customers through offices in over 40 countries and with a workforce of around 4,000 solution architects and domain and technology experts. Intellect Design Arena has designed solutions bespoke for clients and also offers prepackaged solutions to meet various requirements. IRTM—the risk, treasury, and capital markets arm of Intellect Design—offers solutions focused on the treasury, liquidity risk, and capital markets domain.

AITE GROUP’S TAKE

Intellect Design’s surveillance product, Intellect Capital Alpha (ICA), which is a part of the iRTM offering, has a flexible solution that can function both as an order management system and an execution management system. The vendor offers a range of advanced analytics offerings, including AI-based sentiment analysis, drawing on the vendor’s historical expertise with financial market analytics in other areas. The focus of Capital Alpha is broader than pure trade surveillance. ICA received some criticism in the area of industry expertise and adaptation to certain market structures, with respect to specific focus on surveillance capabilities. The competitive positioning could, therefore, be improved by greater focus on surveillance-specific functionality and addition of specific capital markets and surveillance expertise to product development. Lastly, ICA receives mixed results on cost value—references report low TCO as being a decision-driver for choosing the solution, but additional focus on surveillance can greatly enhance the functional coverage. Since ICA has the backing of a large company with high vendor stability, additional investment in product development and expertise could further improve the offering’s competitiveness.

ICA is used by four retail brokers, one institutional broker, and one market center (Figure 24).

**Figure 24: ICA’s Customer Segment Distribution**

![ICA’s Customer Segment Distribution](source: Intellect Design, Aite Group)
Intellect Design’s customers are mostly local to the company—the majority are headquartered in the emerging Asia-Pacific (Figure 25).

**Figure 25: Intellect Design Customer Geographic Distribution**

![Intellect Design Clients by Geography](image)

Source: Intellect Design, Aite Group

**BASIC FIRM AND PRODUCT INFORMATION**

- **Headquarters**: Chennai, India
- **Company founded**: 2003
- **Product launched**: 2007
- **Number of employees**: More than 4,500
- **Ownership**: Publicly traded

**Market positioning**: Intellect Design touts its strength in surveillance across asset classes, trade surveillance with market and compliance monitors for retail and institutional investors, and the facility to adjust risk rules, risk limits, exposure rules, and margin rules depending on the investor trading pattern and exposures.

- **Target customer base**: Sell-side firms—CEO/CTO/business users—head traders, operations heads, risk managers
- **Number of clients**: Six
- **Implementation options**: Hosted, on-site, cloud

**Pricing structure**: License plus customization fee model or Software-as-a-Service model; annual management fees are taken as an annual subscription
KEY FEATURES AND FUNCTIONALITY BASED ON PRODUCT DEMO

- Surveillance across asset classes—exchange-traded and distributed
- Trade surveillance with market and compliance monitors for retail and institutional investors
- Adjustment capability of risk rules, risk limits, exposure rules, and margin rules depending on the investor trading pattern and exposures

TOP THREE STRATEGIC PRODUCT INITIATIVES OVER THE LAST THREE YEARS

- Integration of order and execution management systems and back-office systems
- Intelligent data analytics using AI and machine learning, NLP-based chatbot
- Intelligent FIX monitor

TOP THREE STRATEGIC PRODUCT INITIATIVES IN THE NEXT 12 TO 18 MONTHS

- Analytics—descriptive analytics and predictive analytics
- AI and machine learning—integration with trade surveillance, market monitoring, sentiment analysis, and chatbot
- Application of robotic process automation to manual processes
- Decision support based on trading behavior patterns

LSEG MILLENNIUM SURVEILLANCE

Acquired in 2009 by the LSEG, Sri-Lanka-based MillenniumIT (now LSEG Technology) represents the technology arm of the European leader in the listed exchange space. Focusing solely on market surveillance and regulatory reporting, Millennium Surveillance is currently deployed in 13 market centers (and one regulator) globally, with a concentration in Eastern Europe, the Middle East, and Africa (EEMEA), as well as Asia.

AITE GROUP’S TAKE

LSEG Technology offers an attractive surveillance solution, with robust functionality and advanced analytics, but client base growth is slow, likely due to a fair amount of market saturation in the trading venue space, which is LSEG Technology’s key demographic. Feedback from customer references is positive, particularly in the areas of coverage breadth and analytics, which indicates that the solution has promising potential for market growth if it can match its capabilities and cost structure to a receptive prospect base. Furthermore, LSEG Technology has a high retention rate, and user references for current installations reported high satisfaction with interface usability, recently overhauled visualization, cost value, and drill-down analytic capabilities. As LSEG Technology’s solution developers are focused on managing big data and
incorporating machine learning and AI capabilities into the offering, Aite Group expects the surveillance platform to remain competitive and profitable as spending on surveillance technology from all segments continues to expand.

Millennium Surveillance is a market surveillance product; thus, its customer base is market centers and regulators—primarily market centers (Figure 26).

**Figure 26: Millennium Surveillance Customer Segment Distribution**

![LSEG Clients by Type of Firm](source)

Source: LSEG, Aite Group

Millennium Surveillance customer distribution is more diverse geographically; over half of clients are from the emerging Asia-Pacific, another 30% of installations are in Western Europe, and there is one deployment in Canada (Figure 27).
Figure 27: Millennium Surveillance Customer Geographic Distribution

LSEG Clients by Geography (N=13)

- Canada: 7%
- Western Europe: 21%
- Africa: 29%
- Asia-Pacific, emerging: 43%

Source: LSEG, Aite Group

BASIC FIRM AND PRODUCT INFORMATION

- Headquarters: London, with development center in Sri Lanka
- Company founded: 1801 (LSEG); 1996 (MilleniumIT)
- Product launched: 2009
- Number of employees: Not disclosed
- Ownership: Public (LSEG)
- Main issues the vendor is trying to address: LSEG Technology is consistently searching for ways to reduce TCO, as budgeting issues are a major hurdle for its clients and prospects.
- Market positioning: LSEG Technology positions its surveillance product as strong in self-serviceability, ability to integrate external tools, and modern graphical user interface as well as look and feel.
- Target customer base: Exchanges, multilateral trading facilities, alternative trading systems, crypto exchanges, and regulators
- Number of clients: 14
- Implementation options: On-site
- Pricing structure: Implementation and customization cost, enterprise license, and maintenance fee
KEY FEATURES AND FUNCTIONALITY BASED ON PRODUCT DEMO

- Extension to third-party plugins
- Self-serviceability using industry-standard languages
- Product encompasses LSEG regulatory expertise
- Data mining
- Entity profiling
- Relationship detection
- Configurable (configurable alerting and reporting framework)
- Scalable (seamless expandability to keep up with growing message traffic)
- Cost-effective to deploy and maintain (daily operations are fully automated)
- Ready-to-use interface to Millennium Surveillance’s proprietary data warehouse, enabling third-party tools with the ability to extract and analyze transaction data

Figure 28 shows Millennium Surveillance’s external visualizations integrated into its alert manager, and Figure 29 displays its market replay screen; both functionalities received extremely complimentary customer reference ratings and commentary.

Figure 28: Millennium Surveillance External Visualizations Integrated Into Alert Manager
Figure 29: Millennium Surveillance Market Replay

Source: LSEG

TOP THREE STRATEGIC PRODUCT INITIATIVES OVER LAST THREE YEARS

- Increasing self-serviceability
- Reducing TCO
- Integrating disruptive technology

TOP THREE STRATEGIC PRODUCT INITIATIVES IN THE NEXT 12 TO 18 MONTHS

- Better support for big data by using newer technologies
- Helping customers to convert the market surveillance function within the organization into a revenue-generating center
- Machine learning and AI

NASDAQ SMARTS

The Smarts Surveillance suite from Nasdaq is a leader in market surveillance and broker trade compliance. Smarts is a part of Nasdaq’s portfolio of financial technology offerings, which also includes market access, risk management, trading, index calculation, and clearing and central securities depository management. Outside the financial markets space, Nasdaq also provides technology solutions across several industries. As announced in September 2018, it is in the process of acquiring Cinnob, formerly a key competitor in the European space.
AITE GROUP’S TAKE

Nasdaq Smarts is one of the top two market leaders for a reason—both the trader and market surveillance products are continually researched and improved, and Nasdaq has focused on developing breadth of coverage and full holistic functionality. Moreover, it has steadily tried to improve its offering’s capabilities through strategic partnerships, using this method to offer enhanced and integrated e-comms surveillance among other functionalities. With stellar customer feedback in most areas, particularly performance and functionality, Smarts is poised to maintain its client growth and market leadership position, despite occasional criticism in the areas of customization and configurability.

Nasdaq does not release customer segmentation or a geographic breakdown.

BASIC FIRM AND PRODUCT INFORMATION

- **Headquarters**: New York City
- **Launched in**: 1994
- **Number of employees**: 4,580
- **Ownership**: Public
- **Market positioning**: Comprehensive solution covering all asset classes with unparalleled breadth and depth; holistic functionality and advanced analytics; market surveillance module is the leading boxed product for global exchanges; scalable options for buy-side firms
- **Key products and services**: Smarts Trader Surveillance and Smarts Market Surveillance
- **Target customer base**: CCOs, heads of compliance/surveillance
- **Number of clients**: 220 (with over 1,700 institutional broker subscriptions)
- **Implementation options**: On-site for market surveillance; hosted for trader surveillance
- **Pricing structure**: Subscription-based pricing model with implementation fees

KEY FEATURES AND FUNCTIONALITY BASED ON PRODUCT DEMO

- Smarts sourcing and integration of all customer and market data—enabling quick deployment of service
- Powerful trading visualizations such as “spread” and “depth” to drive investigations
- Comprehensive alert portfolio covering all forms of market abuse coupled with discovery module (Lens) highlighting anomalous trading behavior
KEY FEATURES AND FUNCTIONALITY

- Comprehensive solution with cross-market, cross-asset monitoring capabilities, covering all tradable asset classes
- Flexible deployment model (Smarts Market Surveillance can be provided on premises, provided in the cloud, or delivered as a managed service)
- Unparalleled domain expertise, with over 20 years of industry experience

TOP THREE STRATEGIC PRODUCT INITIATIVES OVER THE LAST THREE YEARS

- **New visualization (“depth”) for identifying order book manipulation**: The power of the visualization enabled Smarts to define the “signature of spoofing” for customers.
- **Release of Lens trading behavior profiling**: Feedback from customers that the use of this risk discovery module is leading to escalations that would not, or could not, have been identified by an alert.
- **Peer alert reports**: These utilize the power of the Smarts customer community to provide insight, enabling customers to access analysis of where their alert parameters sit relative to their peers.

TOP THREE STRATEGIC PRODUCT INITIATIVES OVER THE LAST THREE YEARS

- Trader profiling visualization added
- Machine learning alert review live on internal U.S. market and initial external beta
- Crypto-market design study, implementation, and go-live

TOP STRATEGIC PRODUCT INITIATIVES IN THE NEXT 12 TO 18 MONTHS

- Smarts Data Discovery: Unlocking of Smarts trading data to discovery
- Contextual surveillance: Integration of trade and communication meta-data signals to identify higher risk traders and enable proactive action
- Related securities: Identification of trading risk across related instruments with focus on trading between physical/spot contracts and related financial derivatives
- New machine-learning-based detection module
- Improved participant profiling tools
- Standardized crypto market offering with alerting
NICE ACTIMIZE MARKETS SURVEILLANCE SUITE

Markets Surveillance, the offering from NICE Actimize, is a full-service compliance offering for brokers, asset managers, and clearing firms for firm-level monitoring and market surveillance. NICE Actimize describes markets surveillance as the solution for the life cycle of prohibited trading and related communications given its ability to find relevant news events, use machine-readable data to get a sense of news, and then sweep trading activity to determine suspicious trading behavior. NICE Actimize also offers Communications Surveillance, which is available as an additional stand-alone product or via full integration with Markets Surveillance.

Additional stand-alone solutions offered by NICE Actimize include the following:

- **Employee Conflicts of Interest** to prevent and monitor conflicts of interest relating to employees’ personal accounts
- **Control Room** to help maintain an investment bank’s “Chinese Wall” by identifying information breaches between an organization’s investment banking and research divisions
- **Sales Practices and Suitability** to ensure sales compliance
- **Anti-Money Laundering**, which includes a full suite of offerings

AITE GROUP’S TAKE

After evaluating functionality, coverage, stability, and diversity along with customer reference ratings, the drivers behind NICE Actimize’s leadership position in the industry become clear: Its Markets Surveillance solution offers an expansive range of features and maintains a consistent focus on developing and offering advanced analytics and next-gen functionality, and customer reference feedback indicates that its execution in product offerings does not disappoint. The product’s user interface received especially positive reviews, and even though the product is on the higher end of the pricing spectrum, clients report satisfaction with the cost value. One mild worry expressed by some users is the potential for NICE Actimize to become less responsive as its surveillance client base continues to grow, as they had noticed that responses may have started to slow, but if the company is able to expand resources along with the client base, this should not become a major hurdle.

The majority of NICE Actimize’s market surveillance implementations are for institutional brokers (82%), but buy-side firms have grown to represent 15% of the client base, an increase from 10% just a few years ago (Figure 30).
Figure 30: NICE Actimize Customer Segment Distribution

NICE Actimize’s customer base is widely geographically distributed, which is a factor that led to the vendor’s near-perfect score in the client strength category (Figure 31). The majority of clients are from Western Europe, but several other global regions have decently sized representations as well.

Figure 31: NICE Actimize Customer Geographic Distribution

Source: NICE Actimize, Aite Group
BASIC FIRM AND PRODUCT INFORMATION

• **Headquarters**: Hoboken, New Jersey

• **Company founded**: 1986 (NICE); 1999 (Actimize)

• **Product launched**: 2007

• **Number of employees**: 5,100 (NICE)

• **Ownership**: Public

• **Main issues the vendor is trying to address**: Holistic surveillance is a major focus of Markets Surveillance; regulatory requirements are used to detect intent, manage conduct risk, and reconstruct trades, along with the desire to reduce false positives for surveillance. Since trade and communication surveillance are no longer viewed as separate disciplines, some firms are merging the two groups into a single surveillance group.

• **Market positioning**: Key competitive differentiators are the holistic platform, the single platform for exchange-traded and OTC instruments, and the advanced case management offering.

• **Key products and services**: Markets Surveillance Enterprise and Markets Surveillance Cloud

• **Key statistics**: FX and fixed income dealers are key clients

• **Target customer base**: Any firm that needs surveillance protection, specifically to identify risk and to mitigate violations, as well to monitor entities (person, trading desk, branch) and events (a trade) that could prove harmful

• **Number of clients**: 73

• **Implementation options**: On-site, hosted, or cloud

• **Pricing structure**: There is a fixed annual fee with no additional cost for market data, asset-class-specific analytics covering multiple detection scenarios per model, analytics applied to both orders and executions, or an integrated case manager. Options include news headlines and disaster recovery, and price bands are based on a firm’s message volume. A standard onboarding fee applies.

KEY FEATURES AND FUNCTIONALITY BASED ON PRODUCT DEMO

• One platform for all asset classes and instruments reduces a firm’s infrastructure, support, and training costs

• ActOne, a single case manager that seamlessly captures alerts and data, transforms trade surveillance operations and investigations by introducing analytics and automation at every step of the process
• Reduction of false negatives and positives while ensuring legitimate threats will still be caught

• Trade Surveillance can reduce the time to reconstruct a trade from eight hours to 10 minutes

• Eleven years of historical U.S. stock data available as minute bars for back-testing

• Routine reconstruction of trades to fully investigate trade surveillance alerts and suspicious communications

• Case management and workflow functionality

• Comprehensiveness of offering

• Visualization through compliance dashboard, which includes an out-of-the-box operations dashboard with various statistics displayed graphically, such as alerts by issue type, region, or desk

• Configurable alerts and workflow (which include many configuration points for the display), system parameters, filtering of transactions/entities/instruments, optional tests, and calculations and logic conditions

• Strong case management feature, including efficient attachment capabilities

• Cross-asset correlated alerts

• Ability to consolidate repeat pattern detection with alert history

Figure 32 shows NICE Actimize’s Entity Insights feature within its ActOne case manager, which enables analysts to visually construct an investigative story by connecting alerts, individuals, communications, and trading activity.

**Figure 32: NICE Actimize’s Entity Insights Feature Within the ActOne Case Manager**

Source: NICE Actimize
TOP THREE STRATEGIC PRODUCT INITIATIVES OVER THE LAST THREE YEARS

- Launch of behavioral analytics solution
- Analytics for high-frequency trading
- Holistic correlation

TOP THREE STRATEGIC PRODUCT INITIATIVES IN THE NEXT 12 TO 18 MONTHS

- Advanced rule authoring tool
- Tuning and simulation
- Expanding cloud solution set

ONEMARKETDATA ONETICK SURVEILLANCE

OneMarketData delivers data management systems to industry leaders that span all asset classes and facets of finance. Its flagship fintech product, OneTick, includes time-series data management and real-time analytical event processing. Proprietary traders, hedge funds, and investment banks use the solution for quantitative research, transaction cost analysis, surveillance, and back-testing; OneTick is also a complex event processing solution for the analysis of real-time market data. The OneTick Surveillance solution was built by OneMarketData using the OneTick platform.

AITE GROUP’S TAKE

The AIM analysis results indicating that OneMarketData’s OneTick Surveillance product is an leading player in the surveillance space is supported by the fact that in just three years, OneTick Surveillance has grown to 12 deployments, with over half of those in the very competitive institutional broker space—compelling results for a new entrant into a competitive and technologically complex market. In addition to offering a wide breadth of features and next-gen functionality, OneTick Surveillance received flattering reviews on the effectiveness of the product’s features, the cost value, and especially its client service culture. The relatively low cost of the offering compared to larger vendors was what initially influenced the choice of several OneTick Surveillance clients, but they reported that the offering has exceeded their expectations in quality and consistency. They did receive some criticism on data feed integration, but if the vendor pays attention to client feedback and makes the necessary improvements, it is likely to solidify its position as a strong alternative to the reigning best-in-class vendors.

OneTick Surveillance’s current client base is dominated by institutional brokers, but also has representation from nearly every other client segment (Figure 33).
OneTick Surveillance is used by clients in the U.S., Europe (including emerging markets), and Australia (Figure 34).

**Figure 33: OneTick Surveillance Customer Segment Distribution**

Source: OneMarketData, Aite Group

**Figure 34: OneTick Surveillance Customer Geographic Distribution**

Source: OneMarketData, Aite Group

**Basic Firm and Product Information**

- **Headquarters:** Hoboken, New Jersey
- **Company founded:** 2004
Product launched: 2015

Number of employees: 130

Ownership: Private

Main issues the vendor is trying to address: Trade surveillance regulation forces obligations on all market participants. OneTick Surveillance provides a solution that is simple to install, easy to use, and flexible to accommodate the unique needs characterizing various types of market participants and trading behaviors.

Market positioning: Performance, customizability, low false positive rate

Key products and services: Alert investigation and workflow, order book replay and order flow browser, alert tuning dashboard, market data for global equities and futures, news feed for insider trading monitoring

Target customer base: Institutional and retail brokers (equities, options, futures, FX, bonds) as well as market centers, especially high-volume centers and cryptocurrency market centers; markets in Europe, the U.K., the U.S., Canada, Latin America, and the Asia-Pacific

Number of clients: 12

Implementation options: Hosted, on-site, hybrid cloud

Pricing structure: Price based on the markets, product types, and volume

KEY FEATURES AND FUNCTIONALITY BASED ON PRODUCT DEMO

Combining alerts for all Market Abuse Regulation (MAR) Annex II indicators with the power to add your own, the OneTick Surveillance solution delivers low false-positive rates, easy alert tuning, intuitive visualizations, case management, high performance, and low TCO.

All alert detection algorithms are written on top of the OneTick tick management platform.

An integrated dashboard gathers all relevant information into one place. Review traders’ alerts history over years or zoom in to see, with microsecond precision, how they layered their orders in the book.

It can be securely hosted by OneMarketData or deployed on-site and can use the vendor’s market data or the client’s.

It has the capacity to handle global exchange data and massive order flow as well as create new alerts using a visual design tool or in Python.

It offers integrated workflow, archival audit trail, and flexible integration.
TOP THREE STRATEGIC PRODUCT INITIATIVES OVER LAST THREE YEARS

- Addition of hosted drop copy support
- Complete coverage of MAR, Investment Industry Regulatory Organization of Canada, Australian Stock Exchange
- Parameter tuning dashboard available to the customers

PANOPTICON STREAMING ANALYTICS PLATFORM

The Panopticon Streaming Analytics platform supports real-time streaming analytics as well as trade surveillance functionality. The platform incorporates Panopticon Streams and Panopticon Visual Analytics, and integrates directly with real-time message buses, historic tick data stores, and predictive engines. The product is designed so that traders, quants, and compliance officers can build applications without the need for coding capabilities, instead using a visual point-and-click user interface. The Panopticon product was acquired by Altair Engineering as part of its acquisition of Datawatch Corporation in December 2018.

AITE GROUP’S TAKE

Panopticon offers a unique and potentially useful product for visual analytics and streaming processes; it allows users to reduce task time and costs by utilizing their own software and avoiding the need for coding altogether. This is an innovative approach to trade surveillance, but more time is needed for the product to proliferate further in the marketplace. One issue the vendor should address is the possible financial instability to further its distribution of this product while maintaining positive revenue. If the vendor’s client base expands, it will also need to add client service resources, as clients have indicated that client service is overly pared down. With the acquisition completed, Altair’s financial strength, 5,000-client install base, global presence in 24 countries, and 2,600-person technical workforce offer the opportunity to address these issues. Customers are happy with Panopticon’s analytics and flexible platform but also mention that additional functionality, such as charting support and platform stability, is needed—and visualization could be greatly improved.

Panopticon’s customer base is extremely diverse in terms of segment representation, with the traditional trade surveillance customer segment of institutional brokers accounting for only 27% of clients (Figure 35).
Panopticon’s customers are also diverse geographically, although the largest segment (58%) is concentrated in the United States, followed by Western Europe (24%), and the Asia-Pacific (13%), with a few deployments in Canada and Latin America (Figure 36).
BASIC FIRM AND PRODUCT INFORMATION

- **Headquarters**: Troy, Massachusetts
- **Launched in**: Panopticon product launched in 1999
- **Number of employees**: 2,600
- **Ownership**: Public
- **Main issues the vendor is trying to address**: Business-oriented users need advancements in their data streaming and analysis capabilities, and Panopticon plans to improve these capabilities while also allowing businesses to publish them on their own.
- **Market positioning**: Working to become the premier provider of community-based algorithmic development and trading platform for the business-to-consumer market
- **Key products and services**: Panopticon Streams, Panopticon Visual Analytics
- **Target customer base**: Market centers, regulators, buy-side firms, and, especially, institutional brokers looking to improve their data and streaming capabilities
- **Implementation options**: In-memory stream processing and HTML5 visual analytics
- **Pricing structure**: It does not publish a price list; however, it charges a one-time license fee along with an annual subscription fee or maintenance fee.

KEY FEATURES AND FUNCTIONALITY BASED ON PRODUCT DEMO

- Compliance dashboard, parameter-setting capabilities, configurable alerts and workflow, and case management functionality
- Ability to integrate data from multiple sources
- Ability to analyze newsfeed and social media/unstructured data

TOP THREE STRATEGIC PRODUCT INITIATIVES OVER THE LAST THREE YEARS

- Migration to HTML5
- Kafka stream processing
- Order-book analysis
SCILA SURVEILLANCE

Founded in 2008 by a management team with a background in market surveillance at the regulatory and exchange level as well as in the design of high-throughput transactional systems, Scila services a global client base in a diverse collection of client segments, including regulators, exchanges, banks, and brokers. It is one of the few surveillance technology providers that focus on trading venues as a section of clients, and it competes with Nasdaq Smarts in this area.

AITE GROUP’S TAKE

Focused solely on financial services throughout its existence, Scila’s surveillance solution has found a niche with exchanges and trading venues, particularly in Western Europe. Scila serves customers of all segments in 18 countries. Scila has also seen considerable success in the emerging markets for both equities and derivatives exchanges, as well the New York Stock Exchange (NYSE) Group on the other end of the spectrum. In 2014, NYSE Regulation, a part of NYSE Group, selected Scila’s surveillance system for the market surveillance, investigation, and enforcement functions for NYSE Group’s three equities exchanges and two options exchanges. Scila’s competitive differentiation emphasizes high levels of configurability and openness of parameters for easy customization; user-friendliness is emphasized by Scila’s use of open architecture, facilitation of integration with external systems, and hardware-based scalability (thus eliminating the need for new software releases). This product positioning is certainly attractive for users seeking high degrees of customization, but Aite Group is unable to comment on its execution and efficacy, as Scila elected not to participate in the comparative evaluation by declining the opportunity to provide customer references.

Scila does not release customer segmentation or a geographic breakdown.

BASIC FIRM AND PRODUCT INFORMATION

- **Headquarters**: Stockholm
- **Company and product launched in**: 2008
- **Number of employees**: 50
- **Ownership**: Private
- **Main issues the vendor is trying to address**: Scila offers an alternative to the more undemocratic and rigid solutions that require heavy vendor involvement in adjustments to parameters and integration.
- **Market positioning**: Scila’s messaging focuses on providing an accessible and user-friendly solution, which is equally viable for both large and small customer segments.
- **Key products and services**: Scila Surveillance
- **Target customer base**: Heads of compliance, heads of surveillance, and heads of risk from sell-side firms and market centers across global regions
- **Number of clients**: 50
• **Implementation options**: On-site or managed service

• **Pricing structure**: There is a one-time implementation cost and recurring license and support fee; system is not sold without support.

**KEY FEATURES AND FUNCTIONALITY BASED ON PRODUCT DEMO**

• AI Module reduces workload and results in more relevant alerts.

• Sandbox feature allows back-testing of alert rules on historical data.

• Alert investigation includes market replay and further escalation through issues (case management system).

• Case management system allows for full documentation from alert generation to final disposition.

• Analytical capability allows the user to view data by instrument, asset, and market participant (e.g., broker clients) to analyze trends and patterns.

• Audit trail support is strong.

• With on-demand invocation of alerts, users are able to run their own alert settings on the trading data to test how an alert would function in a real-life situation. This is extremely useful for investigation purposes as well as for setting the correct level of monitoring for complex trading ecosystems.

• It offers flexibility and convenience in setting the alert parameters. With correct user permission, users are able to alter any parameter changes to be reflected immediately in the production system.

• With granular monitoring, the same alert can be fitted for specific accounts, whether retail or institutional, and for specific traders, whether human or algorithmic.

**TOP THREE STRATEGIC PRODUCT INITIATIVES OVER THE LAST THREE YEARS**

• Rolling out existing AI functionality to customer base

• Adding more e-comms support

• Building new functionality (alerts, graphs, and views)

**TOP THREE STRATEGIC PRODUCT INITIATIVES IN THE NEXT 12 TO 18 MONTHS**

• Adding more e-comms support

• Updating alert rules

• Updating graphs and views
SIA-EAGLE

SIA S.p.A. is a 40-year-old technology vendor based in Milan that specializes in services and solutions for financial markets (spanning both banking and capital markets). SIA offers a market surveillance and compliance platform named SIA-Eagle, which covers the gamut of compliance monitoring needs—broker- and firm-level compliance, market surveillance, and regulatory reporting.

SIA’s compliance legacy dates back to 2005, when SIA-Eagle Intermediaries was developed. Developing a number of components to support compliance departments’ needs (such as modules for market abuse, inside registry, MiFID compliance, conflicts of interest, and personal dealing), Intermediaries went live in 2006. Today, the company also offers SIA-Eagle Surveillance, which is focused on market manipulation for trading venues and regulators and covers the OTC and listed markets.

AITE GROUP’S TAKE

SIA-Eagle’s AIM ratings placed the solution into the incumbent category of vendors, with its highest scores in the areas of client strength and product performance at 96% and 92%, respectively. Although averages with less flattering categories brought the final axis scores down to the mid-80s, scores in those two important areas were best-of-breed level. SIA-Eagle has a diverse range of features and a healthy collection of advanced functionality, as well as a highly rated reputation and cost value. A frequent area of criticism, however, surrounded lack of client service resources and slowness to respond to client inquiries and requests. If SIA can improve that part of its infrastructure, it will quickly move closer to the best-in-class category.

SIA-Eagle’s customer base is currently most heavily represented by retail brokers (54%), followed by institutional brokers, buy-side firms, market centers, and a few regulators (Figure 37).

Figure 37: SIA Customer Segment Distribution

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Source: SIA, Aite Group
The majority of SIA clients hail from Western Europe (Figure 38).

**Figure 38: SIA Customer Geographic Distribution**

Western Europe 96%

Eastern Europe 3%

Latin America 1%

Source: SIA, Aite Group

**Basic Firm and Product Information**

- **Headquarters:** Milan
- **Product launched:** 2006
- **Number of employees:** 3,461
- **Ownership:** Private
- **Target customer base:** Trading venues, institutional brokers, retail brokers/commercial banks, regulators, and buy-side firms constitute its customer base.
- **Number of clients:** 150
- **Implementation options:** On-site, hosted
- **Pricing structure:** Based on different parameters, which are number of modules implemented, number of legal entities, and number of countries where the legal entities perform.

**Key Features and Functionality Based on Product Demo**

- Openly configurable workflow and alerts
- Case management capability
- Integrated news feed analysis
• Market replay available
• Visualization through heat map
• Cross-asset correlated alerts
• Repeat pattern detection
• Standard and ad hoc reports
• Available module for monitoring employee trading and a European Securities and Markets Authority guidelines module for algorithmic trading/high-frequency trading

TOP THREE STRATEGIC PRODUCT INITIATIVES OVER LAST THREE YEARS
• Market Abuse Directive II
• MiFID II
• Relevant information management

TOP THREE STRATEGIC PRODUCT INITIATIVES IN THE NEXT 12 TO 18 MONTHS
• E-comms surveillance
• Develop buy-side business
• Growth in emerging markets and integration of upcoming regulations

TRILLIUM SURVEYOR
Trillium is a major U.S. proprietary trading firm whose management team was involved with Island ECN, the first electronic order-matching system developed in the early 1990s. The Trillium team then progressed to pioneer the online retail trading business with Datek Online (now TD Ameritrade) before founding Trillium Trading 2003 and its software development spinoff Trillium Labs in 2013, eventually launching the market-manipulation detection tool Surveyor in 2014.

AITE GROUP’S TAKE
A relatively new offering in the space, Surveyor managed to gain five new clients within 12 months of launch and continues to grow. Coverage was originally limited to U.S. and Canadian equities and U.S. futures but has expanded to also cover a wide range of U.S. listed derivatives, Canadian listed derivatives (through Bourse de Montreal), and European equities and listed derivatives (through Eurex, Euronext, and ICE Europe). The experience of the management team suggests a promising strategic functionality upgrade outlook, especially considering the strength of Surveyor’s next-generation technology features. Customer references are glowing, and clients can’t seem to say enough good things about Surveyor and its high-touch support. Trillium seems to have struck an attractive balance between feature offerings, client service, and customer interaction. Trillium does not release customer segmentation or geographic breakdown.
BASIC FIRM AND PRODUCT INFORMATION

- **Headquarters:** New York
- **Company founded:** 2003
- **Product launched in:** 2014
- **Number of employees:** N/A
- **Ownership:** Private
- **Main issues the vendor is trying to address:** To give firms the ability to easily, accurately, and efficiently monitor their trading from both compliance and surveillance perspectives
- **Target customer base:** Institutional brokers, retail brokers, regulators, and buy-side firms
- **Number of clients:** N/A
- **Implementation options:** Cloud via Amazon Web Services
- **Pricing structure:** Monthly license fee

KEY FEATURES AND FUNCTIONALITY BASED ON PRODUCT DEMO

- Reduction in the time and complexity of performing surveillance checks while increasing accuracy
- Aggregation of multiple data sources and alerts into one screen
- Easy-to-use interface
- Cloud-based solution that requires no infrastructure or software on the client’s side

TOP THREE STRATEGIC PRODUCT INITIATIVES OVER THE LAST THREE YEARS

- U.S. and Europe futures coverage
- Options coverage
- Cross-product surveillance

TOP THREE STRATEGIC PRODUCT INITIATIVES IN THE NEXT 12 TO 18 MONTHS

- Real-time functionality
- Market surveillance functionality with integrated case management
- Order routing analytics
CONCLUSION

The trade surveillance and monitoring technology market is formidably sized and should continue to exhibit impressive growth rates for several years to come. With industry revenue distributed across a large percentage of vendors and relatively low barriers to entry for both financial firms and existing technology companies, the surveillance vendor market is highly fragmented and thus highly competitive, despite the existence of clear market leaders. However, that status will not last indefinitely; it may not even last through 2020, as major consolidations are taking place even as this report is being written. With those industry characteristics in mind, Aite Group proposes the following recommendations for the buyers and sellers of trade surveillance technology:

Buyers:

- **Mine the market for hidden gems:** Expanding your request-for-proposal (RFP) process to at least five vendors from various ranges of the AIM target is well worth the time and effort, particularly if you need flexibility in pricing structure or are looking for targeted strength in a specific area of functionality. The market leaders are in their positions for justified reasons, but all of the offerings profiled in this report have unique selling points that might be appropriate matches for your organization’s exact needs, but you won’t know without thorough review and analysis.

- **But don’t ignore the diamonds:** Nasdaq and NICE Actimize have both had long-standing reputations as market leaders in the surveillance technology realm; likewise, they are also commonly thought to be out of an affordable price range for low-tier buy-side and sell-side firms. This perception may not necessarily be true, however, as both vendors are consistently developing more scalable options; moreover, customer feedback on cost value is exceedingly positive. Thus, buyers on a budget should not automatically consider the best-in-class offerings to be out of reach.

- **Buying more than needed verses future planning:** While no firm wants to pay for features that will not be fully deployed, there is a difference between over-purchasing and planning ahead for future firm needs. If your firm is expanding trading to new asset classes or geographic market center participation, you should absolutely consider vendors that can accommodate your surveillance coverage rather than invest in a new solution only to be searching for add-on components to support your firm’s changing needs within a year or two of implementation.

- **Keep fingers on the regulatory pulse:** Like the previous point, maintaining an expert-level understanding of your relevant regulatory environment and roadmap is crucial to anticipating future compliance needs. Learn from mistakes made by firms in the early post-crisis days and plan for tomorrow, not today, when it comes to regtech purchasing. Far too many firms invest in quick-fix surveillance solutions only to find themselves overhauling their compliance infrastructure a few years later as the need for better coverage, functionality, and/or holistic implementations becomes too dire to ignore.
• **Buyer beware**: This one should be obvious, but it must be mentioned nonetheless. Don’t make purchasing decisions based solely on vendor claims and demonstrations. Invest time and resources in independently verifying functionality, coverage, and performance by conducting extensive reference checks, product testing, scenario analysis, and as much back-testing as can be made available. Additionally, commissioning an independent analysis during the RFP process is more than worth the investment, as that service will often cover a decent portion of the necessary vetting.

**Vendors:**

• **Innovate, innovate, innovate**: In this highly competitive industry, consistent attention to the innovation roadmap is essential. Just as a shark must keep swimming to stay alive, a surveillance technology vendor must keep innovating to stay in business. However, this doesn’t mean that every vendor should immediately develop additional functionality in response to every new technology flavor of the month—the surveillance space isn’t a game of buzzword bingo. Instead, vendors should pay attention to next-gen tech chatter and closely evaluate each new topic for viability, realistic necessity, and staying power. If it looks like a new addition to the regtech repertoire is here to stay, you should waste no time designing your own version, preferably with your signature capability stamp. One piece of consistent customer feedback collected for this report was the importance of vendors staying current while maintaining the quality of their core operating functionality.

• **Don’t forget the vetting**: The importance of innovation is clear, but one issue that vendors frequently have with upgrade deployments is releasing new functionality into the marketplace before the experimental stage has been fully conquered—sometimes with disastrous results (as seen with some early versions of NLP). Vendors should carefully select customers for beta testing and should err on the conservative side before launching and especially before hyping new features. Word of mouth is still a vitally important contributor to new client wins and even being included in RFP processes, and a prominent failure can cause damage in this area.

• **Make customers part of your team**: An area of emphasis in client reference interviews that was mentioned consistently was vendors’ proactiveness in soliciting and responding to customer feedback. The happiest clients were those that were included in a consumer advisory board of some type, or those whose vendor account managers were in consistent touch with them and both understood their needs and responded quickly to product requests and suggestions. Likewise, clients overwhelmingly prefer higher degrees of customization wherever possible.

• **Remember your core functions**: Surveillance technology clients need solutions that will alert them to nefarious activities with a minimal amount of noise. New offerings and stellar client service are key differentiators, but the core functions must be unimpeachable, or the rest matters naught. If your solution is consistently generating more false positives than your competitors—or even worse, producing false negatives—then you’ll be replaced posthaste.
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