

Combating Rising Threats with Aging Infrastructure

Anti-Money Laundering Systems Market Update

February 2016

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Executive Summary

- 1. The cost of non-compliance is increasing, and financial institutions need to protect themselves from penalties.** A combination of heightened regulatory scrutiny and increasing bank complexity and geographic spread is putting banks at high risk of being fined for money laundering. Fines can range from millions of dollars for relatively minor offenses like implementing ineffective platforms, to billions of dollars for severe offenses including willfully subverting existing systems.
- 2. Fifty-nine percent of commercial banks expect to increase their spend on AML systems in the coming year.** AML platforms are the third oldest currently installed technologies at commercial banks today, yet are consistently ranked as among the highest value technologies for their ability to guard banks against crippling fines. Additionally, 38% of commercial banking executives are planning to replace their existing AML solutions in an effort to take a more proactive stance to financial crimes and take advantage of the advancing analytical and predictive capabilities of modern AML platforms.
- 3. Leading banks are finding that the same capabilities they use to predict and assess risk can also be used to predict customer needs and generate relationship insights.** Further value can be realized from AML platforms for their ability to provide a multi-sourced, dynamic, and up-to-date view of customer account usage and activity.

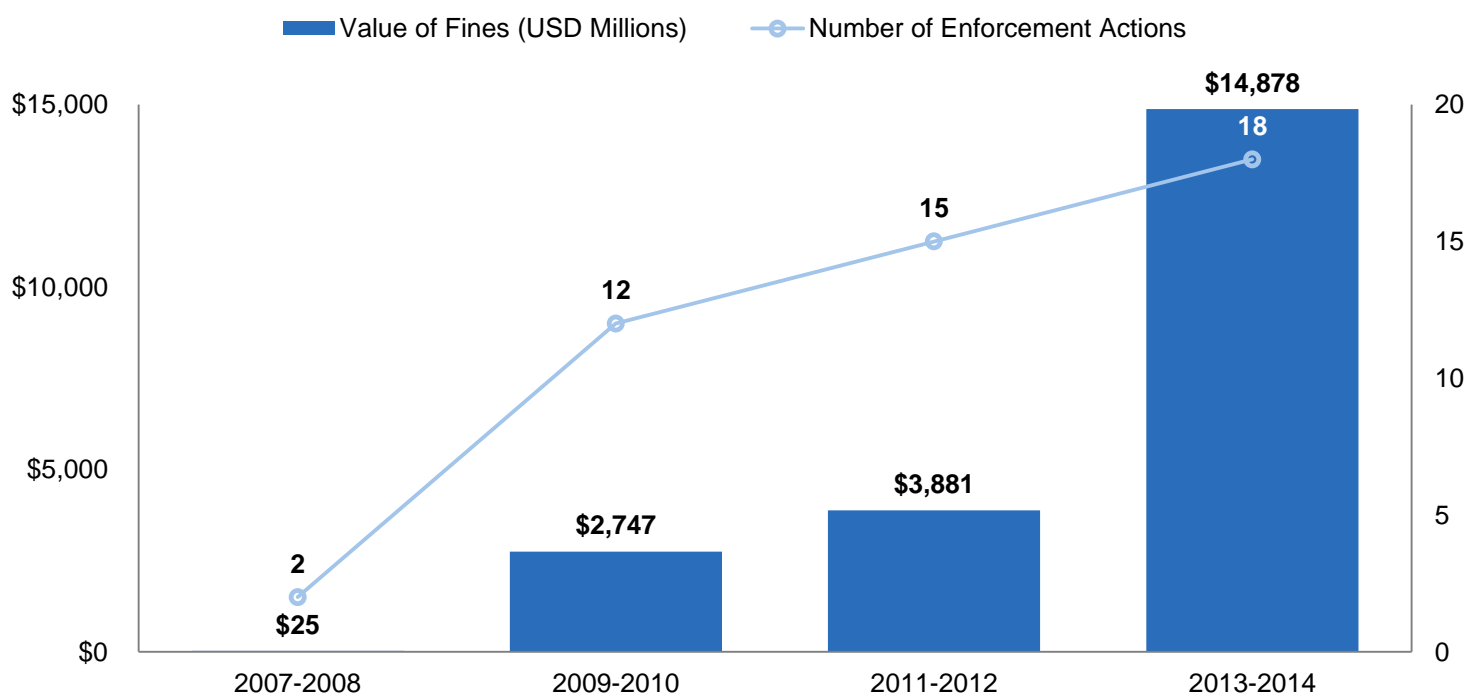
Key Market Trends

Ineffective Controls and Willful Misdeeds Leading to Harsh Penalties

The past 15 years have seen a heightened focus on compliance, beginning with 9/11 and a renewed effort on combatting money laundering through anti-money laundering (AML) and know your customer (KYC) regulations. As a result, financial institutions of all sizes are dedicating more resources than ever to implementing and managing new regulatory provisions. For example, new regulations have doubled compliance costs for the six largest US banks, rising from \$34.7 billion in 2007, to \$70.1 billion in 2013. Regulators are cracking down on money laundering requirements, leading to a series of monumental fines at the largest global banks. In 2013 and 2014 alone, banks paid nearly \$15 billion in money laundering violations, making this compliance area one of the highest risks for banks (Figure 1).

Figure 1: Anti-Money Laundering Sanctions and Tax Evasion Penalties in the United States

Fines Issued in USD Millions



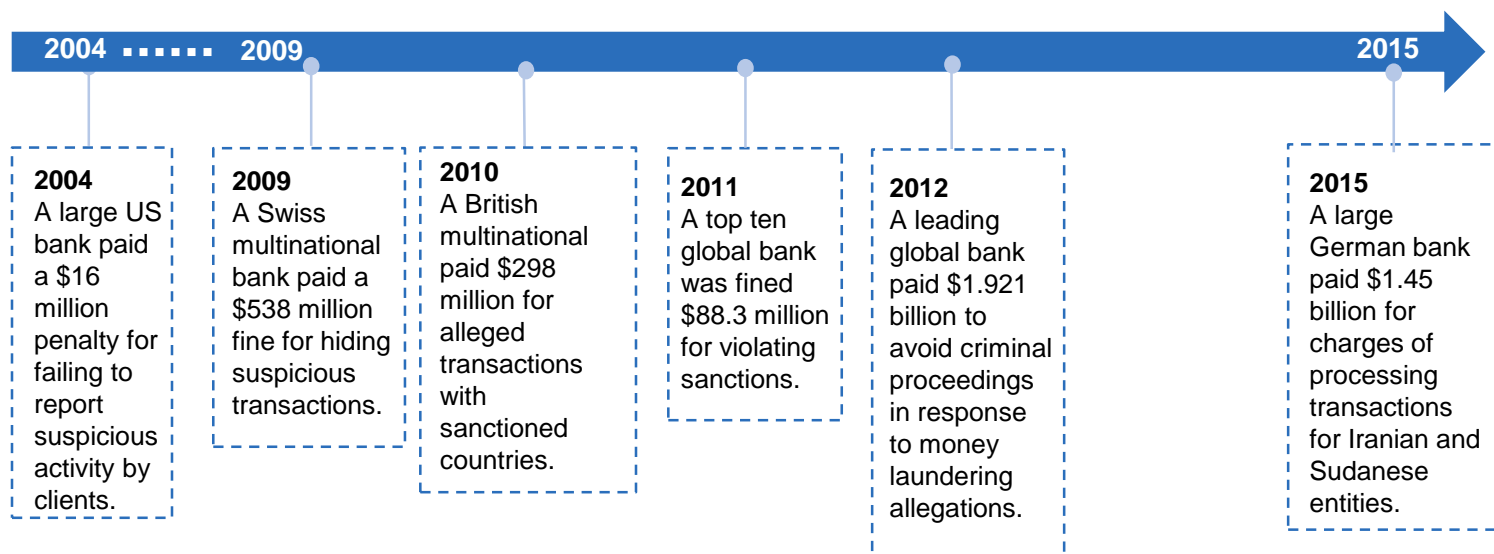
Source: Stabe, Martin, "Bank Fines," Financial Times, <http://blogs.ft.com/ftdata/2015/07/22/bank-fines-data/>; CEB analysis.

A \$1.45 Billion Mistake

Banks can be fined for oversights ranging from a total lack of an AML system, to using an ineffective system, and of course the willful subversion of implemented systems for which fines are the most severe. Over the past ten years, some of the world's largest banks have paid multi-billion dollar fines to regulators for processing illegal transactions, but not for lack of the proper technology controls. Take the example of the \$1.45 billion fine that one of Germany's largest banks agreed to pay US regulators. The bank was charged with processing transactions for Iranian and Sudanese entities, as well as facilitating fraud at a Japanese camera device manufacturer. In this case, technology was not the problem. The bank's New York AML platform was able to generate alerts when it detected suspicious activity in transactions coming from the bank's Frankfurt affiliate. However, it was proven that the bank's senior staff willfully subverted the system in an effort to meet revenue targets—a far more severe offense.

Figure 2: Major Penalties Levied on Banks, 2004–2015

Timeline of Major Fines



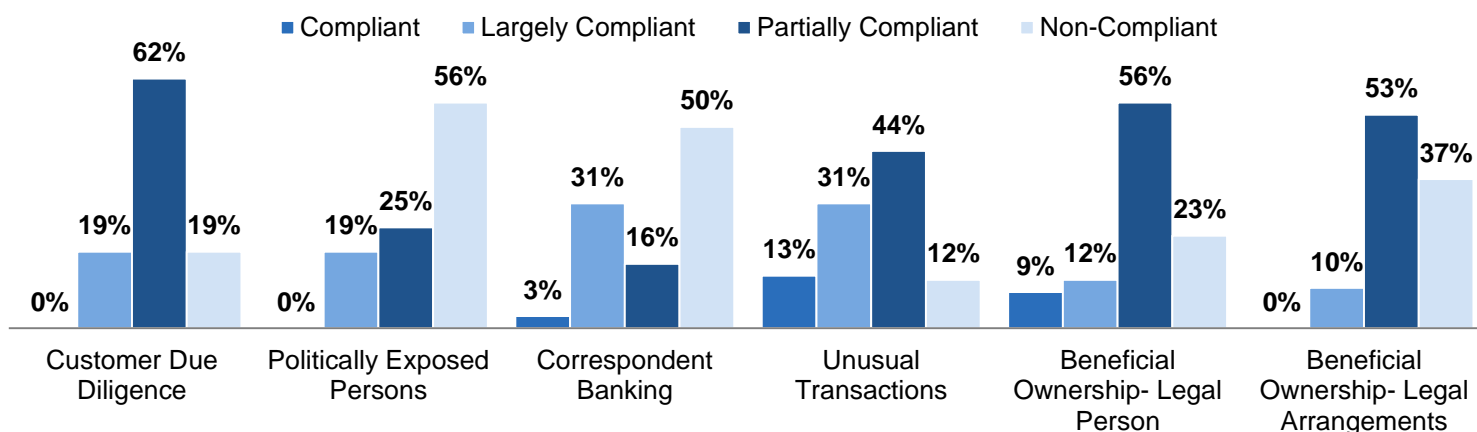
Source: CEB analysis.

Banks Are Challenged by Expanding Regulatory Force

When it comes to common compliance pain points, navigating the Financial Action Task Force's (FATF) recommendations regarding the management of risky customers is a challenge for banks across many countries. A survey of OECD countries identified that 56% of OECD countries are non-compliant with AML requirements around politically exposed persons (PEPs), and 50% of countries are similarly non-compliant with AML requirements for correspondent banking relationships (Figure 3).

Figure 3: Levels of Compliance with FATF Recommendations

Percentage of OECD Countries, 2013

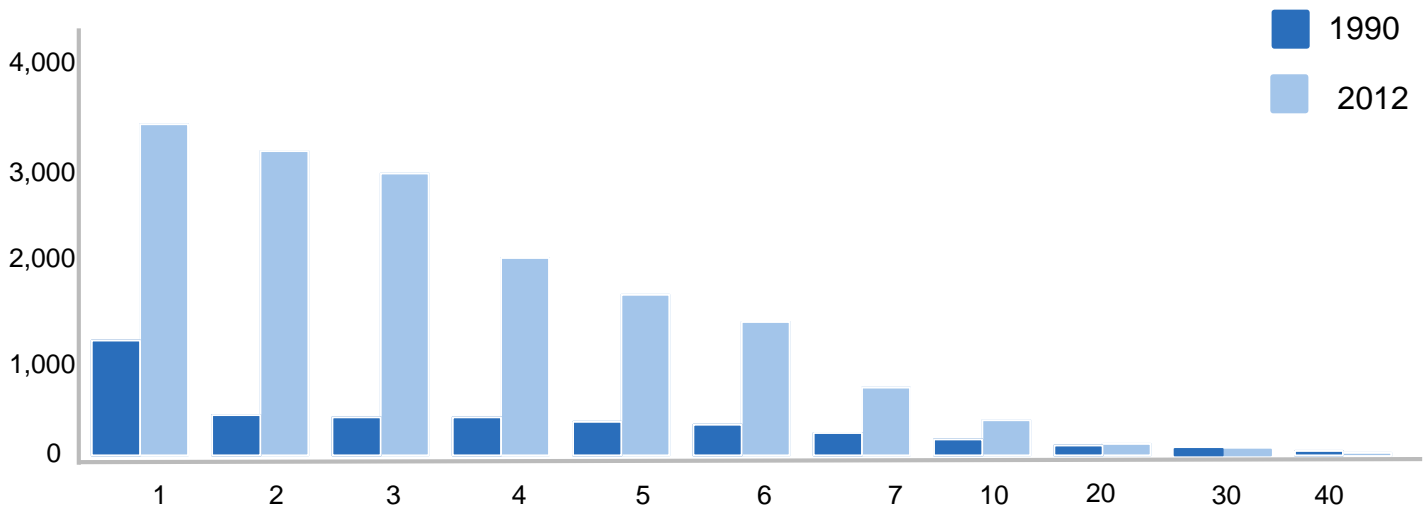


Source: OECD, "Measuring OECD Responses to Illicit Financial Flows from Developing Countries," 2013.

Increasing Bank Complexity and Geographic Spread

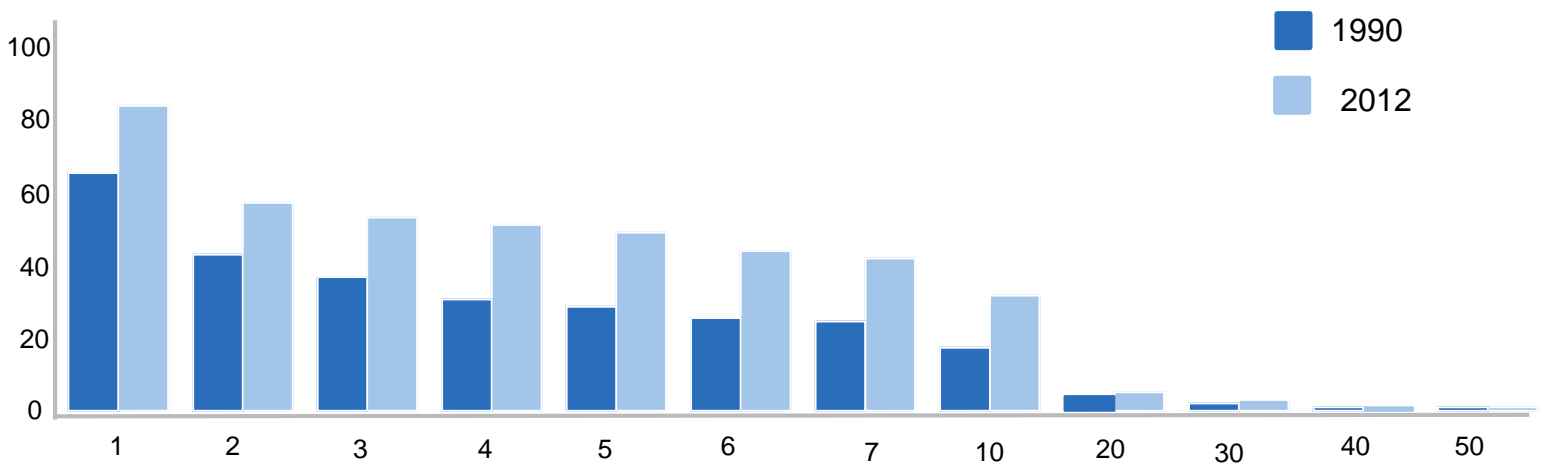
A combination of industry consolidation and changes in the regulatory environment have led to increasing complexity in the structure of the largest banks. A report from the Federal Reserve shows that today, the four most complex bank holding companies (BHCs) each have more than 2,000 subsidiaries, and two have more than 3,000 (Figure 4). In 1991, only one bank exceeded more than 1,000 subsidiaries. As bank size expands, so too does geographic reach. The top four banks now operate in over 40 different countries, the largest, operating in 80 countries (Figure 5). Executing a consistent AML strategy across multiple geographic regions has become a daunting task as the overall complexity of the banking system increases.

Figure 4: Number of Subsidiaries of US Bank Holding Companies by Rank
1990 vs 2012



Source: Federal Reserve, "A Structural View of US Bank Holding Companies," 2012.

Figure 5: Number of Countries of Operations of US Bank Holding Companies by Rank
1990 vs 2012

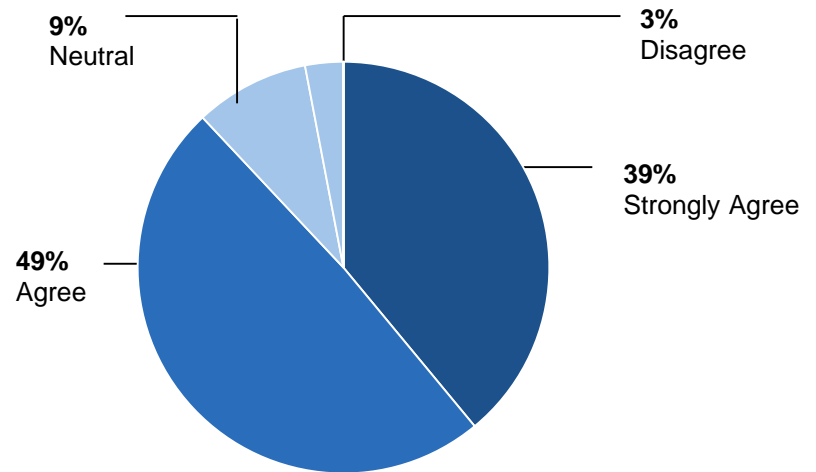


Source: Federal Reserve, "A Structural View of US Bank Holding Companies," 2012.

AML Is On the Board's Agenda

Increased regulatory scrutiny has made anti-money laundering efforts a strategic priority for senior management at the majority of commercial banks. Eighty-eight percent of executives polled on the topic of AML agreed that their Boards of Directors are taking an active interest in reducing compliance risk (Figure 6). Financial institutions face challenges with AML compliance on several different organizational levels, ranging from how to gain executive buy-in, to attracting and hiring the right talent for compliance teams. The availability, quality, and freshness of data alone presents a significant challenge: while banks collect a wealth of customer information, few are able to successfully leverage it to develop effective compliance insight.

Figure 6: Active Interest in AML from Board of Directors
Percentage of Firms, 2014



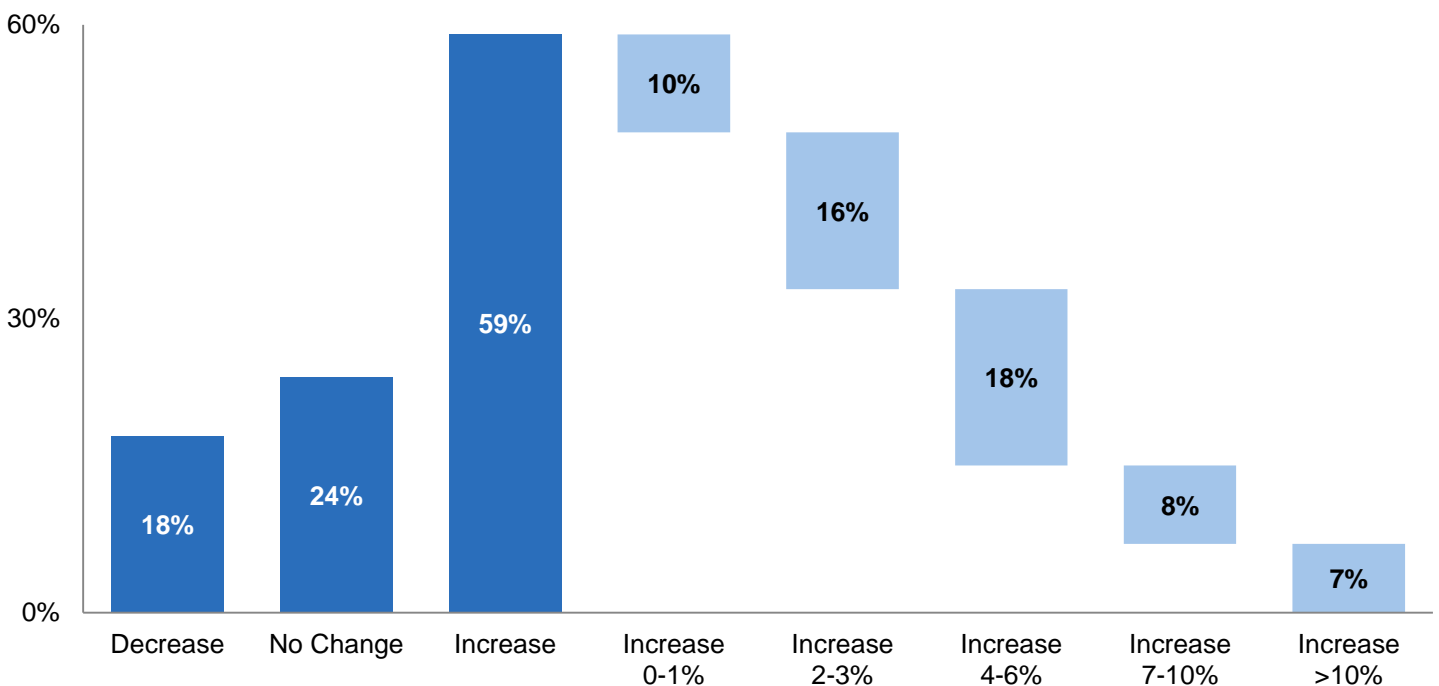
n = 317.
Source: KPMG 2014 Anti-Money Laundering Survey.

Banks Strengthening Controls with Investment in Transaction Monitoring Capabilities

Fifty-nine percent of commercial banking executives polled are expecting to increase spend on transaction monitoring capabilities over the next year, with 34% of those expecting a 2-6% spend increase (Figure 7). This spending increase indicates that current technology controls may not be up to the task in terms of capabilities of flexibility as some banks are expecting to increase spend up to 10% more than they were in the past in order to improve functionality of AML monitoring systems.

Figure 7: AML Technology Spend Forecast

Percentage of Executives, 2015



n = 51.
Source: CEB 2014-2015 Adoption and Investment Survey..

Investing to Automate Labor-Intensive Processes

By nature, detecting money laundering requires a specific process of analytical steps that early IT systems were not optimized to perform (Figure 8). As a result, many banks still rely on manual processes that are labor intensive and time consuming, and are responding to increased regulatory pressure by simply hiring more compliance staff. However, the limited supply of talent is causing salaries for AML professionals to increase, driving up the costs of compliance labor overall. Progressive banks are replacing their existing AML solutions, or adopting new solutions to take advantage of the capabilities now available on the market to automate processes that traditionally required expensive labor. Thirty-eight percent of banks polled are planning to replace their existing AML solution, and 13% are adopting an entirely new solution by 2019 (Figure 9). Investing in AML software can reduce manual review requirements, minimize the occurrence of false positives, and streamline the regulatory reporting process.

Figure 8: The AML Detection Process

Illustrative

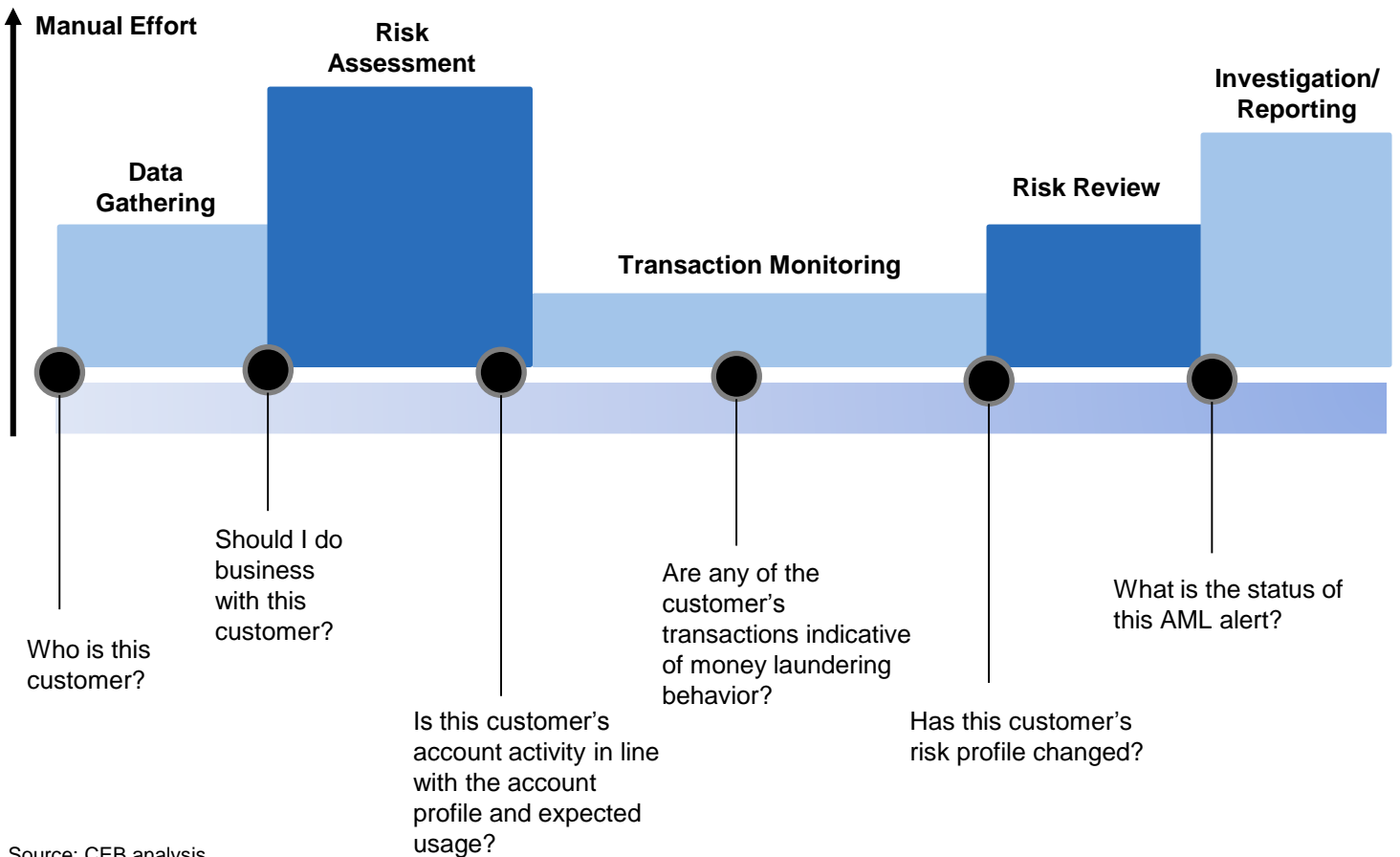
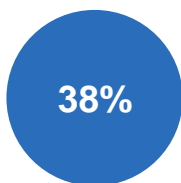
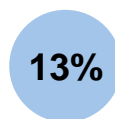


Figure 9: AML Technology Investment Outlook

Percentage of Commercial Banking Executives



Commercial Banks
Replacing AML Solutions



Commercial Banks
Adopting AML Solutions

n = 77.

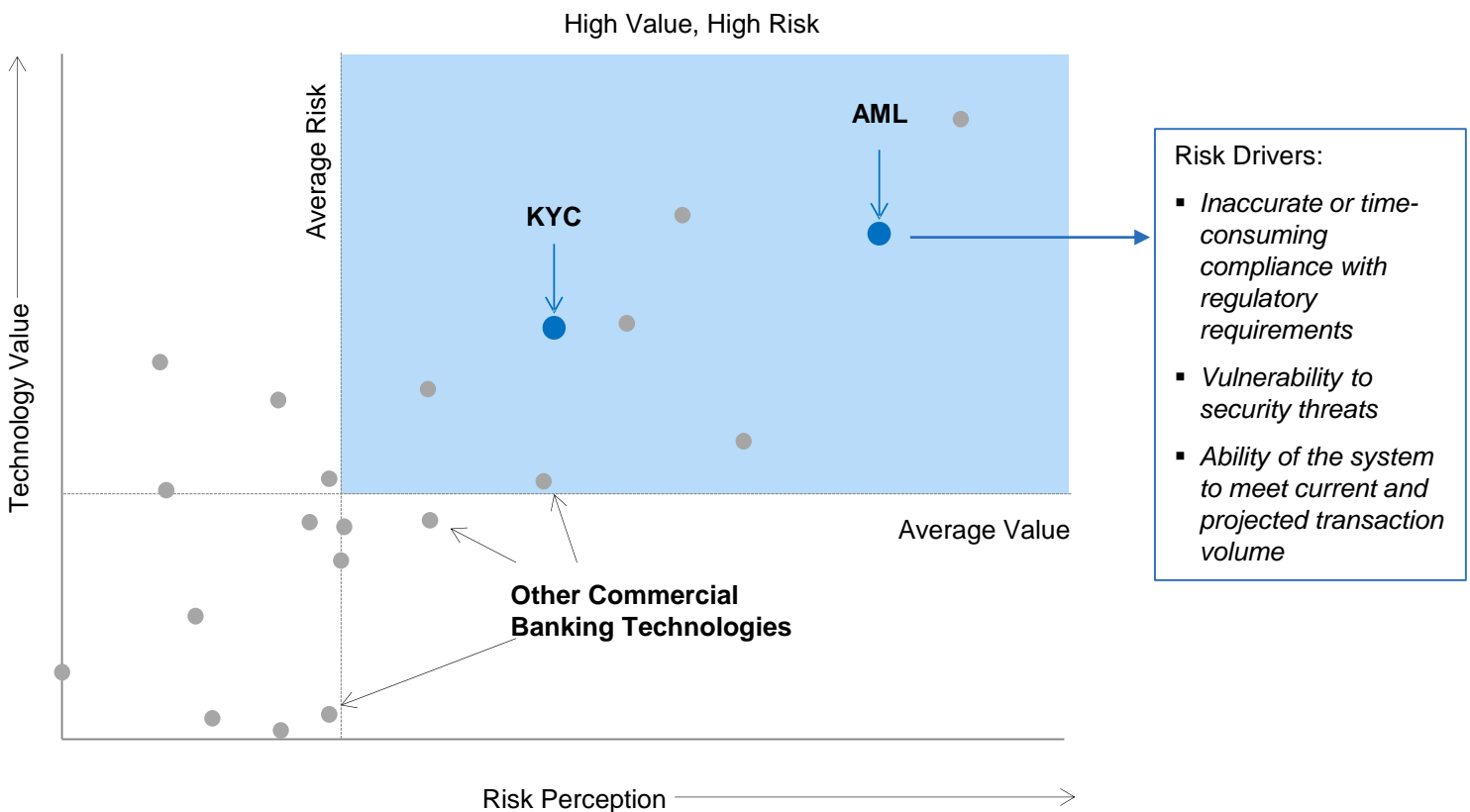
Source: CEB 2014-2015 Adoption and Investment Survey.

High Value from AML Systems, but Not Without Risk

Although transaction monitoring systems provide higher than average value compared to other commercial banking technologies, this is not without high installation risk (Figure 10). Primary factors are the risk of inaccurate or time-consuming compliance with regulatory requirements, vulnerability of the system to security threats, and overall scalability of the system to planned volume. Banks should be concerned with the high risk of such installations as there have been examples of faulty transaction monitoring systems failing to catch suspicious transactions, resulting in steep fines to the bank. However, the benefits of improving the bank's AML capabilities far outweigh the risks in both the short and long term.

Figure 10: Relative Value vs. Relative Risk of Installing Technology

Indexed from Responses, 2015



n = 945 (Value); 1,113 (Risk).

Source: CEB 2014-2015 Adoption and Investment Survey.

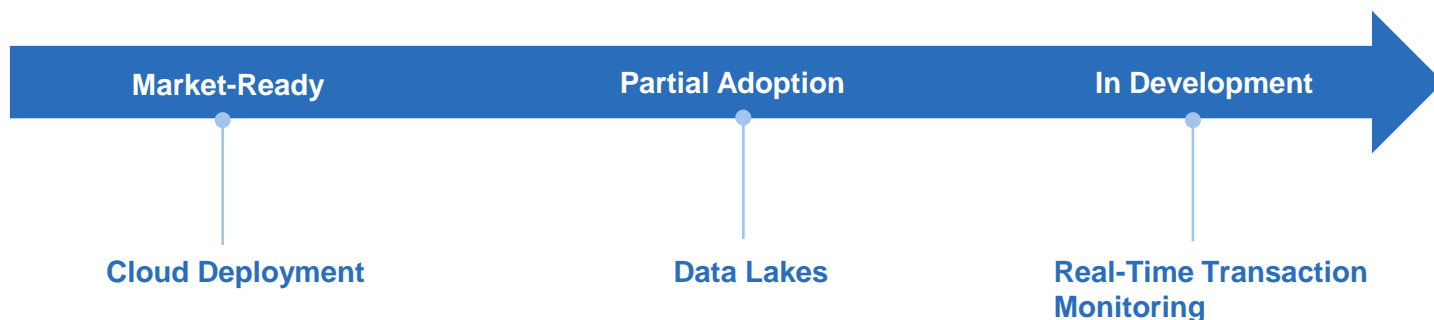
Guarding Against Next-Generation Threats with Past-Generation Technology

While adoption and investment rates for AML solutions are high, the continuing prevalence of money laundering through criminal activity such as wire stripping would suggest that banks are either not up to date with the latest software features and functionality, or are using the solutions incorrectly. As AML systems rank among the oldest currently installed technologies at commercial banks, the urgency to keep systems up-to-date in terms of detection capabilities will only become more pronounced as banks are pushed to meet real-time processing standards.

Emerging Technology Landscape

We expect deployment options and technologies including cloud deployment, integrated case management, pre-SAR filing, and utility models to influence commercial banks' short-term and long-term investment roadmaps for AML solutions. These options and technologies range from experimental to market-ready (Figure 11).

Figure 11: Emerging Technology Development Timeline



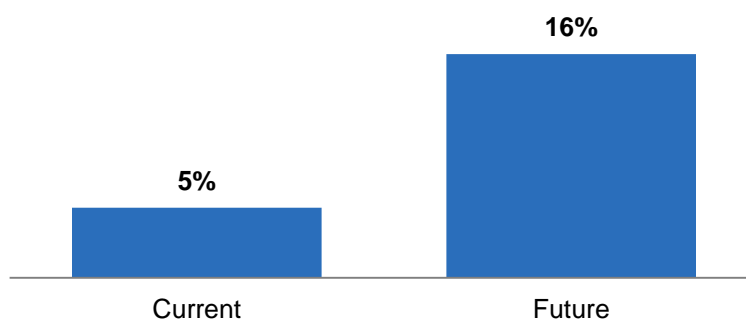
Source: CEB analysis.

Cloud Deployment

As the amount of data required to perform due diligence and transaction monitoring tasks increases, so too will the operational costs of data management. Financial institutions will benefit from leveraging the availability of hosted systems that can help firms optimize current monitoring and alerting systems. In a survey of commercial banking executives, 5% cite that currently installed AML solutions are deployed in the cloud, while 16% of executives planning to install solutions in the next year are looking to do so via cloud deployment (Figure 12).

Figure 12: Current Versus Future AML Cloud Deployments

Percentage of Commercial Banking Executives, 2015



n = 56 (Current); 32 (Future).

Source: CEB 2014-2015 Adoption and Investment Survey.

Data Lakes

As financial institutions are pushed to real-time payments processing, technologies that enable banks to process and analyze large volumes of data at high speeds will become critical for preventing financial crimes. Banks are beginning to undertake initiatives to address data collection, quality, and integrity across the enterprise, by centralizing data in data lakes and repositories in an effort to gain a holistic customer view. By reducing reliance on static business rules or parameters in rule-based models, and instead focusing on mathematical models that map behavior based on big data, banks will be able to assume a more proactive stance to preventing financial crimes.

Real-Time Transaction Monitoring

While most banks currently process transactions in batches, technology providers are getting more requests for real-time processing, for both transactional data and payments. With the risk of debilitating fines and reputational damage looming large, banks want monitoring and alerting approaches that are closer to real-time, as opposed to the thirty day lag on which most transaction monitoring systems currently operate.

Market Overview




Gaining Efficiencies from Compliance Technology

Data residing in compliance systems, particularly in AML and KYC databases, is highly structured, multi-sourced, dynamic, and up-to-date, in order to meet regulatory standards. During the initial due diligence process, the bank gains a clear understanding of who its customers are, and in what ways they plan on using their accounts. The unique quality of AML data (and data from other monitoring systems including KYC and fraud), provides banks with continuous updates, offering an evolving picture of changing customer behavior and usage patterns.

Leading banks are finding that the same capabilities they use to predict and assess risk can also be used to predict customer needs and generate relationship insights. Data sets including peer group analysis, behavioral observations, and linked relationships between individuals and businesses provide banks with already segmented customer groups that can be used to identify missing needs or changing behavior (Figure 13). Additionally, the investigative tools banks use for transaction monitoring provide users with a comprehensive and detailed view into a customer's account, enabling immediate insight to overall customer risk rating. The predictive modeling tools that allow banks to assess which customers should be flagged as risky, can be equally useful to front-office staff trying to identify customer segments with unmet financial needs. Peer analysis tools that are used in an AML context to identify risky behavior groups can be used to identify profitable or underserved customer segments.

Figure 13: Uses of AML Data for Revenue-Generation

Illustrative

AML Usage	Data	Value-Added Usage
Compare customer against similar peers to identify egregious or anomalous activity.	Peer Group Analysis 	Identify profitable or under-served groups to inform product and service strategy.
Compare expected versus actual activity to identify suspicious relationships.	Behavioral Changes 	Understand changing customer needs and identify best-fit products or relationship pricing.
Locate related accounts, business entities, and other customers for investigations.	Linked Relationships 	Identify new opportunities related to the customer such as related business or household.

Source: CEB analysis.

Feature Audit

The breadth and scope of features that anti-money laundering technology provides is an important factor to any financial institution's investment decision. To that end, we surveyed featured providers on what capabilities their product brings to the market.

	BAE Systems NetReveal™	Percentage of Providers in Report Offering Feature as Standard Native
REPORTING CAPABILITIES		
Currency Transaction Report	●	72%
Composite Reporting	●	56%
On-Demand Reporting	●	83%
Presentation Tools	●	89%
Suspicious Activity Report	●	83%
REPORTING FORMATS		
Excel	●	100%
HTML	●	67%
PDF	●	94%
Word	●	78%
WORKFLOW TOOLS		
Approval Workflows	●	100%
Audit Trails	●	100%

- **Standard Native:** Contained in the base package of the solution provided solely by the firm.
- **Premium Native:** Only available at an additional cost or as an addition to the base package of the solution, and is provided solely by the firm.
- **Third-Party Premium:** Only available at an additional cost or as an addition to the base package of the solution, and is provided by a third-party firm.
- **Plan to Offer in 12 Months**
- **Plan to Offer in 24 Months**

Source: CEB analysis, Participating Technology Providers.

Feature Audit continued

	BAE Systems NetReveal™	Percentage of Providers in Report Offering Feature as Standard Native
WORKFLOW TOOLS continued		
Customer Due Diligence Risk Scoring & Classification	●	94%
Customer Risk Segmentation	●	94%
Document History/Versioning	●	94%
FATCA Compliance	●	44%
Neural Networks	●	44%
Process Automation	●	94%
Risk Scoring	●	72%
Role-Based Permissions	●	100%
Sanction Screening	●	83%
Suspicious Activity Monitoring	●	89%
Tunable Parameters	●	94%
Watch List Filtering	●	89%

- **Standard Native:** Contained in the base package of the solution provided solely by the firm.
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- **Plan to Offer in 12 Months**
- **Plan to Offer in 24 Months**

Source: CEB analysis, Participating Technology Providers.

FEATURE DEFINITIONS

REPORTING CAPABILITIES

Currency Transaction Report	The solution supports the manual and/or automated creation of currency transaction reports (CTRs) from system data.
Composite Reporting	The solution supports the compilation of multiple regulatory reports into one composite report.
On-Demand Reporting	The solution provides tools for users to create custom ad-hoc reports from system data.
Presentation Tools	The solution provides reports with graphical and data visualization capabilities.
Suspicious Activity Report	The solution supports the manual and/or automated creation of suspicious activity reports (SARs) from system data.

REPORTING FORMATS

Excel	Reports can be generated in an Excel (.xls) format.
HTML	Reports can be generated in an HTML format.
PDF	Reports can be generated in a PDF format.
Word	Reports can be generated in a Microsoft Word (.docx) format.

WORKFLOW TOOLS

Approval Workflows	The solution provides standard workflows for alerts and cases to be reviewed by management.
Audit Trails	The solution provides audit trails that records the actions performed by compliance analysts for every alert and case.
Customer Due Diligence Risk Scoring & Classification	The solution enables the bank to predict with relative certainty the types of transactions in which a customer is likely to engage, and the potential risk of those transactions.
Customer Risk Segmentation	The solution can automatically score new customers for money laundering based on a variety of configurable criteria.
Document History/ Versioning	The solution can keep track of multiple versions of case documents and attachments for audit purposes.
FATCA Compliance	The solution provides tools to enable banks to report on financial accounts and foreign entities owned by US taxpayers.
Neural Networks	The solution integrates neural network predictive algorithms when making fraud decisions.
Process Automation	The solution provides workflow tools that enable the automation of alert and case workflows.
Risk Scoring	The system can automate the scoring of potential fraud based on predicted risk models.
Role-Based Permissions	The solution utilizes role-based permissions and access.
Sanction Screening	The system provides support for sanctions compliance.
Suspicious Activity Monitoring	The solution provides real-time or batched suspicious activity monitoring for all transactions.
Tunable Parameters	The solution provides tools to refine the parameters of money laundering detection rules and models.
Watch List Filtering	The solution provides customer and transaction sanctions filtering capabilities against major watch lists.

Source: CEB analysis.

KEY STATISTICS

Founded: 1971
Company Type: Public
Headquarters: Guildford, UK
FY 2014 Revenue: £16.6 Billion (GBP)
Full-Time Employees: 90,000

FIRM OVERVIEW

BAE Systems is a global defense, aerospace, and security company that provides business defense for nations, governments, and enterprises. Its solutions enable governments and high-risk organizations to ensure the safety of civilians, prevent cyber attacks, detect fraud, reduce risk, ensure cost-effective compliance and reveal hidden value in their data, all while helping grow the business.

PRODUCT OVERVIEW

The BAE Systems NetReveal™ suite of AML solutions covers the full customer journey through the necessary compliance steps at a financial institution. Beginning with Know Your Customer and Customer Due Diligence for onboarding and risk assessment, the solution provides support for non-domestic tax due diligence obligations and reporting, correspondent banking, sanctions screening, and integrated transactional monitoring and alerting, as well as suspicious activity report filing.

RECENT UPDATES

First developed in 2003, BAE Systems' latest version, NetReveal 7.1 (released April 2015), offers many new features. Foremost is AML Optimization, a module that provides scenario simulation and typology optimization. The recent release also includes a correspondent banking module, a solution module developed to support regulatory focus on correspondent banking and associated network AML risk, integrating KYC data from banks, third-party data providers, and information about counterparties. BAE Systems has also extended the Beneficial Ownership capability in line with regulations such as the 4th EU Money Laundering directive, risk assessing beneficial owners, and also the network of corporate customers. Additionally, a revised UI provides data to support alert and case management, enabling users to make better decisions quicker.

CEB VIEW

BAE Systems has put considerable effort into its latest release of NetReveal, leveraging what were already strong analytical capabilities by giving investigators greater insight on affected customer segments, organizational units, and transaction types.

CUSTOMER SUCCESS STORY

A top 10 financial institution with global reach needed to meet local regulatory requirements and achieve consistent AML standards globally while maximizing efficiencies. The institution required a scalable real-time system with the ability to adapt business processes and operate in multiple countries and languages.

By implementing BAE Systems NetReveal, the financial institution was able to meet local regulatory requirements for all of its global locations and adapt the processes and languages for different regions.

The financial institution improved its monitoring capability by concurrently implementing the solution across all of its global locations in a wide variety of languages. Additionally, the investigators and analysts received efficient training that was specific to their geography. The institution further improved on the efficiency and effectiveness of its AML operations by running AML Optimization, allowing them to simulate different scenarios and optimize compliance effectiveness. The financial institution is considering extending NetReveal to its fraud detection arena as well as SaaS delivery to its smaller, more remote business units.

Client Distribution by Firm Size

Not Disclosed

Under \$1 billion	Between \$1- \$10 billion	Between \$10- \$50 billion	More than \$50 billion
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Regional Distribution by Number of Clients



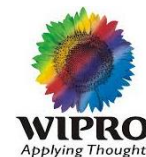
Source: BAE Systems Applied Intelligence; CEB analysis.

A Special Thanks to Participating Technology Providers

Related Resources

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