

BANKING ON MACHINE DATA

How the Financial Services Industry Can Prevent Cyberattacks, Transform IT and Streamline Business Operations

The financial services industry has unique challenges that often prevent it from achieving its strategic goals. The keys to solving these issues are hidden in machine data—the largest category of big data—which is both untapped and full of potential. By collecting, analyzing and visualizing the data banks already have, these organizations can make great strides in security and compliance, IT, and business processes.

Like most organizations, financial services firms must strive to find operational efficiencies, do more with less, and distinguish themselves from competitors. But financial organizations also have unique technology, competitive, regulatory and demographic requirements that often make these results difficult to achieve, including:

- The need to modernize legacy core banking and other systems (such as payment hubs)
- Managing the migration of key banking workloads to the cloud

- Assessing adoption of new Fintech innovations such as blockchain
- Innovating in omnichannel digital banking
- Automating and monitoring risk, regulatory and compliance processes

The challenges are immense, and not all financial firms will overcome them. But these obstacles also offer a unique opportunity for banks to gain a competitive edge, using the data they already have. This shouldn't come as a surprise: in a Cap Gemini survey, 60 percent of financial institutions in North America indicated they believe that big data analytics offers a significant competitive advantage, and 90 percent think that successful big data initiatives will define the winners in the future¹. Taking a step toward solving these industry problems doesn't seem to be an issue of what, but of how: how to get started and how to analyze this data to gain the insights needed for resolution (*Figure 1*). In the same survey, only 37 percent of banks had first-hand experience in implementing big data technology for operations efficiency and gaining a deeper understanding of customer needs.

Big Data is Key to the Financial Services Industry's Success¹

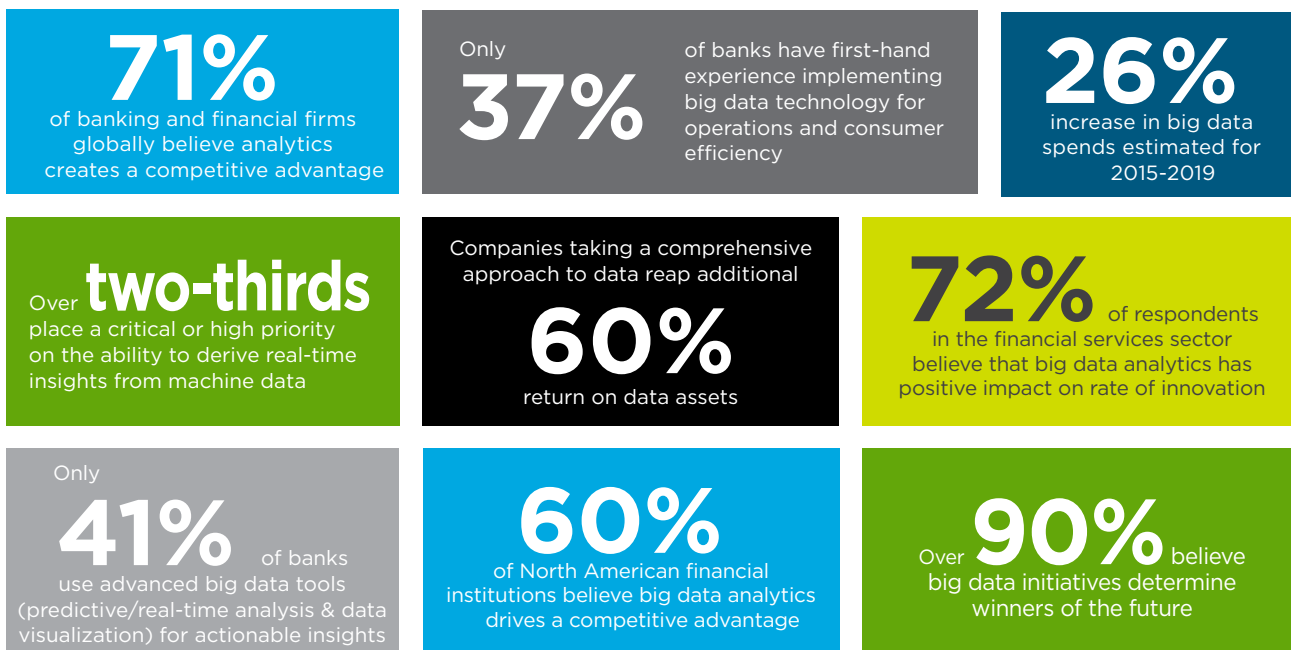


Figure 1. Big data provides a huge opportunity for the financial services industry, but companies are still struggling to manage it.

1. Cap Gemini Consulting – Big Data Alchemy in Banking, 2015.

The Secret to Success: Machine Data

The good news is that by collecting, analyzing and visualizing machine data, financial services organizations can make significant progress in achieving many of their strategic goals. As the largest category of big data, machine data is immense, unstructured and comes in a vast array of unpredictable formats. It is valuable because it contains a definitive record of all the activity and behavior of customers, users, transactions, applications, servers, networks and mobile devices. It includes configurations, data from APIs, message queues, change events and more (*Figure 2*).

Traditional monitoring and analysis tools weren't designed for the variety, velocity, volume or variability of machine data. Machine data in financial services will continue to grow at a frenetic pace, and increasing digitization of financial products and services will enable firms to capture and analyze every customer digital interaction. As it becomes easier to conduct bank business online, customer transaction volume will increase, creating more transaction channels. And finally, as banks open more back-end data and systems to provide secure, external customer access, the data coming from API gateways will be another vital source of information and insight.

All of this points to the need for the financial services industry to have access to a platform that accesses all machine and other relevant data across silos, analyzes it in real time and reveals problems, patterns and insights.

COMMON MACHINE DATA SOURCES IN FINANCIAL SERVICES FIRMS

- Logs from core IT infrastructure, including servers, storage, network, security and other IT system information such as router information and CPU usage
- Transaction records and other information from front-, middle- and back-end business applications, including legacy core banking systems, electronic trading systems and mobile applications
- Middleware such as application servers and enterprise service buses, as well as message queues to route messages such as the SWIFT protocol for payments
- Various devices that include desktops and laptops, workstations for trading, treasury and payments operations, and workstations for command and control centers
- ATMs, banking applications on mobile devices, online banking and payment portals, and more

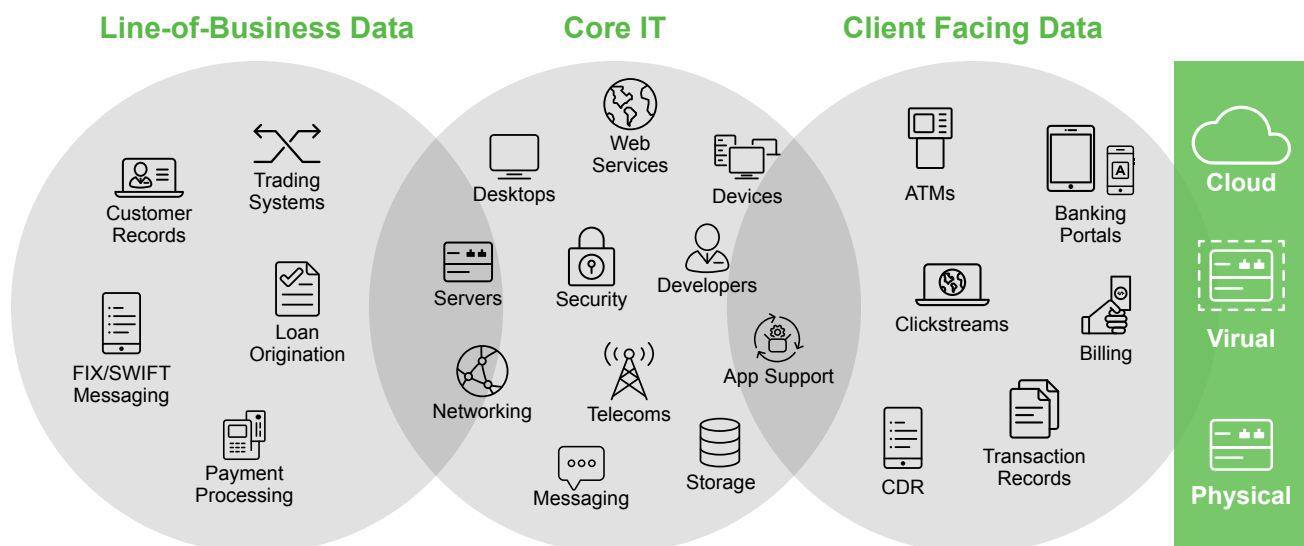


Figure 2: Machine data in the financial services industry can be categorized into three groups: data from line-of-business systems (including lending, payments, treasury services and trading); data from core IT infrastructure; and client-facing data (which comes from the numerous channels customers use to interact with banking systems).

How Security and Compliance Can Work Together

Cyberattacks on the financial sector **are a growing problem** that can lead to costly penalties, litigation and reputational damage for institutions. And the sophistication of modern attacks can make it difficult for financial institutions to keep pace with threats, let alone identify whether those attacks are being initiated externally or internally.

Insider threats are a particular challenge for banks because of the sensitive data that institutions handle and bank employees may have access to. Financial institutions must also mitigate cyberthreats, while demonstrating the ability to meet government regulations and compliance standards that mandate they monitor sensitive data and complex financial processes. They must also know who had access to what information and when and demonstrate that chain of command. Financial institutions also need to automate the monitoring of risk, regulation and compliance processes to avoid fines and reduce the workload on its staff.

Banks can leverage the machine data they are already generating to resolve some of these issues and automate many of the processes required for compliance. Machine data presents an opportunity for financial institutions to improve their security posture while making it easier to meet regulatory and compliance mandates. And compliance standards are a built in hygiene check to make sure security operations are prepared for the latest cyberthreats.

Machine data can also help banks identify and investigate anomalies on user behavior and patterns to detect insider threats, account takeovers, fraud and more. For example, examining machine data can reveal unusual trends and patterns.

That same data can be also be used to index and monitor information to help comply with local, state, federal and international regulations, including Sarbanes-Oxley, GLBA, PCI, MIFID2 and PSD2. In this regard, it is not only the data that is important. It's

also the flexibility of the platform to perform different analyses on the same data (i.e., a “schema on-the-fly” architecture). This is needed because of the wide array of regulatory rules that need to be applied to the exact same data, depending on where in the world the bank is operating.

In IT, Ignorance Isn't Bliss

Financial institutions need the ability to access data from a variety of sources to make the best decisions quickly. Unfortunately, disparate systems have developed over time—due to department compartmentalization, responses to specific business needs, mergers and acquisitions and the need to implement new technology to enter new markets. These silos often exist in both IT and business, and the data trapped in these silos is difficult to combine, correlate and analyze.

Additionally, many financial services institutions' current processes involve multiple, complex steps and rely on diverse underlying systems and services. The inherent complexity and compartmentalization makes it hard to truly understand what's going on within the infrastructure. Organizations monitor these systems, but often with point tools—not on a holistic level. In other words, the left hand doesn't know what the right hand is doing. The result? An inability to identify and resolve the root cause of issues that affect the business.

These issues aren't going away. As datacenters and IT environments continue to increase in complexity, an incomplete view into operations and infrastructure will create more chaos over time. Legacy systems can be expensive to run and maintain, and they aren't agile enough to adapt to changing IT environments. And because they usually operate in silos too, these systems often struggle to collect and correlate information from multiple technologies, making it difficult for IT to monitor infrastructure and rapidly troubleshoot problems.

But with machine data (including from web servers, applications and software-as-a-service systems), the silos can be brought down and new insights can emerge. And with a machine data analytics platform that enables organizations to collect, analyze and visualize data, financial firms gain end-to-end visibility into their infrastructure, so they can identify and resolve problems faster. In addition, IT teams need to continuously improve the performance of banking applications, requiring deep visibility into IT infrastructure—which only a machine data analytics platform provides.

Fewer silos means that different IT systems can work together seamlessly and banks can optimize capabilities such as real-time payments, settlement and straight-through processing. Perhaps most importantly, these insights from machine data can be shared with business stakeholders, so technology becomes a driver of innovation and efficiency, not a blocker for it.

Making Business Processes Less Painful

Using machine data, financial institutions also gain complete visibility across complex business processes—gaining insight across technology infrastructure, application performance and functionality, and business processes end-to-end. This view empowers financial services firms to address and solve a wide variety of business process pains.

Behind-the-scenes analysis and optimization of both business processes and IT systems can be easier said than done. A single transaction can require multiple application and IT services. By managing and analyzing its machine data, firms can gain visibility and ultimately obtain key business insights. This enables critical questions to be answered (*Figure 3*).

Such a platform also enables firms to ensure the successful operation and achievement of SLAs across a wide array of financial processes, and reduce the costs and limitations of using multiple process-specific point solutions.

Making Customers Happier

Customers expect their financial institutions to process transactions faster. They also want a seamless experience across all channels—whether it's mobile, web, over the phone or on-premises. And the pressure is on for financial institutions to continue to innovate ways to keep their customers happy (there is far less loyalty to any particular bank brand, and it is now easier than ever for customers to switch institutions). Rapid response and resolution to activities and scenarios such as those shown in Figure 3 are critical capabilities to achieving this.

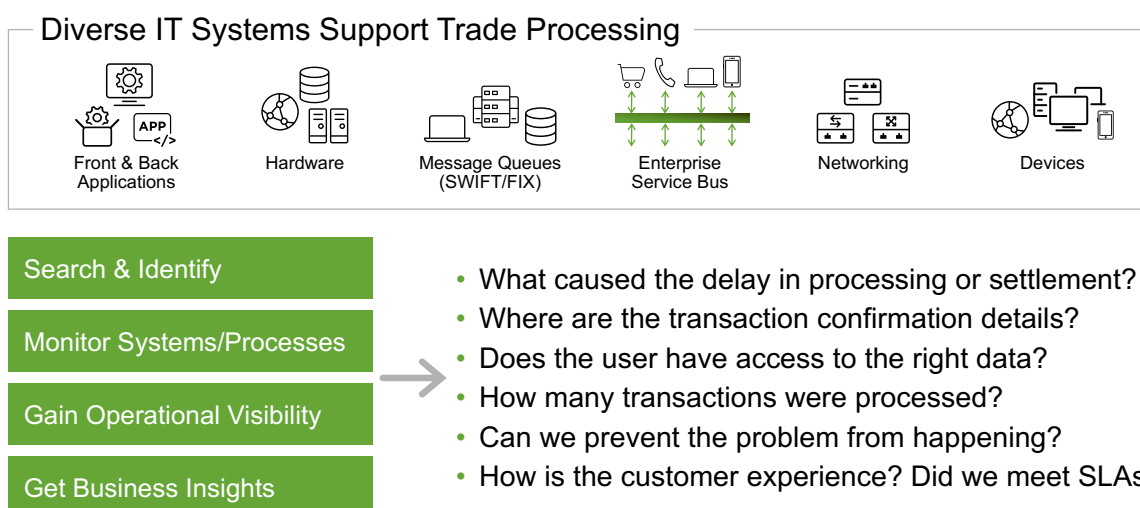


Figure 3: With insights from machine data, organizations can answer critical questions that have been impeding business success.

Machine data also empowers banks to gain customer intelligence from advanced analytics. This includes evaluating a customer's experience on a website or banking portal, and tracking the uptake of various marketing offers.

Additionally, financial services institutions are continuing to invest heavily in developing robo-advisors and using machine learning to combat the threat from fintech firms to their client asset and wealth management businesses. This significantly increases the dependence on IT and developers, analysts and data scientists. As a result, the need for (and complexity to do) analytics on machine data generated by IT becomes even more critical.

Regarding machine learning, Splunk is uniquely suited for real-time application of this technology, in an operational setting, to guide data-driven decisions. Banks can liberate the research from their data science investments, bring only the models and methods that are needed into a real time window to act on the all-important decisions that need to be made now.

Tapping Into the Full Potential of Machine Data

Most financial institutions have already taken the necessary first step toward unlocking the potential of their machine data. A recent Oxford University² survey found that 80 percent of financial services firms are already analyzing transactions and log data.

Banks can take that machine data much further by gaining access to an end-to-end Operational Intelligence solution such as Splunk that accesses all machine data across silos, analyzes it in real time and reveals problems, patterns and insights to improve efficiency and strengthen banks' security posture. A unified view into that data can help banks overcome many of the challenges they are facing—from cybersecurity threats to effectively monitoring IT operations. It can also automate much of the compliance requirements of numerous government regulators and enable legacy systems modernization.

The same data can also monitor complex, multi-step financial processes such as payments and electronic trading, flag potential fraud and improve services for customers by utilizing advanced analytics and machine learning. This delivers deep insights into customer behavior across all channels, the effectiveness of marketing promotions and usage of various financial services.

2. Said Business School, Oxford University – Big Data @ Work Survey, 2014

Do you want to learn more about how financial services organizations are using Splunk solutions to prevent cyberattacks, transform IT, and streamline business operations? [Check out our customer success stories](#) or [contact a Splunk expert](#).



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