

Overcome New Financial Services Compliance Challenges

Innovate with big data for improved compliance
and competitive edge



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Executive Summary

Financial institutions may soon look back on the introduction of Sarbanes-Oxley, Basel II, and Dodd-Frank as a period when compliance was relatively easy. Institutions now must prepare for new regulations including BCBS 239, CRS, EMIR, FATCA, FRTB, MiFID, and more. While these and other new regulations can be extremely detailed and specific, at one level they are the same: they require financial institutions to collect more data, process it in new ways, and report it more frequently.

Compliance-related IT spending threatens to starve investment in innovation that is critical to long-term competitiveness.

You need to balance:

- Compliance
- Maintaining current systems
- Innovating for the future

This white paper describes how strategic decisions and investments in automation and big data infrastructure can make compliance easier while also positioning organizations to innovate faster.



COMPLIANCE COMPLICATES IT

While financial markets often change directions, financial services industry IT spending tends to move in only one direction. The industry was forecast to spend nearly half a trillion dollars (\$480 billion) on information technology in 2016.¹ Risk management spending is increasing 7 percent annually among financial institutions while their overall IT spending is rising by an average of 4.2 percent.² Since risk-related IT spending is rising faster than overall IT spending, a funding gap is developing. At many organizations, budget is being diverted from maintenance and future development projects to pay for compliance-related systems. This funding gap may hurt long-term competitiveness.

Because of advancements in big data and other technologies, financial services institutions do not have to choose between being compliant or innovative. **Strategic investment and enhancements to IT systems and processes can produce a flexible, scalable architecture that makes financial services institutions more responsive to both their customers and regulators.**

FRTB ILLUSTRATES THE NEED TO CHANGE

The Fundamental Review of Trading Book (FRTB) regulations provide an excellent example of how compliance affects IT and why the IT infrastructure is a huge variable in the cost and effort required to comply.

FRTB is a new set of regulations by the Bank for International Settlements (BIS) that redefine risk management methodologies and reporting requirements for financial institutions. The regulations go into effect January 1, 2019. FRTB requires risk to be calculated and reported according to the Expected Shortfall (ES) method, which is a significant development because most financial institutions currently use the Value-at-Risk (VaR) method. VaR requires an overall risk calculation. ES also requires an overall risk calculation, but it also requires five different categories of risk (foreign exchange, commodities, IR, credit, and equity) to be calculated and reported separately.

Compliance will require making 20 times more calculations and adding a corresponding amount of additional data storage capacity, according to one independent analysis.³

Without a scalable IT system, the change could also require organizations to abandon the widely-used Monte Carlo risk methodology, because it would require too many computing resources to complete in a timely manner. Because of FRTB, financial institutions will be working with big data, regardless of whether they have developed a big data infrastructure to support it.

Using old platforms and processes to satisfy new requirements is not a practical option for satisfying FRTB and other regulations. FRTB highlights both the need to change and potential value beyond compliance. Some organizations have already assigned dozens of full-time equivalents to prepare for FRTB compliance while others will need just a small team to make the changes needed to comply. The difference in required resources results from the difference in approach. Some organizations will comply by applying manpower, others will do so by applying automation. **Innovative organizations will use big data technologies to efficiently manage calculations and reporting.** They will use the same infrastructure to analyze results to find ways to improve performance and competitive differentiation.

BIG DATA IS NOT A REGULATORY REQUIREMENT, BUT IT IS A PRACTICAL ONE

FRTB calls for a 20-fold increase in data processing and reporting, and that is just one regulation. FATCA and CRS require institutions to collect more data about their customers and share it with other organizations. MiFID II creates new reporting requirements. BCBS 239 specifically calls for banks to change their IT architectures and infrastructures to support new risk management realities, and also identifies the need to change data governance, timeliness, completeness, and reporting capabilities. Ready or not, it is time to build support for big data into the IT infrastructure.

Financial institutions need to have an IT infrastructure that allows them to easily work with big data. Here is where **carefully considered investments will not only support compliance, but can improve overall speed, agility, and the ability to innovate.** The infrastructure should be scalable to satisfy growing needs for data collection, analysis, and retention. IT infrastructure also must be flexible so it can accommodate new regulations and changing needs.

1 IDC Financial Insights, "Financial Services IT Spending to Reach \$480 Billion Worldwide in 2016," April 27, 2016.

2 Ibid

3 FRTB Info, "FRTB: Technology Implications," March 13, 2016.

Big data programs will need to work with current enterprise data and systems. Managing big data as a separate system invites trouble in the form of excessive long-term integration and maintenance costs. The more compatibility the big data technologies have with enterprise systems and processes, the more they can be integrated and automated, and the faster they can deliver value.

HADOOP IS A TOOL FOR THE TIMES

Apache Hadoop provides the scalability that financial institutions need, but whether it will help organizations become faster and more flexible depends on how it is implemented. Hadoop is a framework of technologies for working with big data in a distributed environment. Hadoop's hallmarks are scalability, reliability, and the ability to run on relatively inexpensive hardware. Hadoop found an early home in industries that need to work with large data sets and/or time-sensitive data, so not surprisingly, it has been used for years by financial services organizations to support trading and risk management activities.

“Use Hadoop and big data analytics for the transformation and enrichment of data. As more data is collected and Hadoop technologies make it possible to store more data and analyze data for trends, this should also help banks use this data to gain valuable insights.”

FRTB Info

FRTB: Technology Implications

With Hadoop, organizations can make decisions based on comprehensive analysis of multiple variables and data sets, rather than a small sampling of data or anecdotal incidents. The ability to process large sets of disparate data gives Hadoop users a more comprehensive view of their customers, operations, opportunities, and risks. To develop a similar perspective without big data, organizations would need to conduct multiple, limited data analyses, then find a way to synthesize the results, which would likely involve a lot of manual effort and subjective interpretation. Hadoop also provides a single point of data management which allows an institution to operationalize security and privacy measures such as de-identification, masking, encryption, and user authentication.

These are some reasons why Hadoop is advantageous for the current financial services environment:



Scalability



Cost effectiveness



Flexibility



Speed



Resistance to failure

Scalability: Hadoop is a highly scalable storage platform because it can store and distribute large data sets across hundreds of inexpensive servers that operate in parallel. Hadoop enables businesses to run applications on thousands of nodes involving thousands of terabytes of data, unlike traditional relational database systems (RDBMS).

Cost effectiveness: Hadoop offers a cost effective storage solution for exploding data sets. The problem with traditional RDBMS is that they are extremely cost prohibitive to scale to process the massive volumes of data that financial institutions now must produce and manage.

Flexibility: Hadoop enables businesses to easily access new data sources and tap into different types of data (both structured and unstructured) to generate value from the data. This means businesses can use Hadoop to derive valuable business insights from data sources such as social media, email conversations, or clickstream data. Hadoop also can be used for a wide variety of purposes, such as data warehousing, market campaign analysis, and fraud detection.

Speed: Hadoop's storage method is based on a distributed file system that basically maps data wherever it is located on a cluster of computers. The tools for data processing are often on the same servers where the data is located, resulting in much faster

data processing. Hadoop is able to efficiently process terabytes of data in just minutes, and petabytes in hours, even if dealing with unstructured data.

Resistance to failure: A key advantage of using Hadoop is its fault tolerance. Data is automatically replicated to other nodes in the cluster, which means that there is another copy available for use in the event of failure.

HADOOP'S VALUE IS VARIABLE

There are many ways to integrate Hadoop into enterprise IT architectures, and the methods used will determine how much flexibility and benefit Hadoop provides. Hadoop uses data from multiple sources and enterprise systems, so therefore Hadoop jobs will need to run in the IT environment and conform to enterprise security and development standards. The greater the compatibility between Hadoop and the enterprise batch environment for developing, testing, scheduling, and running jobs, the faster and more reliably new Hadoop-based services can be developed and put into production.

Approximately 70 percent of enterprise jobs currently run via batch processing. Batch processing can be highly automated, which significantly reduces the time and cost needed for support and improves reliability by reducing opportunities for human error. If the workload automation solution used for batch processing could also support Hadoop, the organization could introduce and manage Hadoop-based services without having to make significant additional investments in software and training. For more on this topic, read the white paper: [Integrate Big Data into Your Business Processes and Enterprise Systems](#).

“Today, many firms have a silo-based approach to data management which requires data to be aggregated at the product or region level. This causes difficulties for risk management, reporting, and collateral management. A data management approach which supports the collection, aggregation, and analysis of data at a legal entity level is essential to meeting regulatory requirements.”

Capgemini

**“Regulatory Changes in the Investment Banking Industry:
How Investment Banks Can Prepare Themselves to Cope with Evolving Regulations”**

Control-M for Hadoop is a workload automation solution that automates Hadoop batch processes and enables Hadoop workflows to be developed, scheduled, managed, and monitored with all other enterprise workloads in a single solution. It takes the complexity out of Hadoop management, which leads to faster implementation and more accurate results.

Key features include:

- A universal interface for scheduling, managing, and monitoring current workloads, Hadoop, and other jobs—all in one place
- Support for Apache Spark, which enables in-memory computing deployments that allow Hadoop workloads to run up to 100 times faster
- Direct integration with enterprise data warehouses, including Informatica, IBM® InfoSphere® DataStage, DB2®, SQL Server®, Oracle® databases, and others
- Compatibility with leading relational database management systems (RDBMS) and business intelligence (BI) solutions used in the financial services industry (including Oracle, Sybase®, DB2/UDB, SQL Server, IBM® Cognos®, SAP® Business Objects® and others)
- Forecasting and predictive analytics to prevent enterprise jobs from failing

Control-M for Hadoop provides a fast, secure, and reliable way to integrate Hadoop into enterprise operations. By making it easy for staff to create and manage automated workflows to support compliance reporting and other requirements, Control-M for Hadoop helps enterprises quickly receive value from their investments in big data.

CONCLUSION

The financial services industry has reached the point where regulatory requirements cannot effectively be met by taking the traditional approach of allocating more servers, software, and staff to satisfy compliance. New requirements are pulling institutions deeper into big data, and the practical way to comply is to apply more innovation rather than more manpower. With Hadoop and other big data technologies, financial services companies can innovate in ways that not only reduce their compliance burden, but also increase the pace of innovation throughout the enterprise. By closely integrating Hadoop with the enterprise environment and automating as much as possible, organizations can comply *and* innovate instead of having to choose one or the other.



FOR MORE INFORMATION

To learn more about how workload automation and Hadoop are making organizations more responsive, compliant, and competitive, please visit

bmc.com/it-solutions/control-m-hadoop

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