

# The Future of Compliance

*How cognitive computing is transforming the industry*

*September 2016*



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Paradigm Shift in Financial Services Regulatory Compliance

The compliance landscape has changed rapidly and dramatically over the past 15 years, with the volume and complexity of new regulations rising unabated. Financial institutions of every size strain to keep pace with the onslaught of legislative and regulatory changes arising in response to improper business practices and criminal activity that resulted in an erosion of public confidence in global credit and financial markets and the security of our banking system.

Since the financial crisis of 2008, there has been a sharp increase in enforcement actions brought by federal and state regulators in a broad range of cases involving financial and securities fraud, economic sanctions violations, money laundering, bribery, corruption, market manipulation, and tax evasion, leading to violations of the Bank Secrecy Act and OFAC sanctions. According to Forbes, Inc., aggregate fines paid by the largest global banks from 2008 through August 2014 exceeded \$250 billion.<sup>1</sup> A February 2016 report issued by Bloomberg revealed that the toll on foreign banks since the 2008 crisis has been colossal with 100,000 jobs lost, \$63 billion in fines and penalties, and a staggering \$420 billion dollar loss in market capitalization.<sup>2</sup>

In the wake of these enforcement actions and record-breaking penalties, financial institutions are under

pressure to rethink, restructure, and retool their risk and compliance function to operate in an environment of zero tolerance for non-compliant, non-conforming, and illegal business practices. With regulators, investors, and boards demanding increased global transparency, risk and compliance can no longer be tackled in geographical silos. Transforming the way compliance departments operate to meet the new reality requires an investment in talent and technology. Spending on talent continues to rise as institutions hire more and more staff to shore up already sizeable compliance teams. At the end of 2014, Citigroup reported a compliance staff of 30,000.<sup>3</sup> Some boards, analysts, and investors question the exploding costs of compliance yet recognize that any effort to reduce staff without demonstrable and measureable improvements in compliance processes and technology would almost certainly be viewed negatively by regulators. Headcount alone cannot solve today’s compliance challenges. The solution lies in transformative technology that enables a shift in the focus of compliance staff from that of information gatherers to information analyzers. In other words, it is time for a paradigm shift in the financial services industry and the way regulatory compliance departments operate.

Cognitive Computing for Compliance

Cognitive systems mimic how humans reason and process information.<sup>4</sup> Rather than being explicitly programmed, they learn and reason from their interactions with us and from their experiences with their environment.<sup>5</sup>

IBM’s Watson is cognitive computing personified. Watson uses natural language processing to simulate human thought processes. It analyzes structured and unstructured data, uses natural language processing to understand grammar and context, understands complex questions and presents answers and solutions, based on supporting evidence and the quality of information found.

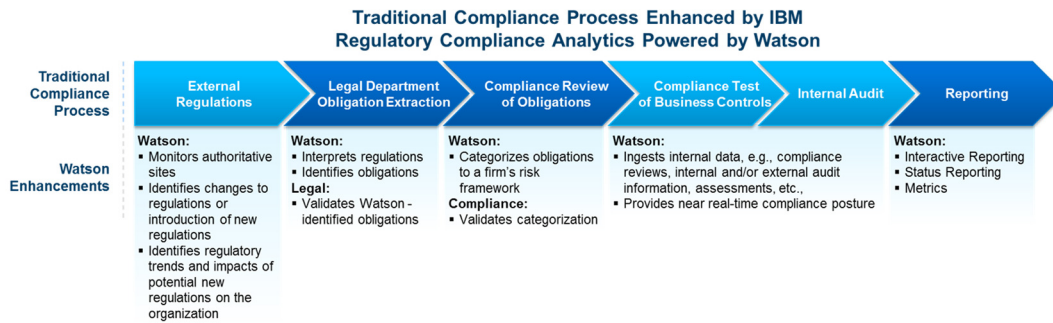


Figure 1: Watson technology enables streamlining and automation of a traditional compliance process

Cognitive computing is a natural fit for the regulatory compliance space because it can be used to accomplish the significant amount of the analysis required to read and interpret regulations. The traditional process of distilling regulations into distinct requirements is a demanding and continuous undertaking. Compliance professionals must read through hundreds of regulatory documents and determine which of the thousands of lines of text constitute true requirements. Given the same document to assess, different staff can arrive at different conclusions. In a manual environment, this adds another layer of issues to track while the parties resolve whether the identified text is or is not a requirement. This work is usually performed on a continuous cycle and under the pressure of deadlines. The end-to-end process of identifying and finalizing the requirements inventory can be demanding and tedious. It is also traditionally encumbered by the heavy use of spreadsheets for tracking of regulations, requirements, internal decisions and statuses. Together, these conditions negatively impact the work environment and often result in low morale and high turnover.

Only when the human effort can shift from the tedium of manual processes (collect regulations, identify requirements, and track compliance issues via spreadsheets) to an automated solution will end-to-end visibility and transparency be realized. Cognitive computing technology can enable an institution to realign its approach from outdated information processing techniques to a state of the art solution that enables this transformation.

IBM has a solution that put the power of cognitive computing into the hands of compliance professionals, giving them the capabilities needed to leverage data to manage risk and compliance, and optimize data for more effective analysis.<sup>6</sup> It is specifically tailored for compliance departments, and offers core functionalities that include:

1. Document Ingestion
2. Requirements Parsing and Identification
3. Requirements Decisioning and Management
4. Categorization of Requirements
5. Mapping of Controls to Requirements
6. Harmonizing Risk Frameworks
7. Interactive Reporting and Analytics
8. Automated Audit Trail
9. Automated Requirements Catalog
10. Centralized Document Library

IBM's solution enables organizations to leverage cognitive technology to transform key portions of their regulatory compliance processes that are traditionally performed manually (see Figure 1). Enhancements enabled by Watson will allow for the reallocation of resources to more value added compliance and analytic activities and for improved transparency across the compliance function. A conceptual end-to-end approach for cognitive compliance, from regulation and requirement management, to categorization, mapping of controls and standards, and analytics and reporting is presented in Figure 2.

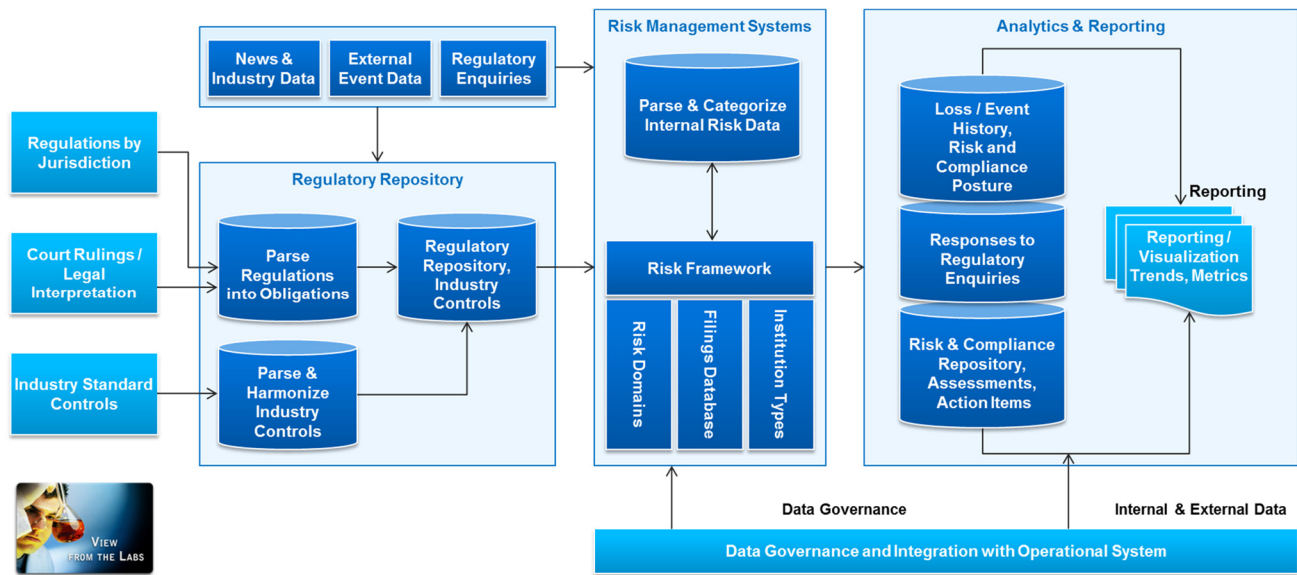


Figure 2: The end-to-end Watson powered solutions will provide near real time risk and compliance posture across the organization

## Regulatory Requirements Management

Today, compliance professionals spend many intense hours manually reviewing thousands of regulations trying to make sense of the incoming demands and requirements for their businesses. *What does this new regulation mean for my organization? How do I identify and mitigate emerging risks across geographies? How do I ensure that employees are efficient and effective in carrying out their compliance responsibilities?* These are just some of the many questions on the minds of compliance officers today.

With the increased compliance burden that organizations face, there is a pressing need to gain a better understanding of industry regulations and to do so more quickly than ever before.

Watson automates and streamlines the process of parsing regulations into requirements so that organizations achieve a comprehensive view of regulatory compliance across all jurisdictions, business operations, and risk disciplines.

The first step is Watson’s ingestion of regulatory or internal risk and compliance policy documents. Watson then reads and parses this unstructured data and identifies potential requirements.

After individual requirements have been parsed from regulations, the compliance team finalizes the requirements inventory by validating Watson’s decision and consequently ‘training’ Watson. With each acceptance or rejection of a Watson-identified requirement, Watson learns and adapts its understanding of what constitutes a requirement, thus establishing a document level “ground truth” set of requirements. Accordingly, in the future, Watson will apply the knowledge gained from past user responses to new parsing activities. It will use linguistic patterns and statistical algorithms to become smarter and return more accurate results in the requirements identification process. As more and more regulations are ingested and more human feedback is provided to Watson, Watson’s machine knowledge and cognitive ability to understand and interpret regulations improves significantly.

In addition to accepting and rejecting a requirement, users will be able to perform other actions to further fine-tune their requirements inventory such as

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promoting non-requirements to requirements, merging or splitting sentences to form requirements; and earmarking and attaching document narrative to serve as guidance for one or more requirements. The final output is a centralized repository of regulatory requirements that will allow an institution to quickly and efficiently understand its obligations and manage its efforts to ensure global compliance with regulatory mandates and firm best practices.

An illustrative example of parsing results can be seen in Figure 3 which shows a Watson identified requirement contained in the US FFIEC Information Security Handbook that was ingested and analyzed by Watson. As presented, requirements are highlighted and boldfaced while text that does not represent requirements is displayed in gray font.

IBM’s solution is a cognitive solution designed specifically for regulatory compliance. The solution enables organizations to enhance their regulatory compliance and governance processes by automating steps that are traditionally manually intensive and demanding (see Figures 1 and 2). As its efficacy and power is understood and felt, it can ultimately help win the confidence of the board and investors by enabling transparency and reducing the cost of regulatory compliance. Using this solution, financial institutions can effect a powerful transformation in their compliance processes and operations.

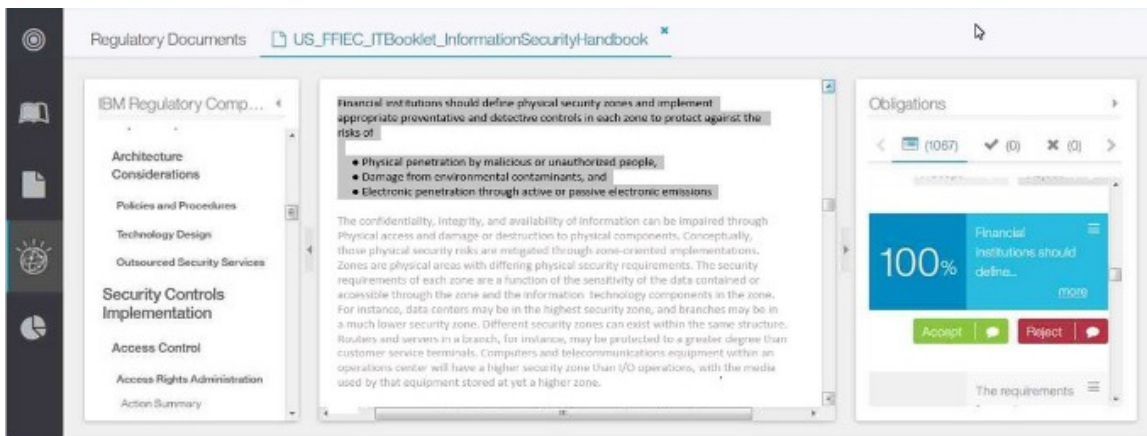


Figure 3: US FFIEC Information Security IT Booklet as parsed by IBM’s solution

## Requirements Categorization

Compliance officers also spend a considerable amount of time mapping requirements to their internal risk framework. Where there are multiple reviewers of the same mapping decision, there are often inconsistencies in their conclusions. Lack of guidance from regulators and differences in interpretations made by colleagues can impede the ability of the institution to implement new policies or procedures in a timely manner.

With a comprehensive catalog of regulatory requirements spanning jurisdictions, geographies, risk domains, products, and/or services, a compliance department will benefit from cognitive technology that can categorize requirements based on a firm’s risk framework and to that of other industry frameworks such as BCBS, COBIT or NIST. This invaluable feature will make it possible for compliance professionals to easily group, compare, report on, and respond to new or revised regulations. Figure 4 shows a sample risk framework.

Automatic categorization of requirements can alleviate the time-consuming and manual effort required to sift through large quantities of data, looking for correlations, and mapping consistently to

the correct category. Just as Watson learns from user decisions to accept or reject requirements, it will also learn from user feedback on Watson’s automatic mapping requirements to risk categories.

Standardizing the classification of requirements using cognitive technology can fundamentally enhance a firm’s compliance risk management process.

Cognitive technology can also be leveraged to assess an organization’s level of compliance against its best practices. All requirements can be grouped by internal risk themes such as Governance, Data Privacy Fraud, and in turn, these categories can be mapped against the organization’s risk control framework. As a result, the firm’s internal controls may be compared to an industry standard framework thereby ensuring that the firm is adhering to industry best practices. Visibility into the risk framework categories to which individual requirements are classified, and in turn, which controls are mapped to those requirements will streamline the effort a firm must undertake to quickly interpret and digest the information and make actionable, proactive and insightful decisions.

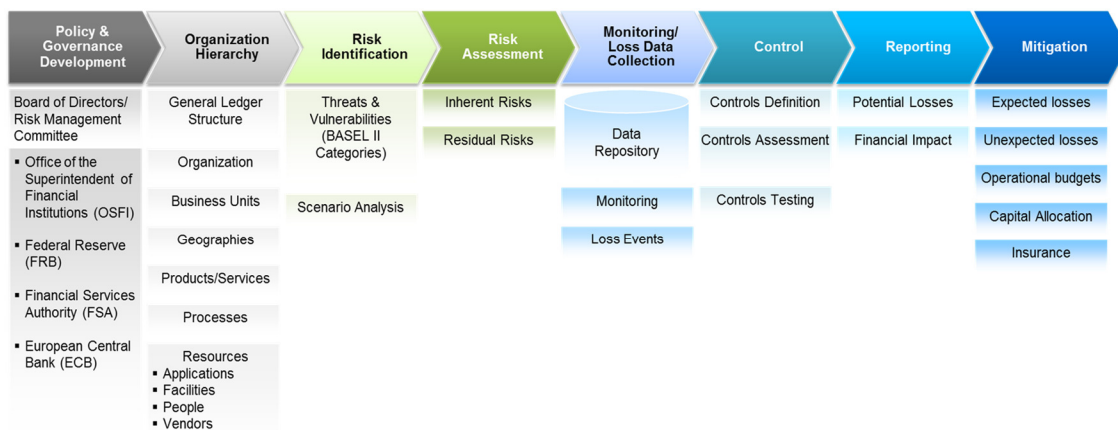


Figure 4: This sample illustrative risk framework shows some classifications that firms can use to categorize their risk processes

## Harmonization of Frameworks

It is not unusual for the different lines of businesses in an institution to develop risk frameworks unique to their business unit. With each unit intently focused on its own compliance demands, there is usually insufficient time and resources to pause and align one unit's framework with that of another or across industry standards.

Analyzing the various frameworks manually is not an efficient approach. The obstacles to comparing the controls of each business unit can be daunting. To be effective, compliance professionals would require deep knowledge of each business unit which eventually becomes an impossible task as the volume of regulations grows.

Watson can help. Cognitive technology can be leveraged to harmonize risk frameworks and create a horizontal matrix view of all frameworks in use at an institution. It offers a high degree of standardization in categorization and controls across different regulations as well as the entire institution. An organization will gain an enterprise-wide view of controls across risk frameworks which vastly increases a firm's ability to identify commonalities and differences in business unit controls.

Transparency into the relationships between requirements, controls, and risk frameworks permits compliance professionals to make effective decisions on the steps an organization should take to rationalize controls. Using Watson technology to harmonize risk frameworks also addresses the need to quickly understand the business impact of new and current requirements. Additionally, demands on compliance resources and time can be measurably reduced.

As an organization develops greater consistency in its frameworks, management will be better informed and able to adjust and make decisions faster. Whether a firm is redeploying resources to address current gaps, anticipating new regulations, or analyzing current policies, Watson will enable it to be flexible in managing its priorities.

## Reporting

The IBM Watson solution will be an interactive reporting experience. The idea is to leverage Watson's cognitive ability to understand natural language processing to look at a vast array of unstructured risk and compliance data cultivated from various sources.

Imagine your Apple Watch or Watson responding to a question such as *"Are we in compliance in our Latin America operations?"* or *"Are there any new issues in our Anti-Money Laundering Program?"* and getting informative responses. Or receiving a proactive alert about an issue you asked Watson to monitor. As cognitive computing evolves and advances reporting capabilities beyond the traditional data warehouse, this vision may become a reality.

Watson will be to deliver greater value by being anticipatory and offering hypotheses on enterprise-wide risk assessments, policies, risks and control structures, and a view of its risk and compliance posture without requiring resources to program custom reports. Current risk assessment processes are complex and manually intensive, and laws continually evolve. A detailed assessment is required to determine or interpret if an organization can meet the regulations, and if they align with their respective policies and risk appetite.

For example, by examining requirements across different jurisdictions to examine the impact of entering new countries or introducing new products, Watson can provide decision support beyond typical risk management assessments techniques.

Watson will be able to display gaps in the control environment and assist in control rationalization based on its ability to understand, reason, and learn through the automated mapping process discussed in earlier sections. Subject matter experts will no longer have to sift through layers of reports or look at outdated dashboards, and in a position to ask questions of Watson in order to make and/or support business decisions. The business will

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require fewer IT resources to generate and consume analytics.

Consider an organization that is doing business in a particular country and looking to expand its operations to another country. Before venturing forward, the compliance department would have to assess myriad applicable regulations in order to recommend proceeding with the launch. The complexities, for example, involved in studying data privacy laws or credit card issuance which vary dramatically by country, would take weeks if not months to sift through and then opine upon. Watson can perform these analyses and return its findings in less time with fewer resources. As a result, Compliance is relieved of the laborious and time consuming task of reviewing regulations and can instead focus on reviewing Watson’s analysis and make its recommendations. If variances identified by Watson are too substantial, Compliance may recommend that the business not pursue the venture.

In summary, there will be less reliance on reporting from a traditional data warehouse and more interactive conversations with Watson to understand

the impact of the ever changing regulatory landscape in a real-time manner. Data warehouses are not going away anytime soon. However, there will be a paradigm shift to cognitive computing that will lessen the reliance on traditional reporting as organizations will have the ability simulate various scenarios as regulations are being proposed or are changing. Watson will accomplish this by crawling the internet for specific regulations and automatically ingesting and categorizing the information. A compliance professional will then have the ability to interact with Watson in a manner that lends itself to effective interpretation of the potential impact of proposed regulatory changes to their organization.

Figure 5 depicts an illustrative dashboard showing a comparison of control overlaps and differences of two regulatory initiatives, Anti-Money Laundering (“AML”) and Basel Committee on Banking Supervision (“BCBS”). This view of gaps and overlaps provides great insight to organizations for interpreting and absorbing the information and making decisions in a time efficient way.

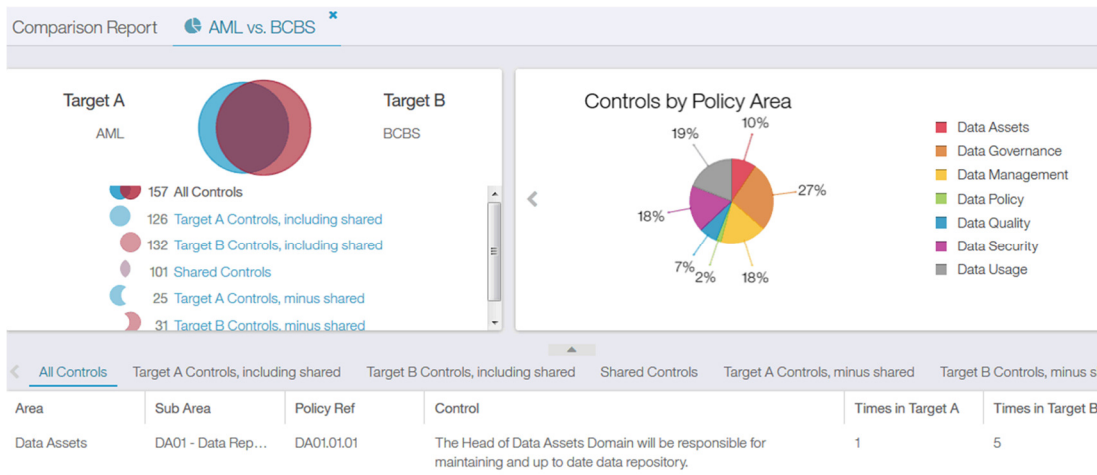


Figure 5: This interactive Comparison Report compares two regulatory initiatives across justifications and shows control overlaps and differences and how the information is categorized in the IBM Solution



## Conclusion

With increasing regulatory scrutiny, financial institutions face difficult challenges in being compliant, maximizing resources effectively, and avoiding reputational damage and significant fines. Manually intensive compliance processes are more difficult to scale, lead to a greater rate of errors and higher operational costs, and deprive an organization of valuable time needed to respond to new regulations.

Maintaining the status quo of traditional labor intensive compliance processes is not viable over the long term. Nor is hiring more staff an answer by itself. Both are stop gap measures that cannot deliver the revolutionary changes needed to transform the way an organization consumes and interprets regulations and manages requirements. Lasting change *can* be achieved with IBM's Watson cognitive compliance solution.

The IBM solution is built specifically for regulatory compliance. It leverages Watson cognitive technology to enable organizations to achieve efficient and cost effective change by streamlining the efforts associated with understanding and interpreting regulations, thereby helping to transform the compliance dynamic from reactive to proactive.

The IBM solution is just the beginning. IBM continues to push the envelope with cognitive technology. New solutions such as *Semantic Audit Analysis* and *Cognitive Trade Surveillance* are allowing cognition to become an integral part of a financial institution's operations. Watson's rapid evolution enables organizations to realize smarter processes that position organizations to adapt and thrive as they take on the challenges of ever increasing and complex regulatory changes.

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## For more information

To learn more about the IBM solution contact your IBM representative or IBM Business Partner, or visit:

<https://www.ibm.com/marketplace/cloud/regulatory-compliance-management/us/en-us>

\*These solutions are under development, and may not all be available at the time of publication.

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