

Beyond Compliance: Balancing Risk and Innovation with Effective Data Governance in Financial Services

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Abstract: *The paper discusses the challenges financial institutions face in effectively managing data amidst evolving regulatory changes and technological advancements. Effective data governance is necessary to balance risk and innovation in financial services. The paper encapsulates key data governance strategies and frameworks for organizations to address compliance and risk mitigation challenges while ensuring unconstrained innovation in their transformation journey. Financial institutions can mitigate risks, ensure compliance, and drive innovation by adopting proactive governance strategies, leveraging frameworks like DAMA - DMBOK and DCAM, and stitching compliance into the transformation process. The whitepaper highlights the significance of continuous improvement in data governance practices and calls financial professionals to take action towards adopting these strategies, implementing solutions, and committing to a culture of excellence in data governance.*

Keywords: Data Governance, Compliance, Innovation, Financial Services, Risk Management, Regulatory Requirements, Strategic Solutions, Continuous Improvement, Frameworks, Call to Action.

1. Introduction to Data Governance & Associated Challenges

The landscape of data governance is characterized by the increasing complexity of managing vast amounts of data while ensuring compliance with regulatory requirements, protecting sensitive data, and driving business innovation. However, striking a balance between compliance with regulations and cascading innovation can be challenging. Moreover, innovation often involves the adoption of new digital solutions which can increase the exposure to risks, ex: cybersecurity threats like data breaches and ransomware attacks. Unhinged innovation may face resistance from within organizations, especially if it disrupts processes, roles, or structures. Organizations must address these key risk management issues to develop a culture of innovation and maintain a competitive edge in today's business environment.

The whitepaper aims to explore the challenges faced by financial institutions in effectively managing data in the evolving regulatory changes and technological advancements. It aims to guide financial professionals in adopting proactive governance strategies, leveraging established frameworks like DCAM and DAMA - DMBOK, and integrating compliance into the transformation process:

- a) The DAMA - DMBOK (Data Management Body of Knowledge) Framework serves as the approach to data management consisting of components such as the DAMA Wheel, Environmental Factors Hexagon and The Knowledge Area of Data Management [1]. This framework emphasizes data governance as essential for maintaining consistency and balance within the various functions of data management. The evolved DAMA - DMBOK framework was developed by Sue Geuens which emphasizes the interdependencies between various data management functions. The evolved framework highlights the interconnected nature of data management functions and the importance of establishing strong foundations in data quality, design, and governance to support advanced analytics and business intelligence initiatives.
- b) The Data Management Capability Assessment Model (DCAM) is a framework developed by the Enterprise Data Management Council (EDMC) to assess an organization's data management capabilities [2]. This framework is the outcome of a collaborative effort driven by membership to establish consensus on best practices in data management. DCAM outlines 37 core capabilities and 115 sub - capabilities essential for developing a sustainable Data Management program within an organization [1]. These capabilities cover various aspects of data management including governance, metadata management, data quality, data architecture and more.

2. Brief Comparison between DCAM and DAMA - DMBOK

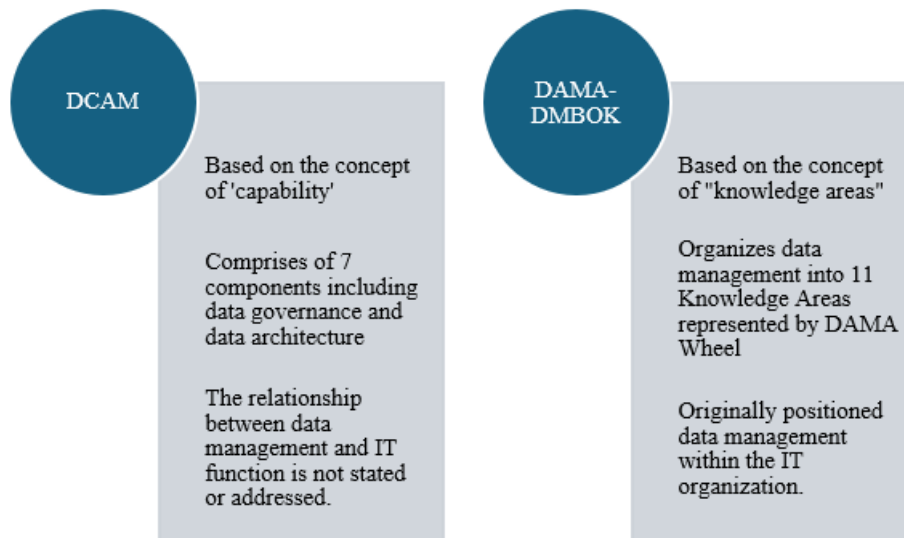


Figure 1: Distinction between frameworks [3]

According to Data Crossroad’s survey on trends in applying data management frameworks, companies often need to adapt and customize the frameworks to align with their unique needs and requirements. Respondents highlighted that while DAMA - DMBOK remains widely accepted, the implementation is often not straightforward. Many companies apply only specific capabilities from the framework rather than adopting it in its entirety. Despite being the leading industry framework, there has been a noticeable decrease in the number of companies using DAMA - DMBOK over the years. This suggests a shift in the landscape of data management practices. On the other hand, the usage of DCAM indicates a consistent recognition over the past few years since its inception reflecting the desire among organizations to use DCAM as their data management framework.

The CDMC (Cloud Data Management Capability) framework provides comprehensive specification of best practices for data management in cloud, multi - cloud, and hybrid environments [4].

CDMC Overview:

- The CDMC framework is designed to address the specific challenges and opportunities presented by cloud environments.
- The framework also addresses areas of perceived increased risk, such as Controlled Access, Sovereignty and Cross - border data movement, and Ethical Use and Outcomes.

Problem: Evolving Data Risks

In the rapidly advancing financial services industry, the emerging data risks depict significant challenges towards compliance, innovation, and market competitiveness. Financial organizations often fail to adequately protect overly sensitive information, which can be disastrous even if a single employee falls victim to a phishing email. The Financial Data Risk Report 2021 [5] stated that each financial service employee has access to 11 million files. Hence, financial service organisations require stringent access controls, regular user account reviews, and password management protocols.



Figure 2: Data Risks

- Compliance risk arises from failing to adhere to regulatory requirements and industry standards governing data protection and privacy. Non - compliance can result in hefty fines, legal penalties, and reputational damage to the organization.
- Cybersecurity breaches, such as data breaches, ransomware attacks, and phishing swindles, are a major threat to sensitive financial information. The average cost of a data breach in the financial sector is \$5.97 million, according to the IBM Cost of Data Breach Report of 2022 [6].
- Data manipulation involves unauthorised changes to financial data such as showing false reports or tampering with transaction records.
- Data theft involves the exfiltration of sensitive financial information including trade secrets, intellectual property, and customer data. The theft of such data can lead to identity theft, financial fraud, and regulatory violations.
- Malware and Insider threats represent cybersecurity risks to financial institutions. Malicious software, such as trojans and ransomware can infiltrate systems to steal data. Insider threats involve employees or partners

abusing their access privileges to compromise data security.

- Financial Institutions appoint third - party vendors for critical services like cloud computing, data processing, and payment processing. However, data breaches of these vendors can damage the institution's reputation and erode trust among clients.

Solution: Strategic Data Governance Framework

The identified data risks faced by financial organizations can be effectively addressed using a robust data governance framework such as the Data Management Body of Knowledge - **DAMA - DMBOK** framework. It is a comprehensive framework which involves elements of *data governance, data architecture, metadata management, reference and master data management, data security, data*

ethics and data quality. Saudi Telecom Company (STC) established a comprehensive program in early 2019, drawing best practices from DAMA with a primary focus on data protection. STC identified the challenges such as low awareness of the program, selection of the right tools, and limited scope in the organizational hierarchy within the program [7]. Thus, it identifies the need for implementing DAMA - DMBOK in effectively processing business operations.

The DAMA - DMBOK Framework

The framework includes the following three visuals which are integral components of its structure:

(i) **The DAMA Wheel**



Figure 3: DAMA Wheel [1]

The visual representation of data governance through the DAMA Wheel emphasizes the critical role of maintaining balance across various data management functions. By

implementing the above functions, effective governance can ensure regulatory compliance, risk mitigation, and data security.

(ii) DAMA Environmental Factors Hexagon

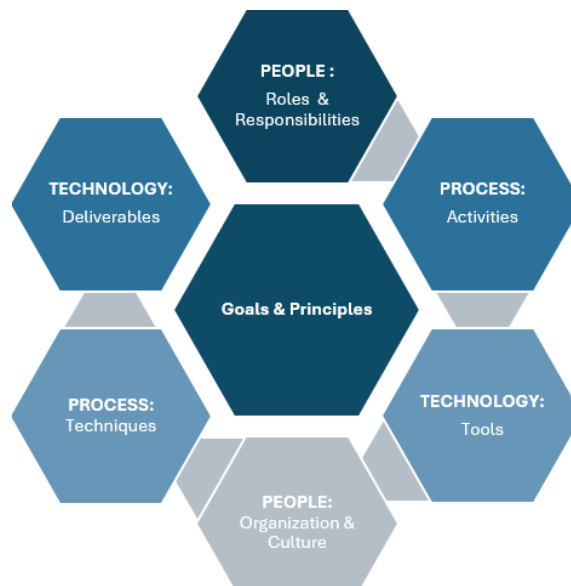


Figure 4: DAMA Environmental Factors Hexagon [1]

While the Wheel shows the balance functions of data management activities, the Environmental Factors Hexagon, on the other hand, depicts the interconnectedness between people, processes, and technology. By focusing on goals and principles, financial institutions can drive a culture of data -

driven decision - making, enhance operational efficiency, and develop innovation while mitigating risks associated with data silos, outdated technology, and inadequate processes.

(iii) Knowledge Area Context

Definition: High-level description of the knowledge area		
Goals:		
<ol style="list-style-type: none"> Goal I Goal II 		
Business Drivers		
Inputs:	Activities	Deliverables
<ul style="list-style-type: none"> Input I Input II Input III 	<ul style="list-style-type: none"> Planning Activity/Activity Group (P) <ol style="list-style-type: none"> Sub activity Sub activity Control Activity/Activity Group (C) Development Activity/Activity Group (D) Operational Activity/Activity Group (O) 	<ul style="list-style-type: none"> Deliverable 1 Deliverable 2 Deliverable 3 <p>Deliverables are generally inputs to other knowledge areas</p>
Suppliers:	Participants	Consumers
<ul style="list-style-type: none"> ✓ Supplier I ✓ Supplier II 	<ul style="list-style-type: none"> ✓ Role 1 ✓ Role 2 	<ul style="list-style-type: none"> ✓ Role 1 ✓ Role 2
Technical Drivers		
Techniques	Tools	Metrics
<ul style="list-style-type: none"> ➤ Methods to execute activities 	<ul style="list-style-type: none"> ➤ Software package types for support activities 	<ul style="list-style-type: none"> ➤ Measurable results

(P) Planning (C) Control (D) Development (O) Operations

Figure 5: Knowledge Area Context Diagram [1]

The components of the knowledge area context above for the DAMA Data Management framework depict essential elements which aim to enhance the integrity, reliability, and security of data in the systems while aligning with industry standards and best practices. These ultimately support effective decision making and organizational performance.

Problem: Balancing Compliance vs Innovation

The problem of balancing compliance with innovation arises from the challenge to address regulatory requirements and the desire to drive growth at the same time within an organization. Compliance requirements often impose strict rules and regulations that may conflict with the organization’s goals of implementing innovation and agility. Therefore, it is crucial to find a balance between innovation and compliance while addressing these challenges.

Risk Aversion

Organizations may limit innovation when they prioritize compliance over taking risks to avoid regulatory penalties or legal repercussions.

Curtailed Innovation

Companies may need to invest enormous time and resources in ensuring compliance with regulatory standards before introducing new products, services, or technologies to the market. This can slow down the pace of innovation.

Resource Allocation

Balancing compliance and innovation require allocating resources effectively. Organizations may struggle to allocate sufficient resources to both defensive and offensive initiatives simultaneously, leading to trade - offs and compromises that hinder overall progress.

Competitive Disadvantage

Organizations that prioritize compliance at the expense of innovation, risk falling behind competitors who adopt a

more innovative approach. This can result in a loss of market share, diminished competitiveness, and missed opportunities for growth and expansion.

Regulatory Uncertainty

Rapid technological advancements and evolving regulations create complexity for organizations. The research by the *Department for Business, Energy & Industrial Strategy* identified distinct differences in the impact of regulations based on size and sector of businesses. While larger businesses faced challenges in managing compliance, medium - sized businesses struggled with the decision to manage compliance in - house or outsource it, and the small businesses burdened directors with time - consuming compliance tasks [8]. Pursuing innovation while meeting regulatory requirements as per business size adds another layer of challenge.

Lack of Regulatory Alignment

Regulatory standards may not always keep up with the rapid pace of technological advancements or the ever - changing demands of the market. This gap between regulations and innovations can create difficulties for organizations striving to introduce innovative ideas within a regulated environment, leading to compliance issues and conflicts with regulatory authorities.

Solution: Integrating Compliance into the Innovation Process

Compliance can drive innovation by adopting practical approaches that ensure regulatory adherence and stimulate creativity, problem - solving, and continuous improvement. The compliance division serves as a vital catalyst for advancing data - centric innovation within organizations. The compliance division helps companies and lawmakers work together to ensure regulatory requirements are met while advancing innovative initiatives. Detecon Consulting developed a framework for the practical application of regulations in innovative technologies [9].

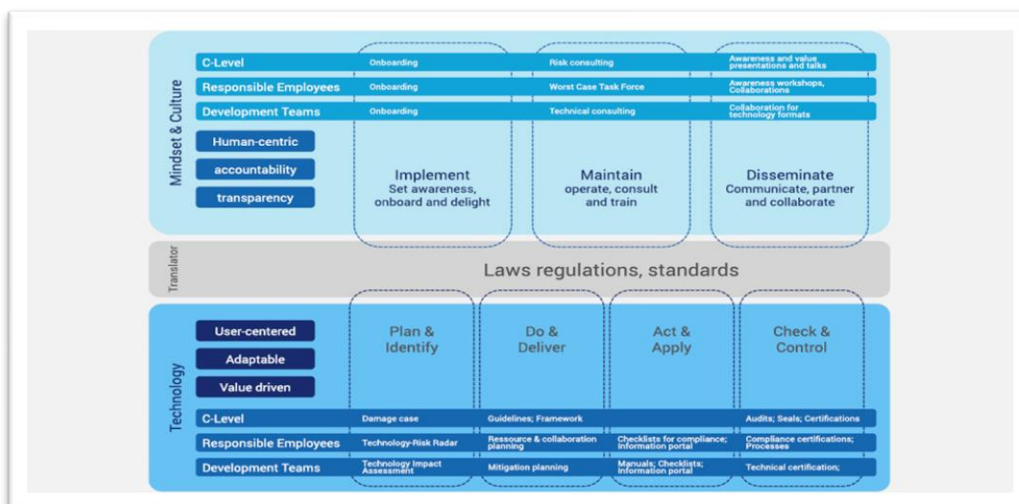


Figure 6: Detecon Consulting’s Compliance Framework

Source: Detecon [9]

The compliance framework effectively integrates both people and technology which emphasizes the importance of legal adherence and organizational values while developing

a culture of innovation. Here is a breakdown of its key approaches:

- The framework starts with a solid foundation of laws and standards which serves as the basis for all compliance initiatives.
- Technology level involves the practical implementation of technologies within the bounds of legal requirements and company values. It requires a thorough understanding of legal and technology adoption.
- The Mindset and culture level focuses on developing the right mindset and cultural values within the organization. The key principles suggested are *human centricity, transparency, and accountability* [9].

The above framework proposed by Detecon Consulting can play a key role in mitigating the tension between compliance and innovation:

- 1) Compliance considerations are integrated into the innovation process to address regulatory requirements proactively.
- 2) The framework encourages organizations to view compliance not as a barrier to innovation, but as a driver for creative problem - solving.
- 3) By integrating compliance into the innovation process, organizations can reduce the time and resources required for compliance activities. This may help them bring new products, services, and technologies to market more quickly.
- 4) This framework assists in effectively allocating resources by emphasizing the importance of compliance within strategically offensive initiatives.
- 5) Lastly, this framework bridges the gap between regulations and innovations by promoting collaboration between lawmakers, compliance professionals, and technologists.

Overall, this framework offers a comprehensive approach to address the dilemma between choosing compliance versus innovation and vice versa. Thus, organizations can drive continuous innovation and growth by integrating compliance principles into the transformation process and developing a culture of compliance - driven innovation.

Problem: Overcoming Barriers to Effective Data Governance

Why the Problem Exists:

In today's digital landscape, organizations deal with data generated from various sources such as internal systems, external platforms, Internet of Things (IoT) devices and more. Organizations must have effective data governance to leverage data for informed decision - making. However, factors such as lack of data literacy, data silos, unreliable or low - quality data create barriers. Overcoming these problems is crucial in sustaining effective data governance practices and allocating essential resources.

Complexity of Data Ecosystems

Modern organizations face challenges managing vast amounts of data from diverse sources like internal systems, third - party applications, and IoT devices. Seamless integration, quality assurance, and adherence to security protocols pose significant challenges in this complex data ecosystem. Additionally, there is a constant need for organizations to adapt and evolve their data governance

strategies. Thus, keeping up with these advancements can be daunting and resource - intensive.

Organizational Data Silos

Data Silos hinder the realisation of the full potential of data - driven decision - making. Different departments within organizations have distinct information needs developed for their specific functions. As a result, they often maintain separate databases to store their data. These disparate organizational structures often arise due to legacy systems, turf wars, or lack of communication between departments, resulting in data silos. The primary challenges that data silos bring are:

- *Duplication of Efforts*
- *Inconsistent Data Analysis*
- *Lack of Coordination*
- *Inaccurate or Incomplete Data*

Cultural Resistance

Resistance to change and lack of data literacy among employees can impede governance initiatives. According to the data literacy index [11], while 92% of business decision - makers believe that data literacy is important for their industry, just 17% report that their business significantly encourages employees to become more confident with data. Employees may be reluctant to embrace new processes or technologies fearing job displacement or feeling overwhelmed by the complexity of data - related tasks.

Resource - Constraints

Limited budgets, competing priorities, and inadequate staffing pose significant challenges to implementing and sustaining effective data governance practices. Organizations may struggle to allocate sufficient resources for data management tools, training programs, and hiring skilled data professionals.

Solution: Best Practices for Operationalizing Data Governance

MERRILL LYNCH ENHANCES DATA MANAGEMENT

Merrill Lynch is a global leader in wealth management, capital markets, and advisory services. The Core Application Infrastructure (CAI) group plays a vital role in developing information technology infrastructure supporting financial advisors within the Global Private Client practice. It faced challenges in aggregating and visualizing data using traditional Excel import tools. The sheer volume and complexity of data made it difficult to assemble, model, and present in a clear format that supported decision - making [12]. It further faced challenges in managing multi - dimensional data generated by online offerings. The traditional methods of data aggregation were inadequate, resulting in unwieldy data silos. Quantrix, an integrated modelling platform assisted Merrill Lynch with a business solution to these challenges by enabling efficient data manipulation and visualization, improving decision - making processes and enhancing client service [13].

After analyzing the case study, we can distil best practices for operationalizing data governance.

- **Adoption of Data Management Tools:** Investing in tools like Quantrix enhances decision - making processes

and improves client service by providing clear insights from complex data sets.

- **Ensuring Timely Information Delivery:** This requires optimizing data management processes for speed and efficiency, enabling stakeholders to access relevant information when needed to support decision - making processes.
- **Standardize and Streamline Data Sources:** Breaking data silos in organizations can improve efficiency by reducing the time and effort required to locate and access relevant information.
- **Address Cultural Resistance:** Communicate the benefits of data governance initiatives clearly to employees highlighting how they contribute to organizational success.
- **Security and Integrity:** Enforce data integrity constraints as close to the data source as possible. Implement mechanisms to validate and verify data upon entry and modification. Further, monitor data access and usage patterns to detect potential security violations.
- **Continuous Improvement:** Regular assessment of the existing processes and adoption of new technologies can guarantee efficiency, accuracy, and agility in data management.

Problem: Preparing for Future Governance Challenges

Businesses in the banking industry must stay updated with data governance strategies to manage risks and comply with regulations in the evolving digital landscape. According to McKinsey, only a fraction of risk groups has allocated a substantial portion of their budget to digitization efforts, with a majority investing less than half of their resources. However, there is a notable shift observed among Global Systemically Important Banks (G - SIBs), as 70% have already implemented such transformations [14]. Additionally, many more banks have ambitious plans to digitize a massive portion of their risk processes within the next five years. Despite the growing recognition of the importance of digital transformation in risk, there are several challenges which hinder progress:

- Legacy IT systems and poor data quality pose significant challenges to digitizing risk, with 86 per cent of risk managers citing legacy IT systems and 63 per cent highlighting data quality issues as primary obstacles [14].



- Organizations should establish a baseline to understand their current data management and analytics maturity levels.
- Frameworks like DCAM can allow organizations to systematically identify gaps and strengths in their data management and analytics capabilities.
- An assessment offers a chance to align stakeholders across the organization, including executive management, by clearly expressing the value of a structured data and analytics program.
- Best practices can be achieved by formalizing a defined data management program based on industry

- Regulatory requirements for transparency, auditing, and completeness may limit the depth and speed of technology adoption, particularly in the case of "black box" machine learning techniques.
- Risk leaders face challenges in adopting iterative design and attracting talent proficient in risk management and digital technologies due to their inherently conservative mandate.
- The financial industry might face challenges related to regulatory compliance costs which may continue to rise as organizations invest in systems, processes, and other uses to meet regulatory requirements. Regulatory changes, such as Basel III, MiFID II, and Dodd - Frank Act reforms, require organizations to adapt their operations and risk management practices accordingly [14].
- Regulatory authorities are increasingly integrating environmental, social, and governance (ESG) considerations into their supervisory frameworks and disclosure requirements. Climate change presents systemic risks to the financial systems which is a major future governance challenge.

To address these emerging risks effectively, financial institutions must adopt an transformative approach to risk management while investing in relevant tools and technologies, and acquiring or educating talent to develop robust risk mitigation strategies.

Solution: Proactive and Adaptive Data Governance Strategies

The Data Management Capability Assessment Model (DCAM) framework focuses on assessing an organization's data management capabilities across various dimensions which includes governance, data quality, metadata management and data security. DCAM prioritizes data governance, quality, and security, which aligns with utilizing compliance as a catalyst for innovation [2]. It also concentrates on continuous improvement and maturity assessment, allowing organizations to develop their data management practices gradually. Thus, by conducting a DCAM assessment, banks and financial institutions can identify areas of improvement and prioritize initiatives to enhance their data governance strategies.

experiences. This helps in establishing clear standards and processes.

- An organization's reputation can be enhanced through well - executed assessment and adherence to industry best practices which demonstrate to business stakeholders, senior executives, and regulatory authorities that the organization is committed to building.

3. Conclusion

In the fast - paced and highly regulated financial landscape, effective data governance is paramount to mitigate risks,

ensure compliance, and drive innovation. This whitepaper has explored the evolving challenges faced by financial institutions in managing data, balancing compliance with innovation, and overcoming barriers to effective data governance. It also outlined actionable strategies and practical solutions to address these issues head - on.

From the identification of evolving data risks to the implementation of robust data governance frameworks, financial professionals have a roadmap to explore the complexities of data management, Key solutions such as leveraging frameworks like Dama - DMBok and DCAM, integrating compliance into the innovation processes offer tangible pathway towards success.

As financial service professionals, it is imperative to recognize the critical importance of effective data governance in driving business outcomes, mitigating risks, and ensuring compliance with regulatory requirements.

Therefore, the call to action is clear:

- Adopt these strategies
- Implement these solutions
- Commit to a Culture of Continuous Improvement in Data Governance Practices

By adopting these strategies, financial institutions can not only safeguard sensitive information and maintain regulatory compliance but also unlock new opportunities for innovation and growth leveraging efficient and effective business decisions relying on well - governed data. Together, let us forge ahead, armed with the knowledge and tools to navigate the complexities of data governance in the ever - evolving landscape of financial services.

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