

# CAPCO

## **DATA MANAGEMENT STRATEGY:** LAUNCHING THE JOURNEY TOWARD VALUE GENERATION

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# INTRODUCTION

Data is at the heart of all businesses today. An effective data management capability enables enhanced decision making and supports timely and insightful reporting to senior management. Organizations who treat data management as an asset will create a competitive advantage in the form of cost savings, enhanced customer insights and an ability to respond quickly to changing market conditions.

97% of financial services Organizations are investing in data management projects, and 75% of Organizations claim to have already received some measurable benefit from these initiatives, by creating a competitive advantage.

The global COVID-19 pandemic has heightened the necessity for organizations to identify cost-cutting opportunities, whilst building a more comprehensive view of risk. This paper seeks to provide practical solutions for Organizations to leverage data to reduce costs, remain competitive and ensure operational efficiency in times of extreme uncertainty.

## REGULATORY-DRIVEN STRATEGIES

Since the introduction of BCBS 239 in 2016, and subsequent CCAR and IFRS 19 regulation, data management strategies have been driven predominantly by regulatory demands. Organizations have spent the last four years ensuring that regulatory commitments have been achieved, and responding to requests from regulators, to avoid substantial fines. Regulators are becoming increasingly savvy about effective data management. In November 2019, Citigroup were fined a record £44 million by the Prudential Regulatory Authority (PRA)<sup>1</sup> for submitting an inaccurate picture of its financial positions as a result of inadequate documentation, governance, and oversight.

Regulatory-driven data management strategies have allowed organizations to build up a breadth of strong foundational capabilities, including data lineage, data dictionaries, data quality issue management repositories, and data governance frameworks.

The demand for these capabilities has spiked over the last few years as Organizations seek to use these foundational capabilities to understand areas of risk and whether data is adequately controlled. This has led to significant costs in documenting and maintaining the associated artefacts, often requiring extensive

time input from the business. As a result, there is a growing culture, challenging the correlation between cost and value-add, which needs to be addressed.

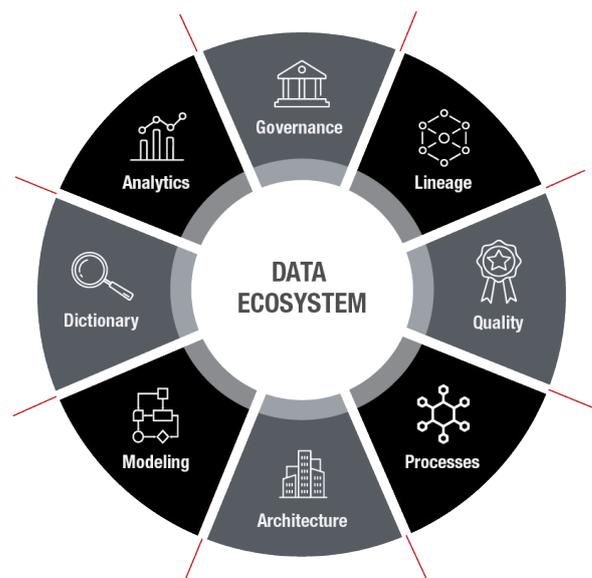


Figure 1. Data management ecosystem

# VALUE-DRIVEN STRATEGIES

We believe that organizations should now look to leverage existing capabilities and build on them to generate business value for the wider business. This paper focuses on taking the foundational capabilities created to achieve regulatory commitments and enhancing them.

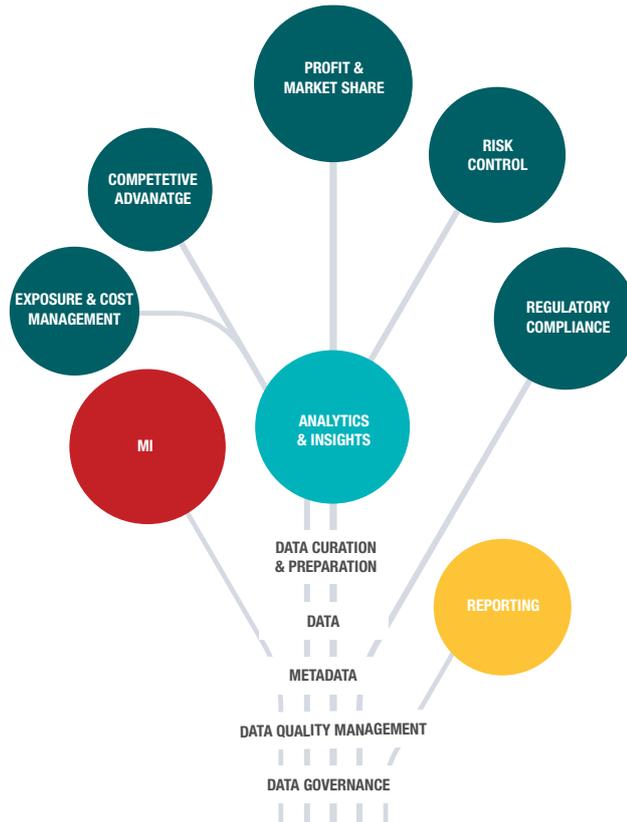


Figure 2. The evolving nature of data management

Building out and enhancing these foundational capabilities will deliver substantial benefit to organizations, such as:



**Exposure & cost management:** Enhanced reporting of business performance and exposures, leading to more effective decision making



**Competitive advantage:** Reduced reliance on heavily manual processes, frees up human capital for more complex business activity; improved ability to respond more quickly to changing market conditions



**Profit & market share:** Enables customer insight development and targeted change agendas to increase awareness of customer behavior and response to market events



**Risk Control:** Enhanced operational resilience and effective risk control



**Regulatory compliance:** Ability to respond more quickly to regulatory requests and simplifying the process to maintain capabilities developed to achieve regulatory compliance.

# BUILDING ON CAPABILITIES

This paper details five methods which organizations can implement to build on data management capabilities and deliver benefits to the wider organization. This is not intended to be an exhaustive list, but key areas where organizations can deliver value in a cost-effective, timely manner:

- Data profiling
- Augmenting lineage
- Knowledge graphs
- Federated data management
- Data analytics

## DATA PROFILING

Through building data management capabilities, Organizations have captured a wealth of metadata, which has the potential to unlock new insights via the use of data profiling.

Data profiling is the process of examining the data available from an existing information source and collecting statistics or informative summaries about that data. The results will generally be split across three groups:

- **Structure discovery:** The basic structure of the data
- **Content discovery:** The meaning of the data
- **Relationship discovery:** Links between datasets

Data profiling can be used across data management capabilities to drive insights and understanding, which can be used to drive out cost savings and simplify the process of achieving regulatory compliance:



Applied to datasets, can be used to **discover previously unknown data quality issues**



**Enhance root cause analysis,** to determine the impact of data quality issues and enhancements to control framework



Applied to data quality issue repositories, can be used to **understand which issues are pervasive to the organization,** to prioritize fixes



Applied to data lineage can support in **understanding inefficient data flows,** to rationalize the data architecture

These benefits will deliver an enhanced control framework, by reducing high-impact data quality issues and ensuring that remediation occurs closer to source, limiting the number of data quality issues which feed to down-stream consumers. This will therefore enhance the quality of risk, finance, and regulatory reporting.

# AUGMENTING LINEAGE

Data lineage, when performed effectively, can be used to:

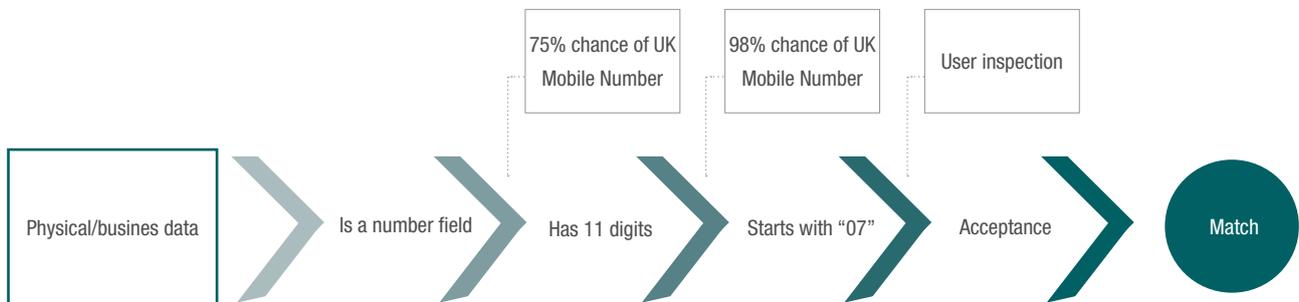
- Streamline point-to-point feeds within the overall architecture and simplifying the process for generating new reports
- Optimize the control environment, determining the strategic locations to apply controls and reconciliations, to reduce the cost of adjustments and corrections
- Increase operational resilience and effective risk control, understanding where data quality issues have occurred and their associated impacts, to prioritize and target remediation efforts and streamline the exception handling process (pro-active notification of issues to downstream)

Organizations have built manually intensive processes to document and maintain data lineage diagrams. These diagrams can quickly become outdated, offering little value to the

organization. There is additional risk that unmaintained manual lineage is presented to the regulator containing errors.

To unlock the benefits of data lineage, organizations need to significantly reduce the time and effort spent documenting and maintaining. We believe that that data lineage cannot be fully automated; concerns around accuracy raises questions about its viability, and judgment is still required for most logical mapping. However, it is possible to automate data discovery and then augment lineage through intelligent process design.

Augmentation works by a 'recommendations engine' proposing lineage, with a calculated level of confidence, for SMEs to validate and enrich with additional metadata



**Figure 3. Augmented data discovery**

This, combined with a risk-based approach to determine the level of detail required for lineage requests, will significantly decrease the time spent documenting and maintaining lineage, whilst also enhancing the level of accuracy and associated valuable metadata. Once better understood, decommissioning, resilience planning, vendor negotiation, total cost of ownership (present and future) and data lineage all get much easier – with transformative cost and complexity reduction.

# KNOWLEDGE GRAPHS

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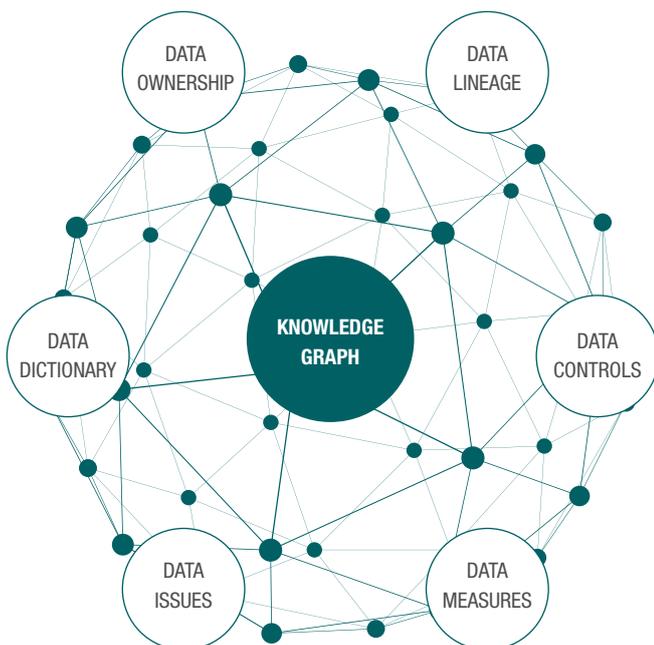
Knowledge graphs can be used to create linkages between siloed datasets, to build out in depth understanding of the data ecosystem and to generate insights to better understand issues, systems, data flows and ultimately customers.

Organizations have spent a significant amount of time and capital building data management capabilities to achieve regulatory compliance. This has often led to disparate toolsets, with no linkages between them. Knowledge graphs store and access data through inherent relationships and are the key building blocks for Google, LinkedIn, and Facebook. Knowledge graphs are fundamental to improving data insight and analytics. Using semantics, datasets can be connected, and a knowledge graph can be visualized, with benefits including:

Using semantics, datasets can be connected, and a knowledge graph can be visualized, with benefits including:

- Identifying weaknesses in the technology architecture and data controls, enabling systems to be decommissioned if they are deemed redundant
- Creating a language to discuss data end-to-end (Datapedia)
- Predicting the impact of changes to the supply chain, increasing operational resilience thus creating value for the business when having to react to changing market conditions
- Identifying cost and efficiency gains in business processes.

Capco expects that within the next two years, 80 percent of financial services firms will be building knowledge graphs. While some of these initiatives may stall and become buried in tech labs, those driven by well-understood business needs will be game-changing. Find out more about them in our 2020 paper, 'Knowledge graphs: building smarter financial services.'<sup>2</sup>



**Figure 4. Knowledge Graph**

# FEDERATED DATA MANAGEMENT

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Approaches to data management require striking the right balance of federating ownership, whilst maintaining central control and guidance to ensure consistency. Traditionally, organizations approached data management from either a centralized or de-centralized approach.

Centralized approaches require significant costs to deploy but have given organizations the benefit of an aligned approach to data management. Whilst de-centralized approaches have proved less costly, organizations who have used this method have struggled with coordinating enterprise-wide approaches to deliver initiatives.

We therefore recommend a federated approach to data management. The features include:

- **Governance enablement:** Central support for the data governance framework, interlinking forums
- **Methods and QA:** Defining and delivering consistent standards for data management across the organization, whilst also implementing QA controls

- **Tooling:** Providing appropriate data tooling to empower the organization to resolve data challenges
- **Horizon management:** Determining future regulatory requirements and tech developments, whilst also curating new data technologies and methods
- **Common terminology:** Understanding the synonyms which different parts of the Organization to use to explain the same concepts (acting as a translation between them)

A federated approach will require a smaller, more agile, Center of Excellence, with the majority of 'active' data responsibilities residing within the business areas. This will ensure data management initiatives will be more unified, as well as reducing the headcount requirement of a dedicated Chief Data Officer.

Organizations who have successfully implemented a federated approach have recognized the benefits of having a coordinated data management strategy, in addition to achieving buy-in from their business units to deliver the strategy.

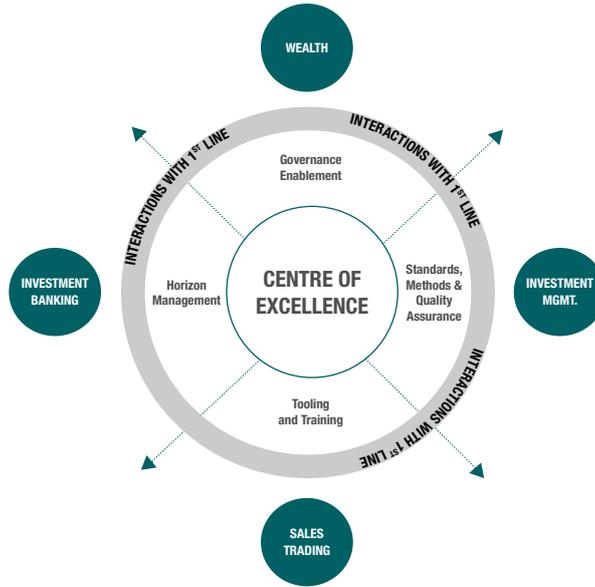
Figure 5. Approaches to data management

**DE-CENTRALIZED:**

CoE and organization manage data independently

Difficult to align/co-ordinate enterprise led initiatives

Potential inefficiencies in data operations

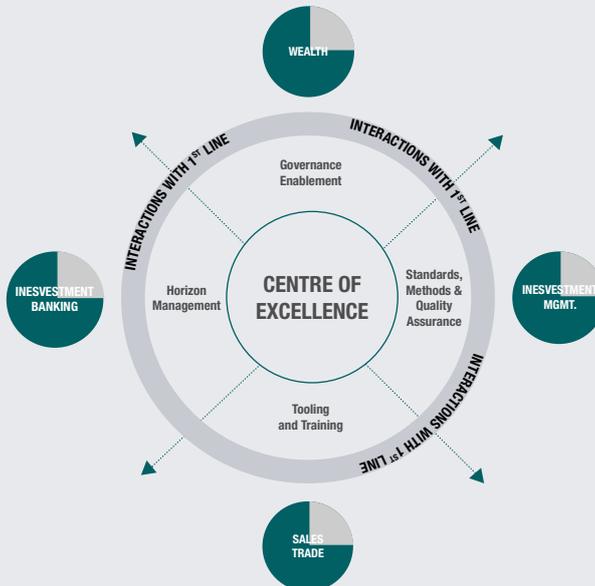


**FEDERATED\***

Business functions own the data; CoE facilitates & coordinates standard practice

Data Responsibility owned by BU's

Rapid response for business outcomes



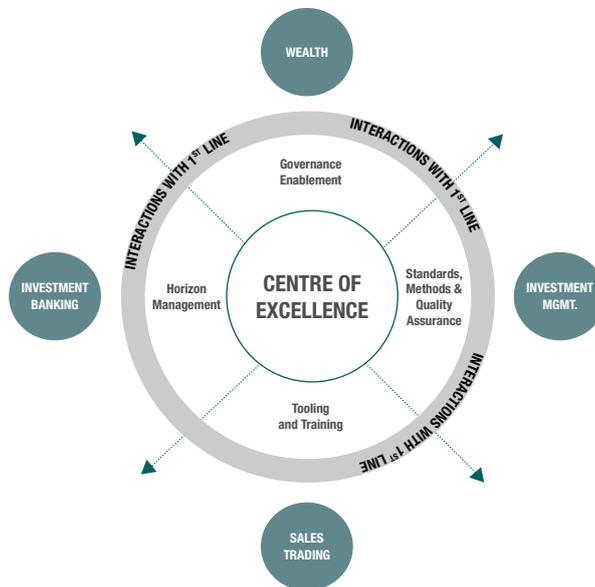
**CENTRALIZED**

CoE owns the data; change control managed by shared function (not business functions)

Very prescriptive, top down data control

Difficult to respond rapidly to business change

Costly to implement, but can be effective to realise results



# DATA ANALYTICS

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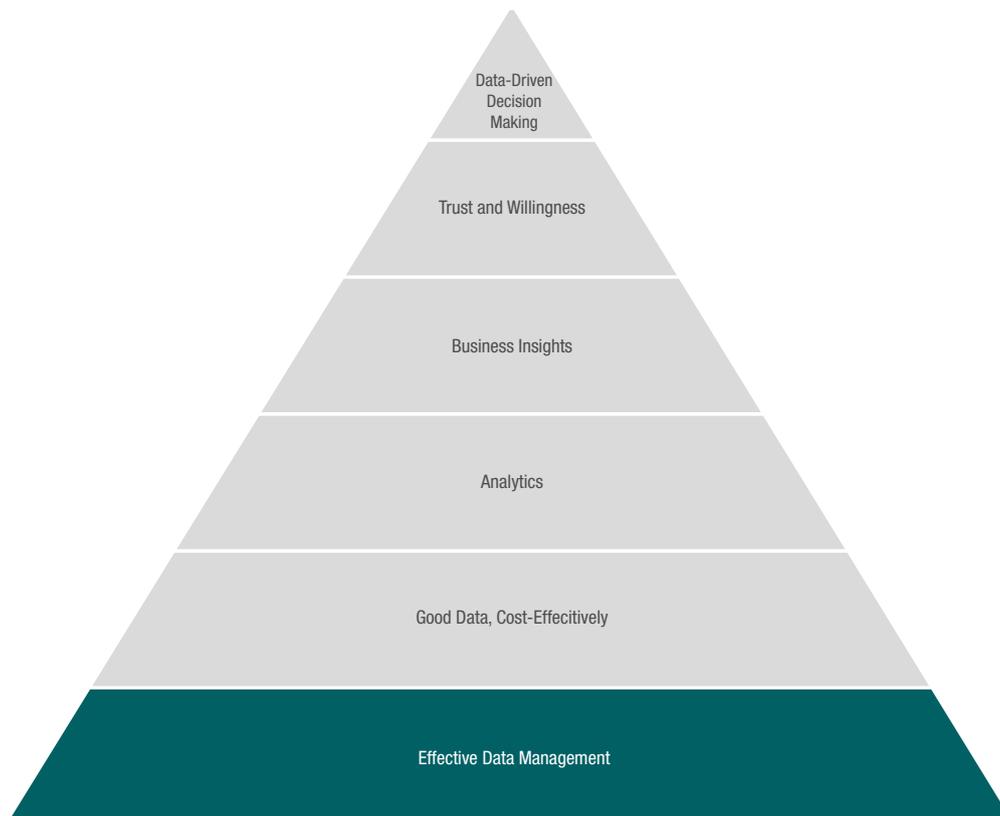
A strong data management capability that enhances the level of trust an organization has in its data, is paramount to achieving long-term business objectives. Building on the data management capabilities above will significantly increase the accuracy and usefulness of data analytics.

More cost-effective, more reliable, and better understood analytics results build trust in the data science capability. Coupled with improving willingness of decision makers to operationalize analytics insights through strong data governance; implementing a mature data management

capability is therefore essential in ensuring data science is cost-effective and has scalable impact.

The ability to extract actionable business insights from analytics provides both a competitive advantage through value generation, as well as a comparative advantage through continuous improvements towards data culture.

In the hierarchy of needs, therefore, data management is the foundational layer for good data science and data-driven decision making (Figure 6).



**Figure 6. Hierarchy of needs for data-driven decision making**

For more information on this topic, refer to the Capco Institute Journal paper 'Data management: A foundation for effective data science'.<sup>3</sup>

# CONCLUSION

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Organizations who do not begin to shift away from manually intensive data management processes will be left bearing large maintenance costs, whilst struggling to deliver wider value to the organization. This will be inconsistent with senior management agendas in a cost-conscious post-pandemic environment.

We recommend taking five key steps to begin to realize value from data management capabilities:

1. Profiling data management artefacts to enhance firm-wide data quality and understanding of the wider data landscape
2. Augmenting the data lineage process to reduce the burden on the current labor-force and release capacity for value-add activities
3. Utilizing knowledge graphs to view data management artefacts as one connected capability to unlock insights
4. Implementing a federated approach to data management to coordinate change and achieve buy-in from business units to deliver
5. Leveraging data management to drive actionable business insights from data analytics.

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## ABOUT CAPCO

Capco is a global technology and management consultancy dedicated to the financial services industry. Our professionals combine innovative thinking with unrivalled industry knowledge to offer our clients consulting expertise, complex technology and package integration, transformation delivery, and managed services, to move their organizations forward.

Through our collaborative and efficient approach, we help our clients successfully innovate, increase revenue, manage risk and regulatory change, reduce costs, and enhance controls. We specialize primarily in banking, capital markets, wealth and asset management and insurance. We also have an energy consulting practice in the US. We serve our clients from offices in leading financial centers across the Americas, Europe, and Asia Pacific.

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