

THE ART OF DATA MANAGEMENT IN FINANCIAL SERVICES

Data Experience as the new
metric driving growth, sustenance
and customer advocacy.

An Infosys Consulting Perspective
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INTRODUCTION

Financial services enterprises across the globe are at an inflection point. They are being challenged by disruptions caused by the pandemic, amongst other market developments. To drive through this period of uncertainty and vigor, they are making strategic investments in the areas of digital payments, remote work operations, new business models or collaborations (FinTech, Neo, or open banking), and digital and data transformations.

Data has emerged as a strategic asset within financial services, but the asset confidence across the user community is not very high. Therefore, it is imperative to understand the key data management challenges that are being faced today and the changes required to enable a data-centric enterprise.

We must revisit history to understand the real reasons for the data conundrum that global enterprises face today. The constant struggle to keep pace with technology disruptions has resulted in gaps - widening over time - to effectively manage enterprise data with popular data management solutions (data warehouse, data lake, or data lake house).

To master the art of data management, financial services players may follow the same approach they take to manage other assets: brands or products. The top three drivers that organizations must set 'right' to manage enterprise data effectively and enable a data-driven culture include setting up bold data vision and strategy, defining a set of core data principles, and a robust data governance framework. In addition, leading banks adopt a 'data usage' centric framework to manage risks, criticality, and opportunities arising from their data assets.

With data emerging as the new lifeblood for businesses, data experience (DX) can be implied as the oxygen saturation level, i.e. maintaining an optimal value is critical for both survival and performance. DX would drive organizational growth, sustenance, and customer advocacy. In this journey, the role that would be played by Chief Data Officers (CDOs) would be crucial in driving this new metric of the future.

THE INFLECTION POINT

Banking players are challenging the disruption brought about by the pandemic and market developments with strategic investments in digital and data

The COVID-19 pandemic has proved to be an **inflection point** for global businesses across sectors. Financial services, especially the retail and institutional banks, are undergoing a 'fundamental shift' in their operating model and strategy to manage disruption and complexity. They have been battling the economic downturn, alleviating financial distress, and managing overnight change in consumer behaviors.

The megatrends in the face of the impending pandemic include:

01

DIGITAL PAYMENTS

Contactless delivery became a norm during the pandemic, and consumers endorsed contactless payments. There was a 30% increase in digital payments at the onset of the pandemic, and according to the Australian Banking Association (ABA), 93% of all major Australian banks' interactions are now digital.

REIMAGINED WORK OPERATIONS

Not just millennials, but consumers across all age groups have resorted to **digital channels** for sales and service. During the pandemic, sales and service staff supported heightened customer interactions while **operating remotely**. Australian banks approved \$280 billion business loans in 2020 (21% of which were for SMEs).

02

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FINTECH, NEO & OPEN BANKING

Accelerated digital adoption and open banking regulation act as a catalyst for digital innovation, acquisition, or partnerships with Fintech or Neo-banking players. Open banking commenced for major Australian banks in July 2020; Consumer Data Right (CDR) is expected to intensify competition amongst these players.

DATA & DIGITAL TRANSFORMATION

To drive **positive momentum**, digital transformation initiatives have gathered pace and successfully met invigorated investments. The key theme is around data consolidation and enrichment, personalization, cybersecurity, regulatory risk & compliance, and capabilities to foster innovative offerings to drive revenue growth.

04

The banks are required to uplift their game further and deliver quicksilver responses: investment commitments to drive scale and capabilities through consolidated and fit-for-purpose enterprise data, advanced analytics, artificial intelligence, and digital platforms. Data has emerged as the new lifeblood of businesses, and **data experience** can thus be referred as the oxygen saturation level. Therefore, the key focus for an enterprise must be to address the challenges that are hindering data experience today.

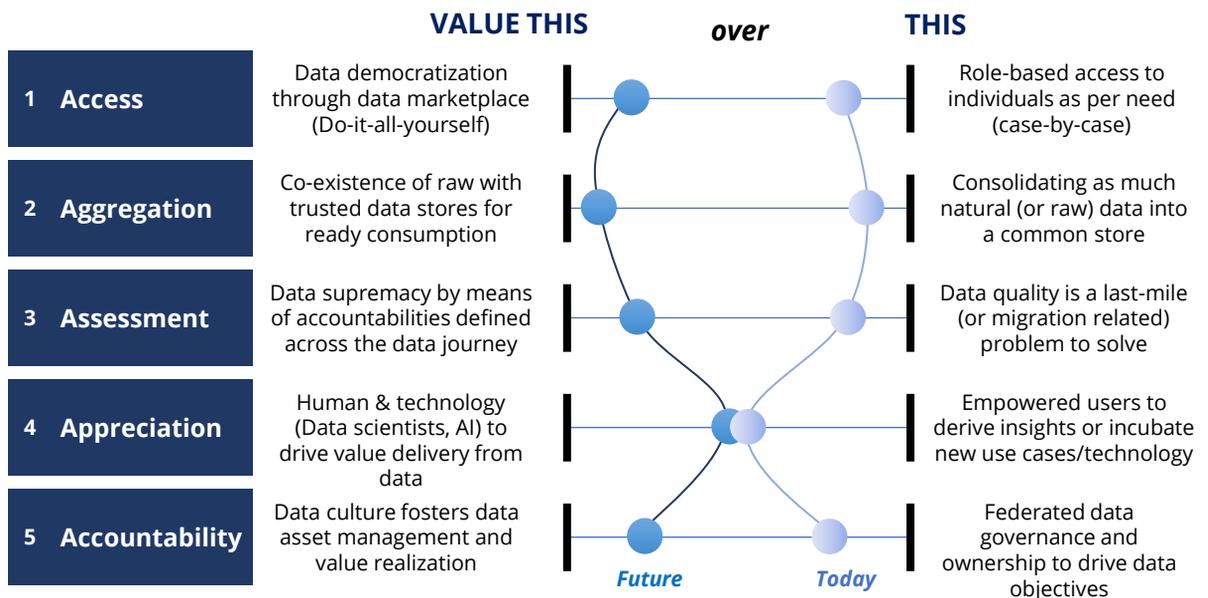
DATA CONUNDRUM

Data management principles need a holistic re-think 'today' to address tomorrow's organizational aspirations and objectives.

Globally, the banking sector is one of the top three contenders when it comes to data storage. The data puzzle may well be due to the problem of abundance. Firms are saddled with multiple sources and hybrid platforms (on-premise or cloud-based). It is an ongoing status quo to manage the challenges of data access, consolidation, profiling, and enrichment to generate insights, drive value or future revenue streams.

The user community lacks a high degree of confidence in their enterprise data owing to heightened complexity, prevalent non-standardized practices, and legacy challenges relating to data and platforms. Moreover, a unified customer view has been an ongoing challenge for large or incumbent organizations. As a result, the return on tactical fixes has started to diminish. The cry for business agility became exponential for the banks during the pandemic, while fast-paced technology disruptions (blockchain, decentralized finance, AI/ML, cloud), regulatory norms (open banking/GDPR, CCPA, BCBS 239, CDE), and entry of Fintech start-ups were the other catalysts to drive the acceleration.

There is a need to re-imagine enterprise data management to deliver the future promise of a data-centric enterprise that fosters data culture and data-driven decision-making. The first step to do so would be to define the value drivers for fit-for-purpose data management.



It is equally important to understand why most firms are caught in this data conundrum - some to a lesser extent while others to more.

BRIEF HISTORY OF DATA

The constant struggle to keep pace with technology disruptions has resulted in the gaps widening overtime to manage data within the organization effectively

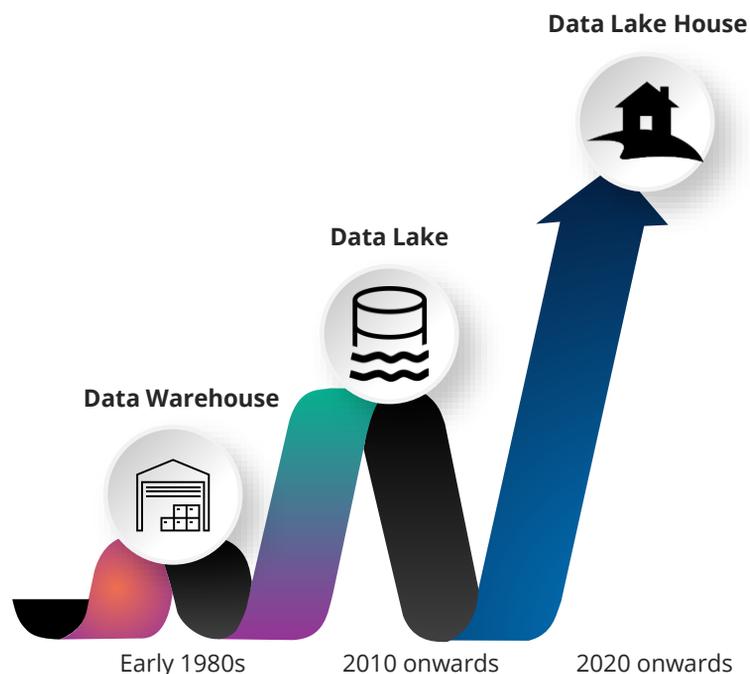
The hype and hoopla around disruptive technologies are often unsettling for organizations. There is peer competition to either emerge as a first-mover or a laggard; nevertheless, everybody participates in this race. The critical success factor is not about how fast one adopts a disruptive technology, rather how prepared the financial organization is to embrace new ways of working or change adoption around the technology.

The genesis of the data problem is due to this phenomenon – a reason why majority of the firms find themselves in a similar predicament.

Rise of the Data Warehouses:

The data warehouses started as an integrated mechanism to bring data from disparate sources and store it in a standard format for further processing. It was the storehouse of aggregated historical data obtained in a **structured** (or normalized) manner. This data is **well-organized** and easily navigable using a query language. However, it was not good to store unstructured data (streaming, IoT sensors, machine or log data).

EVOLUTION OF DATA MANAGEMENT SOLUTIONS



DATA LAKES

“If you think of a Data Mart as a store of bottled water, cleansed and packaged and structured for easy consumption, the data lake is a large body of water in a more natural state. The contents of the data lake stream in from a source to fill the lake, and various users of the lake can come to examine, dive in, or take samples.”

James Dixon
(Founder and CTO of Pentaho, Coined the term ‘Data Lake’ in 2010)

Data lakes are centralized data stores for raw, structured, semi-structured, and unstructured data. Data lakes use ‘schema on read’, i.e., the structure is required only while retrieving the data. This allows easy storing of unstructured data. Data warehouses, on the other end, use ‘schema on write’ where the schema (or structure) is required to be defined prior to storing the data.

Data warehouses or data marts (a subset of a data warehouse catering to the needs of select business users, namely marketing, sales, customer service, or finance) were attuned to the concept of aggregated data, i.e., data backlog was prioritized based on business needs (or criticality) and time and effort to fulfill this demand. **Data lakes allow the flexibility to bring in everything that matters.** It is driven by the principle that data storage over cloud is economical (unlike on-premise data warehouses), and someday, there will be value derived from all these data. This flexibility opened the flood gates. The gush of data coming into data lakes became challenging to manage over time.

The respective business functions felt relieved not to go through the earlier prioritization (or selective approach) when deciding what data to bring into the data warehouse. Further, the efforts to standardize or cleanse data before pooling was no longer the criterion (or mandate). **Instead, the rule was simple: first, bring in the data, decide how to manage it later.** This relaxation in the discipline (like the lockdown relaxation during the pandemic) may be blamed for the following challenges:

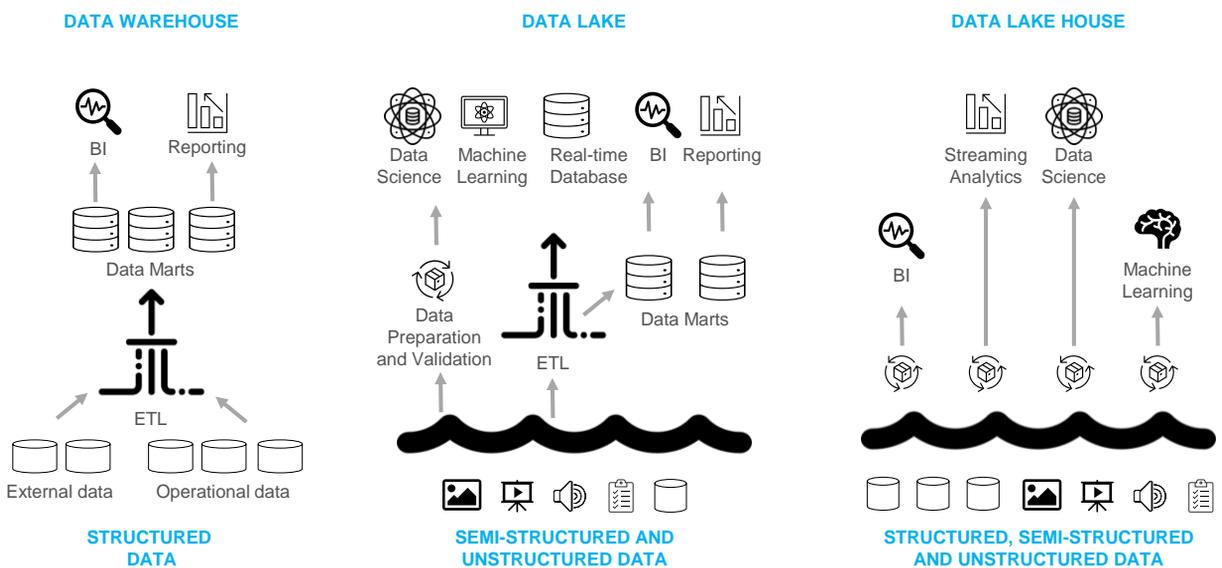
- **Dark data:** As explained by Gartner, it is defined as information assets that organizations collect, process, and store during regular business activities but generally fail to use for other purposes (for example, analytics, business relationships, and direct monetization). As per a global survey conducted by Splunk across seven countries, including Australia, on average, 55% of the data collected by enterprises may be classified as dark data. The fundamental reasons for this fallacy are attributed to: (a) lack of adequate tools, (b) data inconsistency or quality, (c) data abundance, and (d) ability to access or process only structured data. Due to this data deluge, enterprises are often unaware of where all their sensitive data is stored. Therefore, they are not confident if they are genuinely complying with consumer data protection measures like GDPR.

- **Data Swamps:** A term given to a data lake that lacks pleasing design aesthetics, adequate data cataloging, and is poorly governed. The ease of access and ability to leverage the data for good use diminishes if a data lake becomes a data swamp. Typically, the latter would have no-to-limited metadata management, inadequate data governance, and broken ingestion processes. The aisle-based catalog in any super retail store is a good reference of a data lake - that is organized and where items can be fetched easily.

The predicament with data lakes is that while the business community enjoys flexibility, agility, and economics, the real success is defined by the extent of good governance and availability of curated (or ready-to-use) data.

Best of both worlds: Data lake house

Both data warehouses and data lakes emerged with the intent to solve the unsolvable but couldn't inherit all the good features of one another. That has inspired the creation of a hybrid known as a data lake house. Simply put, it strives to combine the critical aspects of data warehouse and data lake.



A lake house endorses open and standard design; caters to both schema on read as well as write. The hybrid solution solves the problems posed by data lakes, like enforcing data quality while retaining the low-cost data storage in open formats accessible by various systems. It also allows enterprise use cases such as streaming analytics, real-time analytics, machine learning, business intelligence, and data science. Furthermore, they are designed with distinct storage and compute capability; that provides the ability to process larger data sets.

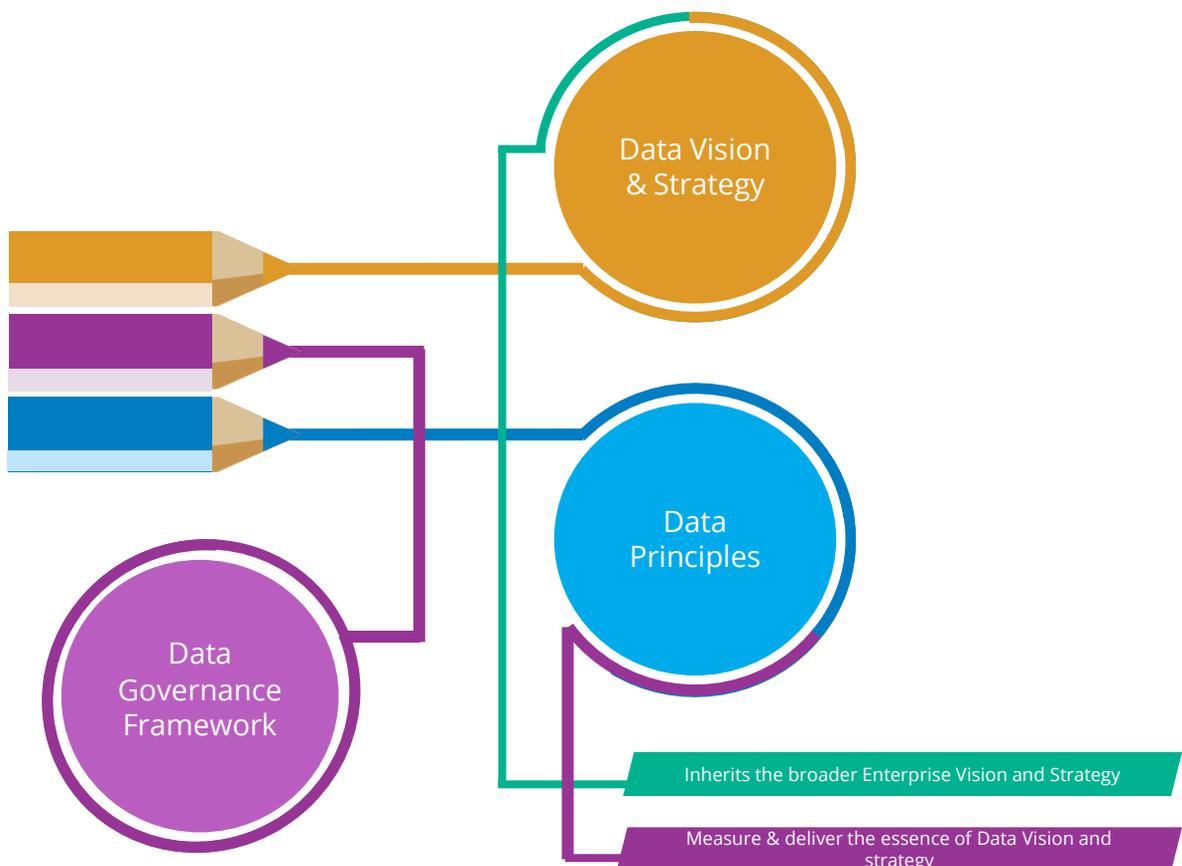
The key learning from the brief history of data management practices is that financial enterprises need a **culture of data management discipline** and **outline their data strategy**.

ART OF DATA MANAGEMENT

The top three drivers that financial services players must set 'right' to manage enterprise data and enable a data-driven culture effectively

Managing enterprise data in financial services is no different from managing enterprise brands or products:

- It starts with an overarching **vision** that describes the future and the very reason for the organization to exist. The **strategy** lays the blueprint for the foundation and framing, a forward-looking point that establishes where the organization wants to be. It is about the set of strategic choices, decisions, and investments that, together, accelerate the journey to achieve enterprise goals.
- **Core values** or principles that remind us of our purpose; do's and don'ts.
- And **governance**, i.e., a driving mechanism for operations and performance; a measure of success against strategic goals or initiatives.



“Data strategy is the opportunity to take your existing product line and market and develop it better and use it to improve customer service and get a 360-degree understanding. It is driven by your organization’s overall business strategy and model.”

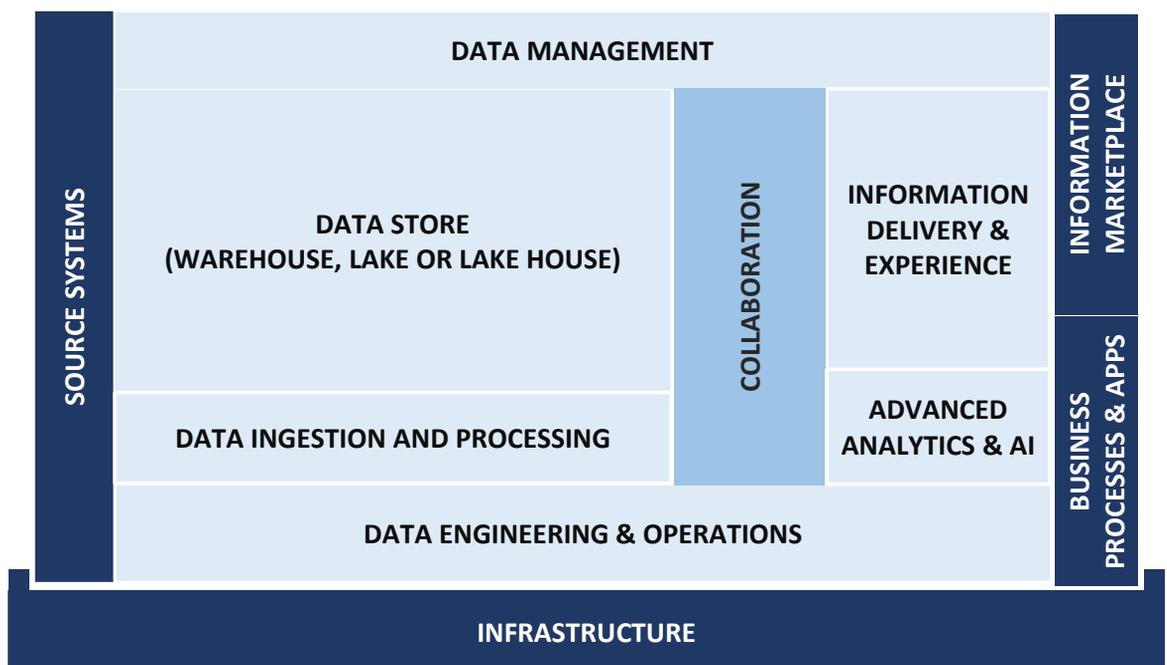
Donna Burbank
(Managing Director,
Global Data Strategy)

The maturity around brand or product management is significantly higher in today’s world, and the semblance may inspire how we can manage enterprise data.

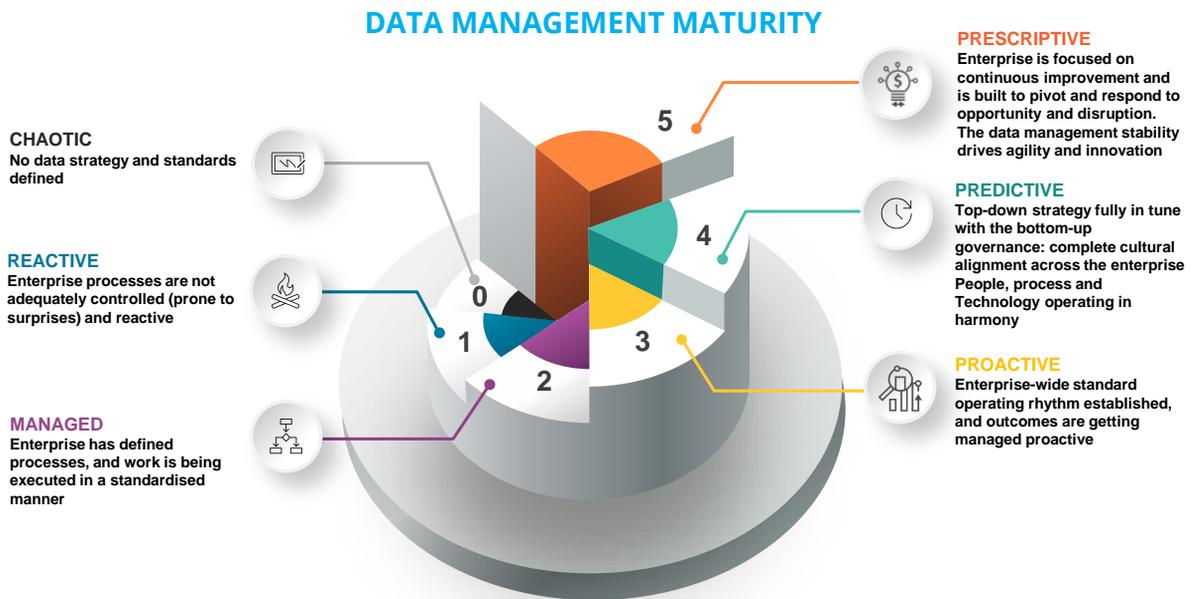
The challenge is to get the top three drivers ‘right’ (as they can vary over time) to drive a data culture across the enterprise:

- **Data vision and strategy:** A bold data vision influences the organization and its user community to aspire for the future-state. The strategy should reflect how the **data assets** drive value for the enterprise, i.e., to improve operations and cost; to uplift customer advocacy by means of process improvements; to enhance product (or service) proposition; to introduce competitive advantages by means of innovation; to mitigate penalties or litigations relating to regulation or compliance; or to drive new (or future) revenue streams. It must address **internal as well as external data assets**, like how external data would be managed in case of openbanking or data monetisation. The strategy must identify the **data capability blocks** to deliver fast and reliable value realisation or insights. It primarily includes foundational capabilities, namely the strategic data store and data management tools or platforms to perform operations.

DATA CAPABILITY BLOCKS

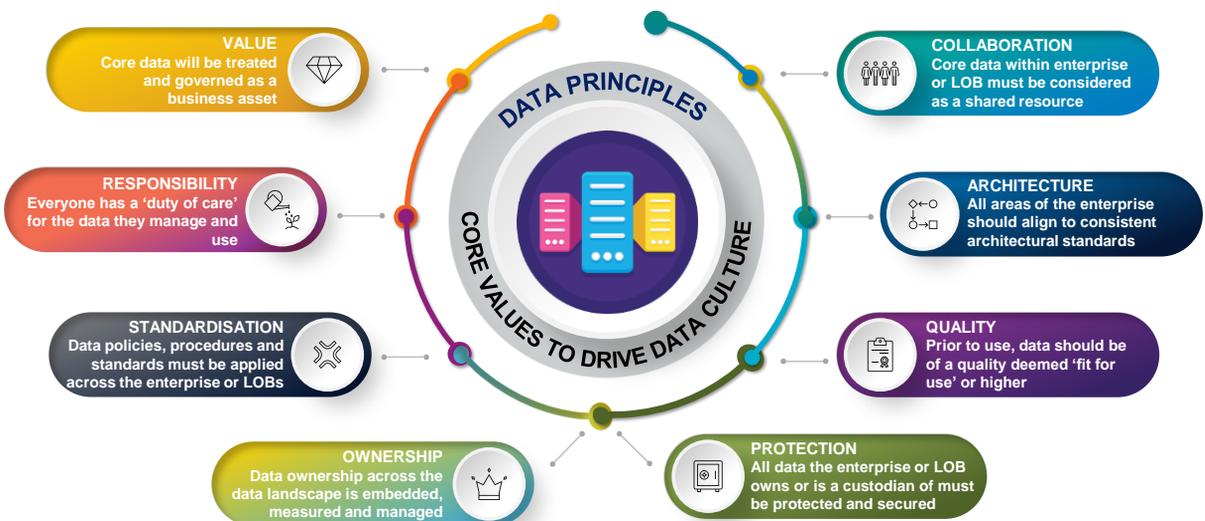


- **Data vision and strategy (cont.):** Data strategy must be provision for periodic assessment of **data management maturity** within the enterprise. That would be an excellent way to introspect and outline the roadmap, prioritization, and strategic investments (or initiatives) to drive forward momentum (or maturity). In the process, ensure the realization of medium-to-long term enterprise goals.



- **Data principles:** A clear set of core principles must be defined. These principles must capture the intent of the data vision and strategy and foster data culture within the enterprise and its Lines of Businesses (LoBs) or divisions.

CORE DATA PRINCIPLES FOR FINANCIAL SERVICES



- **Data governance framework:** The key objective of the data governance framework is to outline the construct of a robust governance that drives meaningful change and performance across the enterprise and LoBs. It holistically references all the **critical success factors** to lay the foundations of an effective data governance capability.

SEVEN CRITICAL SUCCESS FACTORS FOR EFFECTIVE DATA GOVERNANCE



'Data usage' centric framework for banks

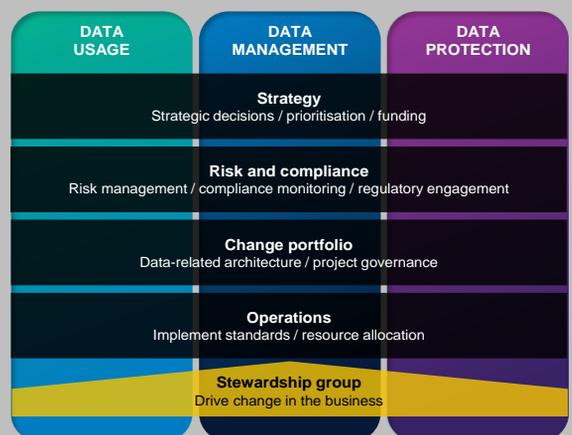
Data usage: Defining and managing the risk, criticality, and opportunities in the use of data as part of value creation:

- Includes governance needed to control how data is being used or shared and for what purpose
- Considers ethical and privacy dimensions of using/sharing different data assets and informs the level of data protection and data governance that needs to be applied

Data management: Defining and managing the quality, consistency, usability, and availability of data across its lifecycle

Data protection: Defining and managing access and use rights and preventing data loss

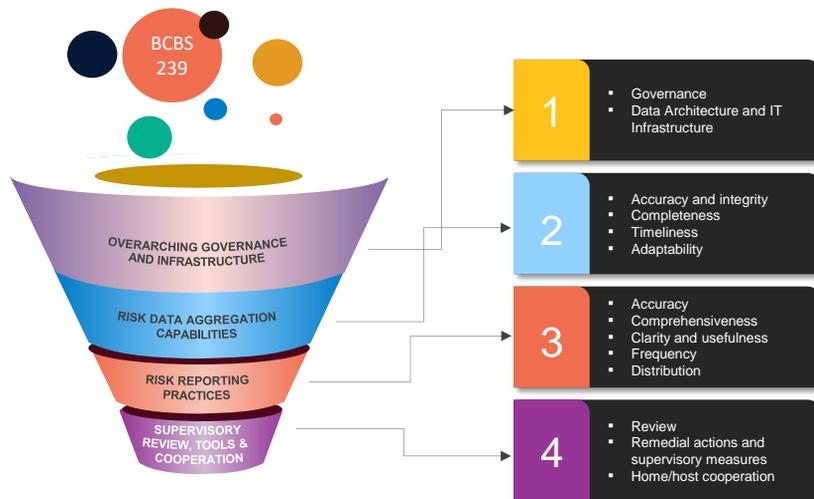
- Includes associated governance needed to secure data that is stored or transferred appropriately



Data management requisites for Authorised Deposit-taking Institutions (ADIs)

In 2013, the Basel Committee on Banking Supervision (BCBS) released its risk data aggregation and risk reporting principles (**BCBS 239**). It is widely acknowledged that data management capabilities are critical to the monitoring of risk appetites.

BCBS 239 – PRINCIPLES FOR EFFECTIVE RISK DATA AGGREGATION AND RISK REPORTING



Financial institutions licensed by the Australian Prudential Regulatory Authority (APRA) to carry on banking business are required to adhere to the prudential guidelines on data risk management (**CPG 235**) that were also introduced in 2013.

CPG 235 – DATA RISK MANAGEMENT GUIDELINES

MANAGING DATA RISK

- Data risks are managed as part of Operational risks and overlaps with Information and IT Security Risks
- Identify critical data elements

STAFF AWARENESS

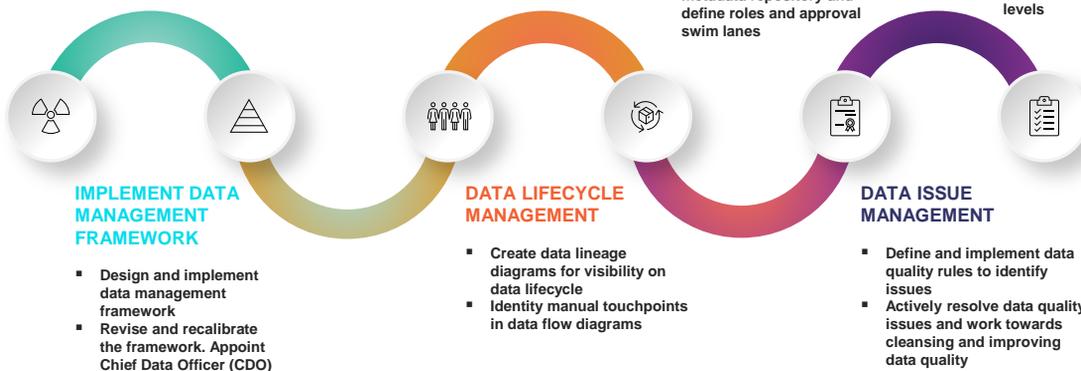
- Create data management roles
- Run data governance campaigns to gain support

IMPLEMENT CONTROLS AND VALIDATION

- Implements controls to mitigate data risks at every stage of data lifecycle
- Create organisation wide metadata repository and define roles and approval swim lanes

DATA RISK ASSURANCE

- Ensure assurance from responsible roles on effective data risk management
- Periodically conduct internal audits to assess success levels



IMPLEMENT DATA MANAGEMENT FRAMEWORK

- Design and implement data management framework
- Revise and recalibrate the framework. Appoint Chief Data Officer (CDO)

DATA LIFECYCLE MANAGEMENT

- Create data lineage diagrams for visibility on data lifecycle
- Identify manual touchpoints in data flow diagrams

DATA RISK MONITORING

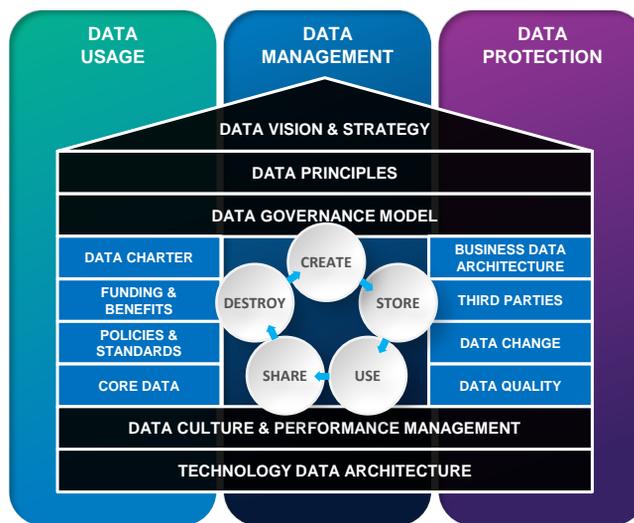
- Define and implement data quality rules to identify issues
- Actively resolve data quality issues and work towards cleansing and improving data quality

Integrated Data Governance Framework for Financial Institutions

A robust data governance framework adequately addresses the enterprise goals, meets regulatory requirements, and brings the data principles to life:

- Strategic requirements for data and a tangible roadmap is defined as part of **enterprise data vision and strategy**; risk appetite for data risk clearly articulated.
- **Data principles** are aligned to data vision.
- Division or function accountability for **data governance** is defined at an executive level. Data-related risks and controls are built into division or function risk profiles.

INTEGRATED DATA GOVERNANCE FRAMEWORK FOR FINANCIAL INSTITUTIONS



- **Data charters** outline commitments to customers as well as businesses.
- The data governance **funding and benefit model** is approved and adopted.
- Divisions or functions maintain a register of **core data** and ensure that **third-party data meets standards similar to internal data**, and the **data quality** framework is operational.
- Data governance considers 'by design' adoption of new use cases (or **data change**).
- Divisions or functions must ensure a **data performance management** framework is embedded with a clear link to consequence management.
- Strategy, design, and implementation of the physical architecture support the defined **data strategy and architecture**.

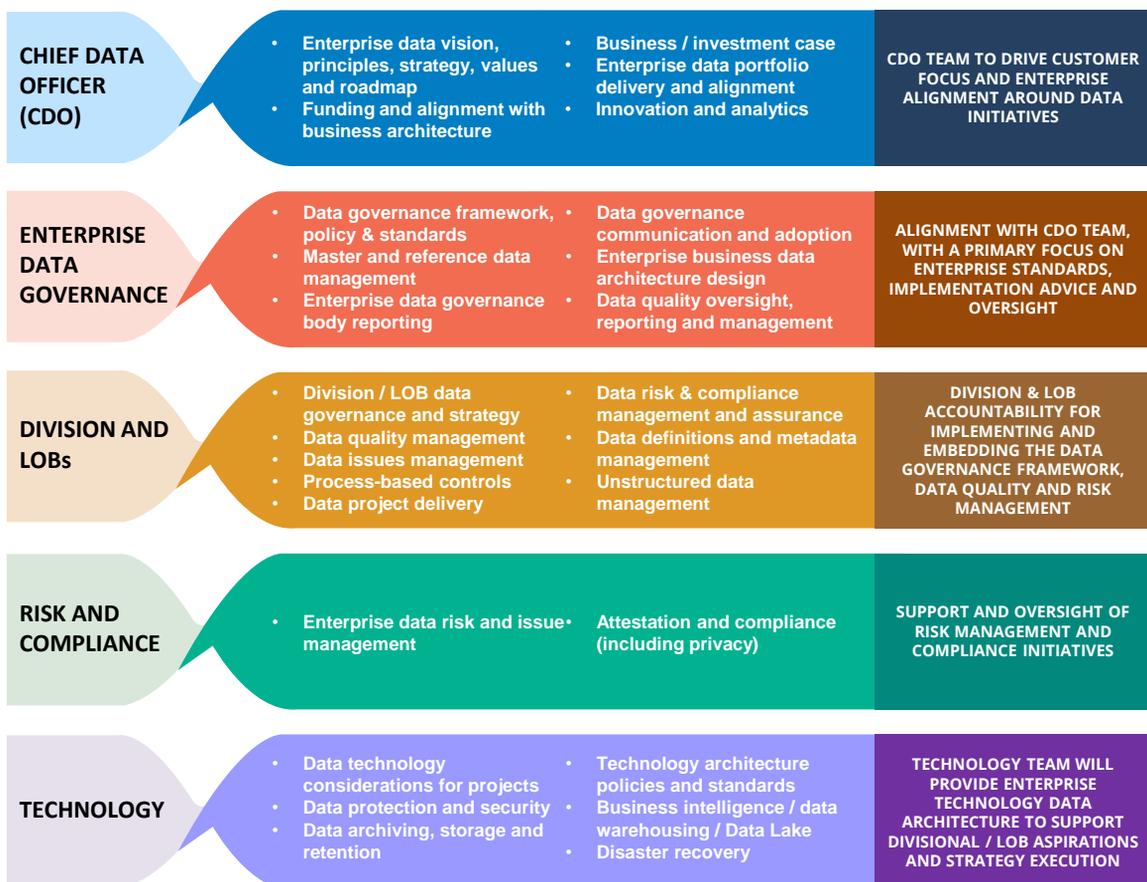
The last piece of the data management jigsaw puzzle is to define the **master or leader who can drive the art of effective data management** within the enterprise.

CDO DRIVES FUTURE OF DX

DX is emerging as the new metric of future for financial services, and CDOs have a significant role in driving the future of DX.

In the present age of digital and data, the role of **Chief Data Officer within financial services has become pivotal**, with data emerging as the strategic and fundamental asset for enterprises. As a result, CDOs have become the conduit to drive bold data strategy and vision, robust data governance, healthy risk appetite, the driver for enterprise-wide data culture, and seamless collaboration across divisions or lines of businesses (LoBs).

DATA GOVERNANCE ORGANIZATION WITHIN FINANCIAL SERVICES



The prediction that by 2020 CX would race ahead of price and product as the key brand differentiator has come true. With data emerging as the new lifeblood for businesses, **DX will truly become the future metric** that drives enterprise growth, sustenance, and customer advocacy.

CONCLUSION

Data has emerged as the new lifeblood of businesses, and data experience can be implied as the oxygen saturation level. Therefore, the critical focus for a financial services enterprise must be to address the challenges that are hindering data experience today.

The top three drivers that a financial services player must set 'right' to manage enterprise data effectively and enable a data-driven culture includes: setting up a data vision and strategy, defining the core data principles, a robust data governance framework. Leading banking players are adopting a 'data usage' centric framework to manage risks, criticality, and the opportunities arising from enterprise data assets. However, these drivers may not be cast in stone. They would vary over time owing to change in operating (or business) model, revenue streams, market disruption, regulation, or other factors not known in the present day.

In the mid-2010s, it was predicted that by 2020 customer experience would race ahead of price and product as the key brand differentiator. That prediction has come true, with customers now willing to pay extra for an enhanced customer experience. A similar phenomenon is unfolding today, with data emerging as a strategic asset within the enterprise. An overarching data-driven culture across financial services would propel revenue maximization, cost optimization, and improved customer experience through data insights and advanced automation (analytics, artificial intelligence, etc.)

As a result, data experience will truly become the future metric to drive organizational growth, sustenance, and customer advocacy.

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