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Data Management Solution

Data is raw, unorganized facts that need to be processed. Data can be something simple and seemingly random and useless until it is organized. When data is processed, organized, structured or presented in a given context so as to make it useful, it is called information.

Introduction

Data, now regarded as the lifeblood of business and increasingly a vital asset, needs rigorous management, organisation and governance like other balance sheet listed assets.

According to DATAVERSITY:

- 90 percent of the data existing worldwide today was created in the last two years.
- Data is a new asset class and personal data is "the new oil."
- Every two days more information is created than was from the dawn of civilization until 2003.

King IV effective 1 April 2017 refers to the separation of technology and information governance to specifically highlight the importance of information governance as a result of the growing data patterns.

Data remains pivotal to customer management, insights, measures, reporting, risk management and decision making in any organisation. The success of data projects is dependent on comprehensive, integrated data especially in the age of Big Data and current calls for integrated information requirements e.g. risk and financial information alignment. However, the reality for many institutions is that current systems, processes and data may be obscuring the benefits presented by Big Data and integrated information requirements.

A number of factors still exist that make it difficult to generate integrated information and insights from raw data. Some of the factors we identified include:

- Reporting data, processes and systems for the various business functions. For example, risk and finance functions that have generally been developed independently have struggled to keep pace with regulatory pressures in certain industries. There has been a tendency towards short-term, tactical solutions that has hampered attempts to develop integrated systems
- Underinvestment in back office processes and systems and a focus on delivering solutions at the lowest cost and with minimum disruption.
- Short-term front office requirements have set the agenda. The need to quickly implement a new product or bring on board a new client has encouraged the tendency to adopt tactical measures. A lack of front-office accountability for

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data quality and management has reduced the pressure to address systems problems.
- Delivery of the required reports that have depended on manually intensive workarounds that can be expensive and prone to error.

Current practices and regulations such as the Basel Committee and Banking Supervision (BCBS) and Sarbanes Oxley (SOX) have embraced Data and Information Management as a means to reaping the benefits that are hidden in well organised quality data.

In the paragraphs that follow, we provide a structured approach that lists data management disciplines, a strategy for achieving good data and finally a roadmap to initiate a data management solution.

1. Data Management

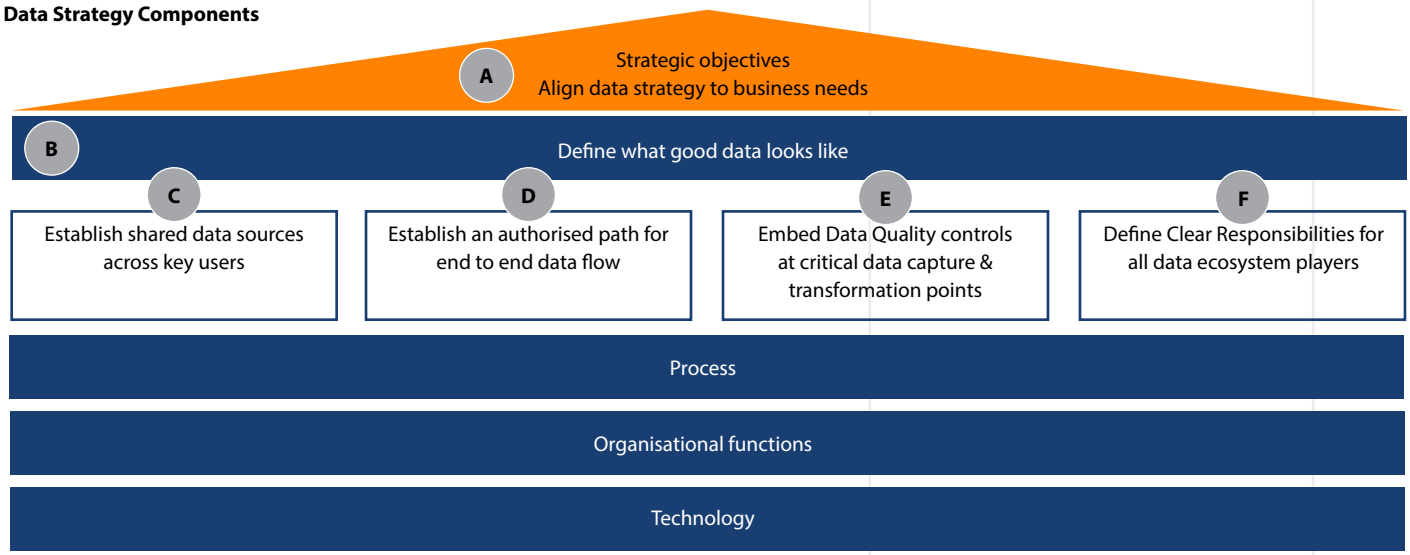
Several definitions exist but in short it can be viewed as "the development and execution of architectures, policies, practices and procedures in order to manage the information lifecycle needs of an enterprise in an effective manner". Data management disciplines are listed in the table 1 below.

Data Management Disciplines	
Data Modelling	Data Governance
Model Validation	Business Glossary
Data Protection	Data Security
Data Lineage	Metadata Management
Data Migration	Data Dictionaries
Data Quality	Data Profiling
Data Integration	Data Requirements Definition
Data Lifecycle Management	Data Aggregation checks
Data Architecture Design	End user developed Applications (Spreadsheets Management)

Table 1: Data Management Disciplines

2. Strategy to Achieving Good Data

There's no one approach to achieving good data. The diagram below outlines a top down approach in tackling the data problem. Its starts by defining strategic objectives for data and data quality, developing technology to enable those objectives, and aligning the organization to one version of the truth.



a) Aligning data strategy to needs of business

- Addressing all the needs of an organization from a data perspective can be an overwhelming, potentially never-ending journey. It is therefore important to articulate where data quality is most valuable, and prioritize efforts accordingly. There are some non-discretionary needs for example regulatory compliance which will be on everyone's high-priority list. Among the list of discretionary items, it is worth prioritizing based on:
  - Value to the business,
  - Complexity of effort, and
  - Reusability of data across multiple objectives.
- The third criterion above i.e. (reusability of data across multiple objectives) is key and is often overlooked in a silo-oriented organization. As an example, fixing finance and risk data might be a priority for regulatory reasons, but much of the same underlying data can be leveraged to make better underwriting decisions.

- When looked at collectively, there's often more value to be had from data quality improvement efforts than may be immediately apparent.

b) Defining what good data looks like

- The quality of data is highly contextual and depends on what it is used for. Is the data fit for its intended purpose?
- It is vital to define data quality threshold and materiality depending on data purpose.
- Standards for data need to be defined in order to satisfy all key users – and the standards adopted need to conform to the ones required by the most demanding users. In Financial services for example, Frameworks like the one provided by Basel's Risk Data Aggregation and Risk Reporting -BCBS 239 or the Enterprise Data Management Council can be leveraged to define dimensions by which data quality is measured (e.g. accuracy, comprehensiveness, completeness, etc.)

c) Establish shared data sources across important users

- Whist it is extremely complex to create a single shared data source for large complex organizations, organisations should aim to designate common authoritative sources for users with a high degree of overlap (e.g., risk and finance). In such cases, data is captured, enriched, and aggregated within one authoritative source, and all users extract from that same source to generate reports and analysis. There is no need to reconcile data between different sources to verify its consistency. This is an important principle to keep in mind that as data architectures is redesigned or when new systems are put in place to avoid creating separate pipes for the same data elements.
- If this principle is not followed, as the same data travels through different paths, it creates the need for time consuming reconciliation requirements.

d) Determine an authorised path for end to end data flow

- As institutions grow and new systems are implemented, optimizing data flow may not always be top of mind. Often, the focus is just on getting things to work together properly, for example by establishing interfaces with neighbouring systems. This can result in point-to-point "spaghetti" connections between systems, with the same data travelling downstream through different paths.
- Ideally, data should flow linearly from authoritative systems in the front office to marketing, operations, finance, risk, and ultimately senior management reports.
- Data lineage analysis is critical toward understanding the various sources, transformations, and arrival points across key data elements.
- Once appropriate levels of understanding have been achieved, institutions should establish an authorized path for data flow, defining authoritative data sources, homogenizing transformations, and placing data quality controls appropriately.
- For expediency, non-authorised pathways might occasionally be necessary – but only with appropriate transparency, business cases, long-term planning, and governance in place.

e) Embed data quality controls at critical data capture and transformations points

- Data capture often can be manual and subjected to error. These errors then propagate downstream, with potentially dire consequences as:
  - Valuable time is spent cleaning customer archives; and
  - Embarrassing outreaches to customers are necessary to rectify information errors and omissions.
- Placing more stringent controls upstream to prevent data issues propagating downstream is critical. Smart controls for completeness, accuracy, and conformity often can be automated, allowing issues to be addressed directly at the data capture point.
- Subsequent transformations should also embed a layer of automated quality control to ensure that critical data elements are thoroughly vetted before being used.
- Data interchange controls should be ensured where interfaces are established

f) Define clear responsibilities for all Data Ecosystem players

- Data is a shared asset which flows across business lines and functions and assigning ownership is often challenging.
- We advocate establishing data owners that are close to the data and can attest to its quality at various stages so that errors can be caught early and remediated.
- However, data owners will not solve all data problems. All players in the data ecosystem have responsibilities to ensure appropriate data quality, whether they are data producers, consumers, owners, or stewards.
- Data management-related activities need to be embedded in the job description and be part of performance assessments for all data ecosystem players.
- Clear escalation channels need to be established in the event of data remediation

The key benefits of adopting the above pragmatic approach include:

- **Faster results** – putting data first, enables companies to get most of the business benefits quickly without having to wait for a fully integrated finance and risk architecture to be developed.
- **Improved return on investment in technology** – by ensuring that any future technology investment is closely aligned with business requirements and is using 'good' data, will more likely deliver the expected benefits.
- **Increased agility** – by being able to demonstrate to stakeholders that data quality and the timeliness of processes are improving, they will have greater confidence in the organisation's ability to meet tightening reporting deadlines.
- **Greater insight** – by focusing on data quality, fewer manual adjustments will be required, which makes management information faster and cheaper to produce, as well as more accurate and focused on business needs.

Roadmap – Key Quick Wins For a Data Management Solution

Below we highlight a roadmap to establish a data management solution

1. Data Policy

The data policy sets out the specific data elements required by functions to meet their modelling and reporting requirements. It then defines clear ownership and the requirements for the quality, consistency and supply of each data set. This has clear advantages over the alternative approach that focuses on the business outputs (i.e., reports produced), before identifying the detailed data elements required to produce them.

2. Data Governance

Governance procedures to support the data policy include assigning data 'owners' – both the end user and the originator of the data at source. Ownership by end users ensures the reporting outputs are responsive to current and evolving needs. It also means the producers of data – typically the front office – can be encouraged to address poor quality data capture,

for example through the introduction of data quality chargeback mechanisms or penalties. This helps the front office see the benefits to them personally and the wider business of adopting a different approach to data.

3. Data Architecture Design

Data architecture should set data standards for all its data systems as a vision or a model of the eventual interactions between those data systems. Data integration, for example, should be dependent upon data architecture standards since data integration requires data interactions between two or more data systems

4. Data Dictionary and Meta Data Management

Identifying the data elements will allow you to put together a data dictionary, which sets out your data standards. This starts with the business demand for each element and what is required to meet it, which then maps the required data back to its sources and sets out how it is used, derived, controlled and verified. It not only defines data's meaning, but also its relationship to other data, origin, use and format. The mapping process will help to streamline supply by identifying and ironing out any duplication or inconsistencies. This information will then feed into any data remediation process required over the short term.

5. Data Improvement Initiatives

In parallel to establishing good data governance and design approaches, it's important to start fixing data and resolving any issues as soon as possible. It's important to make sure these fixes are aligned and controlled through appropriate business governance.

6. Glossary of Terms

A glossary also known as a vocabulary is an alphabetical list of terms in a particular domain of knowledge with the definitions for those terms. Terms need to be noted according to how they are defined and used across various business units and where possible alignment needs to be attained. This is very critical especially for reporting purposes.

7. Data Lineage

Data lineage includes the data's origins, what happens to it and where it moves over time. Data lineage provides visibility while greatly simplifying the ability to trace errors back to the root cause in a data analytics process.

8. End User Developed Applications (e.g. Spreadsheets Management)

Can be defined as a set of methods, techniques, and tools that allow users of software systems to act as non-professional software developers, at some point to create, modify or extend a software artefact

9. Data Quality Controls

Identifying data quality objectives, setting data quality forums, scorecards and logs as tools to manage quality are keys to ensure good data is achieved through-ought the organisation.

Summary

The above summary provides valuable insights on data and information management. Undoubtedly, the 21st century is characterised by ever growing data requirements coupled together with internal reporting and regulatory requirements. Organisations can leverage of this growth by building sound strategies to manage their data, build effective reporting models and capitalise on opportunities visible from data.

Contact us

For more information on Data Management Solutions contact Nkonki on: +27 11 517 3000

Ref and Credit to:
- ResearcGate:https://www.researchgate.net/post/What_is_the_difference_between_data_and_information
- Dataversity: http://www.dataversity.net/
- DAMA: Data Management Association - https://dama.org/
- Financial Markets Journal- https://financialmarketsjournal.co.za/bcbs-239-risk-data-aggregation-and-reporting/
- Sabanese Oxley- http://www.s-ox.com/dsp_getFeaturesDetails.cfm?CID=1889

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