# Learning Note: Introduction to a data and analytics strategy

## Introduction

Many organisations have embarked on a digital transformation journey, yet they frequently lack a clear strategy for proceeding. This challenge is why data strategy development is a key component of the capacity development initiatives in the Rwanda Economy Digitalisation Programme. The objective is to enable institutions to create systems that allow them to maximise the value of the data assets they have and drive tier growth.

We developed a data strategy that was tested across different public institutions in Rwanda including ministries, regulatory and specialised agencies. It is important to note that there are several strategies related to the use of data and technology, such as a digital transformation strategy, an enterprise architecture strategy, a data management strategy, a data architecture strategy, an infrastructure technology strategy, an IT strategy; and a data protection and privacy strategy. A single strategy may combine many of these elements.

This learning note focuses on utilising data to achieve high-value analytical outcomes and decision-making that aligns with the overall objectives and obligations of the organisation. It assumes that in certain areas that require more detailed planning (such as data management capabilities), additional supporting strategies may be necessary to enable the use of data to drive actionable insights and decision-making.

A well-executed data strategy is an evolving plan that adapts to changes in technology, market conditions, and business priorities.

## What is a data strategy?

Data strategy refers to the tools, processes, and rules that define how to acquire, manage, analyse, and act upon business data. A data strategy enables an organisation to make informed decisions based on the data they have and ensures it is kept safe and compliant. A primary objective of any data strategy must be to ensure that data is treated as one of the organisation's most valuable assets.

The data and analytics strategy focuses on factors that will enable the use of analytical insights to meet business requirements, solve business problems, and meet strategic goals. In every aspect, ensuring data is well-governed and of high quality is crucial.

## Objectives

Frequently, organisations operate independently within silos, employing different systems that address distinctive needs without speaking to each other or considering a broader end-goal of interoperability and the level of data harmonisation or data standardisation required for a successful transition to a more "data-oriented" approach.

A data strategy impacts an organisation's ability to make data-driven decisions and adhere to data regulations such as the EU's General Data Protection Regulations (GDPR) or the relevant national data protection regulations. It is a foundation for good data management, enabling the implementation of uniform and comprehensive practices.

The data strategy should provide guidance to ensure consistency in data collection, transformation and sharing. Additionally, it enables organisations to manage large volumes of data in a synchronised way, ensuring cohesive data management across the organisation and alignment among departments. An effective data strategy ensures data is in a usable format and creates seamless data exchanges between departments.

# Components of a data strategy

While the components of a data strategy can vary based on the nature of an organisation and its goals, some fundamental components commonly found in effective data strategies include:

- Clearly defined objectives relating to the use of data that aligns to organisational goals, mission and vision
- Data governance and related rules or principles around data stewardship, data management, data quality, data security and data privacy
- Objectives relating to data architecture, including the design of databases, a data warehouse, and data catalogues
- Resourcing and skills development to support strategic objectives

## How is a data strategy developed and implemented?

Developing a meaningful and implementable strategy cannot be done in isolation – it requires consultation and research. After considering the key areas of focus in the strategy, engaging with and consulting stakeholders is necessary.

Consultation would typically involve leaders and senior management in the organisation, subject-matter experts in specific areas and disciplines, as well as the owners of critical business processes and systems. Their inputs must balance against

the primary objectives of the organisation and key considerations for the use of data. Below are the common steps required:

- *Define the business/organisation's objectives* i.e., mandate, vision, and goals.
- *Identify and assess the organisation's data context:* Keep in mind that not all organisations are on the same "data maturity level" and a data maturity assessment might be recommended in some cases.
- *Get buy-in from senior management:* Endorsement from senior executives can contribute significantly to the data strategy and the implementation of a data governance programme, ensuring faster change management whenever required.
- *Identify existing and potential future data sources and storage:* Data is the foundational material of the data and analytics strategy, an in-depth understanding of its inflow and outflow is therefore critical.
- *Identify current gaps and challenges:* Like a SWOT matrix, data strategy development involves taking into consideration the existing environment and infrastructure to understand current limitations and opportunities.
- *Assess current data capabilities:* The organisational "data capabilities" in both infrastructure and human capital are a determining factor for the successful implementation of the data strategy.
- *Set clear objectives and achievable goals for the data strategy:* Clearly define the scope of the data strategy to steer its development and enable complementary building blocks to be fully functional and relevant.
- *Identify the skills needed across different data management and usage disciplines to sustain the data and analytics strategy:* A strong in-house team with pertinent skills and capabilities ensures continuous data strategy ownership, implementation, adoption, adjustment and overall growth.
- *Develop a timeline for implementation:* Crafting a detailed timeline and list of deliverables, complete with success metrics, implementation use cases, and more, will help translate theoretical concepts into practical and impactful tools.

Those looking to find more detail on some of the steps outlined above may wish to refer to the following articles:

- [7 Elements of a Data Strategy](#)
- [What is a Data Strategy?](#)

## Organisational roles

As highlighted earlier, data teams need to be well defined for the data strategy to be efficient and reliable. The team should be calibrated to the organisation's size and salary budget, and it may take time to develop a team that reflects this diversity in terms of roles. Some tasks may need to be outsourced to consultants in the interim.

The data strategy needs to be managed by a committee or team that comprises team members from different departments.

This data governance team will lead and ensure that the organisation is complying with its data strategy. Team members should include:

- Executive data owners such as Chief Data/Digital Officers
- Data owners such as managers, process owners and department heads
- Data stewards such as business, technical or data analysts
- IT specialists as valued expert advisors

**The data and analytics team** are at the core of the data strategy and should include:

- Data scientists who are responsible for analysing datasets for observable trends and patterns using statistics, mathematics, data mining, and computer science
- Data engineers who oversee the data pipeline and are responsible for building an efficient and reliable data infrastructure
- Data architects who design and oversee the implementation of an enterprise's data infrastructure in its totality
- Data analysts who are responsible for generating business insights and intelligence on the organisation's data

**The Information System Unit (IS)** acts in a supporting role and should comprise:

- Information Security or Cyber Security experts responsible for protecting systems from cybersecurity risks, threats and violations by monitoring, detecting, investigating analysing and responding to security events
- Database administrators who are responsible for managing databases and ensuring the integrity and availability of data
- Privacy specialists responsible for developing and maintaining data privacy policies and procedures
- Developers (as needed) responsible for creating software
- System engineers responsible for developing, designing and implementing engineered systems
- Network engineers responsible for creating and monitoring computer networks.
- IT & Desktop support responsible for providing technical support to employees and customers

## What challenges can be anticipated?

Developing and implementing a data strategy can be a difficult task. Some of the commonly experienced challenges include:

- Stakeholders may express very specific requirements or opinions, while others may be unsure or even have mistaken views. These requirements need to be weighed carefully to consider their impact across the entire organisation. Differences of opinion can be mitigated by aligning the data strategy with the organisation's primary goal
- The mistaken View that "data issues are solely IT's responsibility" or that the responsibility for high-quality data rests exclusively with the Business Intelligence and analytics teams. Moreover, there may be differing opinions regarding who is responsible for data and what that responsibility entails. The remedy to this challenge is to prioritize data governance. This involves clearly defining the organization's data governance framework, including its requirements, roles, and responsibilities

- A lack of skilled people when it comes to data management among the Data & Analytics and IT teams. A good data strategy should document the role of everyone involved, from data scientists to business managers
- Poor data warehouse design and planning (including integration and modelling)
- A lack of supported environments for data warehousing and analytics
- Poor quality, frequency, and completeness of data
- Poor information security / cybersecurity capabilities
- Lack of understanding of data governance and its importance
- No formal data governance to improve the value and use of data assets
- Poor capabilities to manage data protection and privacy

## What does a successful data strategy look like?

The ultimate end-goal of developing a successful data strategy is to achieve an "organizational data culture change," which involves shifting the perception of data from a liability" to a valuable "asset.". This requires the implementation of processes, teams, tools, instruments and change management practices.

Among others, it should include:

- Defined data teams
- Well established data management & IT teams and a well-defined relationship between IT / data management and the Data & Analytics areas (operating model)
- A well understood data governance policy with buy-in and support from the executive level
- Data owners assigned to each business unit or department.
- Data stewards
- Critical data has been catalogued, classified and its lineage is documented, signifying collaboration between data stewards, IT data experts, subject matter experts, data owners etc
- Data quality requirements are understood, and controls have been put in place
- Data quality rules are established, and the data quality is being monitored and proactively remediated
- Business (data owners) understand their accountability for data and support data stewards
- Data & Analytics team are working with high quality data that is well documented and understood
- Analytical products are defined and aligned with business objectives

## Additional resources

During the development of a data strategy, the resources below could be consulted to broaden the concepts and serve as a benchmark:

i. The Data Management Body of Knowledge (DAMA-DMBOK) – the data governance wheel
ii. The global data management community
iii. International government data management and data governance acts and initiatives.
iv. European Union Data Governance Act

## Glossary:

*Business Intelligence (BI):* BI is a broad term that was initially associated with data warehousing including the extraction, transformation and reporting of data, as well as using data to provide business insights through reporting. Recently, with the advent of advanced analytical methods, BI is more commonly associated with creating structured data for reporting and the use of tools that facilitate visualisation of data insights such as PowerBI, Tableau and Qlik.

*Data Warehouse (DW) or EDW:* A data warehouse or enterprise data warehouse (EDW), is a system used for reporting and data analysis and is considered a core component of business intelligence. DWs are central repositories of integrated data from one or more disparate sources. They store current and historical data in one single place that is then used for the creation of analytical reports for workers throughout the enterprise.

*Data Pipeline:* A data pipeline is a term used in data engineering to describe a sequence of processes involving the collection of raw data from multiple sources, its transformation, combination, validation, and transfer to a designated destination. Data pipelines are strategically designed to automate tasks and optimize processing capabilities, introducing efficiencies, enhancing quality, and ensuring accuracy. The concept of a data pipeline is central to the Data Fabric framework and the planning of Data Products.

*For more information about data strategies, please contact Marcellin Nyirishyaka.*