

Common challenges of data governance

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ABSTRACT

The paper focuses on the challenges that an organisation faces in the implementation of data governance. The inclusions in the paper range from the definition of 'data governance' to leadership participation, data strategy, roles and responsibilities, related budgets and ownership, training and communication plan, organisational cultural aspects (with respect to data) and business value for sustainability of data governance. The paper elaborates some of the challenges and highlights the lacunae in the process like business value of data governance. Before creating any governance structure, it is required to spend more time contemplating the 'prime directive' for data management. And the prime directive is straightforward and simple. It means to deliver to the end user, data that they have trust and confidence in, and that is precisely what they expect it to be, without the need for manual reconciliation and multiple transformations. This is the goal of data governance. The paper also provides in-depth information about data governance and why it is critical for organisations. In this paper, one will get an overview of the challenges involved and how data governance can help the organisation; a clear idea of the benefits and risks; a look at practical, real-world examples and the details of the components of an effective data governance programme. In addition, it will also articulate the characteristics of a data-driven culture and the 8-Point Data Governance Model that can be utilised to design and develop a scalable, fit-for-purpose data governance programme for any organisation.

Keywords: Data governance; Data quality; Data silos; Data Strategy; Sustainability; Data ownership; Data Culture; Principle; Metrics; Data Stewards



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INTRODUCTION

One of the biggest challenges for an organisation today is to pinpoint what data exists and its location, which must be accompanied by an agreed upon business understanding of what it all means in common terms, that are adopted across the enterprise. Having that consistency is the only way to assure that insights generated by analyses are useful and actionable, regardless of business department or user exploring a question. Additionally, policies, processes and tools that define and control access to data by roles and across workflows are critical for security purposes. These issues can be addressed with a comprehensive data governance strategy and technology to determine master datasets, discover the impact of potential glossary changes across the enterprise, audit and score adherence to rules, discover risks, and applying appropriate security to data flows, along with publishing data to people/roles in ways that are meaningful to them. Financial services organisations are built on data, so data governance is a critical concern. But many firms have their own definition of data governance, which may be completely different from competitors. For some financial institutions, data governance means establishing governance bodies and councils, while others consider data governance the process of defining data stewardship and workflow. Some financial services firms have master data management and data quality programmes established under the name of data governance, while others combine all of these aspects — governance bodies, data stewardship, metadata and master data management and data quality — under the data governance umbrella. The most common definitional mistake companies make, is using ‘data the decision governance’ synonymously with ‘data management’. Data governance is the decision right and policy making for corporate data, while data management is the tactical execution of those

policies. Both require policy executive commitment, and both require investment, but data governance is business-driven by definition, while data management is a making for diverse and skills-rich IT (information technology) function that ideally reports to the Chief Information Officer (CIO).

Here are examples of current data breaches that make data governance essential

- EasyJet admits data of nine million hacked.
- A Virgin Media database containing the personal details of 900,000 people was left unsecured and accessible online for 10 months, the company has admitted.
- Details of people who made complaints against the Financial Conduct Authority were inadvertently published.
- The MGM hack exposed data of 10.6 million hotel guests. Celebrities including Justin Bieber were among those whose data was stolen, one report said.
- Dixons Carphone fined £500,000 for data breach.
- Sensitive US Army data was exposed online.

The common challenges of data governance include:

- Lack of data leadership especially among senior level leadership
- Lack of strategy/vision
- Understanding the business value of data governance
- End-user computing
- Pain caused by data
- Failing to define data governance
- Budgets and ownership
- Data ownership
- Roles and responsibilities
- Lack of data documentation
- Culture and skills
- Competing data ‘kingdoms’
- Lack of communication and education

This details of each of these challenges are elaborated here individually:

LACK OF DATA LEADERSHIP ESPECIALLY AMONG SENIOR LEVEL LEADERSHIP

Data leadership is a challenge facing many organisations. Organisations are slowly acknowledging the fact that they need people to be responsible for their data, beyond the technology required to leverage and protect the data. That is the reason why the position of the Chief Data Officer (CDO) is working its way up to the level of prominence reserved in the past for the CIO.

‘The challenge of Data Leadership goes beyond working with data appropriately. We must orchestrate the many data activities to maximise the impact to the business. In organisations where “the business” and IT are constantly at odds with one another, this is no simple feat.’¹

Data governance initiatives are inherently complex because they affect one of the organisation’s most critical assets: information. In addition, at their core lies a mandate for company-wide change. As a result, buy-in and enthusiasm are needed across the organisation, starting with executive leadership.

Companies with strong data-driven cultures tend to have top managers who set an expectation that decisions must be anchored in data — that this is normal, not novel or exceptional. They lead through example. At one retail bank, C-suite leaders together sift through the evidence from controlled market trials to decide on product launches. At a leading tech firm, senior executives spend 30 minutes at the start of meetings reading detailed summaries of proposals and their supporting facts, so that they can take evidence-based actions. These practices propagate downwards, as employees who want to be taken seriously have to communicate with senior leaders on their terms and in their language. The example

set by a few at the top can catalyse substantial shifts in company-wide norms.

What does one do when they are lacking a CDO (assuming that governance is a big part of the CDOs job) or have a CIO who is interested (or more adept) in directing technology efforts than in managing data and information? The first thing needed to help them with is providing an understanding the business value of data governance.²

UNDERSTANDING BUSINESS VALUE OF DATA GOVERNANCE

It is the wicked challenge of establishing governance structure before one fully understands into what one is really governing and why one is establishing data governance in the first place. For some reason, the industry is in love with ‘process’ and obsessed with where we sit on the organisational chart. We create Data Councils and populate them with senior management — before we know what these Councils need to do, where they should start and how they should operate. Nothing is worse than having high powered (and busy) executives all charged up about data — without a mature data governance mechanism and business operating model to help channel that commitment into action along with the business process integration. Table 1 shows the alignment of data governance to the business strategy / goal which is very critical for the success of data governance.

Investments in only the technology will do nothing to improve the quality and value of your present data. It will, however, highlight data deficiencies. Again, the data will not govern itself. The organisations acquire tools without documenting an overall business model for their usage, which leads to a scenario of multiple tools with overlapping capabilities and lack of interoperability and sharing. While it is true that a successful data governance programme is built upon

Table 1: Business Alignment of Data Governance

Business Goal	Data Governance Capabilities/Contributions
Increase revenue	Improve profitability with better analytics for improved decision-making
Manage costs and complexity	Lower cost of data management and integration through enterprise data source mapping and enterprise access to business data definitions
Manage risk	Provide better insights into fraud with improved analytics; improve quality of reporting to regulators and authorities through improved data processes and data management
Improve performance quality	Improve decision-making through use of trusted data; enable process optimisation with accurate data

careful planning and valuable insights from people in business operations — data governance tools are just as important as any other factor, if not more.

Data management is at its core a governance issue. Without the underlying mechanism to get people to both understand the data mandate and play nice in the operational sandbox — data management will never happen. It is essential that your data owners and data stewards (or at least a representative number of them) are involved in the initial implementation project. Often, they have not asked for this tool and they do not react well to having the tool forced upon them. It is vital that they are involved in the design stage, to make sure that it is set up in a way that is going to appeal to them and make them happy to use the new tool.

Before creating any governance structure, one needs to spend more time contemplating the ‘prime directive’ for data management. And the prime directive is straightforward and simple. It means to deliver to the end user, data that they have trust and confidence in and that is precisely what they expect it to be without the need for manual reconciliation and multiple transformations. This is the goal of data management. The real question is what is required to deliver against that directive. The answer to that question is not always self-evident. But the answer is

essential if one intends to use these executives correctly.

END-USER COMPUTING

This is the harsh reality of dealing with the problem of end-user computing. As we all know, our industry is very good at tactical repair and quite skilled at the art of work around. We have a problem with data, so we fix it at the applications level. And we do so because we have control over that domain. And while most executive managers know that it is smarter to fix data at the core system level, they do not have the governance mechanisms in place to make that happen. So, they do what they need to do, in order to get themselves back into the game.

Remember — the pressure on our industry is huge for delivery against short-term business objectives. It is the ‘quest for alpha’ and the need to deliver against the numbers that drive the firm. The ‘curse of the short view’ is truly a curse and it is also one that is embedded into the structural operations of the financial industry. It becomes ‘wicked’ when you look at the implications. And there is nothing more illustrative that the problem of end-user computing.

If hundreds of people are fixing data at the applications level — it quickly becomes an institutionalised problem. It becomes hard (if not impossible) to unravel because now the ‘work around’ is embedded. And

if you try to go back and fix the problem at the core system, you wind up breaking a lot of things that have been modified to fit the work around that these firms have implemented. It is this lack of a sustainable and empowered governance mechanism that results in tactical, end-of-chain fixes that have now become intractable — because of the interconnected nature of these applications.

Ours is a limited understanding of the true nature of the data manufacturing process and the reticence we have for underlying forensic analysis. If there is one thing that data governance should be created to accomplish — it is to fix the underlying root cause of the data problem. That means we have to understand the data manufacturing process. We have to understand the distinction between data attributes, calculation processes, risk aggregation methodologies and derived formulas. We have to understand where data originates and how it flows through systems. We have to embrace the reverse engineering process.

What is really at stake here is the challenge of understanding and getting buy-in to ‘foundational’ processes. This is the boring (but absolutely essential) stuff. This is about understanding the importance of core identification systems . . . and data ontology . . . and other building blocks of data management that we should not speak about in polite company. We all need to be in love with the concept of data content infrastructure. We need to embrace data lineage. We need to understand data DNA because this is all about management of the chain of data supply starting with the basic elements that make up the core building blocks of the financial information industry.

PAIN CAUSED BY DATA

Data governance must have a purpose. You must be able to quickly answer the question

as to the purpose of your data governance programme. This is a challenge for many organisations that can be addressed (at least somewhat) by the development of a Data Governance Purpose Statement.

Do any of these scenarios sound familiar to you?

I do not trust this data.

Why do I have two different values for the same metric on these two reports?

Where did this data come from?

Who owns data at our organisation?

How many different ways are there to calculate this metric at our organisation?

The return on investment that data governance can bring to your organisation is vast. Some benefits include:

- Accelerating management decisions involving multiple systems with centralised accountability, documented escalation process for issue resolution and improved information for management decisions
- Reducing duplication of data, number of system interfaces and manual data entry processes
- Increasing the accuracy and consistency of reports and dashboards leading to improved decisions, fewer expensive errors based on poor or inconsistent data and reduced rework from these errors
- Reducing compliance issues

If different parts of the business do not share a common vocabulary, you may have inconsistencies with your data even when reporting the same key performance indicator (KPI). Not only does this create a negative feedback loop of confusion and poor insights, it also makes it harder to launch a governance programme in the first place.

For example, multiple users may define their own ways of calculating important business metrics such as profitability and revenue. Even worse, these calculations are



Note: Multiple responses allowed
Data: UBM survey of 118 business technology professionals at organizations with 1,000 or more employees, November 2017

Figure 1 How do you define data governance?

being conducted in separate Excel spreadsheets that are disconnected from the organisation’s centralised information assets.

Because these files are not in sync with the company’s standardised processes or its single version of the truth, different departments would not be speaking the same language when they need to sit down at the table together.

A study by NewVantage Venture Partners states that 84 per cent of companies surveyed launched advanced analytics and Big Data initiatives to bring greater accuracy and accelerate their decision-making. Furthermore, Big Data delivers the most value to organisations as it decreases expenses by 49 per cent and creates new avenues for innovation and disruption by 44 per cent.

FAILING TO DEFINE DATA GOVERNANCE

We define data governance as the organising framework for aligning strategy, defining objectives and establishing

policies for enterprise information. What is really important is how you define data governance and how your organisation understands it. As nascent as it is, data governance has failed in more than one well-meaning company because people misinterpreted its meaning, its value and what shape data would eventually take in their companies. The various definitions of data governance, which are typically used in organisations, are being depicted through the survey in Figure 1.

We need to change the data governance definition ever so slightly to include the need to not shame failing, but to encourage a process of monitoring, identifying, fixing, communicating and learning. Discouraging a continuous improvement process will only harm the company. It can seriously affect trust in and use of potentially valuable data and, in effect, the company’s bottom line. Integrity is key not only in company’s data tools, but also its human data resources.

At the same time, the challenges presented subsequently are a good starting point for delivering practical and pragmatic best

"Data Governance is the exercise of authority and control (planning, monitoring, and enforcement) over the management of data assets."

(DAMA International)



"Data Governance is a quality control discipline for adding new rigor and discipline to the process of managing, using, improving and protecting organizational information."

(IBM Data Governance Council)



"Data Governance is a system of decision rights and accountabilities for information-related processes, executed according to agreed-upon models which describe who can take what actions with what information, and when, under what circumstances, using what methods."

(Data Governance Institute)



"Data Governance is the formal orchestration of people, processes, and technology to enable an organization to leverage data as an enterprise asset."

(MDM Institute)



Figure 2 Common Data Governance Definitions

practices that could put your programme at risk if not achieved.

The data governance definitions, which are commonly used in organisations, are articulated in the Figure 2 above. For this paper, we will follow the definition provided by DAMA International as it is widely followed for data governance.³

For this paper, we will follow the definition provided by DAMA International as it is widely followed for data governance. It is always a good thing to re-iterate that data governance has a definite monetary value. Proper and well-maintained data governance has significant impacts on the company's bottom line by:

- reducing the costs of data cleaning and increasing the productivity of your data scientists;
- reducing the spend on marketing due caused by incorrect attributions; and
- preventing decision-making processes caused by inaccurate insights;

ROLES AND RESPONSIBILITIES

It can be difficult to set roles and build accountability for data in an organisation

that is siloed and has never had a company-wide strategy before. Communication, or a lack thereof, can also stifle new processes succeeding.

Building data governance processes should include managing people, their roles in governance, their access to data and determining who is accountable for implementing and maintaining the strategy over time. It is now becoming more common for businesses to have a CDO, with data governance, being the mandate. The typical levels of people within a data governance organisation are given in the Figure 3.

Many organisations find the identification of the cross-functional roles to be the most difficult hurdle when developing the roles of their data governance programme. At the cross-business unit level, the silos of data are broken down and the data is shared and extracted across business units. Finding the appropriate people to fill the roles associated with decision-making for a specific subject matter of data is not easy. Sometimes, this role becomes defined through policy. At other times, this role is fulfilled at the highest level of the organisation. Then the role is taken over by someone

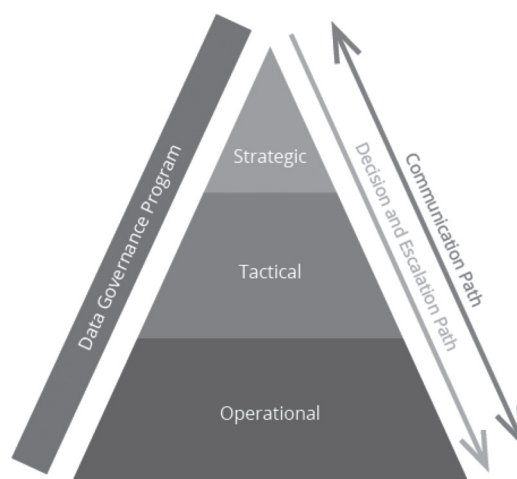


Figure 3 Data governance levels.

who volunteers to play the role of facilitator across business units and who has no decision-making authority.⁴

BUDGETS AND STAKEHOLDERS

It is often difficult to convince stakeholders in the organisation of the need for data governance programmes and to get budget. In addition, changes are often hindered by ingrained, but functioning processes, and deficiencies in information processing are compensated by not directly visible resources in business departments.

One of the challenges that most organisations face, focuses on a budget that is available and the identification of whose budget data governance will land. Some people believe that your governance programme will fail if it is budgeted (and therefore lands) under IT.

Sourcing the budget needed for an initial project is easier today than ever before because there are new regulations that justify it (eg the General Data Protection Regulation). It is, however, crucial that management also makes sufficient long-term resources available to finance all roles and functions required for robust data governance on an ongoing basis. This applies to

new positions, from data stewards to CDOs, as well as follow-up projects to further optimise data quality. The survey in Figure 4 articulates the sources of data governance budget.

DATA OWNERSHIP

Data governance has to be owned and paid for by somebody. If that somebody is IT, you will need to break the perception that IT ‘owns the data’. IT may ‘own’ the administration of data governance but there should be recognition that ‘the business’ must steward the data. The people who define, produce and use the data are all stewards if they are being held formally accountable for how they define, produce and use the data. A lot of these are business people.

There is a common belief in many organisations that IT owns the data and that business people are just users of the data. Let us make it clear that this premise is false. Although this has been the perception over the years, we as practitioners should take it as our mission to dispel this myth.

IT has a lot of responsibility around the data — but defining, producing and using the data are not included in those



Data: UBM survey of 118 business technology professionals at organizations with 1,000 or more employees, November 2017

Figure 4 Where does the budget for data governance come from?

responsibilities. IT, on its own, may have responsibility for making certain technology able to address the definition, production and use of data. But most practitioners will agree that business people should be responsible for working alongside IT to define data and data requirements, produce high-quality data and use data for operational and decision-making purposes. Therefore, data governance has to be owned and budgeted by somebody from business.

LACK OF DATA DOCUMENTATION

Data documentation is certainly a challenge. What is the 'right' amount of data documentation to require? What will people use that will make them utilise the data more efficiently and effectively? What will increase their level of understanding of the data that is available to them, how that data is defined, produced and how it can be used add value to the business? Ask anybody who effectively uses any source of data and they will tell you that their understanding of the data is what leads to its effective use. If an organisation

cannot afford to lose a specific employee because of the institutional knowledge he/she possesses, then that person is a single point of failure. Documenting that critical knowledge through a data governance programme can provide enterprise access to technical and institutional knowledge to keep the enterprise running smoothly and prevent the loss of vital, valuable intellectual property.

Metadata is a challenge for many organisations. Metadata can be defined as 'data about data' or as 'information stored in IT tools that improves both the business and technical understanding of data and data-related assets'. Consider that metadata itself has to be governed. Someone needs to be formally responsible for defining what metadata or data documentation needs to be collected. Someone also needs to be formally accountable for producing that metadata, and hopefully, somebody will be formally accountable for using the metadata. Data documentation is a challenge that must be addressed.

And then there is the detailed matter of metadata storage, getting the metadata in

order, metadata maintenance and meta-data access. This challenge relates to several others including the resources to apply and budgets and ownership.

COMPETING DATA ‘KINGDOMS’

As business functions experiment to solve unique business cases, they lean on purpose-built applications and data repositories that are complex and costly to integrate. And the adoption of technologies outside IT’s managed infrastructure contributes to silos, preventing enterprise-wide data integration. Silos are probable when large departments have big budgets that they are willing to spend on shadow IT. Large marketing departments are doing this for heavily data-driven business functions, such as digital marketing campaigns, customer analytics, and the massive data that comes from multichannel marketing.

In short, data silos cause wasted resources and inhibited productivity. There are two overarching situations that arise from data silos: multiple teams either store the same data or they store complementary, but separate, data. Data silos can result from several factors, including cultural: competition or animosity between departments, which can cause those employees to keep data from each other, rather than working together.

Data storage costs money. Letting different teams access the same dataset is much more efficient. If you are trying to find budget somewhere, this may be the first place you want to look.

On the other hand, a team may hold data that would be useful to another team were they able to access it. Network operations and security operations have different tools and interfaces they use to do their jobs. But there are many situations where one could use the other’s data to solve an issue more efficiently.

CULTURE AND SKILLS

The companies face cultural barriers to realising their data potential, including a struggle to escape from a status-quo mindset. Entrenched cultures and standard ways of working do not encourage leveraging or sharing data. NewVantage Partners found that 72 per cent of companies have not forged a data culture, and 69 per cent have not created a data-driven organisation, indicating that the organisational culture has not yet evolved to prioritise data in most companies. The last barrier is the difficulty associated with democratising data. While companies aspire to broad-based data access, tools and technologies are usually built for technical experts. The education and skills development required to turn everyone into a data expert lag behind the needs.

Changing entrenched organisational paradigms and behaviours is perhaps the biggest obstacle for any governance effort. Examples include a corporate culture that stresses consensus over clear accountability, the absence of decision-making protocols, individuals unaccustomed to making decisions or poor communication and planning. Common organisational constraints can derail governance before it begins. The survey in Figure 5 articulates the typical state of data culture and data usage within organisations.

LACK OF STRATEGY/VISION

The inability to access data affects companies in a variety of ways, many of which are minimised or go unnoticed. Companies have spent a huge amount of time and effort on mastering data management methods and other integration strategies in an attempt to eliminate silos. But business processes and data are evolving faster than these integration strategies can handle them. Many business

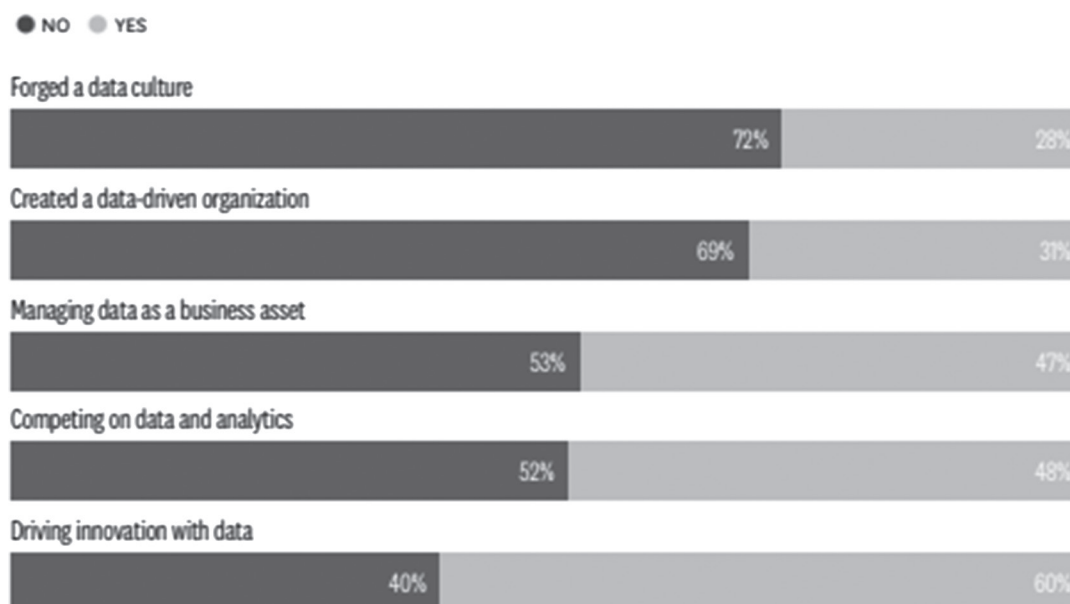


Figure 5 Not data driven — Most companies have not forged a data culture

processes were designed by humans many years ago, and they do not align with data processes.

A survey of 560 business executives by Harvard Business Review Analytic Services found that while 83 per cent of companies stress the importance of turning data into actionable insight, only 22 per cent feel their company is successful at doing this.

The idea behind developing a data strategy is to make sure all data resources are positioned in such a way that they can be used, shared and moved easily and efficiently. Data is no longer a byproduct of business processing — it is a critical asset that enables processing and decision-making. A data strategy helps by ensuring that data is managed and used like an asset. It provides a common set of goals and objectives across projects to ensure data is used both effectively and efficiently. A data strategy establishes common methods, practices and processes to manage, manipulate and share data across the enterprise in a repeatable manner.

Table 2, shows the key components of the data strategy with respect to different outlooks.

While data benefits now largely focus on cost efficiencies, companies that breakdown data barriers can develop a strong data strategy with both top- and bottom-line benefits. Top-performing companies — in terms of revenue, growth and agility — generate 10 per cent more of their total revenues from data, as compared with bottom performers, research from MIT found. Companies that remove the barriers have unprecedented visibility and can use that information to identify new products, pinpoint customer needs, improve security and find countless other opportunities. They are able to quickly move from action to insight, leveraging the orchestration and automation provided by new technologies like machine learning and artificial intelligence.

When companies commit to a data strategy aimed at overcoming data barriers, the insights that can come from new sources of

Table 2: The Elements of Data Strategy

	DEFENSE	OFFENSE
KEY OBJECTIVES	Ensure data security, privacy, integrity, quality, regulatory compliance and governance	Improve competitive position and profitability
CORE ACTIVITIES	Optimise data extraction, standardisation, storage and access	Optimise data analytics, modelling, visualisation, transformation and enrichment
DATA-MANAGEMENT ORIENTATION	Control	Flexibility

From ‘What’s Your Data Strategy?’ By Leandro Dallemule And Thomas H. Davenport, May–June 2017

data are surprising — and create a thirst for more. As the power of data becomes more obvious, so does the need to make access to it ubiquitous. Data-driven cultures look for new ways to share information, such as through augmented reality and virtual reality.⁵

The strength of the data strategy components is that they help you identify focused, tangible goals within each individual discipline area. Every company has a unique combination of skills and a different set of strengths and weaknesses. Moving forwards with a data strategy starts with identifying the strengths and weaknesses that exist within your data environment (within each component area) — and identifying an achievable and measurable set of goals that will improve data access and sharing. The components’ purpose is not to identify every potential activity within a data strategy; the components offer visibility into the different disciplines that contribute to a data strategy.

LACK OF COMMUNICATION AND TRAINING

A Communications Plan should be developed early in the life of the project to ensure that communication needs are

identified and plans are established to meet those needs. The Communications Plan identifies who needs information, what information they need, the frequency and vehicles for communication, and the parties responsible for providing, consolidating, and disseminating the information. By providing a structured plan, we ensure that each stakeholder gets what he or she needs when they need it.

The problem is that communication is often overlooked as key stakeholders focus their efforts on getting things done, this usually falls off their list of priorities.

New data management processes and procedures can be frustrating, and workers feel adrift. Setting up a data management mentorship, in a way that gels with the corporate culture, helps transfer good data management practices. If mentors have the time, they foster a positive mindset by listening to data management frustrations, validating them and reframing them more helpfully towards being data-driven.

Mentors also would support the technical side of a mentee, making data systems and solutions less intimidating. Thirdly, good mentors would identify data management successes and bring them to the forefront. This type of support would help foster a data-driven culture more quickly.

DATA GOVERNANCE COMPONENTS

Figure 6 shows the various components of data governance that need to be considered for successful implementation.

Goals

- To define, approve and communicate data strategies, policies, standards, architecture and metrics
- To track and enforce regulatory compliance and conformance to data policies, standards and procedures
- To sponsor, track and oversee the delivery of data management projects and services
- To manage and resolve data-related assets
- To understand and promote the value of data assets⁶

Scope

Identify and understand the data, systems and processes that need to work together to provide the needed data analytics to solve the problem. While we want to ‘start small’ so we can deliver useful results as quickly as possible, we want to do so in a way that, as more problems or issues are addressed, we build on a common framework that can scale up over time.

Application area describes the specific problem area or issue to be addressed. Ideally this will be a defined problem that is really important to the organisation, not just a ‘nice to have’ or ‘low hanging fruit’ type of application. We want to engage with key stakeholders early on. Focusing on an important problem or issue will

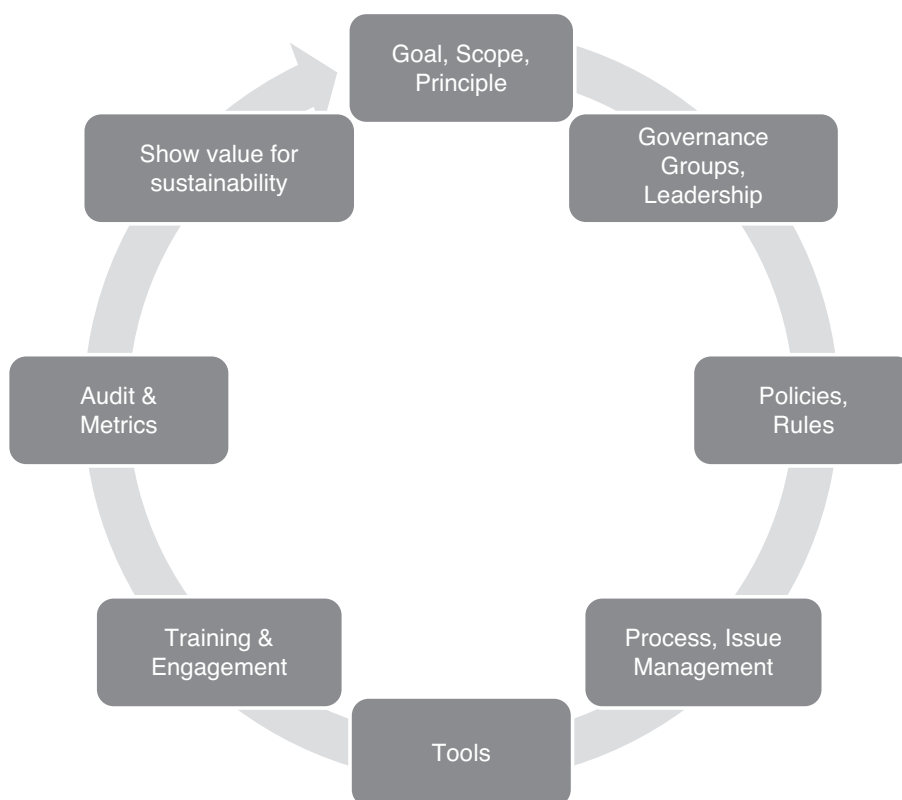


Figure 6 Components of Data Governance

help us to get and keep their attention and support.

Principle:

A principle is a rule or belief that governs behaviour and consists of:

Statement

A description of the principle to be adopted

Rationale

The reason(s) for adopting the principle

Implications

The conclusions drawn from the principle

Key actions

The key actions required by functions to ensure the principles are adopted within the organisation.

Here are some sample principles:

- The Enterprise, rather than any individual or business unit, owns all data.
- Every data source must have a defined custodian (a business role) responsible for the accuracy, integrity and security of those data.
- Wherever possible, data must be simple to enter and must accurately reflect the situation; it must
- also be in a useful, usable form for both input and output.
- Data should be collected only if it has known and documented uses and value.
- Data must be readily available to those with a legitimate business need.
- Processes for data capture, validation and processing should be automated wherever possible.
- Data must be entered only once.
- Processes that update a given data element must be standard across the information system.
- Data must be recorded as accurately and completely as possible, by the most informed source, as close as possible to their point of creation, and in an electronic form at the earliest opportunity.

- Where practical, data should be recorded in an auditable and traceable manner.
- The cost of data collection and sharing must be minimised.
- Data must be protected from unauthorised access and modification.
- Data must not be duplicated unless duplication is absolutely essential and has the approval of the data governance board

GOVERNANCE GROUPS AND LEADERSHIP

The given governance structure in Figure 7 depicts the relationship between various stakeholders within the data governance organisation.

Data stakeholders come from across the organisation. They include groups who create data, those who use data and those who set rules and requirements for data. Because data stakeholders affect and are affected by data-related decisions, they will have expectations that must be addressed by the data governance programme.

Some will expect to be included in some kinds of data-related decisions. Some will be expected to be consulted before decisions are formalised, and others will be satisfied to be informed of decisions after they are made.

Often, a subset of executive stakeholders will form a Data Governance Board to provide oversight to the programme, issue policies and resolve issues. Other times, governance oversight is provided by an existing organisational body, such as an IT Steering Committee or an executive team.

The Data Governance Office (DGO) facilitates and supports these governance activities. It collects metrics and success measures and reports on them to data stakeholders. Ten mistakes to avoid when launching your data governance programme.⁷

DATA STEWARDS

The Data Stewardship Council consists of a set of data stakeholders who come together

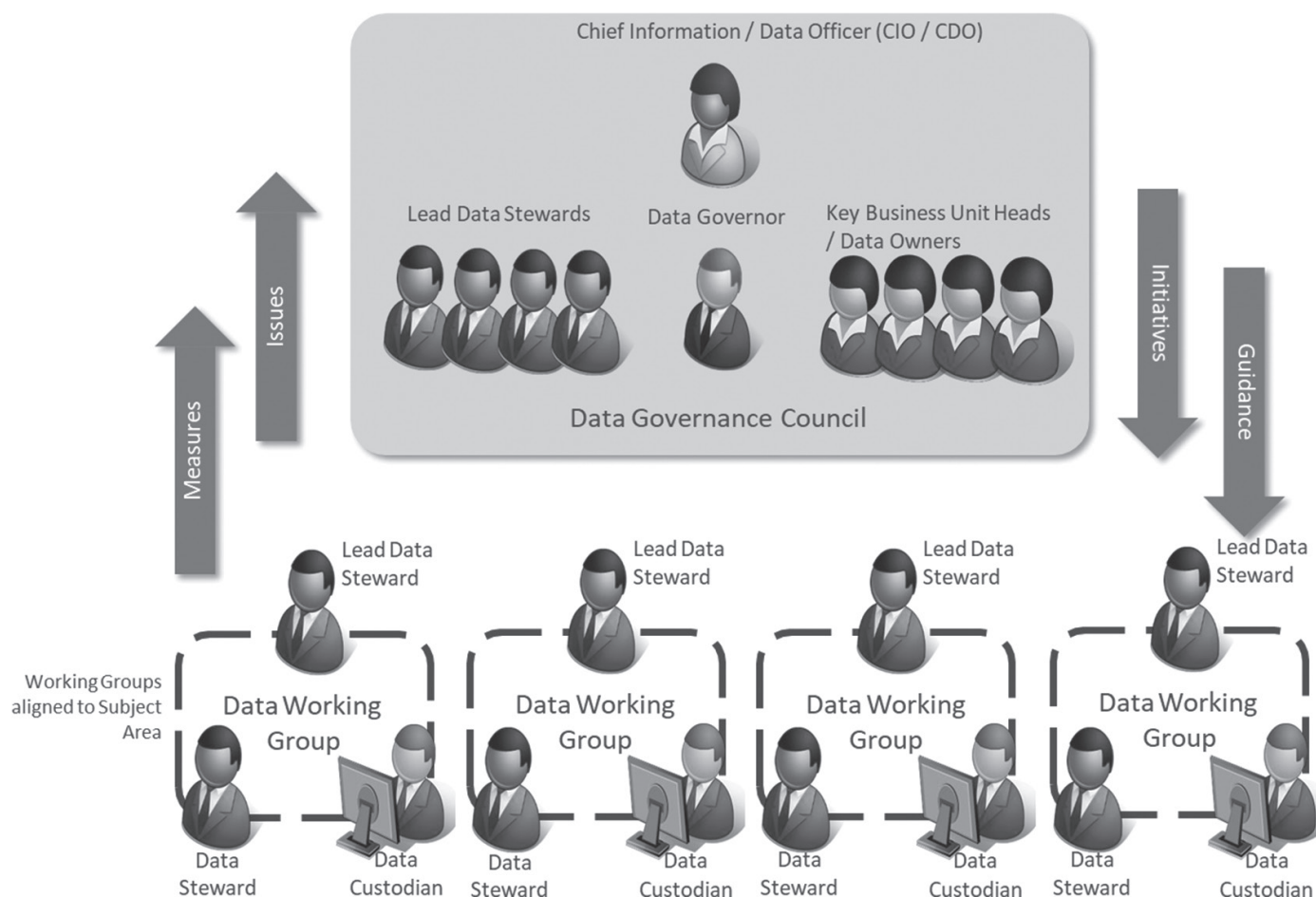


Figure 7 Typical governance structure

to make data-related decisions. They may set policy and specify standards, or they may craft recommendations that are acted on by a higher-level Data Governance Board.

Sometimes — especially for large organisations — a single level of stewards is inadequate. In this case, a hierarchy of stewards may exist. With large or small organisations, the Data Stewardship Council may break out into teams or working groups that address specific data issues or decisions.

Data governance programmes with a focus on data quality may also include data quality stewards. These roles typically report to a business function or data quality team, with dotted-line accountabilities to

data governance. These stewards examine sets of data against criteria for completeness, correctness and integrity. They make corrections as appropriate and refer other issues to the DGO.

Data Policies

The description and nature of data policies are given below along with examples:⁸

- These are statements of intent and fundamental rules governing the creation, acquisition, integrity, security, quality and use of data and information.
- Policies are more fundamental, global and business critical than data standards.

- Policies describe what to do and what not to do.
- There should be few data policies stated briefly and directly.

Possible topics for data policies

- Data modelling and other data development activities
- Development and use of data architecture
- Data quality expectations, roles and responsibilities
- Data security, including confidentiality classification policies, intellectual property policies, personal data privacy policies, general data access and usage policies and data access by external parties
- Database recovery and data retention
- Access and use of externally sourced data
- Sharing data internally and externally
- Data warehousing and business intelligence
- Unstructured data — electronic files and physical records

Processes

- Business processes are the primary means of executing business strategies and policies. They are the specific operations, methods, tasks and actions that convert inputs into a product or service.
- Every organisation can be decomposed into processes because processes comprise the day-to-day operations of the business and how it manages assets and affairs

The following are processes that define data management in service to a data governance initiative.

BUSINESS GLOSSARY

The business glossary captures business and technical definitions, establishing relationships and defining process workflow.

DATA CATALOG

The data catalog integrates datasets from various sources and provides access to all

underlying metadata for easy entry to enterprise data.

DATA LINEAGE

Data lineage is a way to track data from its origin to destination across processes. Managed metadata captures enterprise data flow and presents data lineage.

DATA MAPPING

Data mapping refers to the mapping of source-to-target columns with the associated transformations. Natural language mappings can be automated to discover and document data movement and automatically generate code components across multiple platforms to deploy data movement.

DATA QUALITY

Data quality is the automated data validation, data remediation, monitoring of data rules and discovery and mapping of sensitive data for compliance audit standards.

ISSUE MANAGEMENT

- Data governance assists in identifying, managing and resolving data-related issues, such as:
 - Data quality issues
 - Data naming and definition conflicts
 - Business rule conflicts and clarifications
 - Data security, privacy and confidentiality issues
 - Regulatory noncompliance issues
 - Nonconformance issues (policies, standards, architecture and procedures)
 - Conflicting policies, standards, architecture and procedures
 - Conflicting stakeholder interests in data and information
 - Organisational and cultural change management issues
 - Issues regarding data governance procedures and decision rights
 - Negotiation and review of data sharing agreements

- Data governance implements issue controls and procedures, such as:
 - Identifying, capturing, logging and updating issues
 - Tracking the status of issues
 - Documenting stakeholder viewpoints and resolution alternatives
 - Ensuring objective, neutral discussions where all viewpoints are heard
 - Escalating issues to higher levels of authority
 - Determining, documenting and communicating issue resolutions
- Reference data management control procedures
- Match/merge and data cleansing standards and procedures
- Business intelligence standards and procedures
- Enterprise content management standards and procedures, including use of enterprise taxonomies, support for legal discovery and document and e-mail retention, electronic signatures, report formatting standards and report distribution approaches

DATA STANDARDS AND PROCEDURES

Data standards and procedures include naming standards, requirement specification standards, data modelling standards, database design standards, architecture standards and procedural standards for each data management function. They must be effectively communicated, monitored, enforced and periodically re-evaluated.

Data management procedures are the methods, techniques and steps followed to accomplish a specific activity or task.

Possible topics for data standards and procedures include:

- Data modelling and architecture standards, including data naming conventions, definition standards, standard domains and standard abbreviations
- Standard business and technical metadata to be captured, maintained and integrated
- Data model management guidelines and procedures
- Metadata integration and usage procedures
- Standards for database recovery and business continuity, database performance, data retention and external data acquisition
- Data security standards and procedures
- Tailored data governance policy is essential. No data governance policy can suit all organisations. Decision-makers, data experts and members from business operations need to work together and tailor a data governance policy that meets data requirements of that particular organisation.
- Organisations believe that human error is a major cause of data inaccuracies, which makes the participation of all departments crucial for the success of these policies. Some of the important factors that dictate data governance decisions are:
 - Internal functionality requirements
 - Data collection methods.
 - Quality and size of data
 - Business goals
 - Data storage framework
 - Extent of automation

Tools

As data and its applications have become crucial for organisations, the importance of data governance tools to safeguard the integrity of data assets has increased.

While it is true that a successful data governance programme is built upon careful planning and valuable insights from people in business operations — data governance tools are just as important as any other factor, if not more.

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Organisations believe that human error is a major cause of data inaccuracies, which makes the participation of all departments crucial for the success of these policies. Some of the important factors that dictate data governance decisions are:

- Internal functionality requirements
- Data collection methods.
- Quality and size of data
- Business goals
- Data storage framework
- Extent of automation

The first step of creating a data governance policy tailored to the organisation is designing the framework for various data operations depending upon functionalities needed and analytical capabilities.

Once the framework is decided upon, the decision-makers and various stakeholders need to get on the same page. This can be achieved only if the framework is beneficial and drives value for the different cross-functional partners.

Once the broad goals of the data governance policy are finalised, one needs to start looking for data governance tools that suit the framework and data operations.

Education

We need to understand concepts like data manufacturing and the role others play in the management of the information chain of supply. Education is critical. Data stewards need to be educated about business requirements (although the author maintains that it is easier to teach business people about data than it is to teach data people about business). Business needs to understand the data production process.

AUDIT AND METRICS

Managing expectations from a data governance programme takes effort which can be significantly minimised by using quantifiable KPIs and metrics. Governance goals such as 'effective use of business intelligence tools' or 'improved business-IT collaborations' are difficult to quantify and unlikely to result in a long-term data governance programme.

Examples of Business and IT Metrics

Given subsequently are examples of common governance metrics for financial services firms. This list is not comprehensive but provides a preview into business and IT metrics spread across topics. Financial

institutions should adopt metrics that are relevant to the required drivers and planned IT initiatives.

• Acceptability and Compliance

Measures — ways to directly evaluate and measure the level of adoption of: (a) enterprise data standards; (b) enterprise data management and data governance programmes and (c) performance of the business data stewards and the stewardship teams. Examples of acceptability and compliance measures could include:

- Percentage of applications that are actively governed through the data governance programme, master data management, meta data management, data quality management
- Percentage of business departments actively involved in data governance, master data management, metadata management, data quality management
- Percentage of applications aligned to the Enterprise Data Model (EDM)
- Number of data attributes defined, in business and technical meta data, by entity, by subject area, and approved by the Data Governance Committee
- Number of business rules established by functional area or subject area or other criterion, and approved by the Data Governance Committee
- Number of subject areas modelled for the EDM (fully attributed) and approved by the Data Governance Committee and EDM Council
- Number of policies written by the IG programme team and approved by company leadership
- Number of EDM-related standards written/revised/accepted and approved by Data Governance Committee
- Percentage of logged data stewardship problems resolved by month, quarter and annually

- Number of people trained as business data stewards by month, quarter and annually
- Number of people who participate actively as business data stewards

It is essential that these metrics resonate with the business leadership, so the final measurements should be approved by the executive sponsors for the data governance programme.

SHOWING THE VALUE FOR SUSTAINABILITY OF DATA GOVERNANCE

After the initial effort, stakeholders and business sponsors often struggle to show the value of sustained data governance programmes as ongoing cost-benefits and return on investment can be difficult to quantify. While regulatory and compliance needs are compelling reasons to sustain a data governance programme, other data governance drivers may be lower priority for the enterprise and result in reduced budgets and waning stakeholder interest.

Enforcement for data governance initiatives must come from the top of the organisation. To be effective, data governance should, however, become part of organisational processes, not add a new level of bureaucracy to information management. As part of designing the governance programme, together business and IT should take the following steps:

- Decide on data governance goals based on defined business drivers.
- Obtain buy-in with executive sponsors, business and IT stakeholders, and other relevant parties.
- Define a data management strategy and operationalisation plan that is aligned to business goals.
- Clearly define accountabilities and responsibilities.

- Infuse and instil governance into existing development life cycle processes. Data governance should be embedded in a financial institution's DNA, not a separate process.
- Develop a measurable, metrics-based ongoing feedback and improvement programme.
- Establish a reward-based feedback process for both business and IT.

Business value measures are ways to attribute business value to:

- a) implementation of the information governance programmes;
- b) data standardisation; and
- c) improved data management discipline across the enterprise and in projects.

The examples of business value measures could include

- Increase in revenue due to ability to manage customers/members properly as a result of the management of master data according to industry standards with a defined master data management architecture and integration with all relevant applications.
- Decrease in production costs due to the reduction in the need for continued questions on the definition of data, the continued searches for analytical data and the sources of operational data of high quality, the reduction in the time to market for new applications as a result of consistent data architecture, consistent meta data management, consistent data governance.
- Improved productivity due to the use of consistently applied data and information governance for all mission-critical data, the ability to rely on analytical data for its high quality, the ability to respond quickly to time to market

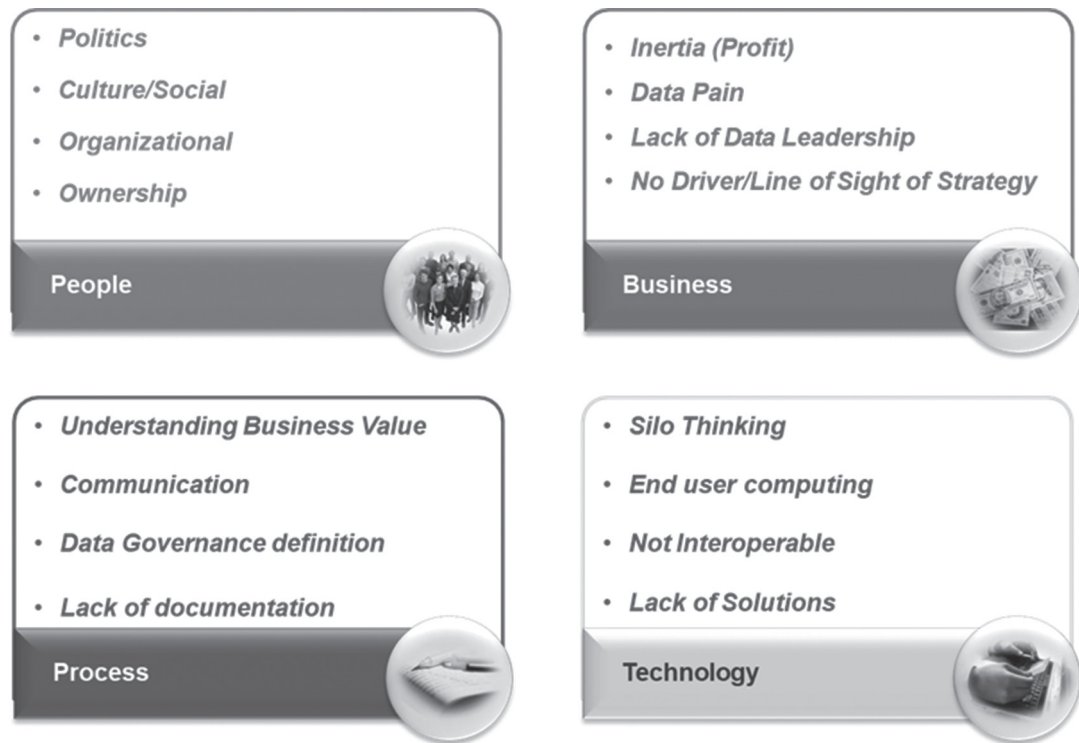


Figure 8 Summary of data governance challenges

decision-making due to higher quality data and information from data quality improvement.

- Increased profit due to faster and more accurate decisions made with correct and more available data and information; more ability to use a wider variety of data that has been organised according to established standards.

SUMMARY

The summary of the challenges and the data governance components are given subsequently along with the following inferences:

Challenges

The diagram in Figure 8 consolidates all the typical challenges faced by the

organisations in implementing data governance.

Inferences

One size does not fit all:

Need to have a flexible approach to data governance that delivers maximum business value from its data asset.

Data governance can drive massive benefit:

Needs reuse of data, common models, consistent understanding, data quality and shared master and reference data.

A matrix approach is needed :

Different parts of the organisation and data types will need to be driven from different directions.

And central organisation is required:

To drive data governance adoption, implement corporate repositories and establish corporate standards.

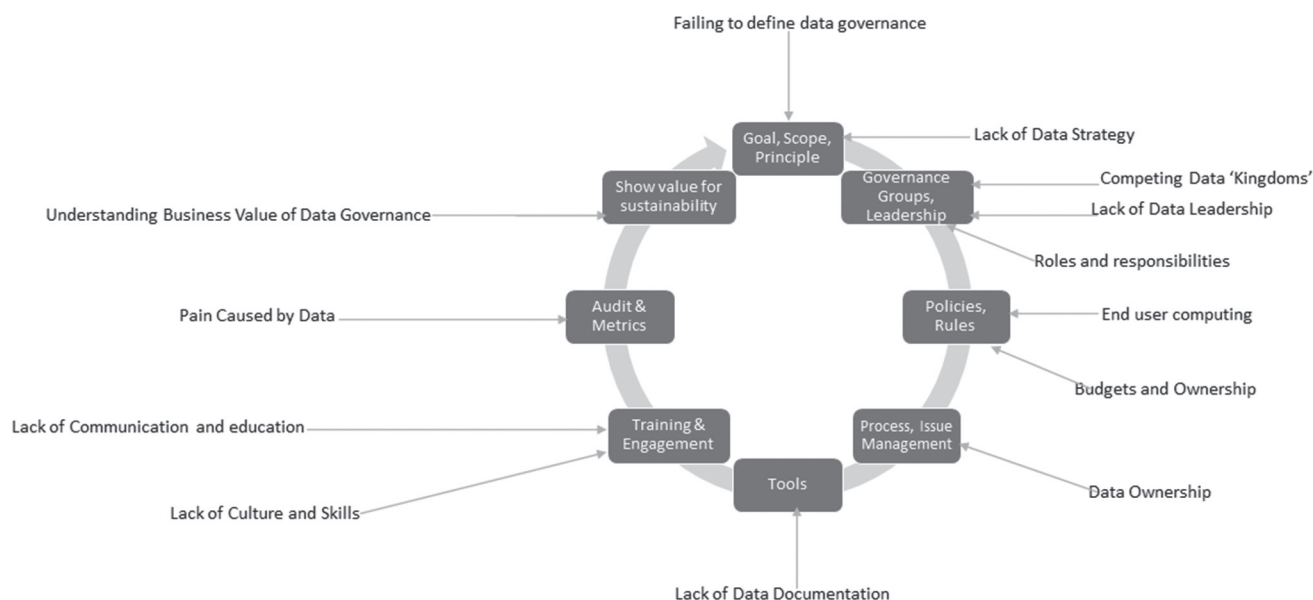


Figure 9 Challenges with respect to data governance components

The diagram (Figure 9) above summarises the relationship of the data governance components with the challenges.

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