Data Governance: A Business Value-Driven Approach

A White Paper

by Dr Walid el Abed
CEO

Global Data Excellence
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Executive Summary

Successful organizations come in all shapes in sizes. One characteristic common among these companies is a focus on capturing their full potential by maximizing customer service while optimizing business process execution. They recognize that customer service and business processes depend on “fit for purpose” data. They are like more and more companies today – benefiting from their investment in high-quality enterprise data.

In contrast, organizations who do not pay appropriate attention to data quality end up with delayed invoicing, slow cash collection processes, inefficient sales and marketing and reduced confidence in reporting and decision making. This in turn will impact customer service and customer trust.

What can you do now? Start by measuring how bad your data is – perform a data quality audit. Link the resulting metrics to business impact i.e. how much cost are you incurring due to low quality data. Calculate the business value you could generate with high quality data. You will be more than pleasantly surprised.

Take rapid action by immediately focusing on the most critical operational issues. Demand improvement within the next three months. Build on early successes and change the culture to “first time right”. Sustain the momentum. Define the critical business rules which rely on high quality data to execute. Measure the efficiency of core processes by the quality of the data. Assign data ownership within each business unit, application environment and enterprise business process. Hold the owners accountable. The right people are already within the organization – there are no major additional headcount costs. Collaborate with IT. Enjoy the results. This is true data governance. Data governance is not a “nice to have” initiative but a real value add and risk management program.

Only those organizations with an effective data strategy embedded within the business strategy will be able to turn data into a real competitive advantage, deliver short and longer term value and ensure business success and sustainability.
Introduction

Volumes of data continue to increase as organizations grow organically and through acquisition. More and more silos of data are being created within departments and business units. As new channels to market are opened, the result is the sharing of data with new partners outside the firewall. The cloud is a more recent example of enterprise data being entered into systems owned or controlled by third parties. Data fragmentation results in lower quality data as data standards are more difficult to enforce. As processes are integrated, departmental silos are merged, exposing data quality issues often for the first time. These data quality issues result in project and business process failures, lack of adoption of new applications and loss of confidence in enterprise data.

Business modernization programs typically focus on process standardization to gain the benefits of efficient repeatable, measurable processes. Enterprise resource planning (ERP) technologies fulfill the process standardization requirements and have now become a central point for management of business processes. However, ERP systems do not prevent low quality data from entering the systems nor do they measure its impact on the efficiency of a business process. Most organizations today are using the same ERP systems (SAP or Oracle) that were configured by the same consultancies. Therefore, the uniqueness and the scope for competitive advantage of any organization are defined by the people and the data.

Master data management (MDM) may be part of the longer term solution; However, MDM will not deliver short-term value. The challenge is in the time paradox where the priority of the business is to run operations and address the critical business issues to deliver immediate value while an MDM project, in contrast, is a strategic initiative focused on delivering longer-term value. How can we combine the near and far?

Only an economically focused, non-invasive and progressive approach, taking the short and long term business objectives into consideration, will be accepted and executed by the business. The objective of this white paper is to present a proven, executable framework that enables an effective and sustainable data governance strategy, delivering immediate business value and supports longer-term sustainable process improvement.

Barriers to Overcome

High quality data is needed to capture the full potential of the enterprise and deliver all the benefits of ERP systems, customer relationship management (CRM) and business intelligence (BI) initiatives, compliance and data warehousing solutions. Conversely, low quality data causes transactions, processes and projects to fail, leading to increased costs, additional risks, reduced confidence in enterprise data and potential business losses. ERP systems are often seen as the solution to data quality and data governance given their centralized role in capturing and maintaining data. However, ERP systems were never designed to manage data quality. And not all enterprise data resides in ERP systems. In fact, the responsibility for data quality often rests with data governance or data management teams who act in an advisory capacity only, report to IT and have very little power or influence over budgets and the quality of business data. For any large organization, the budget and resources allocated to an ERP system are typically exhausted on the acquisition and implementation of the application software. Less attention is given to sustainable data quality processes across the enterprise.
Although budget owning managers understand that high-quality data leads to improved process efficiency and increased confidence, there is often no understanding of:

- How to justify the cost or value of data stewards
- The process or roles focused on managing data as an asset
- The business impact and value generation potential of a data quality team

As a result, most organizations are struggling to build data quality initiatives causing the implementation and ongoing management of data quality processes to fail. In turn, this leads to underutilization and lack of confidence in the ERP system (in this example).

The Data Excellence Maturity Model

The data excellence maturity model referred to in this white paper tracks an organization’s progress from the early stages of data governance — described here as “chaotic” — to the most mature stages where data is utilized as a core enterprise asset — described as “predictive”. The maturity model is often used to understand the right projects and initiatives to introduce the concepts and methodologies of a data excellence framework. The business purpose of the data excellence maturity model is to position an organization in terms of its ability to generate business value from enterprise data.

Figure 1 depicts the data excellence maturity model.

The business purpose of the data excellence maturity model is to position an organization in terms of its ability to generate business value from enterprise data.

The time it takes for a large organization to progress through the incremental stages is related to the level of misalignment that is often observed between data governance program objectives and business objectives. The data excellence framework supports a “near and far” approach, thus delivering immediate value while subscribing to the long-term business vision.
The Data Excellence Framework

The data excellence framework describes the methodology, processes and roles required to generate business value while improving business processes using data quality and business rules. The framework supports the creation of a new cultural shift focused on data excellence, motivating the broader team and supporting collaboration between the stakeholders. The framework takes into consideration that the solution, although simple to articulate, is complex with many dimensions. Therefore, it is critical to focus on culture as a key to a sustainable solution. A key difference about the data excellence framework is that it is focused on generating value in comparison to most initiatives relating to data which are only focused on reducing costs.

The data excellence framework is based on four value pillars that we believe are essential to the survival of any organization or enterprise in the information age: agility, trust, intelligence and transparency. These characteristics are fundamental value pillars to enable business sustainability and support economical growth. Today, more than ever, data quality and data governance are keys to global sustainability.

Figure 2 depicts the four value pillars.

Organizations looking to value their data as an enterprise asset must change their culture and change how data is managed. Data is not owned by individuals – it is owned by the enterprise to support the business goals of the organization. The organization needs to define and staff data steward roles that will take accountability and responsibility for the enterprise business rules and data values. Figure 3 shows how to cultivate enterprise data as a company asset and illustrates the mindset and behavioral shift required to move towards business excellence sustainability.
The Data Quality Dimensions

By defining a framework of data quality dimensions, such as uniqueness, completeness, accuracy, non-obsolescence and consistency, data quality can be measured and monitored. Data quality can be linked to a business process by identifying and measuring the quality of data and its compliance with core business rules critical for that process to succeed.

Table 1 depicts the definition of the six data quality dimensions:

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uniqueness</td>
<td>The uniqueness dimension is the collection of business rules that allows the identification in a deterministic way of an entity, a relationship or an event instance within a specific context to execute a specific business process.</td>
</tr>
<tr>
<td>Completeness</td>
<td>The completeness dimension is the collection of the business rules that verify that the data required for a successful execution of a process in a specific domain and context are present in the database.</td>
</tr>
<tr>
<td>Accuracy</td>
<td>The accuracy dimension is a collection of business rules that ensures that the data reflects a real-world view within a context and a specific process.</td>
</tr>
<tr>
<td>Non-obsolescence</td>
<td>The non-obsolescence dimension is a collection of business rules that bring the data required to execute a specific process in a specific context current and up to date.</td>
</tr>
<tr>
<td>Consistency</td>
<td>The consistency dimension is a collection of business rules required to ensure that “first-time right” data values are delivered across all the databases and systems for the execution of a specific business process in a specific context.</td>
</tr>
<tr>
<td>Timeliness</td>
<td>The timeliness dimension is a collection of business rules that enable first-time right delivery of data required to enable flawless execution of business processes and fulfilling the service level agreements.</td>
</tr>
</tbody>
</table>

Table 1. The data quality dimensions

In summary, the six data quality dimensions enable a more precise view of the quality of the data used for the execution of a business process or transaction.
Data Governance by Business Rules

The data excellence framework defines business rules as “a set of rules with which the data should comply in order to execute business processes properly.” For each data object (e.g. customer, supplier, bank, material, asset, location, etc.) and for each data quality dimension, a specific set of business rules should be identified, documented and managed. The data object must always be contextualized and linked to the business process during the definition of any business rule related to it. It is important to adopt a practical approach to data quality and to focus on a smaller set of critical business rules rather than seeking 100 percent data quality, which may never be achieved or required. An optimal level of data quality needs to be targeted in order to maximize the business value and avoid delays. The set of business rules supporting data quality grows over time as part of the process of continuous improvement.

Figure 4 illustrates an anecdotal example of how a business rule links to business impact and business value.

Examples of some common business rules are as follows:

- A customer order record must have a non-obsolete product code (SKU)
- A customer record must have a current credit score for an order to be processed
- A customer record must have a valid date of birth for the record to be included in marketing campaigns where age is a requirement
- Email address must be populated to be included in internet marketing campaigns
- Contract start date must be before date of birth to validate consistency of the contract start date
- All bank records must have the ISO country code in the 5th and 6th digits of the SWIFT code to validate the SWIFT code
- Currency code must be consistent with country code to validate consistency of the currency code and the country code
As the framework is applied, each business rule needs to be assigned an owner to identify the individual responsible for ensuring the rule is correct and enforced. Figure 5 shows some additional business rules examples. Each one of the business rules must be linked to the appropriate business transactions in order to evaluate and quantify a tangible business value or risk.

<table>
<thead>
<tr>
<th>Responsible</th>
<th>Business Rule</th>
<th>Main Impact</th>
<th>Business Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finance</td>
<td>Released material cost completeness</td>
<td>Blocks invoicing (products); blocks orders (raw materials)</td>
<td>Faster cash collection Faster in production</td>
</tr>
<tr>
<td></td>
<td>Material controlling assignment accuracy</td>
<td>Wrong cost allocation and reporting</td>
<td>Trust of analysis and improved decision</td>
</tr>
<tr>
<td>Supply Chain</td>
<td>Commodity codes accuracy</td>
<td>Blocks shipments, fines</td>
<td>Avoid legal costs (also customers)</td>
</tr>
<tr>
<td></td>
<td>First Time Right materials introduction completeness</td>
<td>Cost of rework</td>
<td>Improved resource allocation</td>
</tr>
<tr>
<td></td>
<td>Inventories on inactive or obsolete materials</td>
<td>Inventory waste</td>
<td>Lower fixed assets</td>
</tr>
<tr>
<td>Purchasing</td>
<td>Raw material data accuracy</td>
<td>Blocks production planning</td>
<td>Faster in production</td>
</tr>
<tr>
<td>Sales</td>
<td>Product pricing consistency</td>
<td>Wrong price to customer</td>
<td>Less customer claims</td>
</tr>
<tr>
<td>Compliance</td>
<td>Conformity of product &amp; country of sales combination</td>
<td>Fines, company image</td>
<td>Authority trust on Company practice</td>
</tr>
<tr>
<td>Safety</td>
<td>Allergen data completeness</td>
<td>Consumer’s life threatening</td>
<td>Consumer’s trust on company brand</td>
</tr>
</tbody>
</table>

Figure 5. Business rules examples

The Data Quality Key Value Indicators

Key value indicators (KVIs) are a key deliverable of the data excellence framework. A KVI is a measurement of the percentage of records which successfully executed the business rules plus a list of the records which have violated the business rules. A KVI is the basis for calculating business impact and the value generated.

The calculation is made in a unique way where each record can only impact the index once per violation of any business rule. This allows the KVI to measure the health of the organization from a data quality perspective, similar to measuring the health of the body by taking into account the different parts that make up the whole (e.g. arms, legs, head and torso).

Figures 6 and 7 depict two examples.
The KVIs measure the quality of data content as well as the time-related data delivery and data management processes enabling the execution of business processes and transactions. The primary focus is to monitor and enable the prompt delivery of the right data content and foster the “first time right” business culture.

**Sustainable Data Excellence**

Successful and sustainable data governance cannot be achieved without common processes across the enterprise. Common practices and methodologies promote the execution of continuous improvement processes. These methodologies focus on root cause analysis in order to fix the origin of the problem and improve the business process. Your focus should be on fixing the issues highlighted by the KVI that will impact the delivery of short-term value, and then move to the root cause analysis to improve business processes and implement data pollution prevention processes.

The continuous data excellence process is meant to help the enterprise accelerate a methodology shift and achieve data and business excellence through five distinct steps shown in Figure 8.
The Data Excellence Governance Model

A guiding principle for successful acceptance and implementation of data governance programs is to avoid substantial increases in headcount and leverage the current tools and infrastructure. The approach should be progressive and non-invasive, empowering a culture of focusing on priorities. For an organization to move towards valuing their data as an enterprise asset, they need to evolve the culture and change how data is managed. Data is not owned by individuals – it is owned by the enterprise to support the business goals of the organization. The organization needs to define data steward roles who take accountability and responsibility for business rules and data related to them. Specifically, data stewards are named individuals at each organizational level and geography who take responsibility for:

- Business rules and KVI s
- Data quality levels
- Data corrections

The following roles are defined:

- Data steward: A business person responsible for a set of business rules for the enterprise who drives the data excellence processes e.g. Data steward reporting to the CFO, who has defined a business rule related to finance.
- Data accountable: A high authority business person accountable to a business line for the application of business rules and related KVI targets e.g. a CFO.
- Data responsible: A business or data management person responsible for individual source data records for each business rule e.g. the person responsible to define the spend categories for the purchasing department.

The governance model is supported by a data excellence group and enabled by the data excellence framework. The data excellence group will be in charge of facilitating the data excellence processes within the organization, coaching the stewards and maintaining the knowledge and the stewards’ network.

Figure 10 depicts the data governance model.

Figure 9. The data governance model
The Technological Platform

It is important to have the “big picture” vision of a technological platform that supports the data excellence journey from the chaotic to the predictive stages. Keep in mind that its implementation should be introduced incrementally to support the execution and implementation strategy of the framework. The introduction of each component should be aligned with the business objectives in the overall roadmap of the data excellence program. Therefore, don’t expect the implementation of the complete platform to happen in one attempt, because the organization may not be ready and it would be difficult to justify the investment.

Figure 11 depicts a comprehensive data excellence business technology platform vision.

The four pillars (agility, trust, intelligence and transparency) support the most common business imperatives that C-level executives are funding today. Agility is needed to react to external and internal changes and ensure prompt and successful integration that supports fast business transformations through process harmonization, acquisitions, mergers divestitures and reorganization. Trust is associated with the integrity of the data (e.g. the labels on food must be correct – otherwise trust in the brand is lost). If a financial product promises an incorrect return, the buyers will no longer trust the brand. Intelligence at all levels of the enterprise leads to better execution, operational efficiency and accurate financial consolidation based on just-in-time quality data from the reporting systems and applications (global and operational). Finally the benefits of transparency are only recently emerging as critical to organization’s performance – it is required to increase visibility and collaboration across and outside the firewall. The enterprise social responsibility will be enabled by the ability to share data internally within the enterprise and externally with business partners. This will result in new ways of working and will lead to lowering the cost of using the data.
Figure 12 shows a simplified view of a data excellence platform. Over time, a comprehensive data integration platform will become a requirement – including access to data, cleansing, transformation, loading and delivery. Data cleansing must be able to be performed in batch and in real time. The data associated with business processes needs to be loaded into a database and KVIS calculated.
Conclusions

This comprehensive data excellence framework focuses on generating business value from enterprise data. The approach described in this white paper is proven, pragmatic and easy to implement. The execution of this framework delivers tangible business value faster, facilitates collaboration between different functions and aligns with a long-term sustainable business excellence vision. This approach puts the business transaction at the centre of data quality and data governance, whereas the traditional data governance models focus on governing the master data. Data governance is a method to deliver business value – it serves no higher purpose.