

How to Successfully Create Data Governance

Grant Thornton LLP

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Why Data Must be Governed and Managed

Data *is* a corporate asset. It has the ability to inform decisions, thus reducing uncertainty in any business. It affects behavior. In the commercial sector, it can even have its own value and be bought and sold on the open market - the primary revenue for Dun and Bradstreet, for example, is generated by selling its accumulated data on businesses. Like any other asset, mismanagement, inconsistent management, or corruption by quality problems can depreciate the value of data and could even have further negative consequences (*e.g.*, incorrect decisions, cost deficiencies, regulatory non-compliance, mission failure, loss of agility, loss of readiness) that can create ripple effects across the organization.

So if data is an asset that needs care to maintain its value, why is it not always treated like other assets? Perhaps the answer lies in the unusual characteristics that define data, as listed in the figure below.



Figure 1. Data has an unusual set of characteristics

These unique characteristics make data a non-traditional asset whose value is only obtained when additional steps are taken. As such, it tends to defy traditional asset management techniques. So when organizations have scarce resources they can use towards maintaining their portfolio of assets, they tend to apply those resources against more tangible assets for which problems are easily detected and whose maintenance is well understood. As an example, more people can grasp the costs and benefits associated with upgrading server capacity and network speed than they can with scrubbing their customer data for old or bad data.

The problem with leaving data alone and hoping for the best, however, is that data permeates and supports nearly every aspect of an organization, and thus can affect the value of every other asset. Think about an organization with multiple claims processing centers. The center in the Southeast reports that they have a claim backlog that exceeds the acceptable standard by a factor of 100. The organization shifts manpower to the Southeast center and the other centers take all incoming claims for the week so that Southeast's backlog doesn't grow with new claims. But what if 50 percent of the reported claim backlog at Southeast has been processed, but simply has not been reported as such? The organization has impacted operations in all other centers as they have received all incoming claims, thus taking them beyond their operational capacity. Manpower resources have been physically deployed to the Southeast center, yet the Southeast center has slack capacity based on their standard workforce as they haven't received any new claims for a week.

In this case, data effectively has controlled other assets, and not in a good way. Consequently, strong data management and the disciplined remediation of poor data reporting can fix problems with and improve the management of other assets and programs throughout an entire organization. We call this approach Enterprise Data Management (EDM or simply, data management), which facilitates greater levels of efficiency and effectiveness with all things data.

A key element of data management is data governance. For example, an agency can create enterprise data standards and policies, but to be effective, those standards and policies must actually be exercised when the organization decides to use their data in any way (*i.e.*, developing an IT system, exposing the data outside the organization, or analyzing operational efficiency). This requires enforcement through data governance, which is really the rules of engagement for all things data, and is enacted by one or more 'councils' responsible for managing and maintaining the 'rules'.

Similarly, an organization can model data management for an entity (*i.e.*, a person, place, or thing that is of core interest to the agency and for which data is captured), but to be effective, data governance needs to provide a clear definition of the entity (*eg*, what is a place of business?) on which every area of the organization can agree. Furthermore, data management cannot be successful without defining data quality rules that *govern* the data to prevent problems inherent with matching and consolidating data entities. And those data quality rules need to be published so that they are accessible to anyone that uses the data.



It should be obvious that data governance and data management are completely intertwined, so much that when an organization commits to performing one, they also need to commit to the other. This is where many organizations fail, because they treat each activity as if they were separate tasks that are optional in nature. Based on our experience building and implementing data oriented solutions, there are three success factors that should guide any data governance (and data management) effort.

Critical Success Factors

1. ***Data supports the business, so the business must drive:*** Data governance and data management both need to be directed completely by the needs of the business, not the changing landscape of technology. There are a number of drivers, such as mission, legislative/regulatory environment, culture, and internal/external needs that serve as the guiding principles for data governance and data management.

Organizations often become obsessed with the latest technology trends (*eg*, big data, cloud) and try to use them before they have an understanding of how they work or their business value. More problematically, employing sophisticated technology tools before an organization begins to get sophisticated in their management and governance of data is a recipe for wasted spend. The old adage of focusing on the newest hammer technology, but not knowing if the organization really needs nails or screws resonates in these instances.

Business users convey their needs in business terms, not IT-based solutions (i.e., “we need big data” or “we need an in-memory database”). A line-of-business director is apt to say, “we need a sense of the general public’s perception of food safety at any given time and to compare that perception to what it was one year ago” or “we have customers on the phone with our account representatives, so we need to be able to pull their entire ordering history and suggested future purchases in less than one second.” These statements get away from how a solution might be implemented and actually convey the stated business needs.

The important point is that the **business needs** drive what technologies get used.

By creating **Data Governance** and Enterprise Data Management that is business centric, the infrastructure built is relevant to how the organization uses the data.

2. **Data governance oversees all elements of data management:** So if business users are integral to data management, they need to have a strong and ongoing voice in the process. Those voices need to be heard by technologists so they know what to do. The voices need to carry weight so the organizational leaders can prioritize what they hear and authorize the expenditure of organizational resources to respond to business users’ needs.

This doesn’t happen on its own. Data governance is the ordered approach for creating, monitoring, and changing all policies, procedures, and assets related to data. Data governance cannot be automated, through technology, but rather is executed by a Data Governance Council (DGC), through which all data management activities are managed and controlled. The DGC is an empowered group of representatives from around the organization that make decisions regarding data and exercise the processes that govern data usage. In our experience, successful DGCs derive their membership from four areas of the organization, as depicted in the figure below.



Figure 2. The DGC represents three types of staff and is supported by contractors

3. **Data governance and management is an iterative and evolving process:** If you try to build an all-encompassing solution at once, you will be doing far too much work without

showing results, and this is why many data endeavors fail, crushed by the weight of what they are attempting.

Rather, we take a page from the Agile software development methodology playbook. Such an approach allows us to structure the effort as an iterative set of steps. Each step adds a “vertical slice” of data capabilities - just enough data governance, data management, data quality, etc. to address a single area of the business that adds value to users. For example, Commerce may decide that the most important business driver is to get control over weather data usage in the private sector research community. In this instance the first vertical slice would establish control over the data concept associated with this set of business processes.

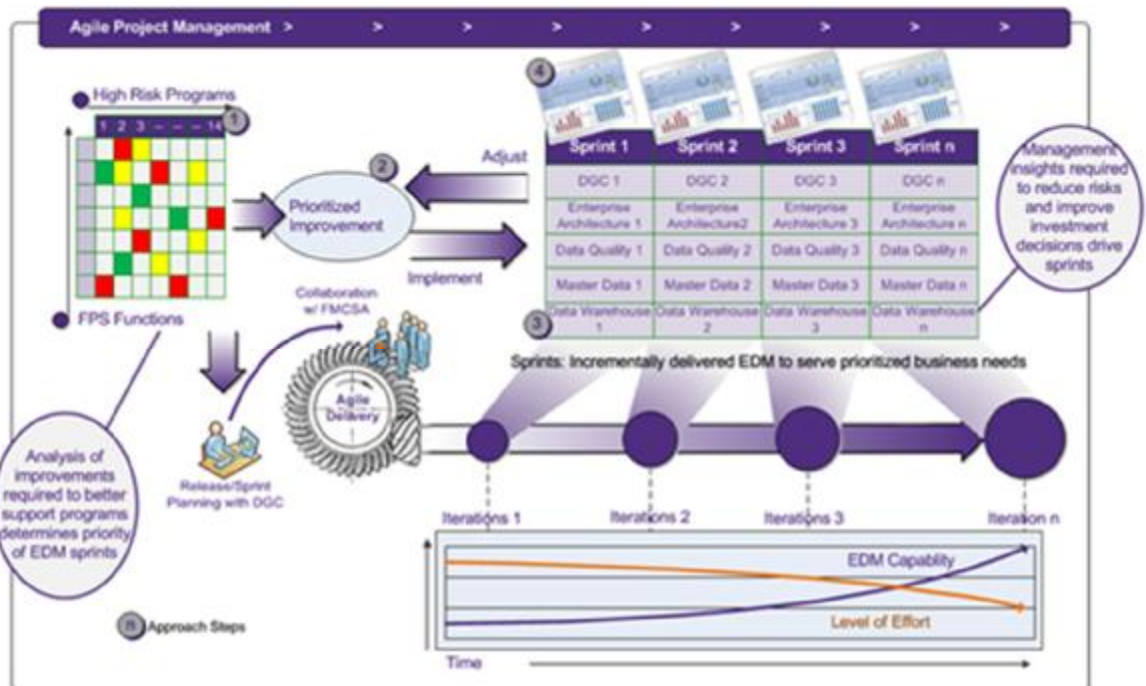


Figure 3. Business-centric iterations of Data Management evolve the EDM approach over time

This type of approach is considered a ‘business process centered’ model and is the quickest means by which value can be extracted from data governance and management efforts. Many organizations make the mistake of managing their data according to an application or the data itself. In the former, the focus narrowly aligns with application specific business rules that were established for a single application. Alternatively, a data centric governance approach is challenged as all requirements become equal, making it difficult to discern which have priority.

A business process centric approach aligns IT with the business reality such that the Line of Business executives will “get it.” This approach will yield the shortest time to value as the activities support specific mission outcomes. In other words, using a *business process* centric approach makes explicit the connection between data governance and mission performance measures. A further benefit is that the data governance is seen

Grant Thornton's current work in support of Department of Commerce's Business Application Solutions takes the approach of designing a data warehouse based on the **data needs** and reporting requirements of **Commerce's administrative areas** (i.e., a 'business view').

as an enabler of standardized mission processes and operations, which is a ‘win’ for everyone in the organization.

What is Data Governance?

Data governance is the structured means by which collaboration occurs to establish policies for data usage and procedures for changing usage, management, and ownership. As stated previously, we view data governance as the means by which all other data management tasks are managed and controlled. When instituted and mature, data governance will become the driving force of coordinated data management practices and activities for all things data.



Figure 4. Data Governance Overview

More specifically, data governance is the collection of people, process, and technology that results in data policies, stewardship, and compliance; as illustrated in Figure 4. The elements of data governance comprise the lifecycle and touch-points for data usage. These elements are ‘exercised’ at multiple levels of the organizational structure, an example of which is below.

	Data Governance Council Responsibilities
Executive Data Governance Steering Committee	Provide executive sponsorship, final decision authority, monitor and apply oversight to data efforts through the established policies and standards, and represent LOBs
Policy and Working Committees	Establish policies and compliance strategies for data governance elements based on a business focus
Technical Team (including Data Stewards)	Evaluate and ‘own’ data governance elements through activities such as: evaluating data quality against targets, assessing data completeness in support of requests, reconciling information management requirements against data standards

Select members of the four constituent groups identified in figure 2 generally fill the above roles.

How to stand-up Data Governance

Data governance should be built iteratively as it can collapse under its own weight if attempts are made to implement all at once. We have found that standing up data governance programs using an iterative approach allows a holistic solution to be developed one step at a time. Such an approach fosters ownership and commitment by its members, something unattainable by executive edict alone. A common problem with data governance in industry is longevity - it is difficult to maintain interest by its members over the long term as often governance is entirely top-down (*i.e.*, management edict) or bottom-up (*i.e.*, grassroots) focused. The former approach generally fails because governance duties are side duties bestowed to participants, who delegate the responsibilities to people who have no decision-

making authority or requisite knowledge. The bottom-up approach often fails because those who have the interest do not have the power to enforce effective governance. We have found a hybrid approach to be effective, engaging those who have a passion for the data and business process, then empowering those people to speak for the organization's data.

Our experience has shown that starting with the governance structure and a subset of data governance elements that can be loosely categorized as data architecture provides the most efficient jump-start to create a data governance program. In fact, many of the data architecture tasks are used in developing a data strategy, as discussed in the next section. Initially establishing the data governance foundation and data architecture components will lay the groundwork for the entirety of an enterprise's data management. The following table outlines the initial steps.

For the Transportation Security Administration, Grant Thornton designed, built, and supported a system that standardized their operations by using canonical data elements collected at all US airports, streamlined the data collection processes, and ultimately saved \$310M over the first five years.

Note: The data standardization work performed at TSA is a key element of **Enterprise Data Management** and was supported by a robust **Data Governance effort** used throughout the engagement. Use of a canonical approach is a best practice that Grant Thornton has applied on a number of engagements, including not only TSA, but the Department of Commerce.

Data Governance Structure Tasks
Establish and Evolve Enterprise-Wide Data Governance Program
Stand-up Governance Communications
Create Data Governance Artifacts
Develop, Collect, and Report Data Governance Program Metrics
Data Architecture Tasks
Develop/Revise Data Standards and Related Collateral
Develop/Revise Enterprise Data Management Capability Measurement Program
Collaborate on Data Architecture Initiatives
Develop/Revise Conceptual Models and Mappings

Developing a Data Strategy

An organization's data strategy should be aligned with the organization's mission strategy. To start developing a data strategy, an organization will need to assess its mission strategy and determine the key data areas that are critical to achieving its mission. This will provide a more defined overall scope and prioritize critical starting points for the data governance and management effort. For example, if a key mission objectives is to advance the understanding and prediction of changes in the environment through partnerships with other scientific and commercial organizations, then the corresponding data strategy could include the improvement of data sharing and collaboration pertaining to greenhouse gases, global land and water temperatures, and critical weather events with the user community.

Once the domains of data concepts required to support mission strategy are identified, definitions and standards for the data within those domains need to be documented and managed. As stated in previous sections, data cannot exist in a vacuum or without context. For example, the figure for average air temperature cannot be interpreted and used properly without knowing where and how the temperature was recorded and the exact parameters and algorithm used to calculate the average

amount. The data context, such as units, scale, or precision, must be defined and documented, and is called Metadata.

In addition to the data standards and definitions, data management capabilities should be assessed against the business strategy to identify gaps and define a remediation roadmap. This is usually accomplished with the development of a data management capabilities maturity model that documents the current state and identifies the desired target state. The roadmap to get from current state to the target state will prepare the organization with a path towards implementing the technical infrastructure required to properly manage and publish their data.

In building a business intelligence reporting solution for Lennox International, Grant Thornton began by developing a **strategy** for the business's usage of data. The **Data Strategy** formed the basis for Grant Thornton to then create a **Data Governance and Enterprise Data Management structure**. From these foundational elements, Grant Thornton was able to successfully develop the business intelligence system using an agile approach.

To summarize, data governance creates the policies for managing the data. These policies along with the mission strategy drives the data standards definition process and determines the required data capabilities. All of this together describes the data strategy that is the foundation required for an organization to effectively publish and leverage its data as an asset.



Figure 4. Foundational Components of a Data Strategy

About Grant Thornton LLP

Grant Thornton is one of the six global firms that provide full spectrum information technology (IT), audit, tax, and management consulting services. Founded in 1924, Grant Thornton is a stable firm, has 35,000 employees in 113 countries, and recognizes annual revenues in excess of \$4.2 billion. For hundreds of commercial and public sector customers, Grant Thornton provides all of the services needed to successfully support data efforts, as depicted in the figure below.

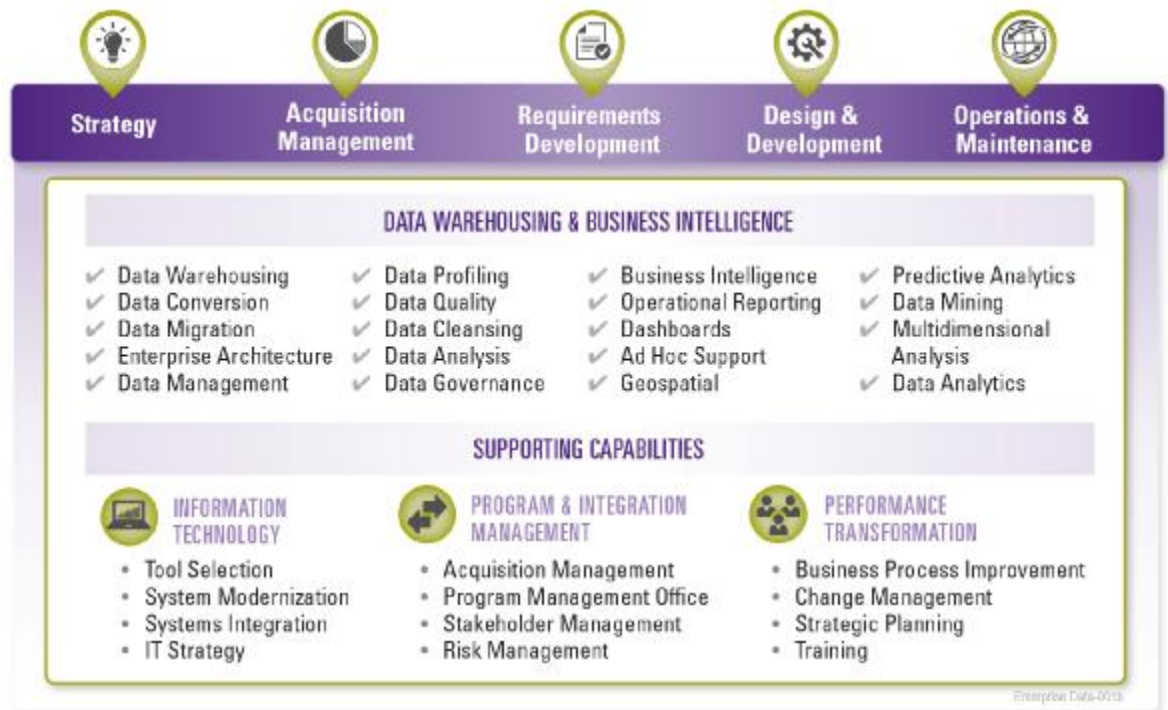


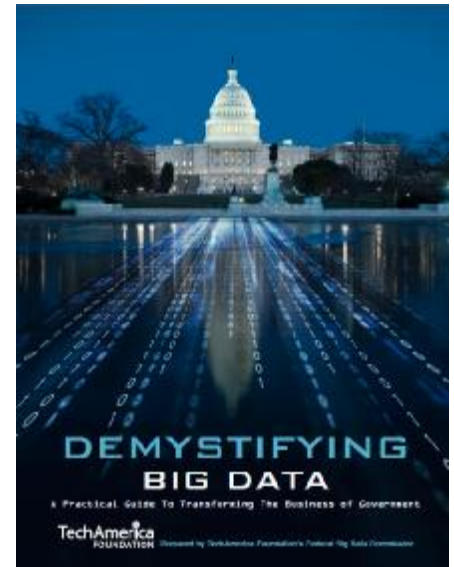
Figure 5. Grant Thornton provides all of the services needed for successful EDM

We are leaders in the enterprise data management space. Our staff members are leaders in providing data management, data warehousing, business intelligence (BI), financial, and performance management solutions. Our leadership is evident in many ways:

- Our data management solutions do not simply solve problems—they are of an award-winning caliber. For example, several of our solutions have won the Government Computer News Top Project in Government, the National Press Club award, The Data Warehouse Institute (TDWI) 2010 Best Practices Award, finalist status for “Best Practices in Business Intelligence” by Computerworld, finalist status in The Data Warehouse Institute (TDWI) 2009 Best Practices, Cognos Public Sector Partner of the Year, Cognos Project of the Year, finalist for the Harvard Innovation Award, and the Scotty Campbell Excellence in Government award.

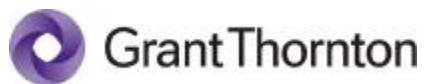


- While we remain technology agnostic in our recommendations, we partner with the major software vendors in this space (eg, Oracle, Informatica, SAS, SAP, Performant, River Logic). This allows us direct access to their tool experts and strategic direction.
- We are partners with the TechAmerica Foundation, with which we conduct jointly an annual survey of public sector CIOs to determine trends and best practices from Federal IT leaders. We also collaborate on special tasks, such as the *Commission on the Leadership Opportunity in U.S. Deployment of the Cloud*, the *Commission on Government Technology Opportunity for the 21st Century*, and *Demystifying Big Data*, each of which provided recommendations and best practices for improving the way the Federal government purchases and implements IT systems within these rapidly changing areas of interest.
- We are active leaders (eg, Chairman of the Board), participants, and presenters in relevant organizations such as the Consortium of Advanced Management International, The Data Warehousing Institute, Association of Government Accountants, Informatica Mid-Atlantic Users Group, Oracle Users Group, e-Gov, and the Potomac Forum.



We have the vision to take a data management solution at any level of maturity to any desired level of maturity. We view these types of solutions not in terms of technology, but as a set of strategies, processes, technology, and people-focused initiatives that are integrated in a planned, focus way to integrate data from disparate systems and transform that data into information that decision-makers can use to improve performance.

Our agile approach, which incorporates all four critical success factors for EDM, works. Grant Thornton has implemented hundreds of referenceable EDM solutions for a variety of customers that want to build a proof-of-concept quickly, generate internal support, and iteratively build out their solution to incorporate an increasing greater number of capabilities.



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