



NASCIO
Governance
Series



Data Governance Part III: Frameworks – Structure for Organizing Complexity

Introduction

NASCIO has presented previous research briefs that introduce the subject of data governance, and emphasize the importance of managing data and information assets as *enterprise assets*. Maturity models were presented that help describe the journey state government must anticipate and plan.

This research brief presents the concept of frameworks that will describe what constitutes a data governance program. The focus will be on frameworks from the Data Management Association (DAMA), the Data Governance Institute (DGI), and IBM.

In general, frameworks assist in *describing major concepts and their interrelationships*. Frameworks assist in *organizing the complexity of a subject*. Frameworks *facilitate communications and discussion*. All of these descriptors apply as well to *frameworks related to data governance*. Additionally, data governance frameworks assist in demonstrating how data governance relates to other aspects of data management, data architecture, and enterprise architecture.

Use of frameworks can assist state government in planning and executing on an effective data governance initiative. They assist in achieving completeness in a program. In any subject or discipline

frameworks *and maturity models* assist in describing the scope—both breadth and depth—of an initiative. This holds true as well for data, information and knowledge management.

The Challenge

The challenge in state government is a history of state agencies operating fairly autonomously regarding processes and investment related to managing information. In the decades of this history, strategic intent, processes, organization, information management, infrastructure, technology, training, incentives and operations have been developed in a *highly decentralized manner* to meet the needs of state agencies independent of one another. As state government pursues an *enterprise perspective* in managing its data and information assets, it will recognize a disparity in data maturity levels within the various lines of business, subject areas, knowledge bases, and even applications. The emphasis in this series has been on state wide initiatives. However, it is important and prudent for state government to look for examples, best practices, standards, and processes that are currently working effectively within state agencies. This look must include evaluation of missteps and false starts that can provide valuable lessons so previous mistakes are not repeated. An inspection of *what's*

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*Enterprise Information Management (EIM): An operational commitment to define, secure, maintain and improve the integrity and efficiency of information assets across business boundaries, thus achieving key objectives of an organization's enterprise information architecture strategy.*²
Gartner

already there can provide valuable input into the state wide data governance programs.

There has been progress in gaining an *enterprise perspective* over the past decade. Ten years ago a request for criminal history information would most likely have met with a different response than it would today. Today, the relevance of criminal history information to hiring decisions, education credentialing and custody decision making is well understood. State government is designing and implementing collaborative information exchanges that entail all government lines of business that historically did not share information. Further discussion of the issues of information sharing is presented in the NASCIO report "Perspectives - Government Information Sharing: Calls to Action."¹

Examples of collaborative information exchange partners include: justice and homeland security; justice and public health; justice and environmental; transportation and environmental; corrections and healthcare providers. The recognition of cross line of business collaborative information exchanges has created new demand and opportunities for more effective government decision making. It has also brought to light the disparity in data terms, definitions, and implementations. Now state government must develop its capability for managing *enterprise* data and information and that is where the disciplines of data and knowledge management become relevant.

Organizations in all sectors have recognized the necessity of viewing information as an enterprise asset as demonstrated by the advent of *Enterprise Information Management (EIM)* initiatives.

Previous development of point solutions and "silos of information" have created a highly diversified portfolio of processes, data assets, and technologies across state government. Today, it is recognized that state agencies can benefit decidedly from working collaboratively. Such collaboration then demands the capability to share information easily and quickly. However,

due to the vast complexities created by a history of independence, the greatest barrier to collaborative work relationships is the inability to easily share information across agency boundaries. As new circumstances arrive that were never anticipated, the ability for state government to *work as a single enterprise* in meeting these new circumstances is greatly hindered. These circumstances were created during an era when collaboration was not promoted and was even discouraged. Now state government is seriously challenged in its efforts to treat data and information assets as *enterprise assets*. Before state government can truly harvest the benefits of shared services, SOA, or cloud computing, it must understand and properly manage its data/information.

State governments are desperately seeking ways to begin to manage their information assets actively. The questions are myriad, but primary is the question of how to get started. NASCIO's series on governance is intended to provide that guidance. First is the recognition that there is required governance or oversight that must be established which recognizes the decision rights of all stakeholders. This has been described in the introductory research brief.³

Second is developing an understanding regarding the journey that must be anticipated to achieve a mature data governance capability. That journey was presented in the second in these series.⁴

Now begins a process of examining the building blocks of data and information management. These include the concepts, organization, and process that comprise information management or data management. Anticipating the need for collaboration, common subject areas that are shared across state agencies will eventually have to be identified.

Need for a Business Outcome

As an example of a subject area, states have selected PERSON and all the various subtypes related to it as an obvious candidate for establishing a common, shared subject area. Another example is PLACE. These subject areas are excellent starting subjects for establishing commonality of description and representation across state government data architecture. If agencies can agree and share this information, great gains can be achieved for creating a single state government face toward the citizen.

Embarking on large enterprise wide initiatives has not proven successful historically. A better approach is to begin with a focus area or business outcome that is being sought within state government. In the process of meeting that business need, parallel ongoing activity can be undertaken to build the enterprise-wide data governance capability.

As an example of this kind of focus, some states have pursued data governance initiatives related to education. State government is interested to know if primary education is properly preparing elementary students for intermediate, junior high and high school. Are high school programs adequately preparing students for college programs? Are college programs adequate for the demands of the 21st Century economy? How effective is the teaching / training process? These critical questions form the focus area and help describe the business outcome that drives a need for establishing the necessary data and information management to continually evaluate the process of education. *Effective management of information* can provide the basis for understanding that can then lead to the necessary strategic decision making to ensure *changes and transformations* are *initiated and orchestrated* within the processes and systems of education. *Proper data governance* is necessary to guide and sustain *effective management of information*.

The demand for data and information to enable effective state government decision making forms the basis for ongoing development of business intelligence capabilities. Such capabilities are required to truly understand the problems, challenges, successes, and requirements of education at all levels. With proper intelligence, analysis, and decision making, the educational process can be continually improved to present relevant, effective training and education outcomes. Further, assumptions can be evaluated and either validated or corrected.

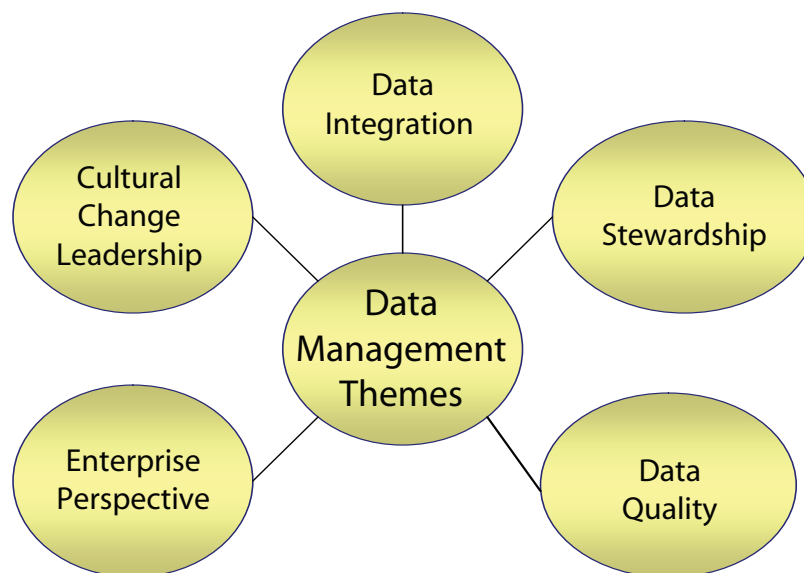
As was presented regarding data governance maturity models, there are also a variety of frameworks that deserve reference. Each one brings valuable perspectives and dimensions to state government data governance and data management programs.

The Data Management Association (DAMA) framework presents how data governance drives other functions that comprise an enterprise data management initiative. The Data Governance Institute (DGI) Framework provides an overarching process for establishing and sustaining a data governance initiative. The IBM Data Governance Model has an inherent framework for data governance which was presented in NASCIO's research brief on data governance maturity models. This framework presents an emphasis on the relationships among the major groupings of data governance elements.

The Data Management Association International - DAMA

DAMA published the Data Management Body of Knowledge (DMBOK) in 2009. This is the culmination of years of work, and contributions from an international community of data management professionals representing all sectors of the global economy. This framework is very relevant to NASCIO's presentation of governance. The DMBOK goes beyond strictly data governance to dovetail into

FIGURE 1: DMBOK Themes



the functions and processes for comprehensive data management. As presented in earlier NASCIO research briefs, “data management” is the prevailing term. However, DAMA has made it clear that the discipline of data management is broad enough to include data, information and knowledge. It is expected that over time more organizational emphasis will be given to the importance of managing data, information and knowledge assets. The DMBOK will be a valuable resource for state government as it pursues more actively managing these assets. It provides detailed contextual diagrams, descriptions, diagrams, and a storehouse of references for each of the 10 functions that comprise the DAMA Data Management Framework.

The goals of the DMBOK are focused on data and knowledge management:

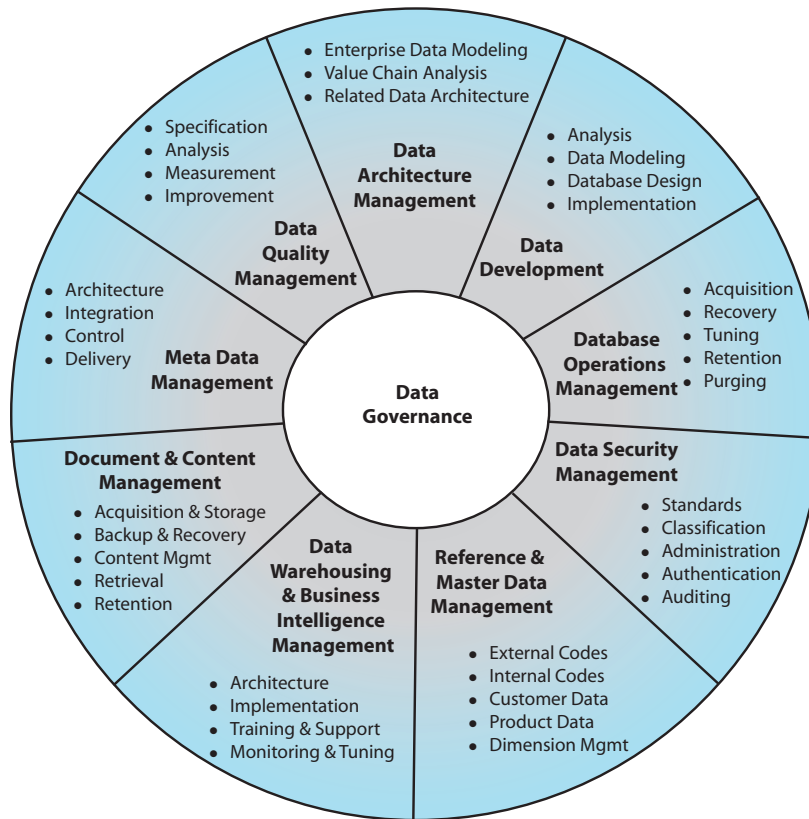
- Build consensus
- Provide standard definitions
- Identify guiding principles
- Provide an overview of commonly accepted good practices
- Identify common issues
- Clarify scope and boundaries
- Provide a guide to other related resources

The recurring themes of the DMBOK are described in Figure 1.

The DAMA framework is really a set of two frameworks that encompass data management: a functional framework and an environmental element framework. The center cell in the functional framework describes governance. The placement of this cell describes the overarching role of data governance—it literally touches every aspect of data / information management. Inspection of the DAMA functional framework reveals the components of data management that must be addressed in a data management operating discipline. DAMA published the Data Management Body of Knowledge (DMBOK)⁵ which provides a description and context diagram for each of the 10 functions depicted. The DAMA framework has changed somewhat over time. It is expected that it will continue to change as data and information management continues to mature.

The DAMA Functional and Environmental Element frameworks are described in detail in the Data Management Body of Knowledge (DMBOK). The two component frameworks are meant to work together. The core framework is the blue circle—

FIGURE 2: DAMA Functional Framework



Data quality must be considered integral to any IT environment.
- Gartner

Data Management Functions. Each function within the blue circle is comprised of the associated elements from the framework of Environmental Elements. DAMA created a two dimensional worksheet that demonstrates the interaction. For each function, the various environmental elements must be defined. The worksheet will be unique for each enterprise and reflect specific organization, culture, and focus for that enterprise.

The implied sequence in the framework of data management functions is to begin with Data Governance, advance to Data Architecture at 12:00 and move around clockwise to Data Quality Management at 11:00. Most noteworthy is the importance of starting with data governance. All other functions are subordinate to that function. Further inspection of the Data Governance function will make it clear why that function should drive the others. It is within that function that the intent of an enterprise data governance program is

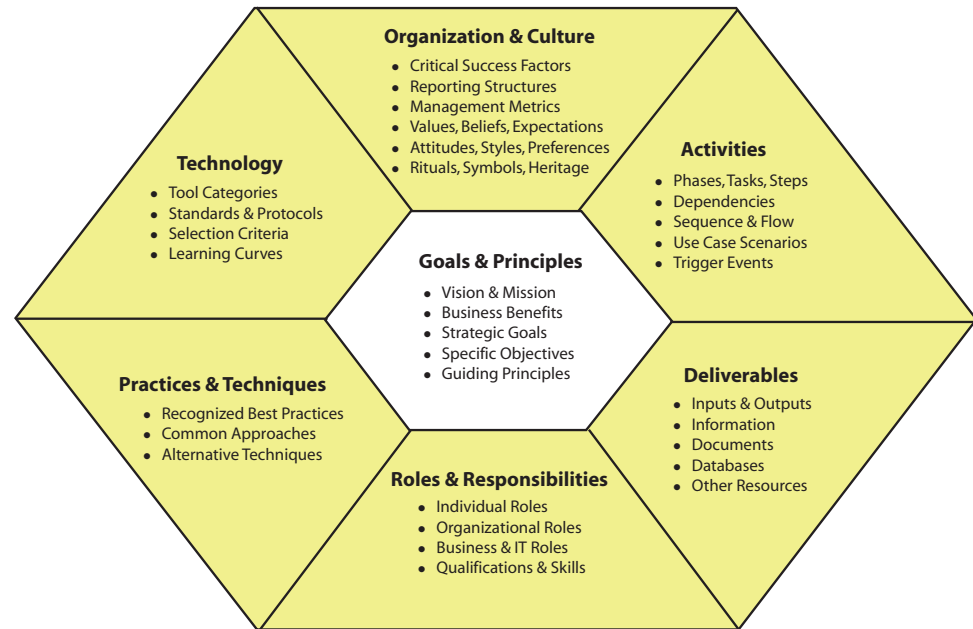
established. That governance includes:

- Strategic business intent – Business Goals and Objectives
- Strategic intent of data management
- Organization
- Policies
- Performance metrics

This approach is consistent with the NASCIO Enterprise Architecture Value Chain which begins with understanding and developing the environmental context, followed by the understanding of specific needs and markets under consideration, followed by establishing strategic intent and then enabling that intent through capabilities. Data management / knowledge management is a critical enabling capability as has been emphasized in previous NASCIO research briefs on this subject.

DAMA pursues this subject further by emphasizing that each data management function must account for what DAMA

FIGURE 3: DAMA Environmental Framework



calls *environmental elements*. These are presented in Figure 3.

DAMA's Data Management Body of Knowledge (DMBOK) provides a textual functional decomposition of the data management functions. There are 10 functions and 102 activities. Each activity is categorized as belonging to one of four Activity Groups:

Planning Activities

Activities that set the strategic and tactical course for other data management activities. Planning activities may be performed on a recurring basis.

Control Activities

Supervisory activities performed on an on-going basis.

Development Activities

Activities undertaken within projects and recognized as part of the systems development lifecycle (SDLC), creating data deliverables through analysis, design, building, testing and deployment.

Operational Activities

Service and support activities performed on an on-going basis.

Clear strategic intent is established for each function according to the environmental element Goals and Principles. Each function is further described using a context diagram. Suppliers, inputs, consumers, outputs, metrics and other components are presented as follows using the function *Data Governance* as an example functional context diagram (see Figure 4).

Governance then touches every aspect of data management as demonstrated by its placement in the center of the DAMA framework of data management functions (see Figure 5).

The Data Governance Institute (DGI)

In order to understand the DGI framework, it is helpful to understand the underlying conceptual relationship among business

FIGURE 4: DAMA Context Diagram for the Governance Function

Data Governance

Definition: The exercise of authority over the management of data assets and the performance of data management functions.

Goals:

1. To define and implement data strategy, plans, policies, procedures, standards, guidelines, programs, projects and services.
2. To track and enforce compliance to data policies, standards and regulations.
3. To track and oversee the delivery of data programs, projects and ongoing services.
4. To manage and resolve data quality issues.
5. To understand and promote the value of data to the enterprise.

Suppliers:

- Executives
- IT Steering Committee
- Operational Data Stewards
- Regulatory Bodies

Inputs:

- Business Goals
- Business Strategy
- IT Objectives
- IT Strategy
- Data Issues
- Compliance Reporting & Analysis

Activities:

1. Establish the EDM organization
2. Supervise the EDM organization
3. Identify & Appoint Data Stewards
4. Establish the DSC
5. Coordinate the DSC
6. Develop / Revise the Data Strategy
7. Plan DM Programs, Projects & Services
8. Oversee DM Programs, Projects & Services
9. Develop Data Policies
10. Monitor & Enforce Data Policy Compliance
11. Monitor & Enforce Regulatory Compliance
12. Approve / Monitor / Enforce Data Standards
13. Manage & Resolve Data Quality Issues
14. Estimate Data Value and Related Costs
15. Publicize/ Promote the Value of Data

Participants:

- Strategic Data Stewards
- Managerial Data Stewards
- Operational Data Stewards
- Data Mgmt. Professionals
- EDM Director
- CIO
- Other IT Management

Tools:

- E-Mail
- Personal Productivity Tools

Outputs:

- Data Strategy
- Data Policies
- Data Standards
- Resolved Issues
- Programs, Projects & Services
- Quality Data
- Quality Information
- Recognized Data Value

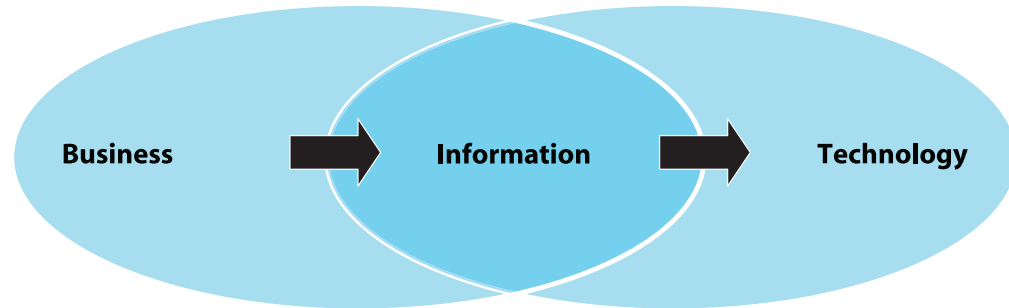
Recipients:

- Data Producers
- Data Consumers
- Knowledge Workers
- Managers
- Executives
- Customers
- Data Mgmt. Professionals

FIGURE 5: DAMA Worksheet – How the Two Frameworks Relate

Data Management Functions	Environmental Elements						
	Goals & Principles	Activities	Deliverables	Roles & Responsibilities	Technology	Practices & Techniques	Organization & Culture
Data Governance							
Data Architecture Management							
Data Development							
Database Operations Management							
Data Security Management							
Reference & Master Data Management							
Data Warehousing & Business Intelligence Management							
Document & Content Management							
Meta Data Management							
Data Quality Management							

FIGURE 6: Key Responsibilities in Data Governance



BUSINESS needs drive INFORMATION needs, which drive TECHNOLOGY strategies and approaches.

For Data Governance participants, this translates to the following key responsibilities:

BUSINESS	DATA GOVERNANCE & DATA MANAGEMENT	TECHNOLOGY
<ul style="list-style-type: none"> • Inventory potential efforts • Specify information needs • Clarify constraints and drivers • Participate in analysis 	<ul style="list-style-type: none"> • Identify patterns, related efforts • Balance needs of data stakeholders • Provide guidelines and standards • Provide data governance requirements to project teams • Assign accountabilities for data related controls 	<ul style="list-style-type: none"> • Decide how to perform projects efficiently while adhering to standards and requirements

functions, information and technology that is promoted by the DGI.

DGI has observed that the importance of data governance has become a high priority for *the business*. Some organizations have moved “information management” functions out of information technology organizations and into the business side. The business side then has responsibility for managing information in order to achieve its strategic intent. Technology is then engaged to assist in the management of that information. However, *management of information* is viewed as *primarily a business responsibility*. These relationships are demonstrated by the Venn diagram presented. Information is the *linchpin* between the business and IT.

Data governance is not viewed as an end in itself. Data governance is required to ensure *data quality* which contributes toward *effective decision making and delivery of quality services to citizens*. This is the outcome that should be presented in making the business case for a data governance initiative in state government.

DGI makes a strong point that information technology (IT), and data governance only exist to assist the business in managing information. The capability to manage information enables strategic business intent.

The DGI framework for data governance (see Figure 7) presents major components and also a process or sequence for navigating through the framework.⁶ It is recommended that the 11” x 17” DGI poster be downloaded as a reference.⁷ This document provides detailed descriptions of the components and presents an intended sequencing that answers the interrogatives, Who/What/When/Where/Why/How.

DGI presents the lifecycle of data governance intended to ensure the proper sequence of activities are followed so that a data governance initiative not only is initiated for the right reasons, but is also able to sustain itself (see Figure 8).

From the Data Governance Institute, we learn the necessity of establishing a *focus*

FIGURE 7: DGI Data Governance Framework

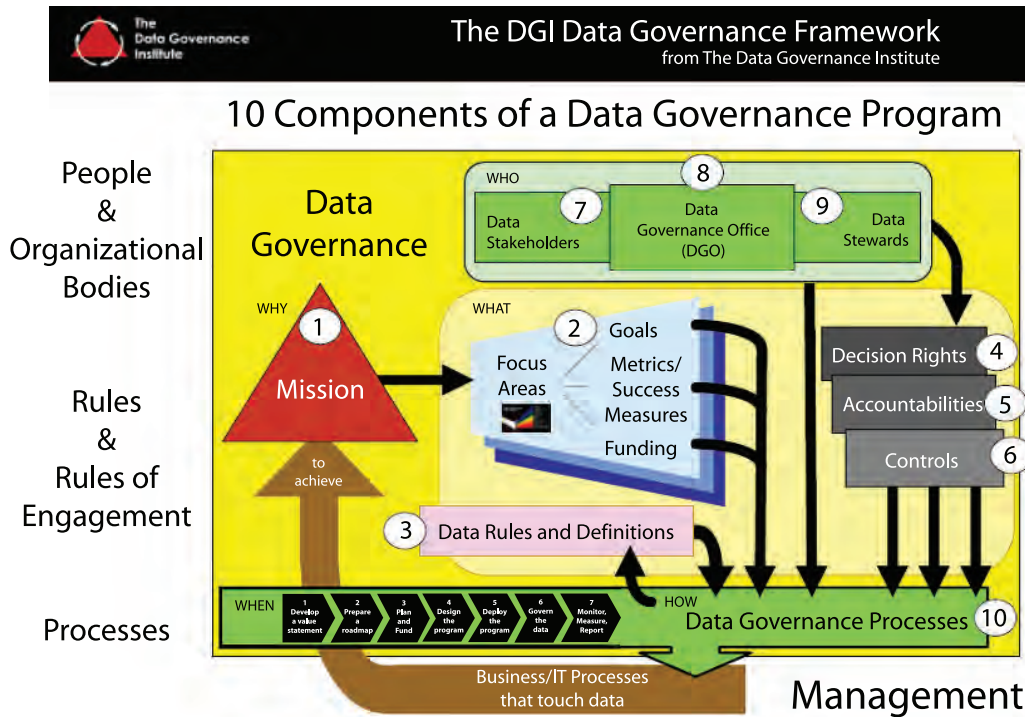


FIGURE 8: 7 Phases in the Data Governance Life Cycle



area—at least initially. There is a need to balance the longer term vision as described by the data governance maturity models⁸ with the need to deliver manageable, carefully scoped outcomes. Large initiatives don't typically work on a first launch. Support will wane without immediate or short term outcomes that demonstrate value for the initiative. Even while a large initiative is working to create an effective operating discipline, government continues to create even more data and information. Collaboration among state agencies requires the development of short term to medium term solutions.

The surrounding rationale for the DGI Framework is consistent with NASCIO's approach to enterprise architecture and

governance. As presented in the NASCIO Enterprise Architecture Value Chain. The *motivation and strategic intent* drives the identified need for data governance.

DGI spends considerable effort in exploring universal drivers and focus areas for establishing intent and scope (see Figure 9). These must be established first before moving into other aspects of the framework.

Organizations need to establish a governance approach, or process that clearly describes the rules of engagement for managing data. The DGI Framework is intended to provide the following outcomes for a data governance initiative:

FIGURE 9: Universal Drivers for any Data Governance Initiative

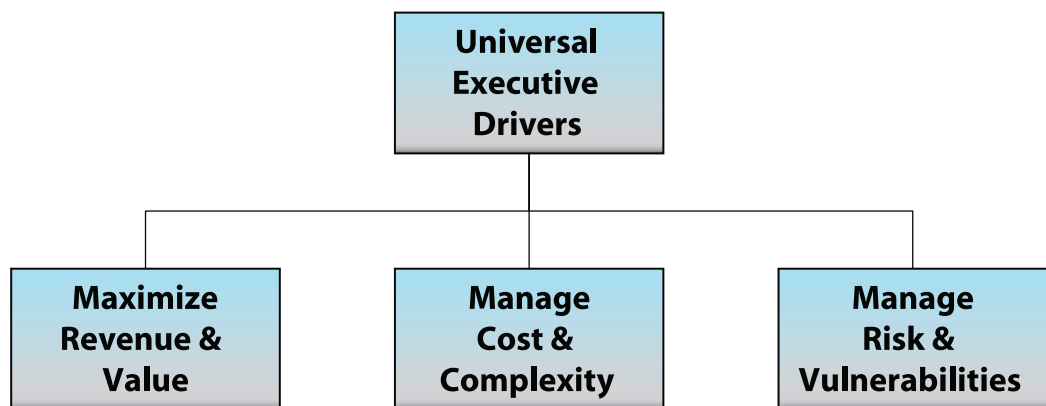


FIGURE 10: UNIVERSAL GOALS FOR DATA GOVERNANCE



Specific data governance policies are dependent upon the focus of the data governance program.

- Achieve clarity
- Ensure value from efforts
- Create a clear mission
- Maintain scope and focus
- Establish accountabilities
- Define measurable successes

The supporting process for the DGI Framework initiates through the definition of a focus area. However, all data governance initiatives will share a common set of “universal goals” (See Figure 10).

Effective data governance initiatives will encompass one or more focus areas. The program design will then be tuned to

address those specific focus areas that characterize the original impetus for establishing data governance. DGI describes the following focus areas. The specifics of the data governance charter will then depend on what the enterprise establishes as focus areas (See Figure 11).

These focus areas will then provide significant influence on the shaping of the data governance initiative.

DGI goes on to describe 10 “universal components” of any data governance program that are organized into three major groupings.

FIGURE 11: DGI Data Governance Focus Areas

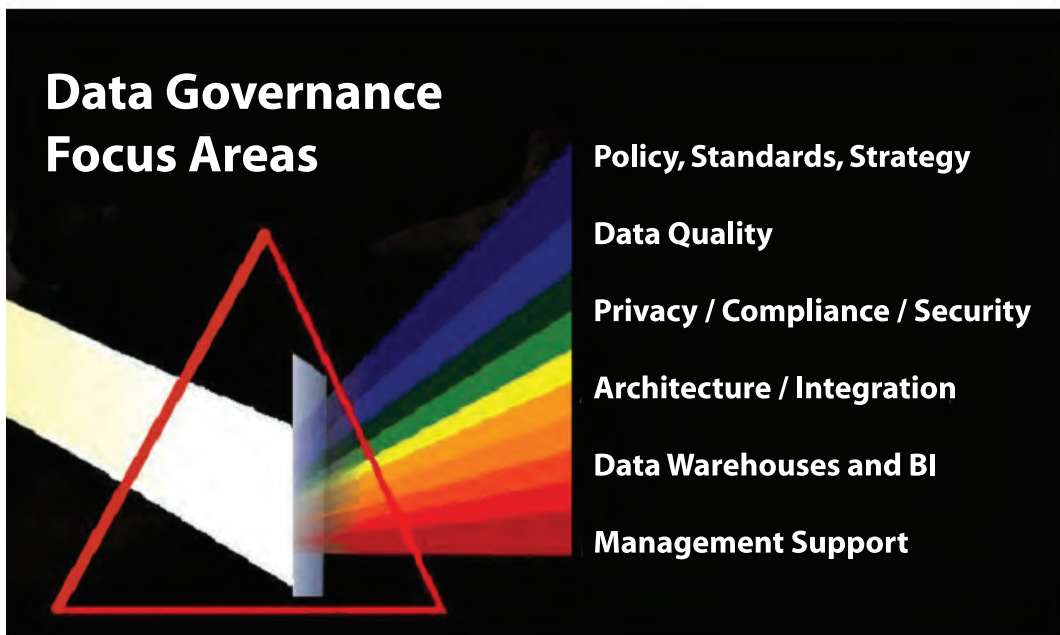
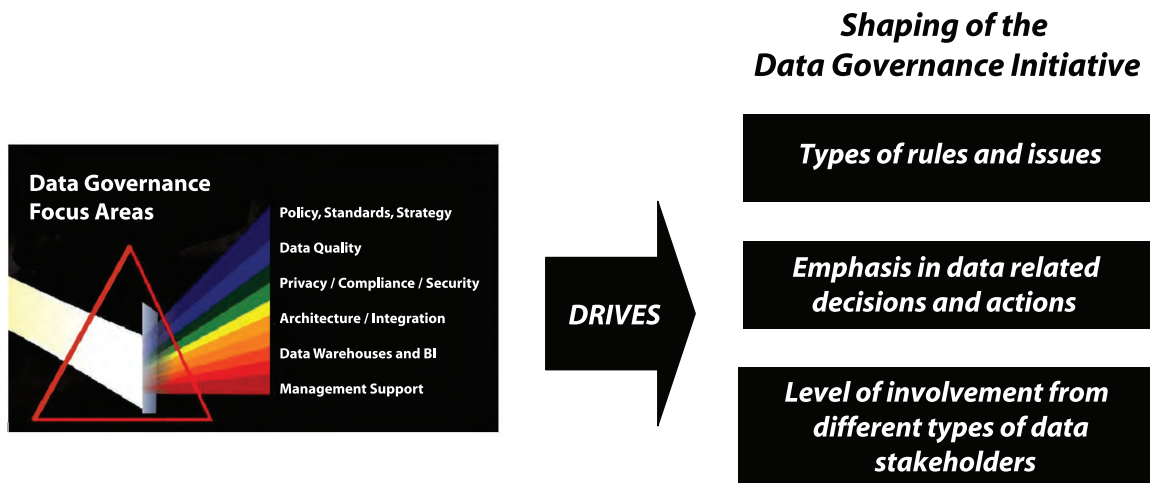


FIGURE 12: DGI Data Governance Relationships



Rules and Rules of Engagement

These describe *rules* in terms of *policies, requirements, standards, accountabilities and controls*. *Rules of engagement* then describe how different groups will share and delegate responsibilities for establishing these rules and executing on them.

1. Mission and vision
2. Goals, governance metrics and success measures, and funding strategies
3. Data rules and definitions
4. Decision rights
5. Accountabilities
6. Controls

People and Organization

This component describes how data governance will be organized, and what roles and responsibilities will be defined.

7. Data stakeholders
8. A data governance office
9. Data stewards

Processes

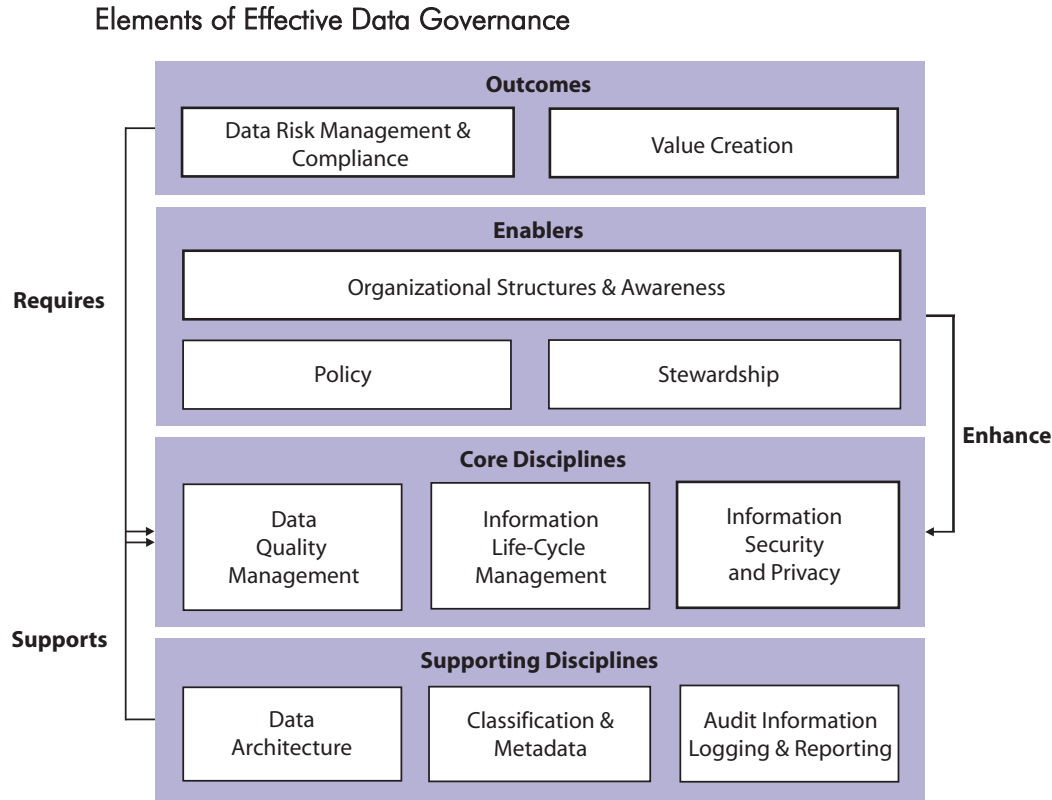
These are the processes, methods and procedures for creating and maintaining a sustained effort in data governance.

10. Proactive, Reactive, and Ongoing Data Governance Processes

DGI makes the following recommendations regarding initiating a data governance program:

- Data governance programs are unique to each organization. Do not assume a data governance program from another organization can be simply adopted.
- Leverage existing governance disciplines. Examples include:
 - IT Governance
 - Records Management
 - Change Management
- Beware of simply putting together data stewards and rules. This approach will not be successful. This is why the DGI framework was designed with an inherent sequence. Follow the sequence to ensure success.
- Configure your program out of the things that are already working in your organization. This will be more successful than establishing a separate, completely new program.
- Identify and understand the obvious and the not so obvious stakeholders. Identify all stakeholders such as downstream users of information, web development teams, developers of taxonomies, records management, data architects, etc.

FIGURE 13: The IBM Data Governance Council Framework



IBM Data Governance Council Framework

This framework is also presented with additional detail in the NASCIO research brief on data governance maturity models and forms the basis for the IBM Data Governance Council maturity model.⁹ This framework presents major concepts that comprise not only governance but also an enterprise data management practice.¹⁰ Major dependencies are presented across groupings of functions. The functions presented compare well with the DAMA functional framework for data management.

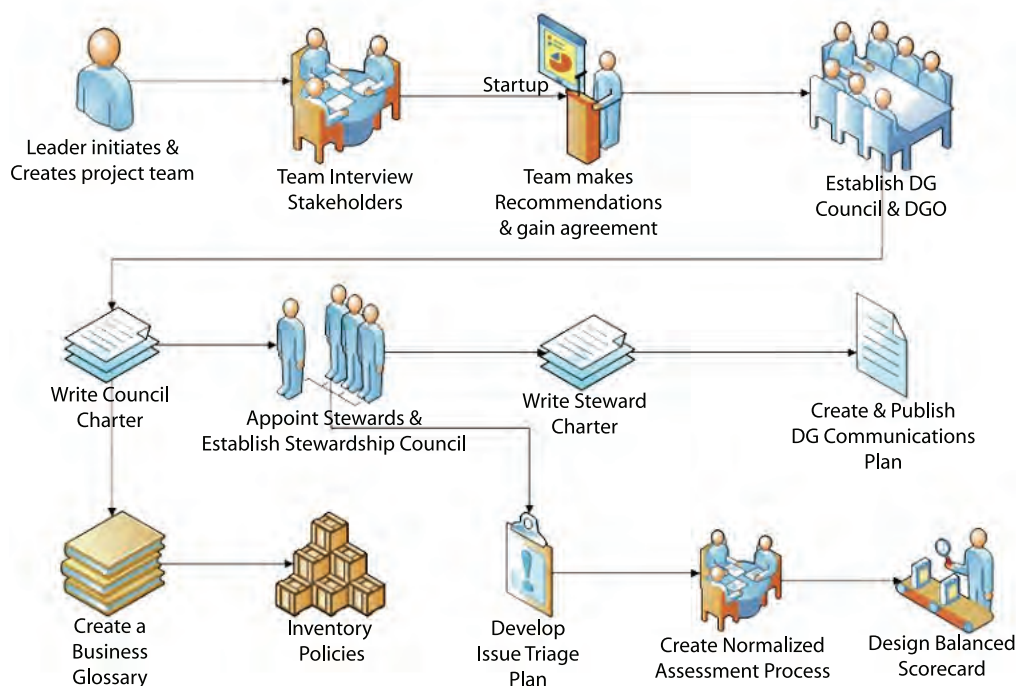
The IBM Data Governance Council Framework was designed to be *outcome oriented*. *Risk Management, compliance, and value creation* are seen as desirable outcomes of a data governance program, even though they may also be daily opera-

tional activities and present policy challenges. The focus in this framework is on organizational behavior based on an underlying premise that only people can be governed and *not the data itself per se*. Therefore, *organizational structures, policy and stewardship* are functional requirements to affect organizational behavior over the core disciplines of data quality, information lifecycle management (ILM), security and privacy, data architecture, metadata, and, audit and reporting.

Most members of the Data Governance Council who have used the Framework have done so with a six step approach:

1. *Build* the organizational structures
2. *Assess* the current situation
3. *Create* an operational charter
4. *Develop* data stewardship
5. *Measure* progress with key metrics
6. *Report* results

FIGURE 14: Process for Implementing the IBM Data Governance Council Framework



Build the Organizational Structures

The first step in any successful data-governance program is identifying an individual within the organization who carries the delegated authority of executive management and making that person accountable to make things happen. There is no substitute for strong leadership.

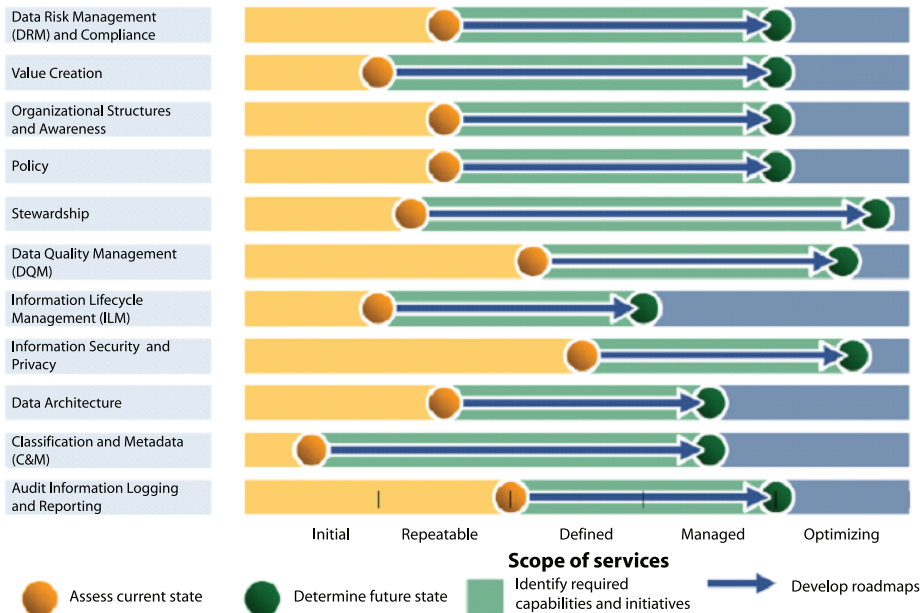
Data governance is a political challenge that requires building consensus among many diverse stakeholders. Political leadership within the organization is therefore a priority. Once established, that leadership can create a governing council composed of organizational stakeholders to formulate stewardship policies and report progress to executive management.

Some members have used a process similar to the one shown in Figure 14 to implement the IBM Data Governance Framework.

There are four key components in this model:

1. *The Data Governance Council* – The council is the place where cross organizational issues get raised, assessed, and policy decisions are made. The make-up of the council can vary in size and seniority, but it should be cross functional to be effective. It can include representatives from the *six core and supporting disciplines* in the IBM Data Governance Framework. It should include representatives from state agencies, operations and human resources.
2. *Data Stewardship Roles and Resources* – Stewards execute policies and surface organizational issues. Without an active data stewardship program, a data governance council has no means to implement policy. In many organizations the stewardship tasks are performed informally. The IBM Data Governance Council approach establishes a formality and gives recognition to these roles.

FIGURE 15: Example of a Data Governance Scorecard



Good governance practices can help [organizations] recognize where to invest in data quality and content management programs, to maximize the value that they can create.
- Gartner

3. **Organizational Charters** – A charter is a constitution of powers, and it enumerates:

- how the data governance council and stewardship communities interact
- how often meetings are held
- what constitutes a quorum for votes
- funding

The charter may contain a logical organizational model to show how groups interact within the data governance function. A logical organizational model is not intended to represent or align to formal reporting relationships.

4. **An Issue Triage Process** – defines how issues are raised, assessed, discussed, and resolved. This is a key element in the charter, but also has process dependencies that require greater detail.

This approach provides a streamlined set of processes that are easy to replicate and cover common organizational structures. It doesn't matter if this is done on a departmental, divisional, or enterprise

level. It also doesn't matter if the subject area is one data subject or all data subject areas. The approach is scalable and will grow as the governance initiative grows. The same steps and processes are equally useful.

Assessing the Current Situation

With a solid organizational infrastructure, the next step is to setup an assessment process. Benchmarking data governance capabilities at the start of the program is necessary in order to understand where the organization is initially in terms of organizational practices and where it wants to go. The Data Governance Council Maturity Model is a good tool for this, but assessments shouldn't be used just on a macro basis. Data governance may exist at various levels of maturity within certain subject areas, departments and agencies.

Normalizing the assessment process for individual governing issues is an important part of issue triage. Issue triage is an arbitration process to inject objectivity into the governance decision-making process. An issue triage process should be employed to bring new issues and challenges to the data governance board or council. Issues and challenges must be

assessed consistently and fairly using common methods so that stakeholders have the opportunity to participate. This will ensure that decision-making is fair and democratic.

Create an Operational Charter

Democracies function best with a constitution, because writing down roles and enumerated powers is the best way to set boundaries and ensure consistent outcomes. The charter should delineate the functions for which the data governance council has jurisdiction, how many members from each agency or department are represented, rules of delegation and substitution, how often meetings are called and what constitutes a quorum for votes. But the most important aspects of the charter deal with the three fundamental powers of the *data governance council*:

1. The power to subsidize projects with funding
2. The power to veto bad things
3. The power to implement policy with stewardship

Without written operational and functional responsibilities, a data governance council won't serve with a common purpose and won't garner the organizational respect it needs to govern effectively.

Developing Data Stewardship

Data Stewardship is an *organizational behavior*. Data stewardship recognizes the custodial obligations that everyone shares to manage state government data resources effectively. However, at this early date few people understand this behavior and so data stewards are needed to *promote and implement data best practices* throughout the organization. A data steward is a policy implementer, someone who integrates policy into business processes, data structures, applications, and new business entities. It is a role and responsibility that needs to be developed over time, eventually leading to a community of data stewards.

These people can not be found on job

boards. The role can not be outsourced to vendors. These are the people who know the organization well from both business and IT perspectives. They are detail oriented and have excellent personal relationships with both IT and business managers. These are the doers who not only enforce data governance policies and coordinate change, but also identify key issues and bring them to the data governance council when they require triage. Typically these people can be identified by asking the question "Who do I ask about *such and such* data?" The informal networks within any organization will lead to the right people.

Measuring Progress with Key Metrics

Every new data governance program will have about 90 days to demonstrate progress before losing political capital. Therefore, knowing *what to measure* is as important as knowing *what should be done*, and *how to do it*. The Data Governance Council Maturity Model has many key metrics across five levels of maturity that provide valuable benchmarks of organizational behavior. The Maturity Model is intended for normalized assessments during issue triage, tracking key performance metrics for each issue and monitoring project and program progress. Metrics are established for each of the 11 elements presented in the IBM Data Governance Council Framework.

Making these key metrics and progress statistics available to the organization in a dashboard or business intelligence application is a fundamental aspect of effective governance. Especially in the beginning, transparency delivers huge benefits. Governance works best when it is *open and available*. Tracking progress and letting everyone know what is being tracked is a powerful tool in affecting organizational change. This will also assist in gaining not only participation, but *ownership* in the data governance process. As has been described, literally everyone in the organization must play a part in data stewardship. Access to these metrics will assist in achieving that perspective.

FIGURE 16: Example of a Data Governance Normalized Metrics

Value Creation

Name	Actual	Target	Variance	Variance %	Time Period
Value of DG report issues	US\$76.81	US\$98.00	-US\$21.19	21.62%	Oct 2008
Value of DG issues remediated	US\$102.74	US\$98.00	US\$4.74	4.84%	Oct 2008
Value of DG issues outstanding	US\$90.69	US\$98.00	-US\$7.31	7.46%	Oct 2008
Capital Impact of Outstanding DG Issues (Est.)	US\$98.51	US\$98.00	-US\$9.49	9.69%	Oct 2008
Cost of DG program	US\$109.45	US\$98.00	US\$11.45	11.69%	Oct 2008
Benefit of DG program	US\$89.57	US\$98.00	-US\$8.43	8.60%	Oct 2008
DG projects funded	102.72	98.00	4.72	4.82%	Oct 2008
DG projects in progress	92.52	98.00	-5.48	5.59%	Oct 2008
DG projects completed	97.51	98.00	-0.49	0.50%	Oct 2008

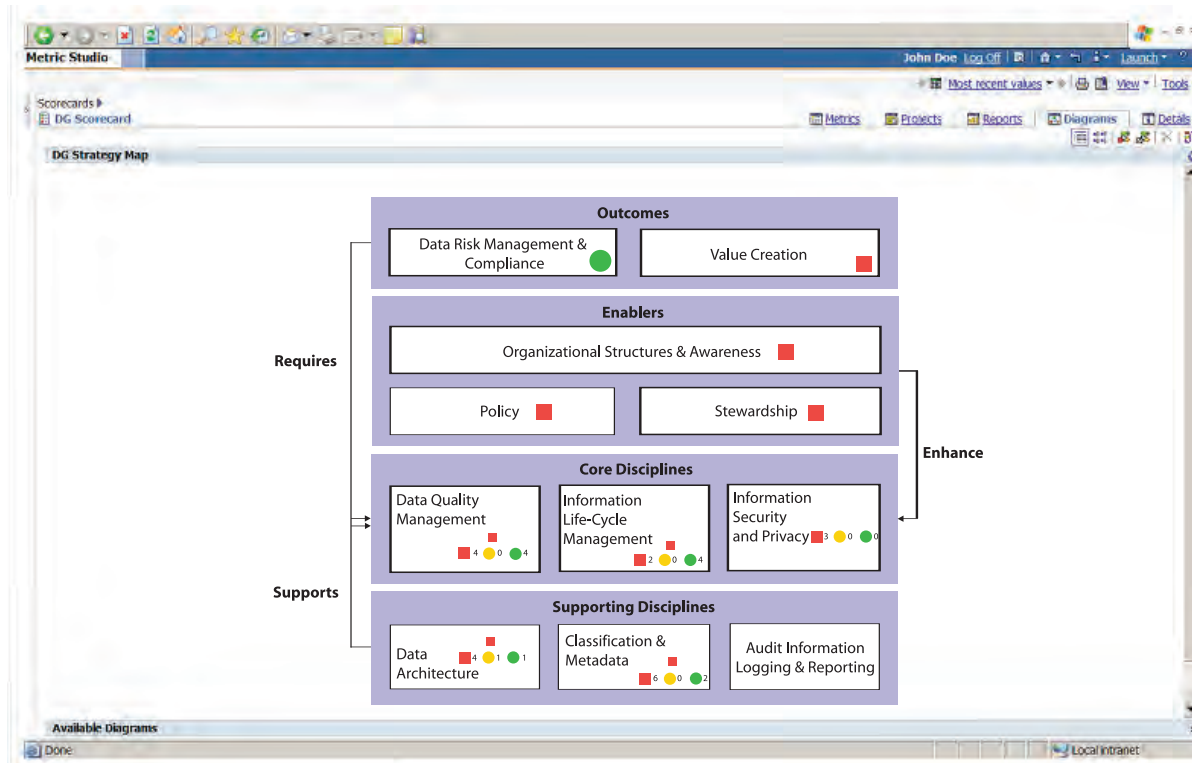
Risk Management

Name	Actual	Target	Variance	Variance %	Time Period
No. of Reported ERM Issues	346.09	450.00	-103.91	23.09%	Oct 2008
Remediated ERM issues	97.44%	5,000.00%	-4,902.56%	98.05%	Oct 2008
Outstanding ERM issues	80.82	95.00	-14.18	14.92%	Oct 2008
No. of deferred ERM issues	90.06	92.00	-1.94	2.11%	Oct 2008
No. of ERM remediation projects	58.62	50.00	8.62	17.24%	Oct 2008
Value of Remediated ERM issues	US\$83.23	US\$75.00	US\$8.23	10.98%	Oct 2008
Value of Outstanding ERM Issues	US\$79.29	US\$98.00	-US\$18.71	19.09%	Oct 2008
Capital Impact of Outstanding ERM Issues (Est.)	US\$78.95	US\$98.00	-US\$19.05	19.44%	Oct 2008
Hours spent on ERM Remediation	93.36	90.00	3.36	3.73%	Oct 2008
Cost of ERM Remediation	US\$76.54	US\$80.00	-US\$3.46	4.33%	Oct 2008

Organization & Awareness

Name	Actual	Target	Variance	Variance %	Time Period
No. of DG Office Staff	43.77	50.00	-6.23	12.46%	Oct 2008
DG Staff Turnover Ratio	9.33	6.00	3.33	55.56%	Oct 2008
Number of DG Issues Activity	91.15	50.00	41.15	82.30%	Oct 2008

FIGURE 17: Example of a Data Governance Dashboard



Report the Results

Reporting is a political tool to either reward correct behavior or threaten bad behavior. The data governance program must be on a regular reporting cycle with both the CIO and the Legislative Audit Committee. Reporting should present a normalized report that illustrates both *program progress* in terms of maturity as well as *project progress* in terms of Good, Fair, and Poor. Reporting is also a tool to monitor stewardship progress on project tasks around data quality, ILM, security & privacy, metadata, etc. Report recipients may be project leadership, executives, architects, and boards.

Having a Data Governance Strategy Map is an effective tool for monitoring DG program status at both high and low levels.

A Data Governance Framework is a graphical illustration of many complex political processes. Data is a strategic asset that can't be governed per se. Only people can be governed, because only *people* can decide to enhance and protect data, respect custodial obligations, and through their stewardship improve the organization. But accomplishing these goals requires more than charts and programs. It requires using common tools and processes, benchmarks and metrics, reports and charters. And - lots of practice.

The IBM Data Governance Council Framework is both a benchmark and a best-practices guide developed by over 50 organizations working together and sharing experiences. Implementation will vary from state to state as there is no one size fits all approach to data governance. However, the six common steps enumerated above can help any state government data governance program get off to a good start and lay the foundation for sustainable success. In the end, however, the success of data governance is dependent on *leadership*. The best frameworks in the world will not compensate for poor leadership. Nor will the best leaders be able to lead well for long without a consistent framework to guide behavior. Good

leaders and good frameworks can bring enormous benefits to state organizations looking to reap the opportunities of effective data governance.

Similar to DAMA's Data Management Body of Knowledge (DMBOK), the IBM framework makes a strong point regarding the need for valuing data and information assets. IBM goes further to make the point that *enterprise value* is a determined outcome of data governance and data management. The concepts of risk management and compliance are presented and create an additional motivation for an effective data governance initiative. IBM includes the concept of Information Life-Cycle Management defined as a systematic policy-based approach to information collection, use, retention, and deletion. Refer to NASCIO's report "Data Governance Part II: Maturity Models – A Path to Progress" for more detail on this model.

Summary

Frameworks are a necessary ingredient in planning and executing on an enterprise data governance program in state government. The frameworks presented should be used in organizing concepts and establishing the components of a data governance initiative and data / information management.

The full operating discipline for data governance will entail the use of maturity models, frameworks, process, and organization. Underpinning any such endeavor must be a strong *business need or opportunity*. Enterprise wide initiatives that are not built on a specific near to medium term deliverable will not succeed. Short to medium term "wins" must be achieved to maintain motivation. However, data / knowledge management must also be understood as a long term initiative that constitutes more than a cost of doing business. There is a strategic aspect to managing data and knowledge assets that is highly proactive.

Data/Knowledge management has both strategic and operational elements. It is possibly the most important strategic and operational capability an enterprise can possess. Some knowledge assets will gain value over time. Others will depreciate to little value. State government knowledge assets must be continually evaluated for value. Such assets must be *available* so the value can be harvested. Knowledge that is merely kept only has potential value. It must be accessible to generate real benefits to state government. Knowledge

assets must be *protected* from unauthorized access and use so that it can be trusted and used to generate value for the true owners.

NASCIO will continue to explore the subject of data governance with additional events and publications that will focus on *organization and process*.

Calls to Action

1. Adopt one or more frameworks for managing a state data governance program. The framework should be comprehensive. Use of the frameworks in this report are highly recommended.
2. Establish a focus area and business initiative for driving a data governance program. Identify and focus on a business problem to be solved or a business opportunity to be harvested. Enterprise initiatives without a business problem or issue will not succeed.
3. Leverage existing governance to launch and sustain data governance processes. Continue to encourage cross-line-of-business collaboration on data governance.
4. Data governance should not be presented as an *overhead* project. Make the case for data governance based on real outcomes sought such as:
 - Improved decision making based on improved data quality.
 - Greater value gained in service delivery to citizens.
 - Knowledge management as a strategic weapon for gaining competitive advantage, or efficiently meeting regulatory requirements.
5. Identify all stakeholders, some of whom may not be obvious. Enlist their assistance in making the case for data governance.
6. Exploit the best ideas that are already in place within state agencies. Bring these ideas into state wide initiatives. Include ideas from local government, academia and industry.
7. Ensure new programs and projects maintain compliance with the state data governance standards. Contracts, MOUs, cooperative agreements, service level agreements all need to maintain such compliance so the state data governance program does not erode over time.
8. Continue to work with NASCIO and other state government associations to influence the federal government funding process to move away from stove-piped funding. Funding needs to support enterprise data governance initiatives in order to continue build toward more effective and efficient government.
9. In evaluating service offerings and cloud computing, understand the implications and assurances for managing data / knowledge assets.

Appendix A: Acknowledgements

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Architecture, The Commonwealth of
Virginia

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Appendix B: Resources

NASCIO www.nascio.org

IT Governance and Business Outcomes – A Shared Responsibility between IT and Business Leadership
<http://www.nascio.org/committees/EA/download.cfm?id=98>

Data Governance – Managing Information As An Enterprise Asset Part I – An Introduction
<http://www.nascio.org/committees/EA/download.cfm?id=100>

Data Governance Part II: Maturity Models – A Path to Progress
<http://www.nascio.org/committees/EA/download.cfm?id=111>

Enterprise Architecture: The Path to Government Transformation
<http://www.nascio.org/committees/EA/>

Call for Action, A Blueprint for Better Government: The Information Sharing Imperative
<http://www.nascio.org/advocacy/dcFlyIn/callForAction05.pdf>

PERSPECTIVES: Government Information Sharing Calls to Action
<http://www.nascio.org/publications/index.cfm#19>

In Hot Pursuit: Achieving Interoperability Through XML
<http://www.nascio.org/publications/index.cfm#21>

We Need to Talk: Governance Models to Advance Communications Interoperability
<http://www.nascio.org/publications/index.cfm#50>

A National Framework for Collaborative Information Exchange: What is NIEM?
<http://www.nascio.org/publications/index.cfm#47>

List of NASCIO Corporate Partners
<http://www.nascio.org/aboutNascio/corpProfiles/>

List of NASCIO Publications
<http://www.nascio.org/publications>

List of NASCIO Committees
<http://www.nascio.org/committees>

The Data Administration Newsletter

<http://www.tdan.com/index.php>

Presents 8 chapters that describe how to implement data governance

The Data Governance Institute

<http://datagovernance.com/>

DGI created a poster on data governance that can be downloaded, or ordered in hardcopy online.

The Data Management Association

International – DAMA – www.dama.org

The Data Management Body of Knowledge (DMBOK) -
<http://www.dama.org/i4a/pages/index.cfm?pageid=3364>

The IT Governance Institute (ITGI)

<http://www.itgi.org/>

Information Systems Audit and Control Association (ISACA)

<http://www.isaca.org/>

Certification in Governance of Enterprise IT (CGEIT) from ISACA

<http://www.isaca.org/Template.cfm?Section=Certification&Template=/TaggedPage/TaggedPageDisplay.cfm&TPLID=16&ContentID=36129>

The Center for Information Systems Research (CISR)

<http://mitsloan.mit.edu/cisr/>

The National Information Exchange Model (NIEM) www.niem.gov

Global Justice Reference Architecture for SOA

http://www.it.ojp.gov/topic.jsp?topic_id=242

Global Justice Reference
Architecture (JRA) Specification:
Version 1.7
[http://www.it.ojp.gov/documents/
JRA_Specification_1-7.doc](http://www.it.ojp.gov/documents/JRA_Specification_1-7.doc)

The Global Justice Reference
Architecture (JRA) Web Services
Service Interaction Profile Version
1.1
[http://www.it.ojp.gov/documents/
WS-SIP_Aug_31_version_1_1
FINAL\(3\).pdf](http://www.it.ojp.gov/documents/WS-SIP_Aug_31_version_1_1_FINAL(3).pdf)

The Global Justice Reference
Architecture (JRA) ebXML
Messaging Service Interaction
Profile Version 1.0
[http://www.it.ojp.gov/documents/
ebXML_SIP_v01_Final_Version
100407.pdf](http://www.it.ojp.gov/documents/ebXML_SIP_v01_Final_Version_100407.pdf)

Appendix C: Endnotes

¹ NASCIO report “PERSPECTIVES – Government Information Sharing: Calls to Action”, available at www.nascio.org/publications.

² Casonator, R., Friedman, T., “Enterprise Information Management Is Still Misunderstood by Many”, Gartner, June 9, 2008, Gartner ID Number: G00158458.

³ NASCIO report “Data Governance – Managing Information As An Enterprise Asset Part I – An Introduction”, available at www.nascio.org/publications.

⁴ NASCIO report “Data Governance Part II: Maturity Models – A Path to Progress”, available at www.nascio.org/publications.

⁵ The Data Management Body of Knowledge, DAMA International, 2009, ISBN 978-0-9771400-84, LOC No. 2008912034.

⁶ “How to Use the DGI Data Governance Framework to Configure Your Program”, The Data Governance Institute, retrieved on May 7, 2009, from http://www.datagovernance.com/whitepaper_abstracts.html

⁷ See The Data Governance Institute <http://datagovernance.com>

⁸ See Data Governance Part II

⁹ NASCIO report “Data Governance Part II: Maturity Models – A Path to Progress”, available at www.nascio.org/publications.

¹⁰ IBM Data Governance Council Maturity Model, October 2007, retrieved on May 12, 2008, from http://www935.ibm.com/services/uk/cio/pdf/leverage_wp_data_gov_council_maturity_model.pdf

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