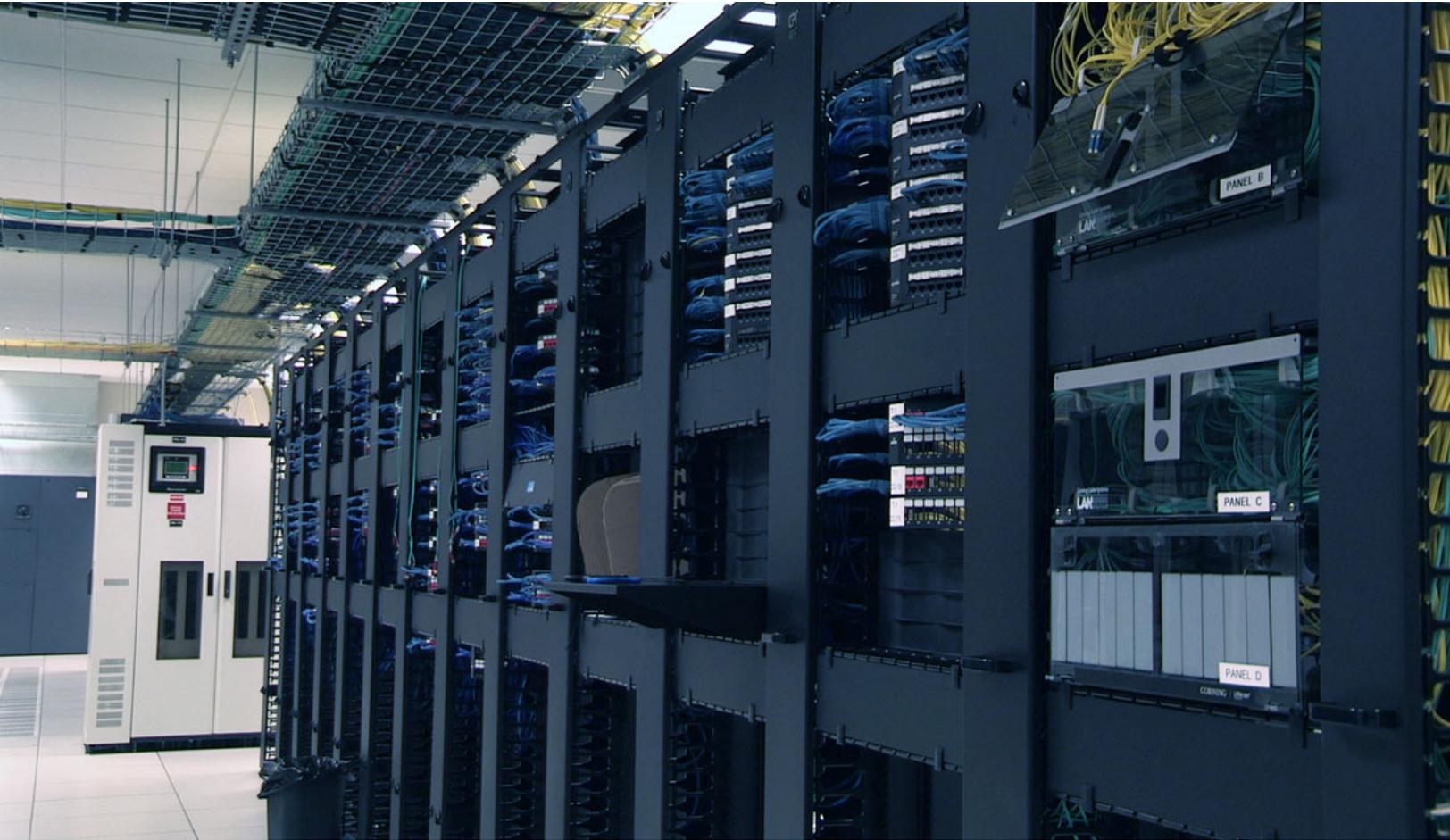# DATA GOVERNANCE MATURITY MODEL

This document provides two examples of maturity assessment tools. These tools can be used to assess the maturity level of an organization's data governance program and to develop goals to guide the work of the organization's data governance program.

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This document and the tools included herein are largely adapted from the University of Stanford's Data Governance Maturity Model and the October 17, 2011, Data Governance at Stanford Newsletter published by the University of Stanford. Additionally, the maturity levels were borrowed from "The IBM Data Governance Council Maturity Model: Building a roadmap for effective data governance."

Contents

Purpose of a Data Governance Maturity Model

A maturity model is one of the most valuable tools available for planning and sustaining a new strategic program. Like the data governance (DG) program itself, the DG maturity model should be customized around the unique goals, priorities and competencies of the organization. The model included below is the model developed by Stanford University's Data Governance Office. It can be customized to meet the needs of your organization.

A maturity model is a tool that is used to develop, assess and refine an expansive program. Because measurement of performance simply through return on investment (ROI) or reduction of cost is inappropriate for data governance programs, another method must be constructed to assess effectiveness. The Stanford Maturity Measurement Tool offers a robust qualitative assessment along with quantitative measures to ensure a thorough DG assessment is possible.

A significant benefit of utilizing a maturity model is that it can consistently measure the state of a program over time. A DG program crosses functional boundaries and has a life span measured in years rather than months. Stable metrics facilitate presentation of the DG program's accomplishments to the sponsors, ensuring the sustainability of the program and demonstration to the participants that their efforts are driving organizational change.

The design of the maturity model also influences the strategic direction of the program. A maturity model is made up of levels describing possible states of the organization where the highest levels define a vision of the optimal future state.

Because the full implementation and maturation of a DG program is a multiyear effort, the intermediate maturity states can be used to construct a program roadmap. The model not only facilitates assessment of the DG program, but also focuses attention on specific areas where actionable opportunities can be addressed rapidly (Stanford, 2011).

Overview of the Data Governance Maturity Model

The Stanford Maturity Measurement Tool contains both qualitative and quantitative metrics to track the growth of the DG practice throughout the organization.
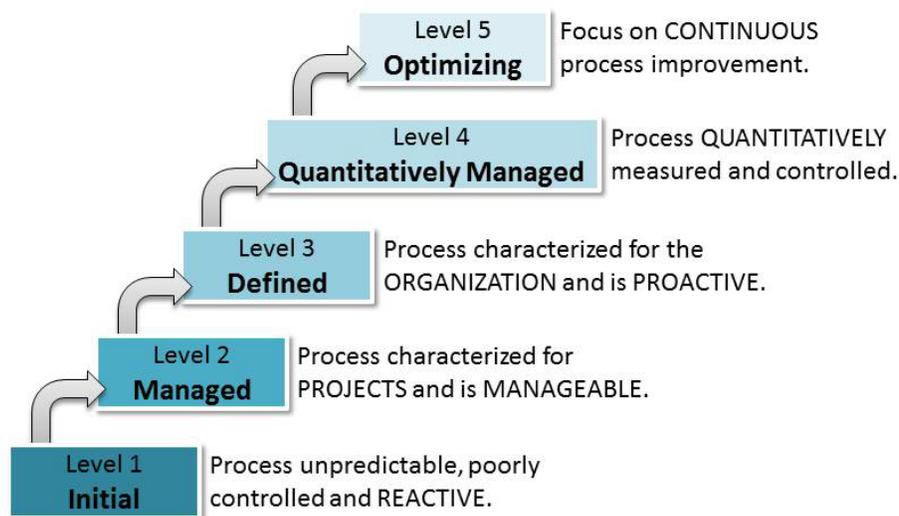
Qualitative aspects describe characteristics of the organization at various levels of maturity. Because these are inherently subjective, the model is enriched with quantitative metrics that count activities performed, program participants and artifacts developed.

Each component-dimension's (more on this below) qualitative scale ranges from level one, representing the initial state of a data governance program, to level five, representing the objective of DG in that area of focus. An in-depth description of each qualitative maturity level is provided in the next section. The quantitative metrics are numeric measures that become applicable at each level of maturity and may be used at all maturity levels moving forward. Advancement through qualitative maturity levels can take place over a long time; quantitative metrics provide the ability to monitor intrastage growth through more granular measures (Stanford, 2011).

The Maturity Levels

Developed by the Software Engineering Institute (SEI) in 1984, the Capability Maturity Model (CMM) is a methodology used to develop and refine an organization's software development process and it can be easily applied to an organization's DG program and processes. The CMM describes a five-level graduated path that provides a framework for prioritizing actions, a starting point, a common language and a method to measure progress. Ultimately, this structured collection of elements offers a steady, measurable progression to the final desired state of fully mature processes (IBM, 2007).

Characteristics of Maturity Levels

Level 5 **Optimizing**	Focus on CONTINUOUS process improvement.
Level 4 **Quantitatively Managed**	Process QUANTITATIVELY measured and controlled.
Level 3 **Defined**	Process characterized for the ORGANIZATION and is PROACTIVE.
Level 2 **Managed**	Process characterized for PROJECTS and is MANAGEABLE.
Level 1 **Initial**	Process unpredictable, poorly controlled and REACTIVE.

At **Maturity Level 1 (Initial)**, processes are usually ad hoc, and the environment is not stable. Success reflects the competence of individuals within the organization, rather than the use of proven processes. While Maturity Level 1 organizations often produce products and services that work, they frequently exceed the budget and schedule of their projects (IBM, 2007).

At **Maturity Level 2 (Managed)**, successes are repeatable, but the processes may not repeat for all the projects in the organization. Basic project management helps track costs and schedules, while process discipline helps ensure that existing practices are retained. When these practices are in place, projects are performed and managed according to their documented plans, yet there is still a risk for exceeding cost and time estimates (IBM, 2007).

At **Maturity Level 3 (Defined)**, the organization's set of standard processes are used to establish consistency across the organization. The standards, process descriptions and procedures for a project are tailored from the organization's set of standard processes to suit a particular project or organizational unit (IBM, 2007).

At **Maturity Level 4 (Quantitatively Managed)**, organizations set quantitative quality goals for both process and maintenance. Selected sub-processes significantly contribute to overall process performance and are controlled using statistical and other quantitative techniques (IBM, 2007).

At **Maturity Level 5 (Optimizing)**, quantitative process-improvement objectives for the organization are firmly established and continually revised to reflect changing business objectives, and used as criteria in managing process improvement (IBM, 2007).

The Component-Dimensions

The Stanford Maturity Measurement Tool focuses both on foundational and project aspects of DG. The **foundational components** (Awareness, Formalization and Metadata) of the maturity model focus on measuring core DG competencies and development of critical program resources.

- **Awareness**: The extent to which individuals within the organization have knowledge of the roles, rules, and technologies associated with the data governance program.
- **Formalization**: The extent to which roles are structured in an organization and the activities of the employees are governed by rules and procedures.
- **Metadata**: Data that 1) describes other data and IT assets (such as databases, tables and applications) by relating essential business and technical information and 2) facilitates the consistent understanding of the characteristics and usage of data. Technical metadata describes data elements and other IT assets as well as their use, representation, context and interrelations. Business metadata answers who, what, where, when, why and how for users of the data and other IT assets.

The **project components** (Stewardship, Data Quality and Master Data) measure how effectively DG concepts are applied in the course of funded projects (Stanford, 2011).

- **Stewardship:** The formalization of accountability for the definition, usage, and quality standards of specific data assets within a defined organizational scope.
- **Data Quality:** The continuous process for defining the parameters for specifying acceptable levels of data quality to meet business needs, and for ensuring that data quality meets these levels. (DMBOK, DAMA)
- **Master Data:** Business-critical data that is highly shared across the organization. Master data are often codified data, data describing the structure of the organization or key data entities (such as "employee").

Three **dimensions** (People, Policies and Capabilities) further subdivide each of the six maturity components, focusing on specific aspects of component maturation.

- **People**: Roles and organization structures.
- **Policies**: Development, auditing and enforcement of data policies, standards and best practices.
- **Capabilities**: Enabling technologies and techniques.

It is imperative that the maturity model is finalized and adopted early in the rollout of the DG program and remains stable throughout its life. Thoughtful input from across the organization will help assure the model's long-term fitness (Stanford, 2011).

The Data Governance Maturity Model

Guiding Questions for Each Component-Dimension
(Stanford, 2013)

Foundational	People	Policies	Capabilities
Awareness	What awareness do people have about their role within the data governance program?	What awareness is there of data governance policies, standards and best practices?	What awareness is there of data governance enabling capabilities that have been purchased or developed?
Formalization	How developed is the data governance organization and which roles are filled to support data governance activities?	To what degree are data governance policies formally defined, implemented and enforced?	How developed is the toolset that supports data governance activities and how consistently is that toolset utilized?
Metadata	What level of cross-functional participation is there in the development and maintenance of metadata?	To what degree are metadata creation and maintenance policies formally defined, implemented and enforced?	What capabilities are in place to actively manage metadata at various levels of maturity?

Project	People	Policies	Capabilities
Stewardship	What awareness do people have about their role within the data governance program?	What awareness is there of data governance policies, standards and best practices?	What awareness is there of data governance enabling capabilities that have been purchased or developed?
Data Quality	How developed is the data governance organization and which roles are filled to support data governance activities?	To what degree are data governance policies formally defined, implemented and enforced?	How developed is the toolset that supports data governance activities and how consistently is that toolset utilized?
Master Data	To what degree has a formal master data management organization been developed and assigned consistent responsibilities across data domains?	To what degree are metadata creation and maintenance policies formally defined, implemented and enforced?	What capabilities are in place to actively manage metadata at various levels of maturity?

The Stanford Data Governance Maturity Measurement Tool

Data Governance Foundational Component Maturity											
Awareness				**Formalization**				**Metadata**			
	People	**Policies**	**Capabilities**		**People**	**Policies**	**Capabilities**		**People**	**Policies**	**Capabilities**
1	Limited awareness of purpose or value of DG program.	Most existing data policies are undocumented and there may be inconsistent understanding of data policies within a department.	Little awareness of DG capabilities and technologies.	**1**	No defined roles related to DG.	No formal DG policies.	Classes of DG capabilities are not defined.	**1**	Limited understanding of types and value of metadata.	No metadata related policies.	Metadata is inconsistently collected and rarely consolidated outside of project artifacts.
2	Executives are aware of existence of program. Little knowledge of program outside upper management.	Existing policies are documented but not consistently maintained, available or consistent between departments.	A small subset of the organization understands the general classes of DG capabilities and technologies.	**2**	DG roles and responsibilities have been defined and vetted with program sponsors.	High-level DG meta-policies are defined and distributed.	Classes of DG capabilities are defined and homegrown technical solutions are used within some organizational functions.	**2**	Roles responsible for production of technical metadata on structured data are defined during system design.	Metadata best practices are produced and made available. Most best-practices are focused on the metadata associated with structured data.	Metadata templates are adopted to provide some consistency in content and format of captured metadata. Metadata is consolidated and available from a single portal. Capabilities focus on capture of metadata of structured content.
3	Executives understand how DG benefits/impacts their portion of the organization, knowledge workers are aware of program. Executives actively promote DG within their groups.	Common data policies are documented and available through a common portal. Most stakeholders are aware of existence of data policies that may impact them.	A small subset of the organization is aware of the specific DG capabilities that are available at the organization.	**3**	Some roles are filled to support DG needs and participants clearly understand responsibilities associated with their roles.	Data policies around the governance of specific data are defined and distributed as best practices.	Homegrown technical solutions are adopted as best practices for some classes of capabilities and made available throughout the institution.	**3**	The responsibility for developing institutional business definitions and storing them in a central repository is assigned to and continually performed by subject matter experts.	Policies requiring the development of new metadata as part of system development (usually focused on structured data) are adopted as official data policies.	The collection of metadata on structured content is automated and scheduled extracts are performed for selected systems.
4	Executives understand long-term DG strategy and their part in it. Knowledge workers understand how DG impacts/benefits their portion of the organization. Executives actively promote DG beyond the immediate group.	All data policies are available through a common portal and stakeholders are actively notified whenever policies are added, updated or modified.	A targeted audience has been identified and a significant portion of that audience is aware of the DG capabilities that are available at the organization.	**4**	DG roles are organized into reusable schemas which are designed to support specific data and functional characteristics. There is broad (but inconsistent) participation in DG.	Data policies become official organization data policies and compliance with approved data policies is audited.	All defined classes of DG capabilities have an available solution.	**4**	Metadata collection/validation responsibilities assigned to named individuals for all projects.	Policies requiring the regular auditing of metadata in specified systems are adopted as official organization data policies and metadata development as part of system development is enforced.	A centralized metadata store becomes the primary location for all institutional metadata. Metadata is automatically collected from most relational database management systems and vendor packaged systems.
5	Both executives and knowledge workers understand their role in the long-term evolution of DG. Knowledge workers actively promote DG.	A history of all data policies are maintained through a common portal and all stakeholders are made part of the policy development process.	A significant portion of the targeted audience understands how to utilize relevant DG capabilities that are available at the organization.	**5**	DG organizational schemas are filled as defined, meet regularly and document activities.	Compliance with official organization data policies is actively enforced by a governing body.	All defined classes of DG capabilities are mandatory for assigned systems or critical data.	**5**	A dedicated metadata management group is created to strategically advance metadata capabilities and more effectively leverage existing metadata.	Metadata policy covers both structured and unstructured (non-tabular) data and is enforced.	A metadata solution provides a single point of access to federated metadata resources including both structured and unstructured data.

		Data Governance Project Component Maturity									
Maturity Level		**Stewardship**				**Data Quality**				**Master Data**	
		People	Policies	Capabilities		People	Policies	Capabilities		People	Policies	Capabilities
	1	Almost no well-defined DG or stewardship roles or responsibilities. Data requirements are driven by the application development team.	Limited stewardship policies documented.	Limited stewardship capabilities are available.	**1**	Individuals perform ad hoc data quality efforts as needed and manually fix identified data issues. Identification of data issues is based off its usability for a specific business task.	Data quality efforts are infrequent and driven by specific business needs. These efforts are usually large one-time data cleansing efforts.	Data quality is done on an ad hoc basis usually using SQL and Excel.	**1**	Inconsistent understanding of concepts and benefits of Master Data Management.	No formal policies defining what data are considered institutional master data.	There is limited management of master data.
	2	Business analysts drive data requirements during design process. Definition of stewardship roles and responsibilities is limited.	Policies around stewardship defined within a functional area.	A centralized location exists for consolidation of and/or access to stewardship related documentation.	**2**	A small group of individuals are trained in and perform profiling to assess data quality of existing systems to establish a baseline or justify a data quality project. Downstream usage of the data is considered in issue identification process.	Best practices have been defined for some data quality related activities and followed inconsistently.	Basic data profiling tools are adopted and available for use anywhere in the system development lifecycle.	**2**	Stakeholders for specific master data domains are identified and consulted to develop basic definition and model of master data.	Institutional master data domains are defined and the systems storing master data are documented. Usage of master data in these systems is actively being documented.	Master data are identified and manually managed and provisioned via extracts, file transfers or manual uploads.
	3	All stewardship roles and structures are defined and filled but are still functionally siloed.	Stewardship policies are consistent between functions and areas.	Workflow capabilities are implemented for the vetting and approval of institutional definition, business metadata and approval of other stewardship related documentation.	**3**	People are assigned to assess and ensure data quality within the scope of each project.	Profiling and development of data quality standards are adopted as part of the standard application development lifecycle and become scheduled activities on project plans.	Data quality reporting capabilities are implemented and available to any system.	**3**	Owners of institutional master data are identified and drive resolution of various perspectives of master data. Owners establish and run master data boards to support maintenance and data issue mediation.	Institutional master data perspectives are resolved and documented.	Master data are provisioned through services but management capabilities are still largely manual.
	4	The stewardship structures include representatives from multiple business functions.	Stewardship teams self-audit compliance with policies.	Stewardship dashboards report data quality levels and data exceptions to support the auditing of stewardship effectiveness.	**4**	Data quality experts are identified throughout the organization and are engaged in all data quality improvement projects.	Data quality best practices are adopted as official organization data policies.	Data quality issue remediation is integrated into quality reporting platform.	**4**	Master Data Management boards take responsibility for reviewing the use of their master data in the application development process.	Compliance with master data usage policies and standards is enforced. Synchronization frequency with master data hub at system owner's discretion.	Multiple single domain master data hubs handle provisioning and management of master data.
	5	The stewardship board includes representatives from all relevant institutional functions.	Compliance with stewardship policies are enforced for key institutional data.	A common stewardship dashboard enables managed issue remediation as part of data quality reporting and data exception reporting.	**5**	A data quality competency center is funded and charged with continually assessing and improving data quality outside of the system development lifecycle.	Compliance with official organization data quality is tracked and reported on centrally.	Data quality remediation is implemented on both data at rest (in databases) and data in flight (in ETL and as messages between systems).	**5**	Master Data Management boards take responsibility for enforcing master data policies around their own master data across the organization.	Compliance with master data synchronization policy is enforced.	Multidomain master data hub handles all provisioning and management of master data.

The Stanford Data Governance Quantitative Measurement Tool

Data Governance Foundational Components								
	People			**Policies**			**Capabilities**	
	Qualitative	Quantitative		Qualitative	Quantitative		Qualitative	Quantitative

Awareness

	People Qualitative	People Quantitative		Policies Qualitative	Policies Quantitative		Capabilities Qualitative	Capabilities Quantitative
1	Limited awareness of purpose or value of DG program.		1	Most existing data policies are undocumented and there may be inconsistent understanding of data policies within a department.		1	Little awareness of DG capabilities and technologies.	
2	Executives are aware of existence of program. Little knowledge of program outside upper management.	Training Sessions*attendees	2	Existing policies are documented but not consistently maintained, available or consistent between departments.	Policies documented by functional area, business subject area.	2	A small subset of the organization understands the general classes of DG capabilities and technologies.	Training sessions on DG capabilities and technologies.
3	Executives understand how DG benefits/impacts their portion of the organization, knowledge workers are aware of program. Executives actively promote DG within their groups.	Newsletters*recipients	3	Common data policies documented and available through a common portal. Most stakeholders are aware of data policies that may impact them.	Hits on Policy Management Content. Unique visitors on Policy Management Content.	3	A small subset of the organization is aware of the specific DG capabilities that are available at the organization.	
4	Executives understand long-term DG strategy and their part in it. Knowledge workers understand how DG impacts/benefits their portion of the organization. Executives actively promote DG beyond the immediate group.	Hits on DG website. Unique visitors on DG website.	4	All data policies are available through a common portal and stakeholders are actively notified whenever policies are added, updated or modified.	Number of stakeholders on RACI matrices by functional area, subject area.	4	A targeted audience has been identified and a significant portion of that audience is aware of the DG capabilities that are available at the organization.	
5	Both executives and knowledge workers understand their role in the long-term evolution of DG. Knowledge workers actively promote DG.		5	A history of all data policies are maintained through a common portal and all stakeholders are made part of the policy development process.	Non-executive leadership participants in policy development.	5	A significant portion of the targeted audience understands how to utilize relevant DG capabilities that are available at the organization.	Training sessions on usage of DG technologies and capabilities (person*tech trained).

Formalization

	People Qualitative	People Quantitative		Policies Qualitative	Policies Quantitative		Capabilities Qualitative	Capabilities Quantitative
	People			**Policies**			**Capabilities**	
	Qualitative	Quantitative		Qualitative	Quantitative		Qualitative	Quantitative
1	No defined roles related to DG.		1	No formal DG policies		1	Classes of DG capabilities are not defined.	
2	DG roles and responsibilities have been defined and vetted with program sponsors.		2	High-level DG meta-policies are defined and distributed.	Meta-policies defined, documented and approved.	2	Classes of DG capabilities are defined and homegrown technical solutions are used within some organizational functions.	DG capabilities with solutions by functional area. Reuse of technical solutions by functional area.
3	Some roles are filled to support DG needs and participants clearly understand responsibilities associated with their roles.	Participants in approved roles.	3	Data policies around the governance of specific data are defined and distributed as best practices.	Best practices/standards/policies identified, documented and approved.	3	Homegrown technical solutions are adopted as best practices for some classes of capabilities and made available throughout the institution.	Capabilities approved as organization recommended solutions.
4	DG roles are organized into reusable schemas which are designed to support specific data and functional characteristics. There is broad (but inconsistent) participation in DG.	Program areas in compliance with defined schemas. Percent of roles filled.	4	Data policies become official organization data policies and compliance with approved data policies is audited.	Official data policies approved. Audits are done to ensure compliance.	4	All defined classes of DG capabilities have an available solution.	Usage of standard solutions by project. Uses of non-standard solutions by project.
5	DG organizational schemas are filled as defined, meet regularly and document activities.	Staff from each defined schema meets to plan. Minutes produced.	5	Compliance with official organization data policies is actively enforced by a DG body.	Number of exceptions to official data policies (lower is better).	5	All defined classes of DG capabilities are mandatory for assigned systems or critical data.	Use of non-standard solutions by project (lower is better).

Metadata		People			Policies			Capabilities	
		Qualitative	Quantitative		Qualitative	Quantitative		Qualitative	Quantitative
	1	No defined roles related to DG.		1	No formal DG policies		1	Classes of DG capabilities are not defined.	
	2	DG roles and responsibilities have been defined and vetted with program sponsors.		2	High-level DG meta-policies are defined and distributed.	Meta-policies defined, documented and approved.	2	Classes of DG capabilities are defined and homegrown technical solutions are used within some organizational functions.	DG capabilities with solutions by functional area. Reuse of technical solutions by functional area.
	3	Some roles are filled to support DG needs and participants clearly understand responsibilities associated with their roles.	Participants in approved roles.	3	Data policies around the governance of specific data are defined and distributed as best practices.	Best practices/standards/policies identified, documented and approved.	3	Homegrown technical solutions are adopted as best practices for some classes of capabilities and made available throughout the institution.	Capabilities approved as organization recommended solutions.
	4	DG roles are organized into reusable schemas which are designed to support specific data and functional characteristics. There is broad (but inconsistent) participation in DG.	Program areas in compliance with defined schemas. Percent of roles filled.	4	Data policies become official organization data policies and compliance with approved data policies is audited.	Official data policies approved. Audits are done to ensure compliance.	4	All defined classes of DG capabilities have an available solution.	Usage of standard solutions by project. Uses of non-standard solutions by project.
	5	DG organizational schemas are filled as defined, meet regularly and document activities.	Staff from each defined schema meets to plan. Minutes produced.	5	Compliance with official organization data policies is actively enforced by a governing body.	Number of exceptions to official data policies (lower is better).	5	All defined classes of DG capabilities are mandatory for assigned systems or critical data.	Usage of non-standard solutions by project (lower is better). No use of solution by project.

Data Governance Project Components

Stewardship

#	People Qualitative	People Quantitative	#	Policies Qualitative	Policies Quantitative	#	Capabilities Qualitative	Capabilities Quantitative
1	Few well-defined stewardship roles or responsibilities. Data requirements driven by the development team.		1	Limited stewardship policies documented.		1	Limited stewardship capabilities are available.	
2	Business analysts drive data requirements during design process. Definition of stewardship roles and responsibilities is limited.	Projects with explicit data design.	2	Policies around stewardship defined within a functional area.	Functional areas with policy. Functional data entities with policy.	2	A centralized location exists for consolidation of and/or access to stewardship related documentation.	Count of policies (by status) in registry.
3	All stewardship roles and structures are defined and filled but are still functionally siloed.	Stewards, participants in stewardship boards, stewardship board meetings.	3	Stewardship policies are consistent between functions and areas.	Organizational data entities with policy.	3	Workflow capabilities are implemented for the vetting and approval of institutional definition, business metadata and stewardship related documentation.	Organizational definitions through process (completed, in progress).
4	The stewardship structures include representatives from multiple business functions.	Functional areas represented on stewardship boards.	4	Stewardship teams self-audit compliance with policies.	Audits and audit compliance are in place.	4	Stewardship dashboards report data quality levels and data exceptions to support the auditing of stewardship effectiveness.	Dashboards by function program area. Qualitative score included on dashboard.
5	The stewardship board includes representatives from all relevant institutional functions.	Boards with AS and business representation.	5	Compliance with stewardship policies are enforced for key institutional data.	Key organizational data without stewardship policies (lower is better).	5	A common stewardship dashboard enables managed issue remediation as part of data quality reporting and data exception reporting.	Data issues are reported and resolved. Time it takes to resolve data issues.

Data Quality

#	People Qualitative	People Quantitative	#	Policies Qualitative	Policies Quantitative	#	Capabilities Qualitative	Capabilities Quantitative
1	Individuals perform ad hoc data quality efforts as needed and manually fix identified data issues. Identification of data issues is based off its usability for a specific business task.	Data quality implies quality in terms of formally defined definitions of fit-for-use data.	1	Data quality efforts are infrequent and driven by specific business needs. These efforts are usually large one-time data cleansing efforts.	Data cleansing efforts identified, in progress or completed.	1	Data quality is done on an ad hoc basis usually using SQL and Excel.	
2	A small group of individuals are trained in and perform profiling to assess data quality of existing systems to establish a baseline or justify a data quality project. Downstream usage of the data is considered in issue identification process.	Individuals trained in profiling, systems profiled, tables profiled, elements profiled. Profiles resulting in recommendations, recommendations spawning projects.	2	Best practices have been defined for some data quality related activities and followed inconsistently.	Data quality best practices defined.	2	Basic data profiling tools are adopted and available for use anywhere in the system development lifecycle.	Data profiles by system and functional area. Rows are profiled.
3	People are assigned to assess and ensure data quality within the scope of each project.	Projects with data quality roles assigned. Data quality fixes at project level. Issues documented and approved.	3	Profiling and development of data quality standards are adopted as part of the standard application development lifecycle and become scheduled activities on project plans.	Application development projects without profiling effort (lower is better).	3	Data quality reporting capabilities are implemented and available to any system.	Systems with data quality reporting, approved elements reported on. Raw quality metrics.
4	Data quality experts are identified throughout the organization and are engaged in all data quality improvement projects.	Systems analyzed, tables analyzed, elements analyzed. Recommendations proposed and spawning data quality remediation.	4	Data quality best practices are adopted as official organization data policies.	Approved organizational data quality policies. Data quality policies in place with audits.	4	Data quality issue remediation is integrated into quality reporting platform.	Systems with data quality remediation functionality. Issues resolved.

	People		Policies		Capabilities	
	Qualitative	Quantitative	Qualitative	Quantitative	Qualitative	Quantitative
5	A data quality competency center is funded and charged with continually assessing and improving data quality outside of the system development lifecycle.	Return on Investment of data quality competency center. System team endorsements.	Compliance with official organization data quality is tracked and reported on centrally.	Exceptions to official data quality policies (lower is better).	Data quality remediation is implemented on both data at rest (in databases) and data in flight (in ETL and as messages between systems).	Systems without data quality reporting, and/or remediation (lower is better). Interfaces without reporting and/or remediation (lower is better).

Master Data		People		Policies		Capabilities	
		Qualitative	Quantitative	Qualitative	Quantitative	Qualitative	Quantitative
	1	Inconsistent understanding of concepts and benefits of Master Data Management.		No formal policies defining what data are considered institutional master data.		There is limited management of master data.	
	2	Stakeholders for specific master data domains are identified and consulted to develop basic definition and model of master data.	Stakeholders identified. Stakeholders' agreements in place.	Institutional master data domains are defined and the systems storing master data are documented. Usage of master data in these systems is actively being documented.	Master data entities identified. Functions consulted. Perspectives identified.	Master data are identified and manually managed and provisioned via extracts, file transfers or manual uploads.	Systems using master data by transport method.
	3	Owners of institutional master data are identified and drive resolution of various perspectives of master data. Owners establish and run master data boards to support maintenance and data issue mediation.	Approved owners, stakeholders with input.	Institutional master data perspectives are resolved and documented.	Master data models approved. Distinct perspectives of master data entities (lower is better).	Master data are provisioned through services but management capabilities are still largely manual.	Systems using master data via services.
	4	Master Data Management boards take responsibility for reviewing the use of their master data in the application development process.	Boards taking review responsibility.	Compliance with master data usage policies and standards is enforced. Synchronization frequency with master data hub at system owner's discretion.	Results of audit.	Multiple single domain master data hubs handle provisioning and management of master data.	Master data hubs. Master data hub capability score.
	5	Master Data Management boards take responsibility for enforcing master data policies around their own master data across the organization.	Boards taking enforcement responsibility.	Compliance with master data synchronization policy is enforced.	Results of audit.	Multidomain master data hub handles all provisioning and management of master data.	Master data hubs (lower is better). Master data hub score (lower is better).

Data Governance Maturity Model Qualitative Score Card

To gauge the maturity of the qualitative aspects of an organization's data governance program, use the table below to record your score in each Component-Dimension then calculate the average of each row and column. The average attained across each Component and Dimension is the maturity level of your organization in each respective area.

An organization's initial assessment should be done as early in the DG program as possible – during the planning phase is ideal. At the time of the initial assessment, it should be determined how frequently the DG program will be assessed moving forward. The frequency of assessments may depend on many factors, including the resources available to the DG program, or how mature the DG program is at the time of the initial assessment. It is recommended that the DG program be assessed at least annually.

| Foundational	People	Policies	Capabilities	Average
Awareness	2	2	2	2
Formalization	1	2	1	1.3
Metadata	2	1	1	1.3
Average	1.6	1.6	1.3	
Project	People	Policies	Capabilities	Average
Stewardship	2	1	1	1.3
Data Quality	2	2	1	1.6
Master Data	1	1	1	1
Average	1.6	1.3	1	

Using the Maturity Model to Plot for Success

Assessing the baseline maturity of the DG program and setting short-term and long-term goals during the initiation phase coupled with on-going assessment of the Component-Dimensions allows an organization to create a road map to a successful DG program.

At the time of the initial assessment, the organization's executive leadership and/or data governance board should set maturity goals. These goals should be a mix of short- and long-term and they should be aligned with the DG program's maturity assessment schedule.

Depending on the needs and maturity level of the organization's DG program, the goals may focus on one particular Component-Dimension, or they may span all Component-Dimensions. In order to ensure the DG program continues to mature over time, goals should be actionable and measurable.

To create the roadmap, create a scatter chart similar to the example shown below. Plot the baseline maturity levels of each component, which are based on the results of the initial maturity assessment, and the maturity goals for each component established by the executive leadership and/or data governance board. According to the schedule agreed upon at the initial assessment, use the maturity model tool again to assess the data governance program and plot those scores to see how close the program is to meeting its goals, or if the goals have been met and new ones need to be established.
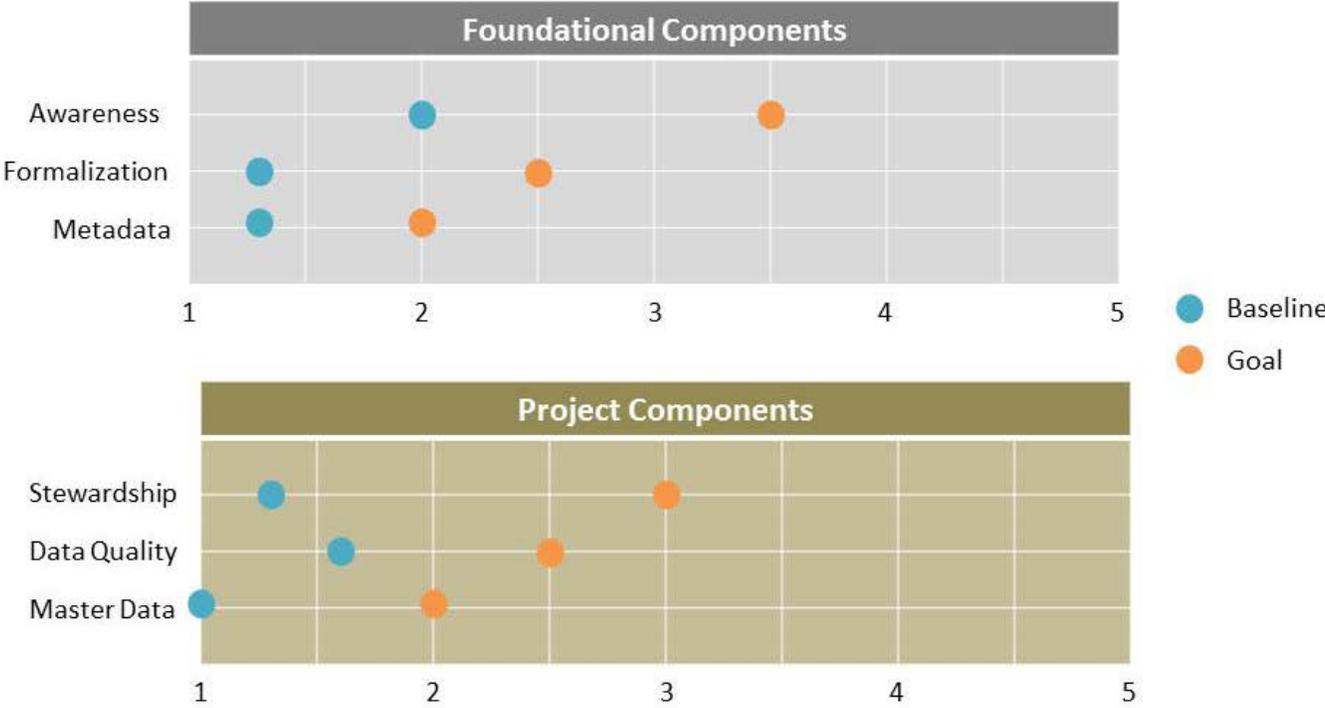
Summary

A maturity model is a valuable tool to establish, sustain and gain support for the data governance program. Establishing a maturity model during the planning or initiation phase of the program and reassessing the program on a regular schedule makes creating goals and tracking progress toward them simple.

Because the data needs and associated structures of organizations vary so greatly, it is important to customize the maturity model to meet the specific needs of your organization. Not all organizations will need or have adequate resources to complete a maturity model as in-depth as the Stanford Maturity Measurement Tool. In Appendix A we have provided the Basic Maturity Assessment which is a boiled down version of the Stanford model. This tool uses the same score card and works on the same premise of identifying maturity levels based on existing processes and structures, however, there is one metric for each component-dimension that should be scored on a sliding scale of 1-5, rather than a single metric for each maturity level in each component-dimension.

Choosing and customizing a maturity model and then using it regularly are key to establishing a successful, long-lasting DG program.

Appendix A. The Basic Maturity Assessment

The Basic Maturity Assessment is a condensed version of the Stanford Maturity Measurement Tool which uses the same 1-5 maturity scale and score card. An organization with limited resources or that is very early in the design phase of building an IT and data governance program may find this assessment tool more appropriate to start the program building process.

Like the Stanford Tool, this model focuses both on foundational and project aspects of DG. The **foundational components** (Awareness, Formalization and Metadata) of the maturity model focus on measuring core DG competencies and development of critical program resources. The **project components** (Stewardship, Data Quality and Master Data) measure how effectively DG concepts are applied in the course of funded projects.

Additionally, it includes the three **dimensions** (People, Policies and Capabilities) which further subdivide each of the six maturity components, focusing on specific aspects of component maturation.

Whether your organization uses the Stanford Maturity Measurement Tool or the Basic Maturity Assessment, it is imperative that the maturity model you choose is finalized and adopted early in the rollout of the DG program. Depending on where your organization is in the process of standing up the data governance program, it may be most appropriate to use the Basic Maturity Assessment to measure the baseline maturity of and resources available to the organization. Then, as the data governance program is fleshed out, perhaps you will find that a more robust maturity assessment is needed. In that case, because they are both based on the same component-dimensions, you can easily transition from using the Basic Maturity Assessment to using the full Stanford Maturity Measurement Tool.

Regardless of which tool you choose to use, or if you choose to use a combination of both, thoughtful input from across the organization will help assure the model's usefulness and long-term fitness.

Data Governance Foundational Components Maturity		
Component: Awareness - The extent to which individuals within the organization have knowledge of the roles, rules and technologies associated with the data governance program.		
Dimension	**Objective**	**Rating**
People	Are executives, employees and stakeholders aware of the purpose or value of the DG program?	1 2 3 4 5
Policies	Are existing data policies documented, consistently maintained and available to stakeholders?	1 2 3 4 5
Capabilities	Are stakeholders aware of the specific DG capabilities that are available at the organization?	1 2 3 4 5
Component: Formalization - The extent to which roles are structured in an organization and the activities of the employees are governed by rules and procedures.		
Dimension	**Objective**	**Rating**
People	Have DG roles and responsibilities been defined and vetted with program sponsors?	1 2 3 4 5
Policies	Are data polices around the governance of specific data defined as best practices?	1 2 3 4 5
Capabilities	Are classes of DG capabilities defined and is there an available solution?	1 2 3 4 5
Component: Metadata - Technical metadata describes data elements and other IT assets as well as their use, representation, context and interrelations. Business metadata answers who, what, where, when, why and how for users of the data and other IT assets.		
Dimension	**Objective**	**Rating**
People	Do executives, employees or stakeholders have understanding of types and values of metadata?	1 2 3 4 5
Policies	Are metadata best practices produced and made available?	1 2 3 4 5
Capabilities	Is metadata consistently collected, consolidated and available from a single portal?	1 2 3 4 5
Data Governance Project Components Maturity		
Component: Stewardship - The formalization of accountability for the definition, usage and quality standards of specific data assets within a defined organizational scope.		
Dimension	**Objective**	**Rating**
People	Have DG or stewardship roles and responsibilities been defined within the organization?	1 2 3 4 5
Policies	Have policies around data stewardship been defined within a functional area?	1 2 3 4 5
Capabilities	Does a centralized location exist for consolidation of and/or access to stewardship related documentation?	1 2 3 4 5
Component: Data Quality - The continuous process for defining the parameters for specifying acceptable levels of data quality to meet business needs, and for ensuring that data quality meets these levels.		
Dimension	**Objective**	**Rating**
People	Are people assigned to assess and ensure data quality within the scope of each project?	1 2 3 4 5

Policies	Have data quality best practices been defined and adopted as official organizational data policies?	1 2 3 4 5
Capabilities	Have basic data profiling tools been made available for use anywhere in the system development lifecycle?	1 2 3 4 5

Component: Master Data - Business-critical data that is highly shared across the organization. Master data are often codified data, data describing the structure of the organization or key data entities.

Dimension	Objective	Rating
People	Is there consistent understanding among stakeholders of the concepts and benefits of master data?	1 2 3 4 5
Policies	Are there formal policies that define what data are considered institutional master data?	1 2 3 4 5
Capabilities	Are master data identified, managed and provisioned?	1 2 3 4 5

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