How to transform the landscape of analytics with data governance

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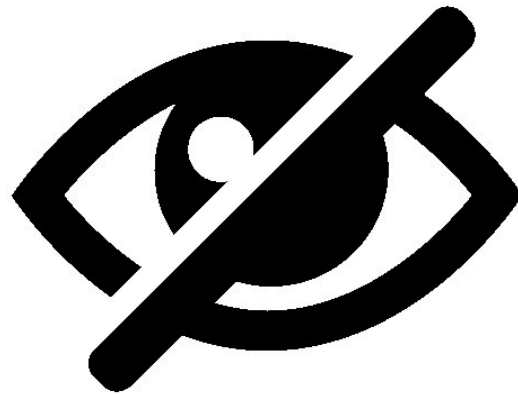
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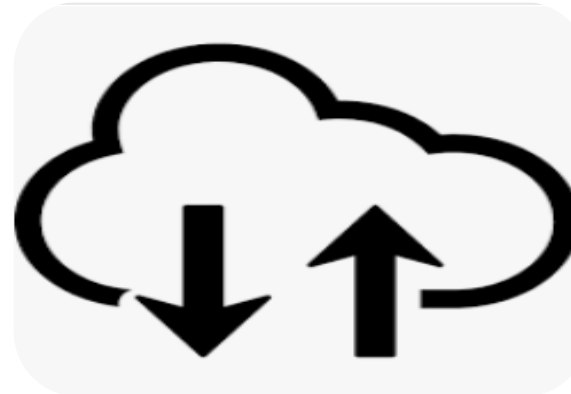Stony Brook University

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Data governance is a strategic priority

Proliferation of data and applications

Privacy expectations/ regulations

Cloud data mobility

Fair and ethical use

The 5-second elevator definition

Data governance is …

- a set of guidelines for how people behave and make decisions about data

What is Data Governance?

John Ladley –
Data governance is the organization and implementation of policies, procedures, structure, roles, and responsibilities which outline and enforce rules of engagement, decision rights, and accountabilities for the effective management of information assets.

Implement	Identify
Policies	Rules
Procedures	Rights
Structures	Accountabilities
Roles	Expectations
Responsibilities	Opportunities
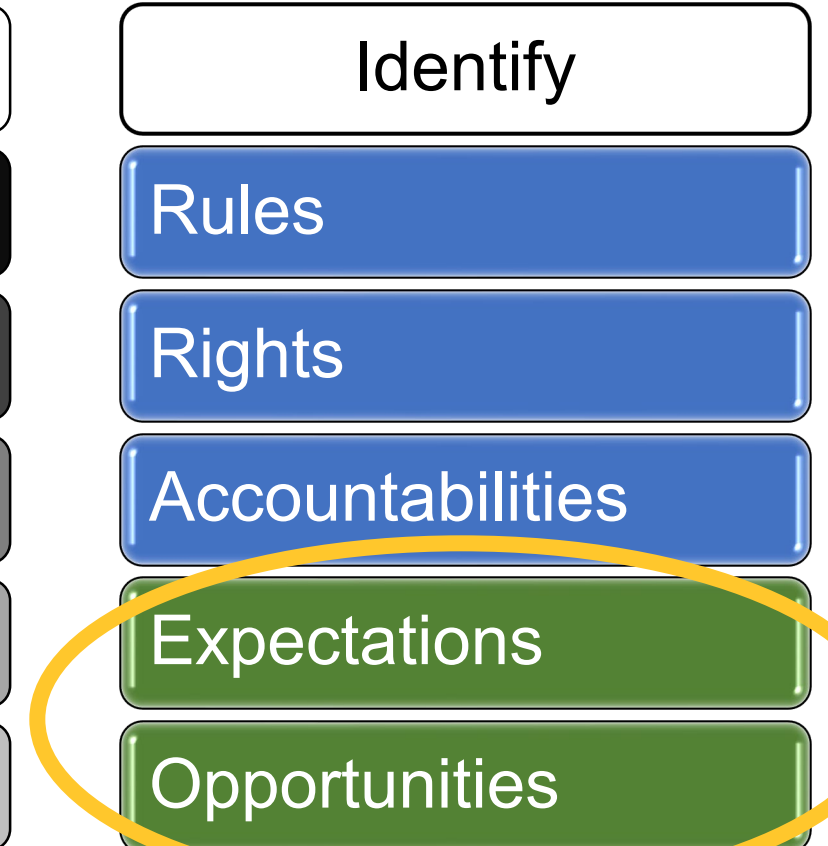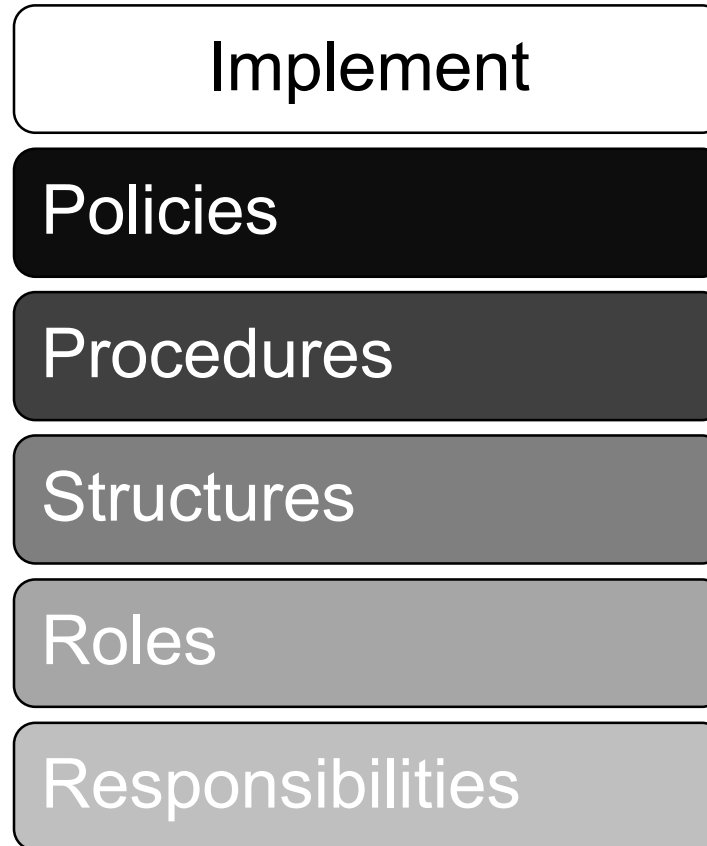
Important characteristics of DG definitions

Data governance IS	Data Governance IS NOT
• More about people and behavior than data	• IT's responsibility
• A system that requires and promotes shared agreement	• Solved by technology
• Formal (i.e. written down)	• Equally applied across all data assets
• Adds value by supporting institutional mission/goals	

Complementary Elements of Data Governance

Strategic Empowerment

Risk v Reward

Rules & Constraints

Why Do We Need Data Governance?

Maximize Data Investments	Gain Deeper Insights	Promote Efficiency
Ensure Trust	Reduce Risk	Improve the Experience

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Principles of Data Governance

|		
Consistency of data in its sourcing and in its vocabulary, definitions, and taxonomies	**Quality** which is proactively assessed and standards applied	**Responsibility** and accountability defined across the data lifecycle and recorded in the information asset register
Business alignment which ensures that data is regarded and treated as a key business asset	**Secure access** to relevant users, kept secure through access control	**Insight**

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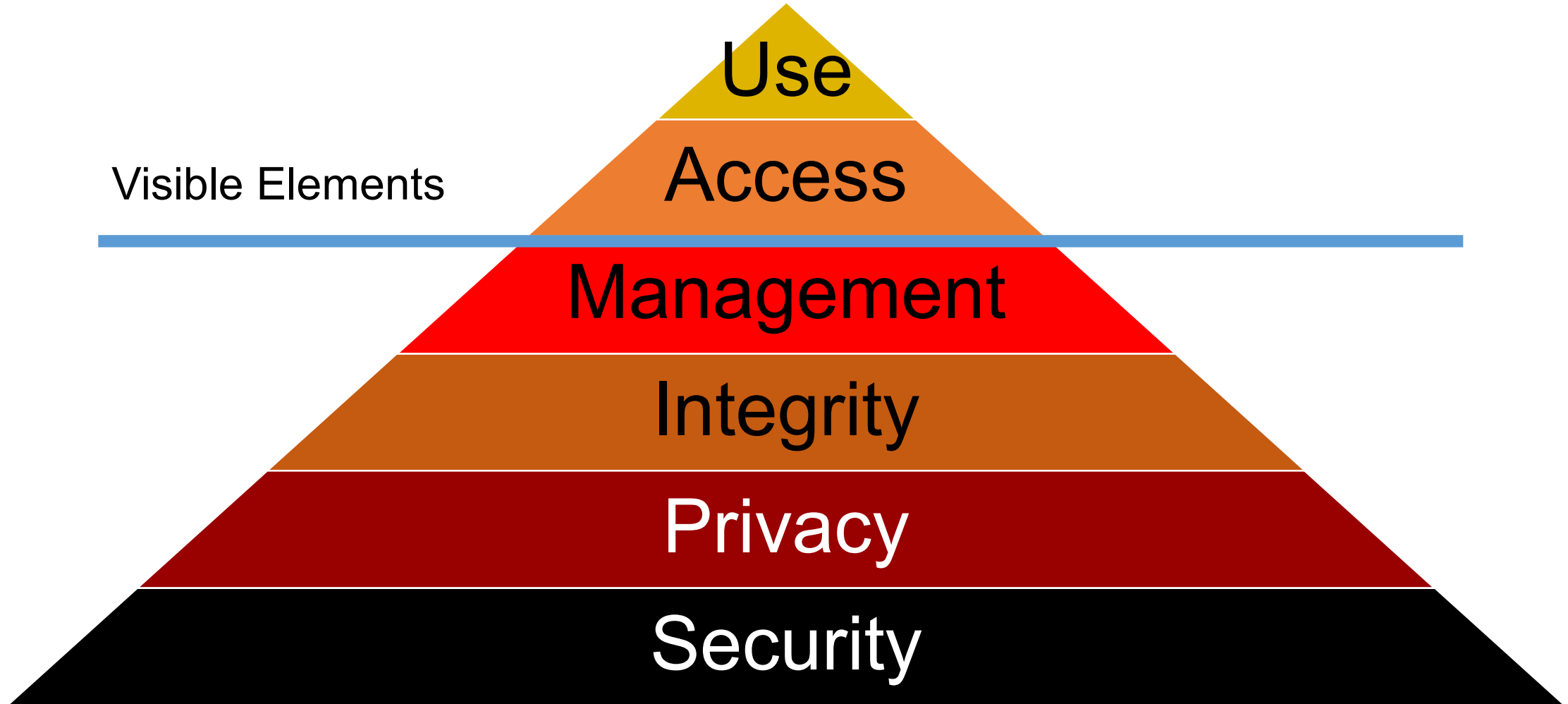
What Data are we Governing?

Administrative — ERP Data and Operational Data

- SIS, HR, Financials, CRM, Departmental, Organizational Performance Data

Teaching & Learning — Instructor and Student Performance

- LMS, Lecture Capture, Clickers, Attendance, Engagement, Grades, Progression, and Course and Faculty Evaluations

Research — Data on Researchers, Research & Grants

- Publication and Citation Histories, Proposals Submitted, Research Content & Results, Grant Dollars, PI and Co-PI data, Graduate and Undergraduate Research

Other Types — Both Internal and External Data

- Meta-data, Unstructured Data, Geo-location, Event Attendance, Organization Involvement, Social Media, Sentiment Analyses, Survey Data, Business Transactions, Vendor Data

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Key features of data governance systems

| Documents	Groups	Individual roles

• Charter / framework
  • Principles & values
  • Purpose & scope
  • Roles & responsibilities
 	
• Written & published policies
• Data dictionaries
• Communication strategies
	• Senior leadership [buy-in]
	
	• Policy council
	
	• Data steward council(s)
	
	• Information security council/program
	
	• Positions/office to support DG
		• Data stewards
		
		• Data custodians/ caretakers
		
		• Data users

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Common Elements of the Structure

Committees	Executive/Steering – Senior officials focused on holistic goals of institution
	Data Strategy – Occasionally separate from above focused on better data use
	Operational Governance – Responsible for executing policies and procedures
	Data Standards – Maintains data elements and monitors quality and delivery
Roles	Chief Data Officer (CDO) – Often overseas the execution of institutional goals
	Data Trustees – Subject matter owners responsible for data integrity and clarity
	Data Stewards – Responsible for assigning access and assuring standards met
	Data Custodians – Usually IT maintaining security, backups, recovery, availability
	Data Consumers – Functional staff who interact with data and report on data

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Structure – Generic Example
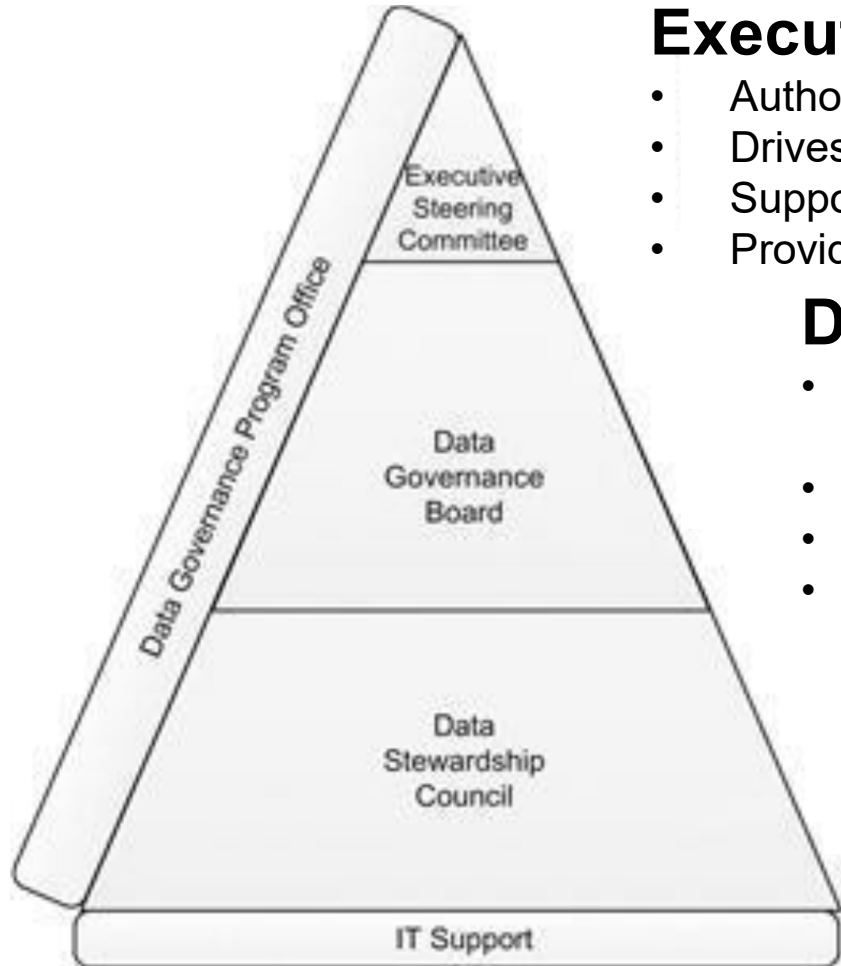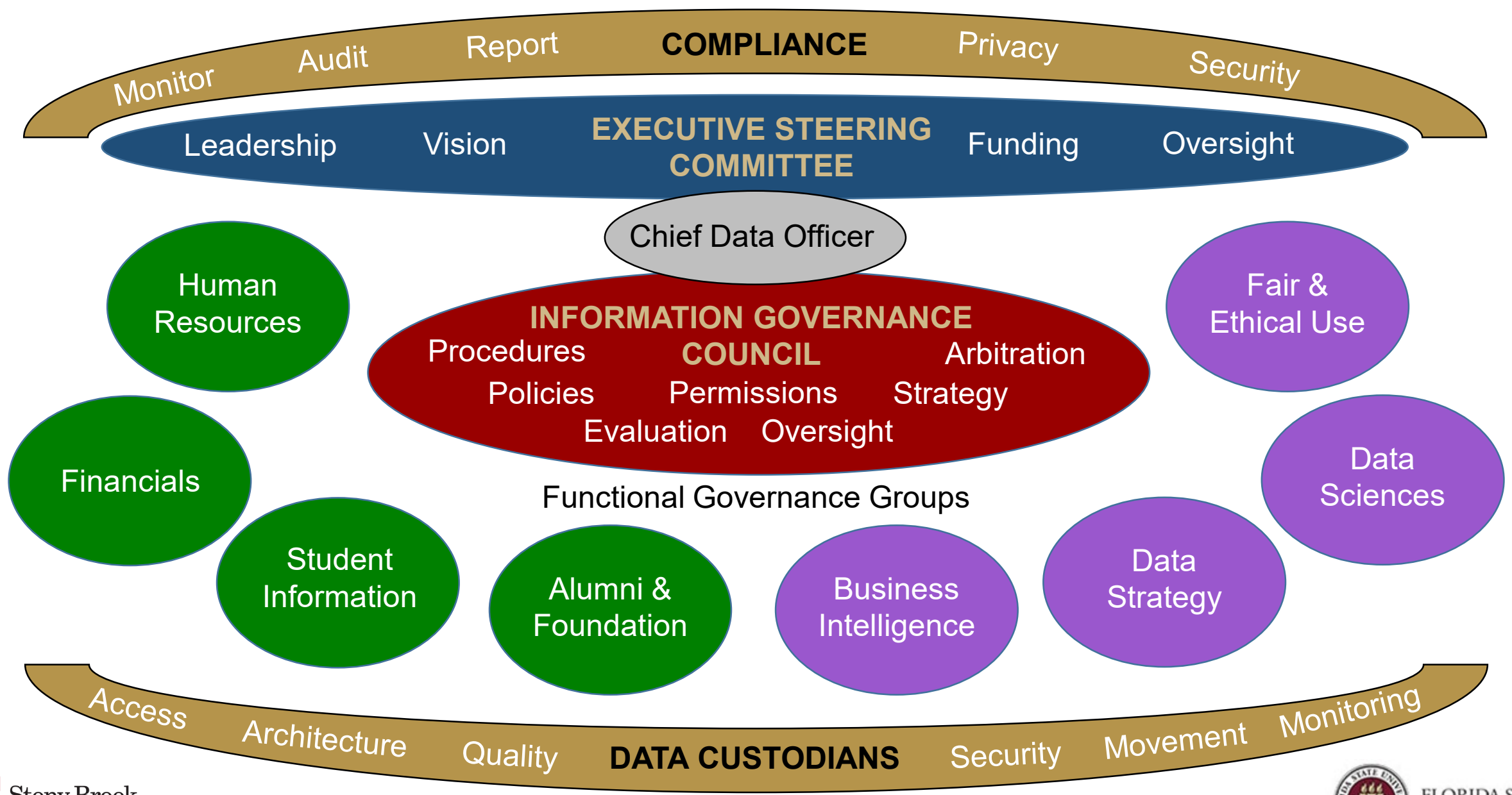

Executive Steering Committee
- Authorized to change the organization
- Drives cultural change
- Supports the program enterprise-wide
- Provides funding for the Data Governance Program

Data Governance Board
- Made up of high-ranking representatives of data- owning business functions who can make decisions about data for the company
- Assign members of the Data Stewardship Council
- Approve decisions of the Data Stewardship Council
- Approve data-related policies

Business Data Stewards
- Experts on use of their data domain data
- Able to reach out to SMEs to gather information and make decisions
- Typically someone who others come to as the most knowledgeable about the meaning of the data (and how it is calculated)
- Makes recommendations on data decisions and write data-related procedures

Plotkin (2014). Data stewardship: An actionable guide to effective data management

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Information Governance Council Purpose

Create a data governance imperative	Promote a data-engaged campus	Create and update policies	Create access control mechanisms
Manage conflict resolution	Promote shared data management	Authorize data movement and storage	Reinforce reporting controls

Define and arbitrate fair and ethical use	Evaluate and assess effectiveness

Data Steward Responsibilities

Oversee management of selected data assets

Participate in data governance and carry out decisions

Assist in creation and maintenance of data dictionaries, metadata

Document rules, standards, procedures, and changes

Ensure data quality and manage specific issues

Communicate appropriate use and changes

Manage access and security

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Functional Data Stewardship Council/Committees

Coordinate data stewards in related area

Set / review definitions, data quality rules, creation/usage rules, metadata

Consider and approve **changes to code sets**

Enforce data dictionary standards in area

Review data quality in functional area; identify practices promoting data quality

Respond to inquiries about process, content, limitations and uses of data, especially in cross-functional settings

Elevate issues that require resolution

Communicate proceedings, including notice of changes and decisions

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Data users

Expectations should be set for data users. Example formal responsibilities (Stony Brook)

Recognize that institutional data are potentially complex. Make efforts to understand the source, meaning and proper use of the data

Include information about the data source and criteria to guard against misinterpretations of data.

Respect the privacy of individuals whose records they may access.

Ensure that passwords or other security mechanisms are used for sensitive data

Report data quality issues to appropriate data steward

Keys to Implementation
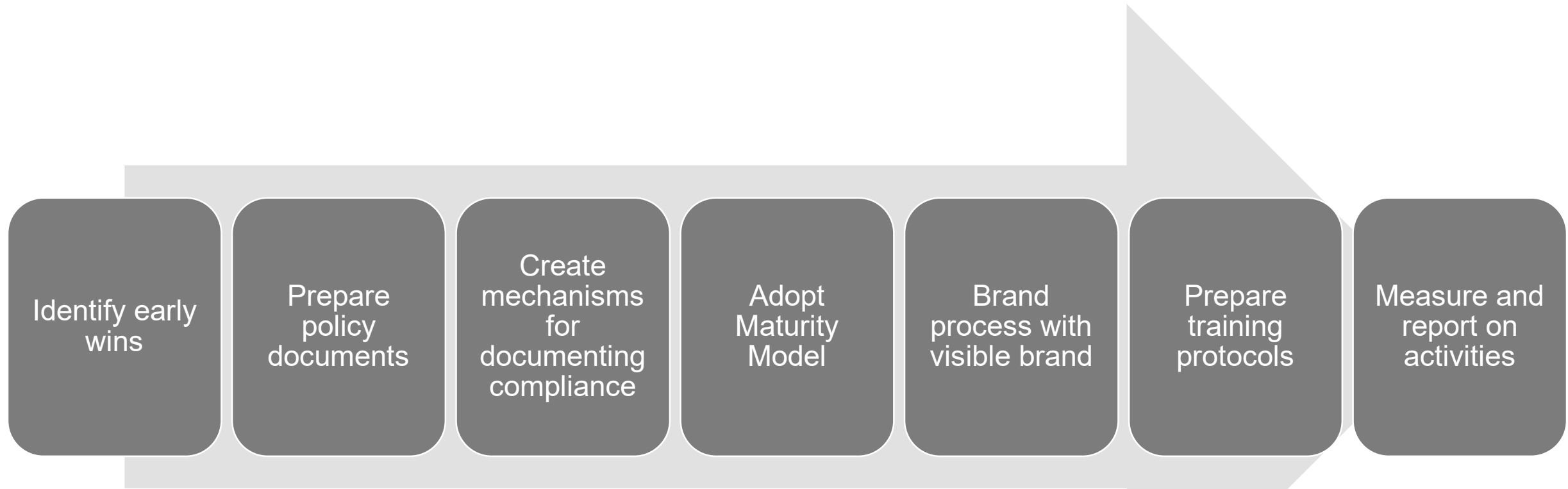

| Create value statement for DG | Prepare a roadmap | Design the program | Identify rough costs and staffing | Identify structure and roles on governance committees | Plan meetings and document via shared media |

Additional Keys to Implementation

| Identify early wins | Prepare policy documents | Create mechanisms for documenting compliance | Adopt Maturity Model | Brand process with visible brand | Prepare training protocols | Measure and report on activities |

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Technology applications for data governance

Technology can support data governance	Data dictionary management	
	Data quality analysis	
	Master data management	
	Issue and process management	
Technology will not	Build organizational structures, responsibilities, accountabilities	
	Mend dysfunctional organizations	
	Implement organizational or cultural change	

Collibra

data cookbook
idata Data Management for Higher Education

Informatica

melissa

ORACLE

sas

talend

Technikes
let the world know about it

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Example Data Governance Maturity Model

	Level 1	Level 2	Level 3	Level 4	Level 5
	Informal	**Developing**	**Adopted and Implemented**	**Managed and Repeatable**	**Integrated and Optimized**
Organizational Structures	Attention to Data Governance is informal and incomplete. There is no formal governance process.	Data Governance Program is forming with a framework for purpose, principles, structures and roles.	Data Governance structures, roles and processes are implemented and fully operational.	Data Governance structures, roles and processes are managed and empowered to resolve data issues.	Data Governance Program functions with proven effectiveness.
Culture	Limited awareness about the value of dependable data.	General awareness of the data issues and needs for business decisions.	There is active participation and acceptance of the principles, structures and roles required to implement a formal Data Governance Program.	Data is viewed as a critical, shared asset. There is widespread support, participation and endorsement of the Data Governance Program.	Data governance structures and participants are integral to the organization and critical across all functions.
Data Quality	Limited awareness that data quality problems affect decision-making. Data clean-up is ad hoc.	General awareness of data quality importance. Data quality procedures are being developed.	Data issues are captured proactively through standard data validation methods. Data assets are identified and valuated.	Expectations for data quality are actively monitored and remediation is automated.	Data quality efforts are regular, coordinated and audited. Data are validated prior to entry into the source system wherever possible.
Communication	Information regarding data is limited through informal documentation or verbal means.	Written policies, procedures, data standards and data dictionaries may exist but communication and knowledge of it is limited.	Data standards and policies are communicated through written policies, procedures and data dictionaries.	Data standards and policies are completely documented, widely communicated and enforced.	All employees are trained and knowledgeable about data policies and standards and where to find this information.
Roles & Responsibilities	Roles and responsibilities for data management are informal and loosely defined.	Roles and responsibilities for data management are forming. Focus is on areas where data issues are apparent.	Roles and responsibilities are well-defined and a chain of command exists for questions regarding data and processes.	Expectations of data ownership and valuation of data are clearly defined.	Roles, responsibilities for data governance are well established and the lines of accountability are clearly understood.

Person Roles

- CDO – Chief Data Officer
- CISO – Chief Information Security Officer
- Chief Privacy Officer
- Chief Compliance Officer
- Institutional Data Administrator
- Data Stewards
- Data Custodians
- Data Manager

Key Policies

- Strategic Vision/Policy for Data Use
- Information Privacy
- Data Access and Use
- Data Management (includes 3rd Party)
- Cybersecurity
- Email and Media Use
- Survey Administration
- Data & Device Security
- Fair and Ethical Use

Takeaways

- Data governance is more about people than data

- All higher ed change management principals apply

- Process and written documents are essential
  - Leadership support
  - Broad-based consultation, including faculty
  - Opportunity for consultation
  - Representation

- Software can help, but it won't fix broken processes or organizations

- Starting data governance is hard work; sustaining it is harder

Questions?

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