CLOUD BASED STRATEGIES FOR DATA MANAGEMENT AND BUSINESS INNOVATION IN PROJECTS

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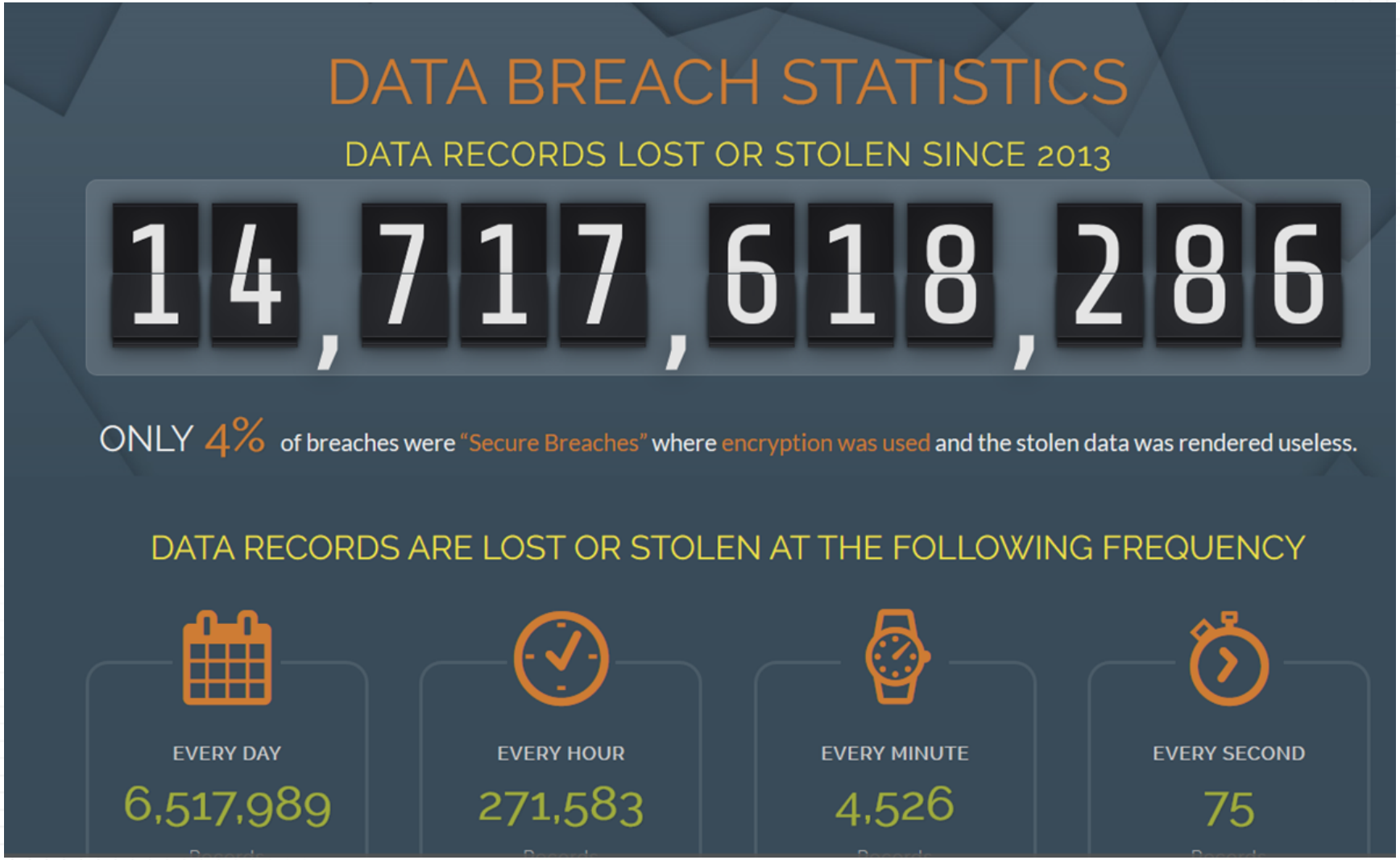
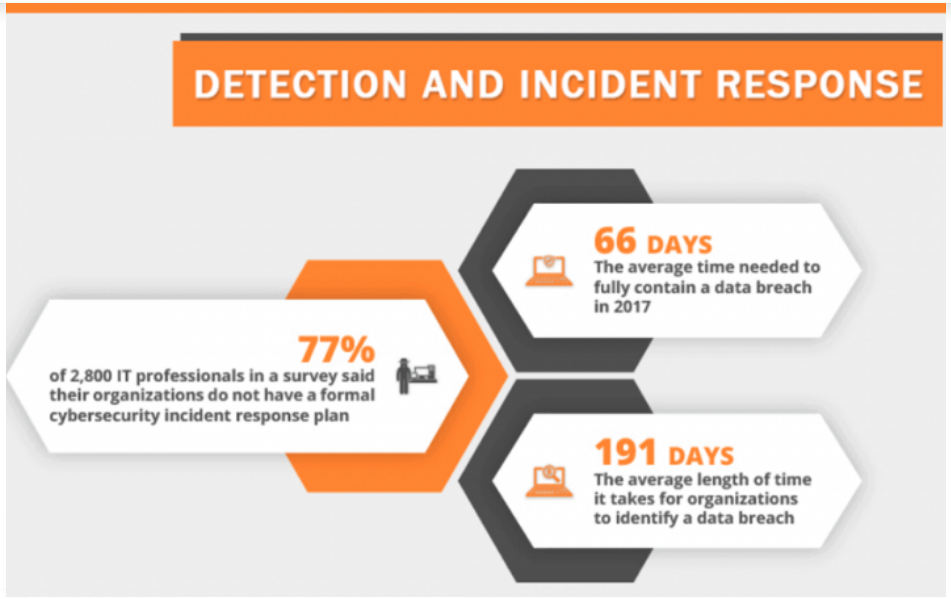
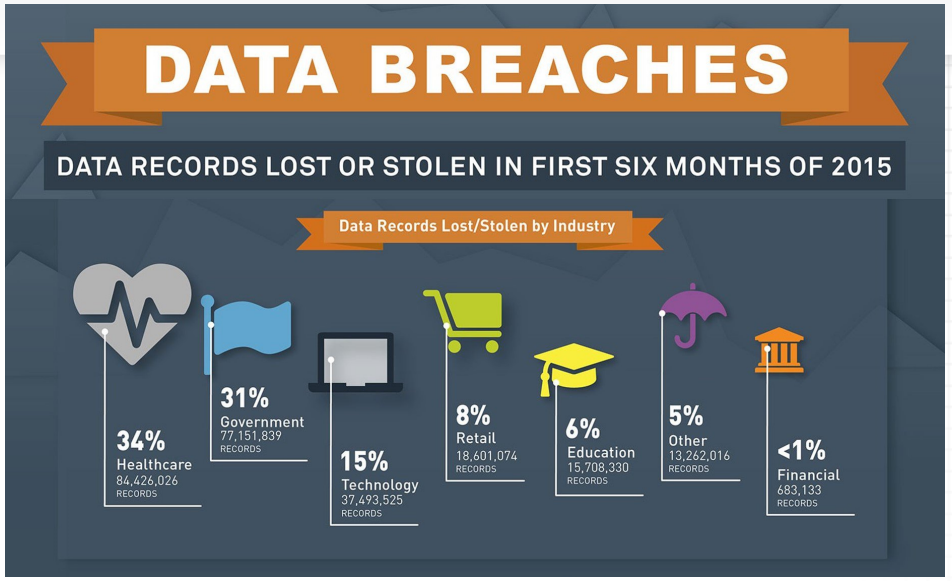
2020 Project Management Symposium



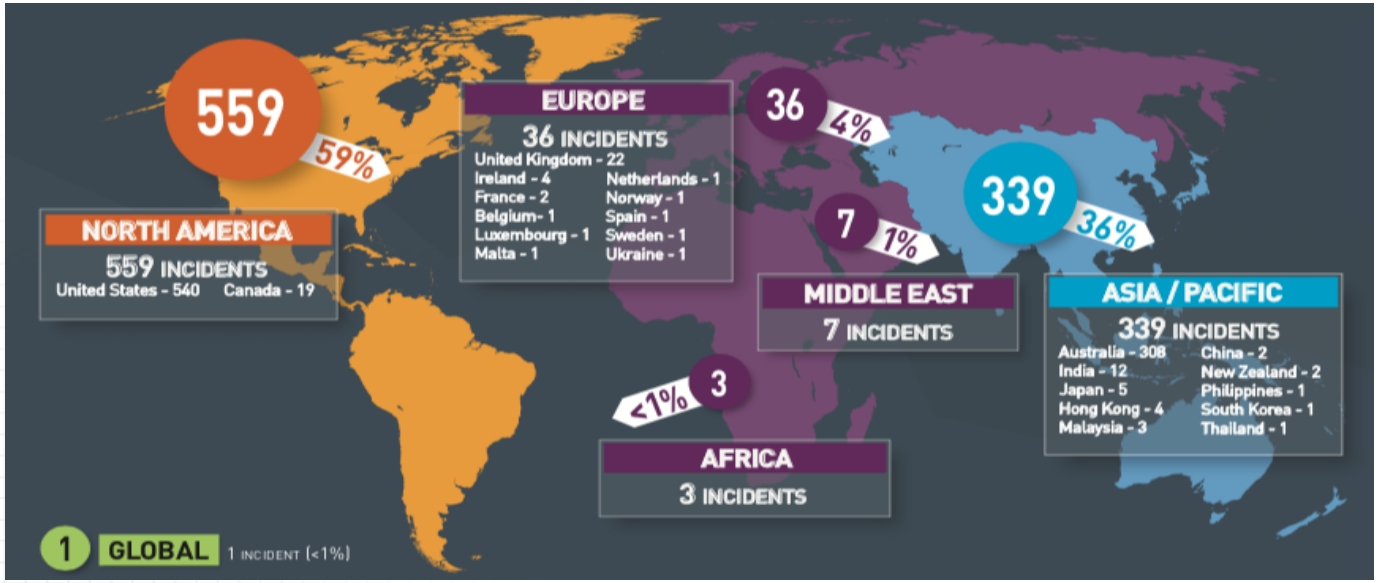
Source: https://breachlevelindex.com/



Source: https://smallbiztrends.com/2018/09/data-breach-statistics.html



Source: http://info.nutmegtech.com/hubfs/data-breaches-2015.jpg



The number of records stolen in the first half of 2018 reached an astonishing *4,553,172,708*, an increase of 133 percent over the *first half of 2017* according to a report from Gemalto. (Softpedia News) - https://news.softpedia.com/news/4-5-billion-records-stolen-in-data-breaches-in-the-first-six-months-of-2018-523174.shtml

Cloud Computing

- Moving computing resources out on the Internet.
- Implementing virtual servers
- Sharing data from multiple locations
- Storing and accessing applications and over the internet instead of local device
  - Reliability and Security Issues

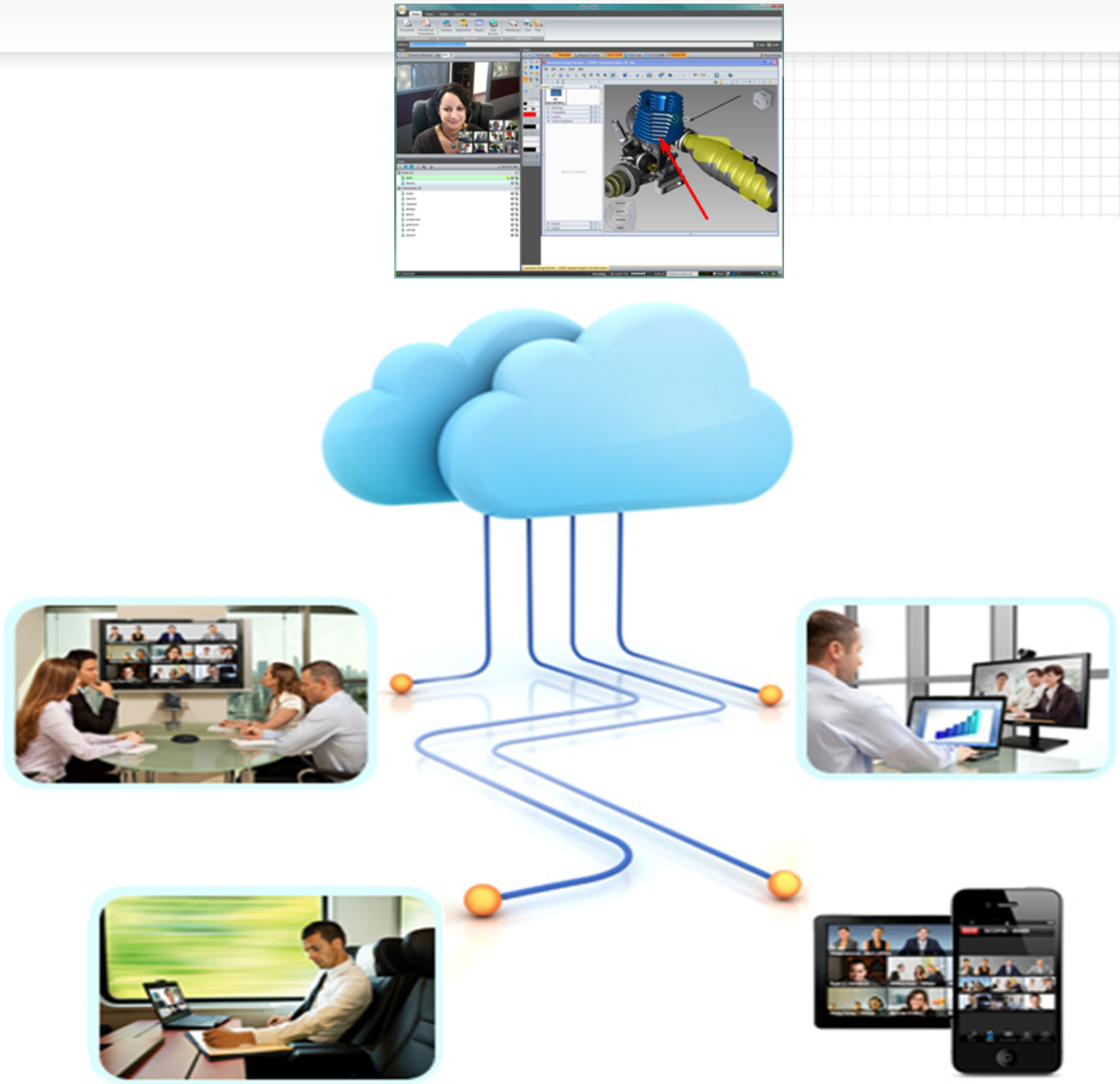
NIST Definition of Cloud Computing

- *"Model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable resources that can be rapidly provisioned and released with minimal management effort or service provider interaction."*

http://csrc.nist.gov/publications/nistpubs/800-145/SP800-145.pdf

Cloud Characteristics

- On-Demand Self-Service
  - Process Agility
- Broad Network Access
  - High Availability
- Resource Pooling
- Rapid Elasticity
- Measured Service



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...because open source matters

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web services

skype™

Bb™
Blackboard
www.blackboard.com

ANGEL LEARNING

Microsoft
Azure

moodle

canvas

Windows Azure

Windows Live SkyDrive Beta

Microsoft Office 365

box

SOS Online Backup

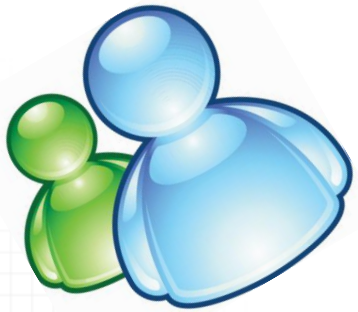
Dropbox

Google

Gmail

AOL

Instagram



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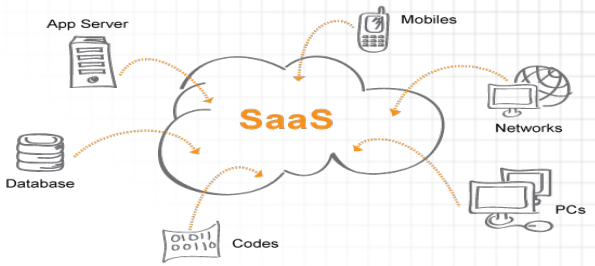
Service Models

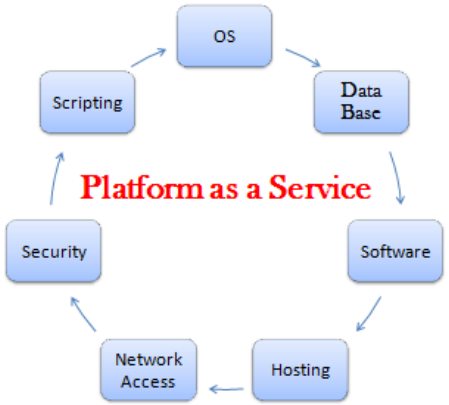
SaaS – Software as a Service

Capability provided to the consumer to use provider's application running on a cloud infrastructure



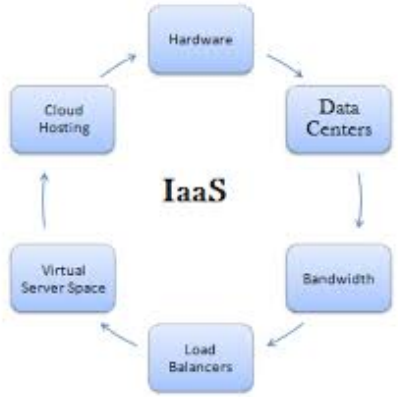
PaaS – Plataform as a Service

Capability provided to the consumer to deploy onto the cloud infrastructure consumer-created or acquired applications created using programming languages, libraries, services, and tools supported by the provider.



IaaS – Infrastructure as a Service

Capability provided to the consumer to provision processing, storage, networks, and fundamental computing resources. Consumer does not manage the infrastructure but has control over operations.



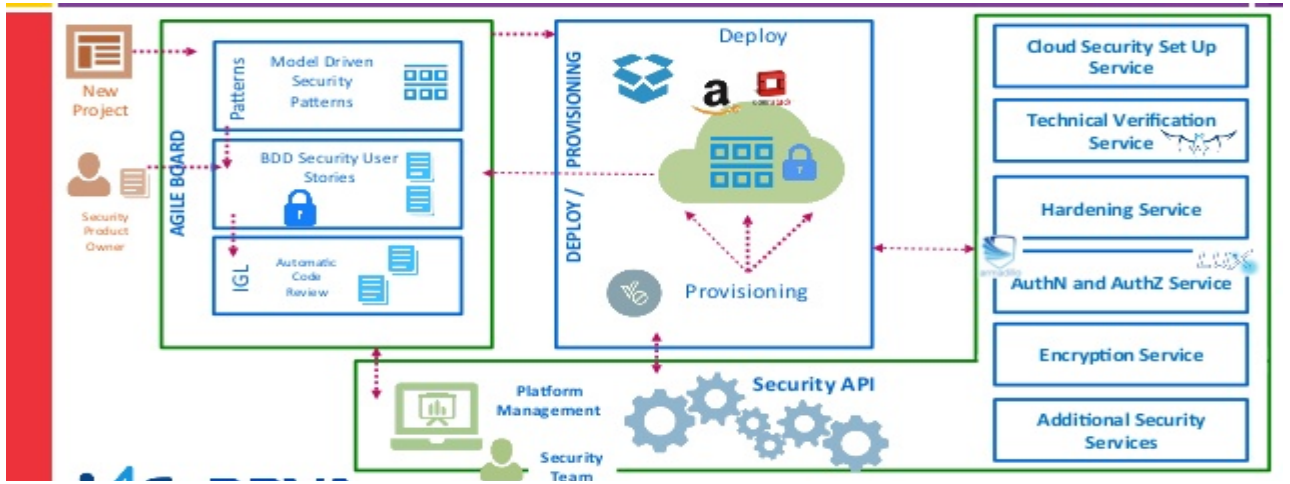
Service Models

DaaS – Data as a Service

Design, implement and manage the master data management landscape and oversee data governance compliance.

SaaS – Security as a Service

A third party is contracted to oversee overall network perimeter and monitor for security.



Benefits and Risks of Handling Data over the Cloud

Benefits (Clarke, 2010)

- Availability
- Service Reliability and Integrity
- Cost Benefits associated with contracting remote resources
- Data availability at all times and in any place
- Lower costs associated with infrastructure management

Risks (Clarke, 2010)

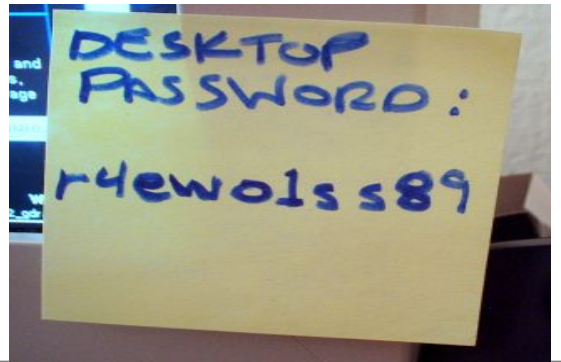
- Accountability
- Legal compliance
- Auditing limitations
- Compromised, lost or stolen data
- Data leaks
- System downtime from external resources
- *Project Data is part of the Enterprise History*

Business and Project Management Control Strategy

- Have in place a corporate-aligned technology resources management strategies
  - Cloud Data Management
- Compliance with local and international laws and requirements
  - Accountability – Service Level Agreement (SLA)
- Protection of intellectual property – compliance evaluation
  - Service Level Agreement (SLA)
- Aligning access controls to business or institutional needs
- Sound judgment when publishing sensitive data
  - Data Encryption

Business and Project Management Control Strategy

- Data protection before emailing
  - Passwords and Data Encryption
- Implement and manage a robust password structure
  - Two-Point Authentication
  - Three Point Authentication
- Have a backup and recovery strategy
- Use pdf-secured, passwords or digital certificates (https) when transmitting files over the cloud



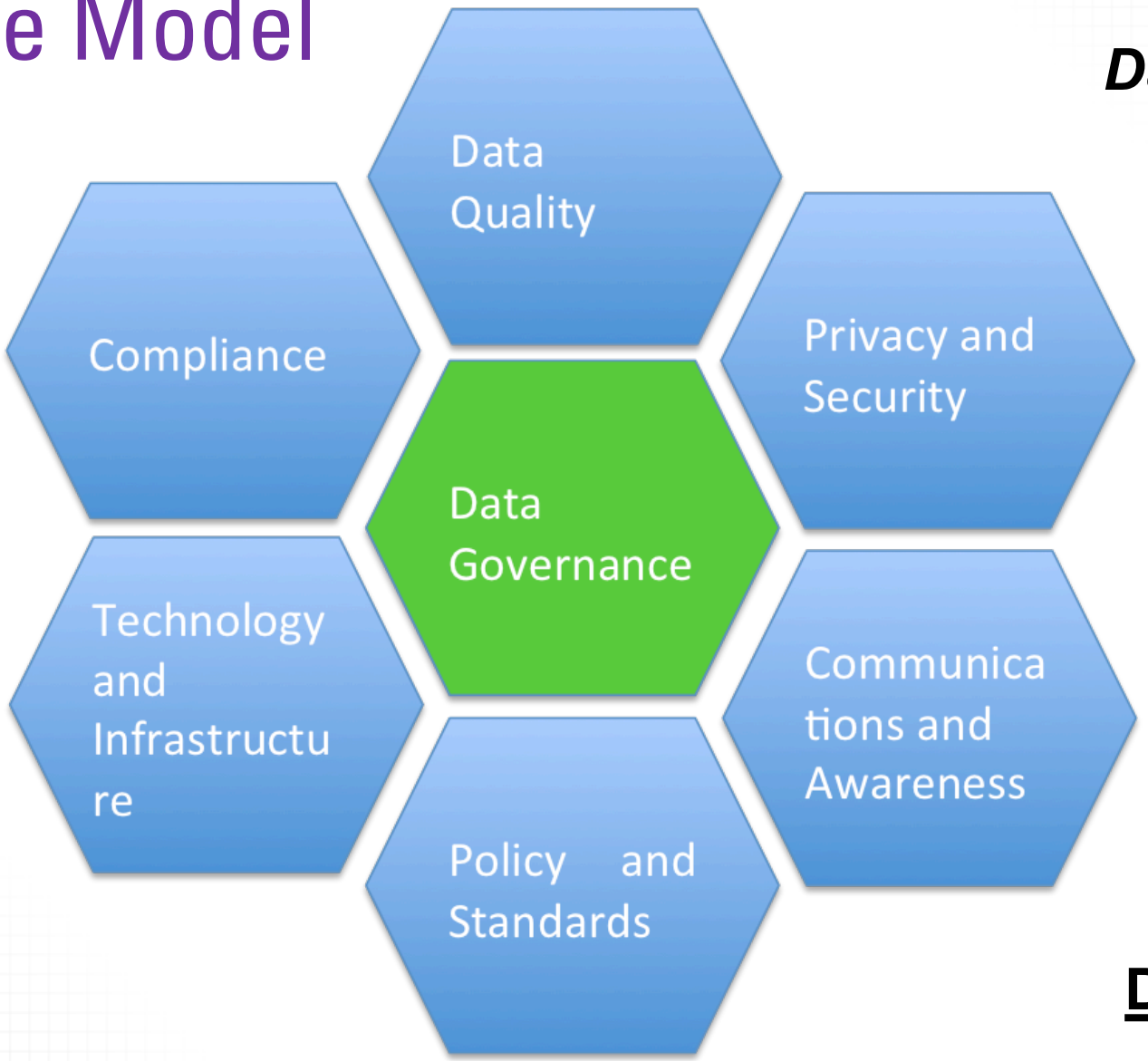
DATA GOVERNANCE FOR ENTERPRISE DATA SECURITY

Big Data Landscape 2016

FIRSTMARK

Data Governance Model

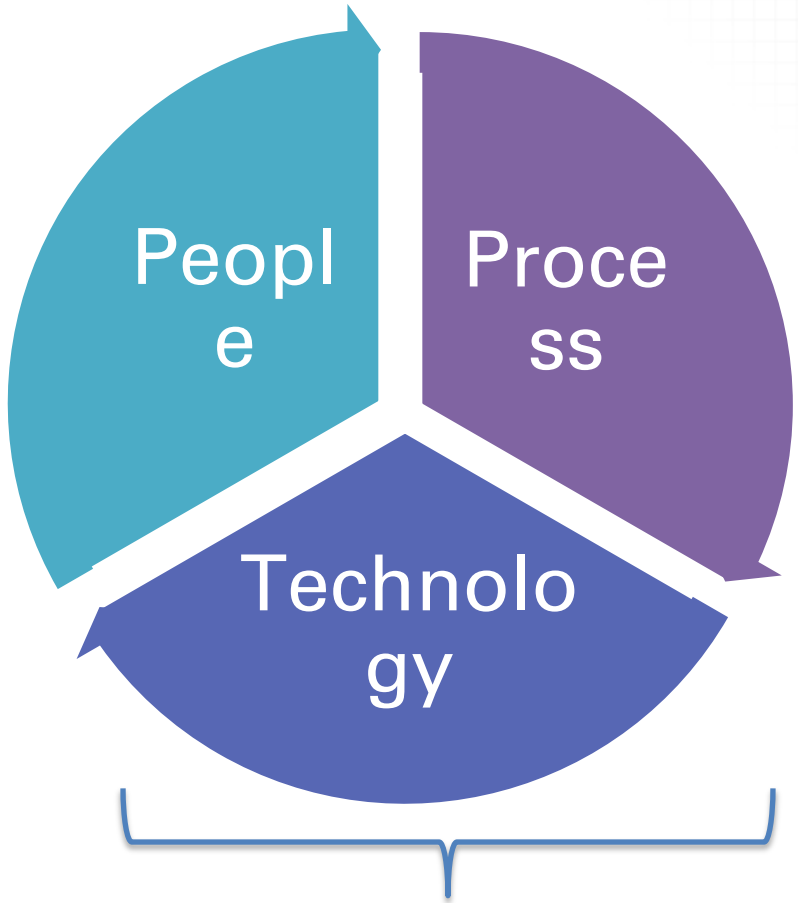
Data Matters!



Data is Power!

Business Case

- Big Data installations with structured (DBMS) and unstructured (emails, multimedia) data stored locally and remotely via cloud services presents management challenges to manage a data centric control structure

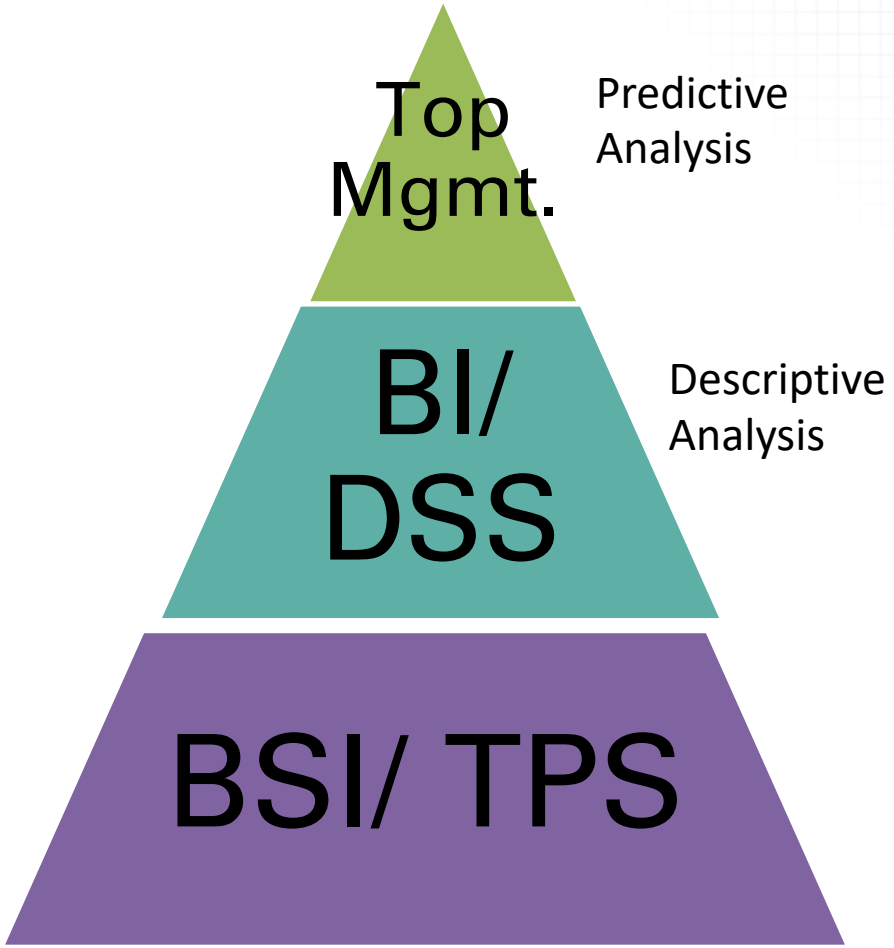


Business Case

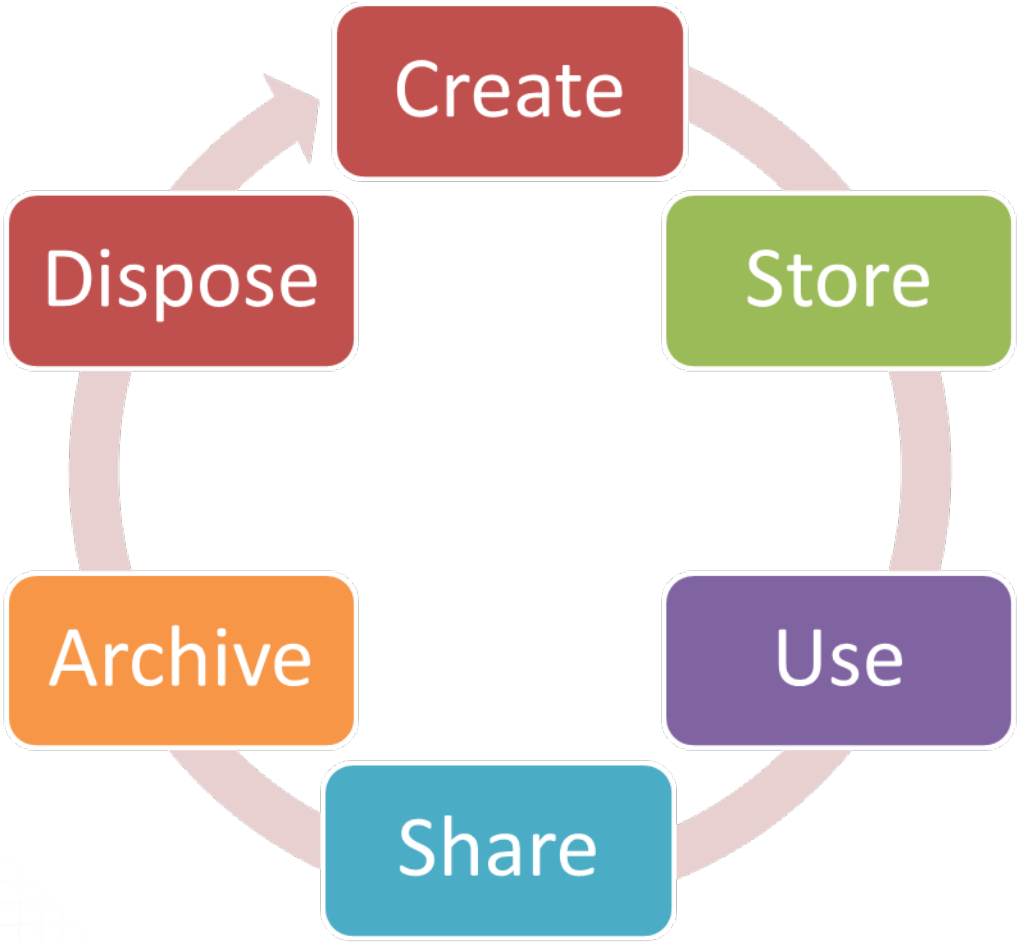
- Problem
  - Inconsistent, exposed data
  - Files or records removed without proper logging authorization and logging
  - Lost data throught new deployments, transitions or migrations
  - Change in ownership
- Risk
  - Unusable data
  - Corrupted datasets
  - Damaged files
  - Lose customer trust on data

Supporting Security and Decision Making

- Business value is dependent on quality of data, visibility and accessibility
- Information must be correct, complete, detailed, and integrated to effectively support operations and decision making.



Data/Information Lifecycle



Information Lifecycle Management

Create – Data Capture, Data Entry, Input Controls – Due Care

Store – Databases, Files – Management Policies, Data Retention

Use – Processed through processes and workflow

Share – Used and transformed across applications and organizational units

Archive – Dispose –Catalog and send data to secondary storage to free up storage space. Automated or non-automated removal of expired data

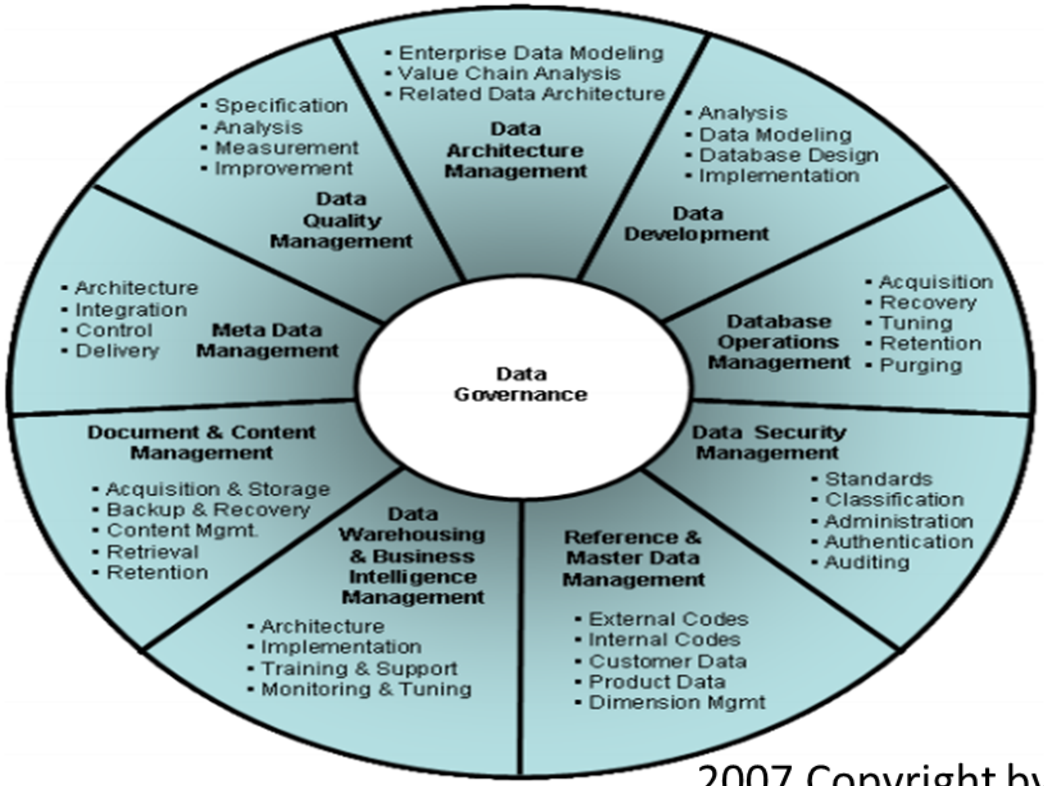
What is Data Governance?

- Set of management activities that organizes, implement and manage a set of structured policies, standards and procedures for effective use of the organization's structured and unstructured data.
  - A sound data governance program includes a governance council, similar to the security steering committee
- Entails policies, standards, procedures, tools and techniques, quality measures, roles, responsibilities and accountability, plus oversee data management operations across the information lifecycle to ensure lean data integrity, availability and confidentiality (CIA) triad.

Data, Information, Knowledge Management

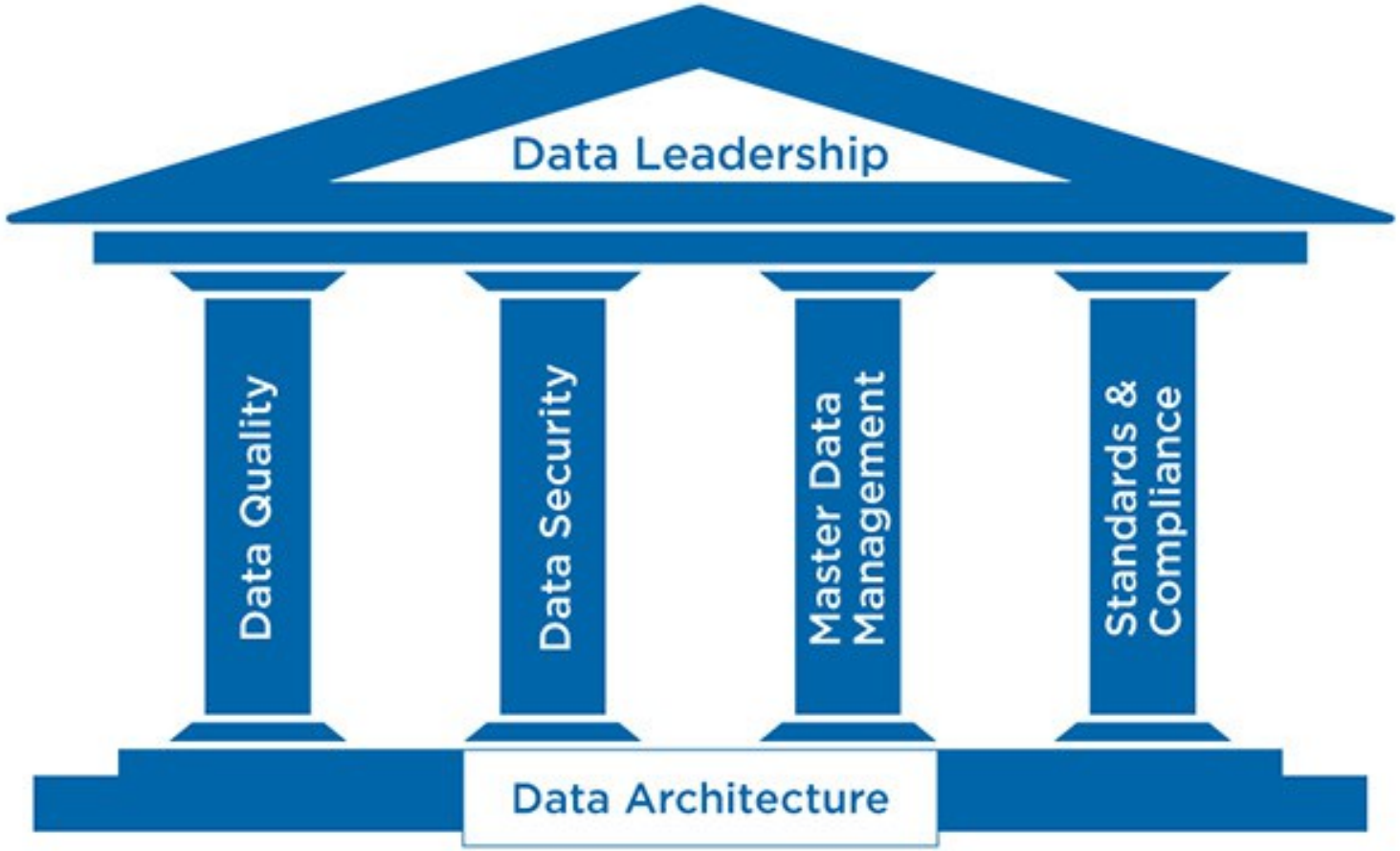
- Knowledge Management is defined by DAMA Intl. (2009) as the "Discipline that fosters organizational learning and the management of intellectual capital as an enterprise resource".
  - Organizations that recognize the value of data can take concrete, proactive steps to increase the quality of data as a valued asset of an enterprise.

The DAMA@ Body of Knowledge@



Data Management International Organization (www.dama.org)

Pillars of Data Governance



The DAMA@ Body of Knowledge@

- ***Data Governance*** – Planning, supervision, and control over data management and use.
- ***Data Architecture Management*** – Defining the blueprint for managing data assets.
- **Data Development-** Analysis, design, implementation, testing, deployment, maintenance.
- ***Data Operations Management***- Providing support from data acquisition to disposition.
  - Protection – encryption
  - Media destruction- degaussing, low level formatting, drilling, shredding

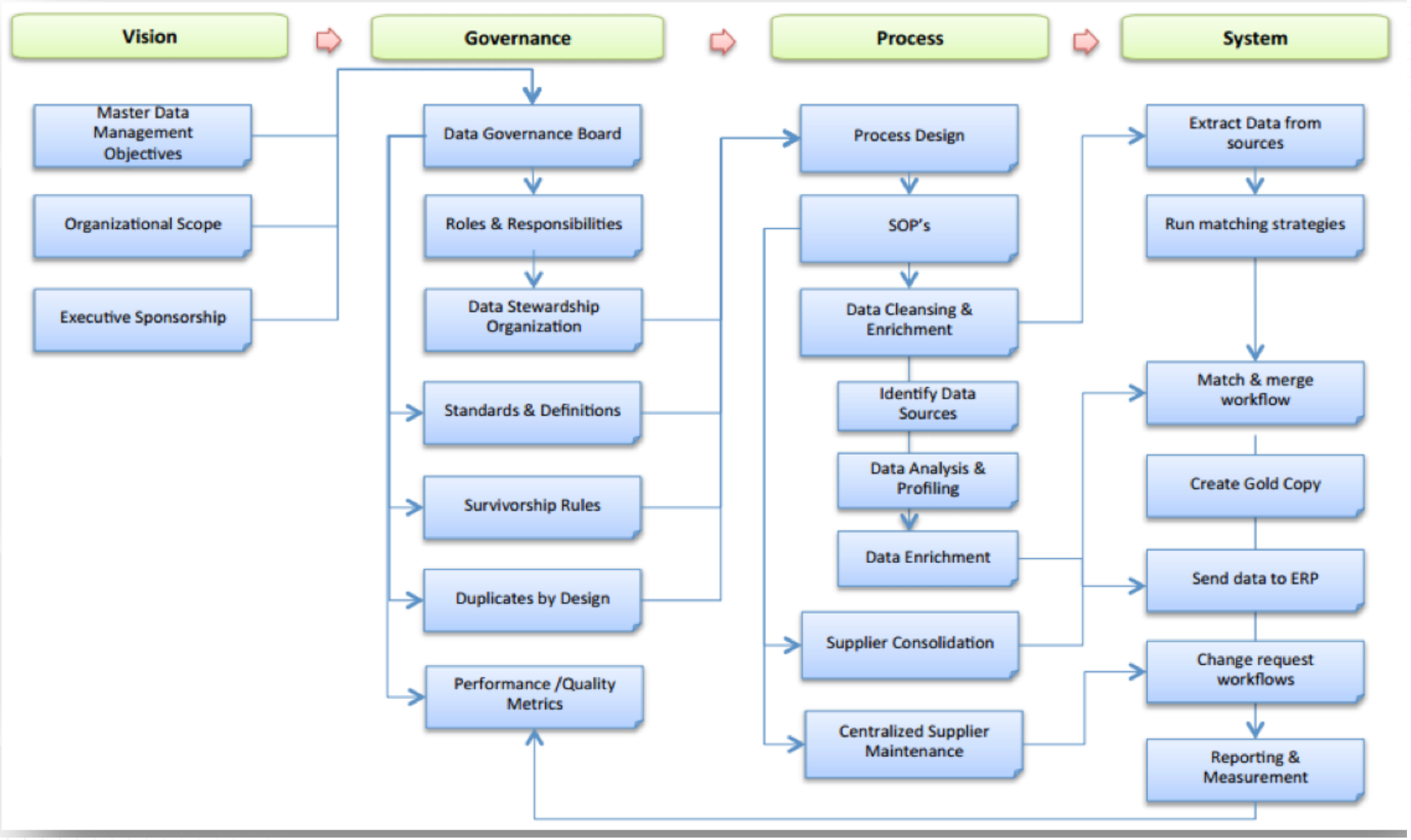
The DAMA@ Body of Knowledge@

- ***Data Security*** – Ensuring privacy, confidentiality, access levels. Involves systems, appliances & processes to protect data and database from intentional or unintentional damage.
- ***Data Quality Management*** – Defining, monitoring, and improving quality, correctness and integrity of data.
- ***Master Data Management*** – Definitions and safeguards of critical data repositories.
- ***Meta Data Management-*** Provides information on the identification, data attributes, business and technical definitions of data repositories and data sets.

Master Data Management

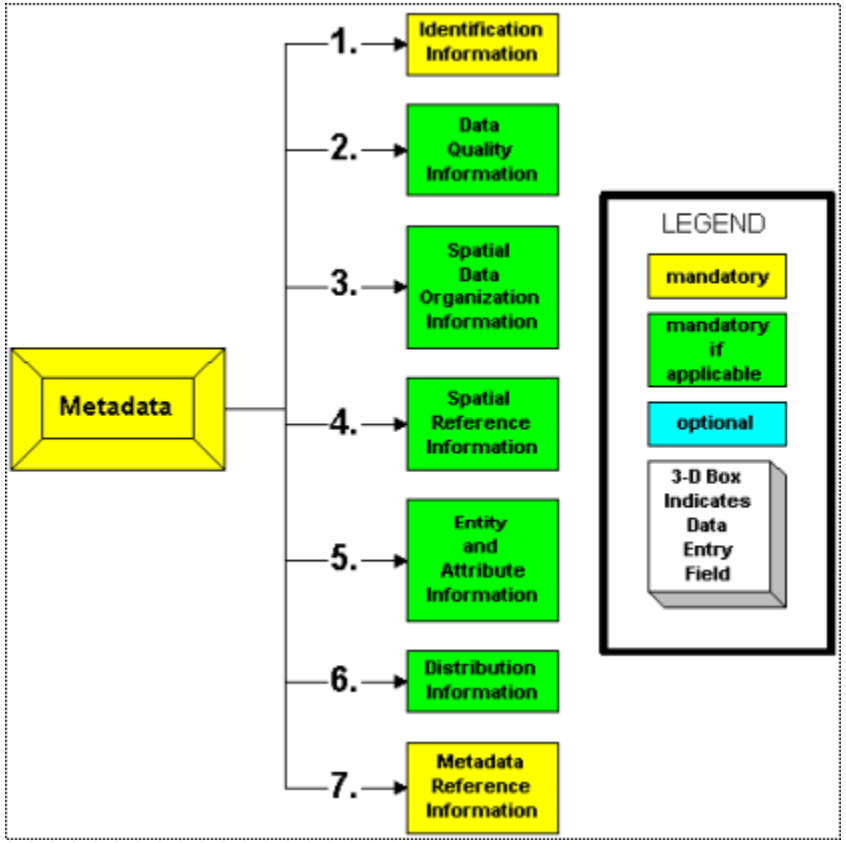
- Master Data Management (MDM) is a comprehensive strategy to determine and build a single, accurate and authoritative source of truth of a company's information assets and deliver this on demand as a service.

Pillars of Master Data Management



Source: http://www.hicxsolutions.com/master-data-management/supplier-master-data-governance-part-2-2/

Metadata Management



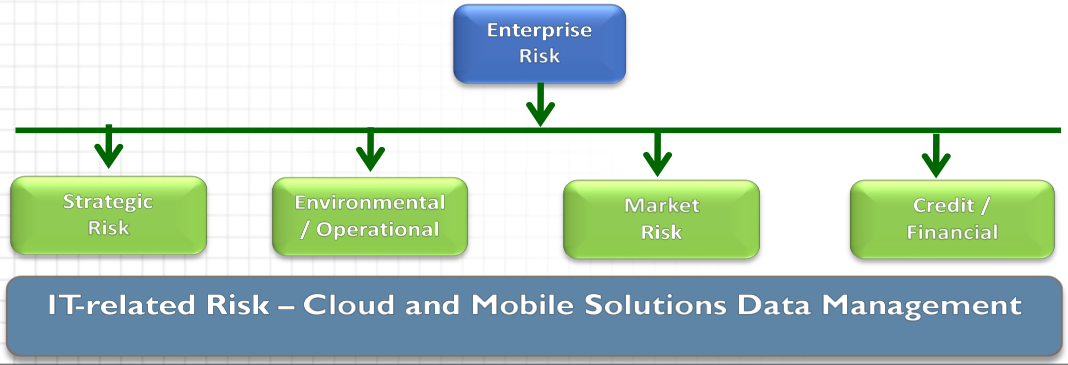
- Metadata management is the oversight of data associated with data assets to ensure that information can be integrated, accessed, shared, linked, analyzed and maintained to best effect across an organization.

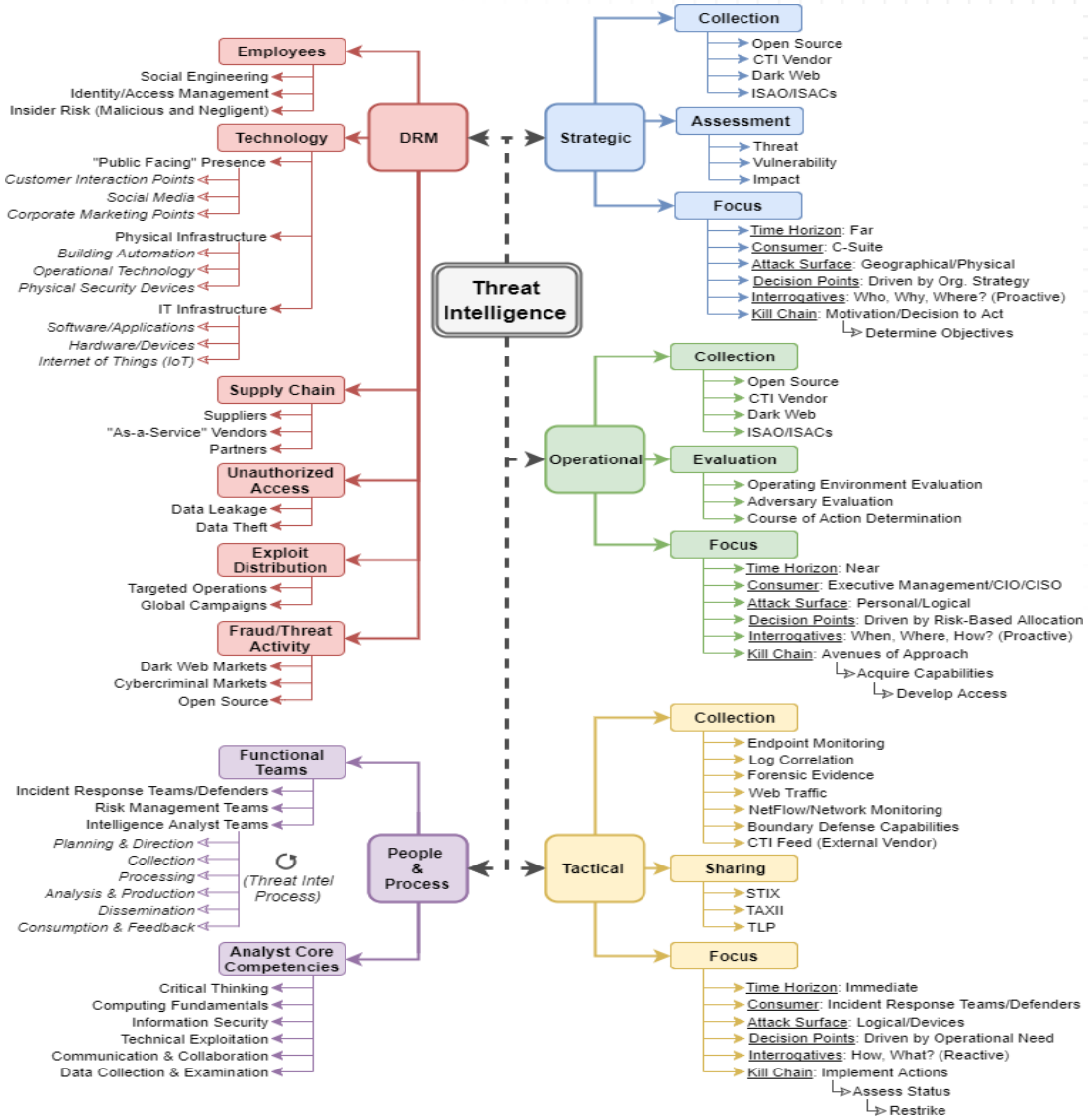
Data Taxonomy

Taxonomy: the relationship and importance of risk analysis for information security is stated and justified.

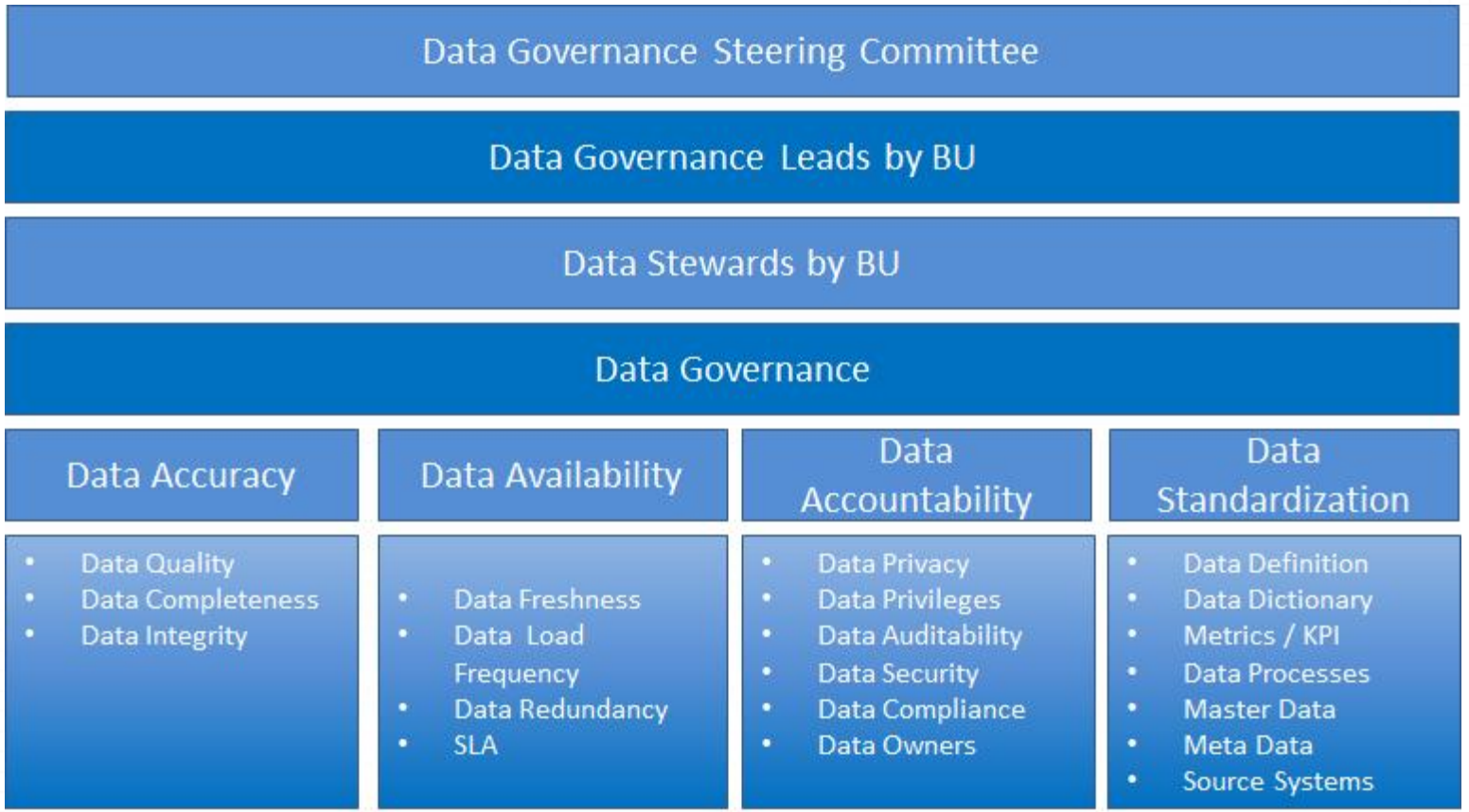
The taxonomy of operational cyber-risks looks to identify, organize, and classify all resources and sources of data and processes that the cyber-risk function must assess and manage—from people issues; hardware-software failures; gaps, faults, or holes in organizational processes; inventory of processes, databases, and applications running as part of the operation or service chain; and external events or activities.

In **data management**, taxonomy represents all the data elements or attributes, and their characteristics and relations within a domain (Knight, 2017).





Data Governance Council – Security Steering Committee



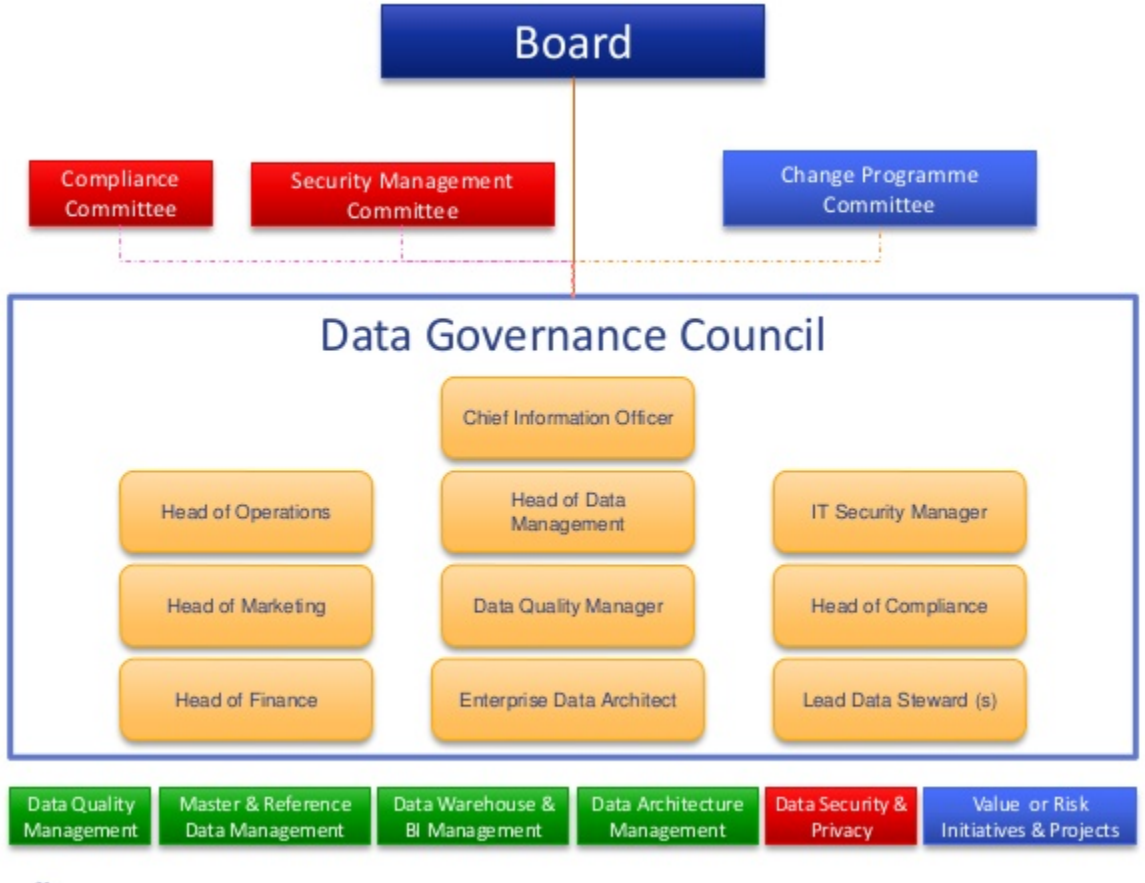
Source: https://ww.securestate.com/services/steering-committee-meetings

Data Governance Council – Security Steering Committee

STEERING COMMITTEE MEETINGS

CHARTER	SCHEDULE	MEET	FOLLOW UP
• EXPECTATIONS & POWERS • DIRECTION • MEMBERS	• MONTHLY • FLEXIBLE AMOUNT OF TIME	• AGENDA • BUDGET • INTELLECTUAL LEADERSHIP	• OUTSTANDING ITEMS • RESEARCH PREVIOUS DIRECTION • RESCHEDULE

Source:
https://www.securestate.com/services/steering-committee-meetings

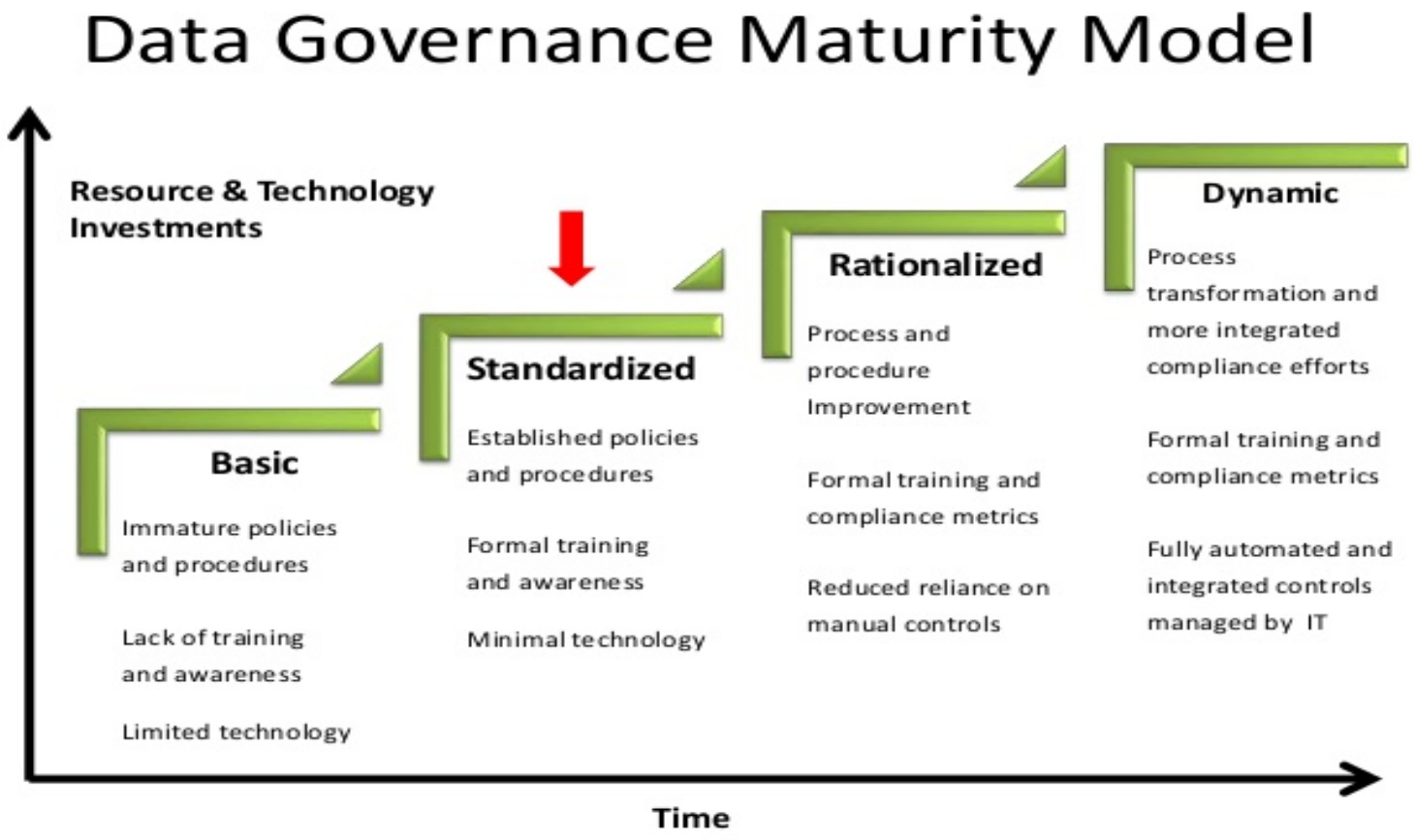


Source:https://www.google.com/search?q=security+steering+committee&source=lnms&tbm=isch&sa=X&sqi=2&ved=

Steps for Starting a Data Governance Program

- Get top management support
- Set clear goals, purpose and objectives
- Include only domains or governance levels needed based on company size and number of transactions
- Top down/ bottom up approach = design data governance SOP's form top level, but implement them at operational level
- Request Feedback
- Communication

Maturity Model



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- Stick to template styles
- Cite all sources

Don't use

- Inconsistent styles
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Questions?

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