

# Defining and Assigning Data Stewards



## A Guide to Effective Data Governance



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### Peter Aiken, Ph.D.

- I've been doing this a long time
- My work is recognized as useful
- Associate Professor of IS ([vcu.edu](http://vcu.edu))
- Institute for Defense Analyses ([ida.org](http://ida.org))
- DAMA International ([dama.org](http://dama.org))
- MIT CDO Society ([iscdo.org](http://iscdo.org))
- Anything Awesome ([anythingawesome.com](http://anythingawesome.com))
- Experienced w/ 500+ data management practices worldwide
- 12 books and dozens of articles
- Multi-year immersions
  - US DoD (DISA/Army/Marines/DLA)
  - Nokia
  - Deutsche Bank
  - Wells Fargo
  - Walmart
  - HUD ...

**\$1,500,000,000.00 USD**



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Slide # 2

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- Data Strategy and the Enterprise Data Executive** by Peter Allen & Todd Heston
- The Case for the Chief Data Officer** by Peter Allen and Michael Gorman
- MONETIZING DATA MANAGEMENT** by Peter Allen with Jyotsna Bellings
- DATA LITERACY** by Peter Allen & Todd Harbour
- Data Reverse Engineering** by Peter H. Allen
- Building Corporate Portals with XML** by Peter H. Allen
- XML in Data Management** by Peter H. Allen
- THE CDO JOURNEY** by Peter Allen, Todd Harbour, & Kelly Post

## Program Overview

- Why do we need data stewardship as a role?
  - Definitions: Stewardship, data stewards, data debt
  - The role of strategy
  - Data architecture = strategic focus implemented by stewards
- What are they supposed to do?
  - Resolve prerequisite challenges stemming from data debt
  - Data stewardship framework
  - Fire station model (Reactive & proactive foci)
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- Assigning data stewards (tangible improvement)
  - Start simply
  - Differing cadence (Need for different structural approach)
  - Foundational prerequisites
  - Need for simplicity, agility, practice
- Take aways → Q&A



**Data Stewards:  
Defining  
and  
Assigning**

## Question?

- How many starting versus how many re-starting?

# STARTING OR RESTARTING



## Data Steward

\dā-tā 'stū-ard\

- 1: A person who's responsible for managing your business' data resources, (aka, the one person at work you can't possibly live without.)





## Definitions



### Steward

1. a person who looks after the passengers on a ship, aircraft, or train and brings them meals.
  - synonyms: flight attendant, cabin attendant, air hostess, purser "an air steward"
  - a person responsible for supplies of food to a college, club, or other institution
2. an official appointed to supervise arrangements or keep order at a large public event, for ex. sporting event.
  - synonyms: official, marshal, organizer "the race stewards"
  - short for shop steward
3. **a person employed to manage another's property**, especially a large house or estate.
  - synonyms: (estate) manager, agent, overseer, **custodian**, **caretaker**; historical "**the steward of the estate**"
  - a person whose responsibility it is to take care of something. "farmers pride themselves on being **stewards** of the countryside"

### Stewarding

1. (of an official) supervise arrangements or keep order at (a large public event).  
"the event was organized and stewarded properly"
2. **manage or look after** another's property).

### Data Steward

- Manage data assets on behalf of all stake holders and in the best interests of the organization (McGilvray, 2008)
- Represent the interests of all stakeholders and take an enterprise perspective
- Have dedicated time enough to be accountable and responsible



### Trust

- Firm belief in the reliability, truth, ability, or strength of someone or something (google.com)

### Fiduciary

- Involving trust, especially with regard to the relationship between a trustee and a beneficiary (google.com)

# Steward, Data

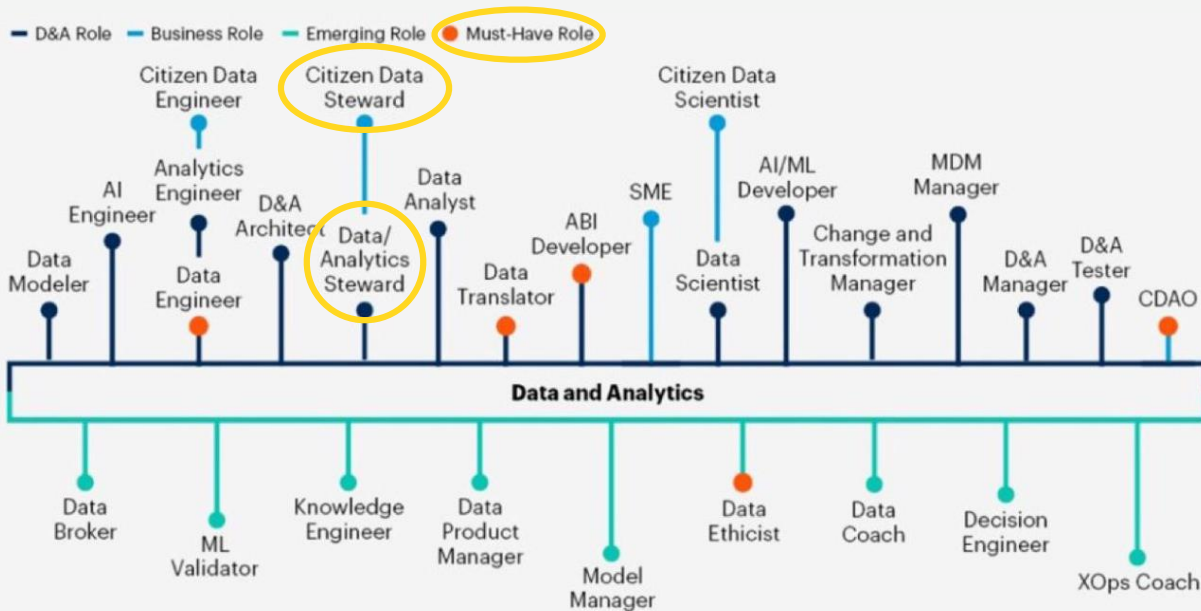
- one who actively directs the use of organizational data assets in support of specific mission objectives



# INTERNATIONAL DATA STEWARDS DAY



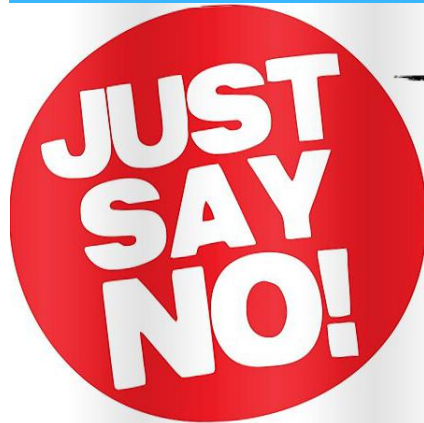
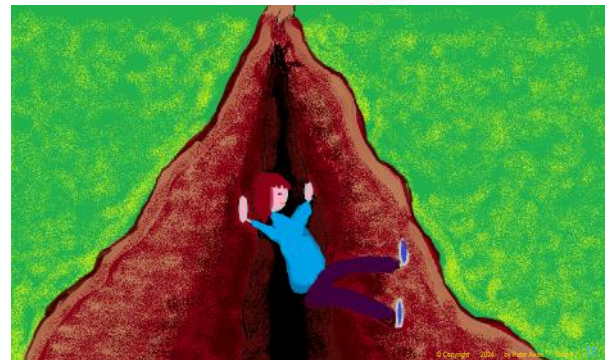
## The emerging spectrum of data and analytics roles



## Confusion as to data responsibility



- IT thinks data is a business problem
  - "If they can connect to the server, then my job is done!"
- The business thinks IT is managing data adequately
  - "Who else would be taking care of it?"



**Reference instead the  
term: fiduciary  
relationship**  
(Speak of owning data requirements)

What data would accounting own?





**It is not as easy to visualize the cost of Data Debt or that it depletes organizational resources:**

- **Slowing progress**
- **Decreasing quality**
- **Increasing costs**
- **Presenting greater risks**

## Fiduciary Relationship

- What is a Fiduciary?
  - A fiduciary is a person who is legally obligated to act in the best interest of the individual, group, or company. This includes:
    - Lawyers
    - Trustees
    - Doctors
    - Accountants
    - Corporate directors
    - Legal guardians
- Three top duties
  - The Duty to Act in Good Faith
  - The Duty of Care
  - The Duty of Loyalty
- Fiduciaries have legal and ethical standards that they must adhere to



**FIDUCI - WHAT?**

# The Princess on the Pea

by  
Hans Christian  
Andersen



Sleepless



## Data Illiteracy

- Failure to understand the role of data re: proposed and existing software/services
  - Locks in imperfections for the life of the application
  - Restricts data investment benefits
  - Decreases organizational data leverage
- Accounts for 20-40% of IT budgets devoted to evolving
  - Data **migration** (Changing the data location)
  - Data **conversion** (Changing data form, state, or product)
  - Data **improving** (Inspecting and manipulating, or re-keying data to prepare it for subsequent use)
- Bad data/data practices causes everything else to
  - Take longer
  - Cost more
  - Deliver less
  - Present greater risk (with thanks to Tom DeMarco)





- **American Airlines ~ \$6b market value**
- **AAdvantage valued between \$19.5-\$31.5b**
- **United Airlines ~ \$9b market value**
- **MileagePlus ~ \$22b**

EDITORS' PICK | Jul 15, 2020, 09:00am EDT

# How Airlines Make Billions From Monetizing Frequent Flyer Programs



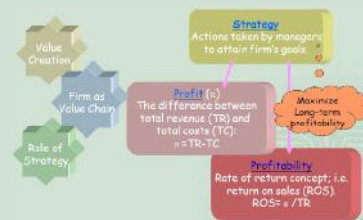
**JT Genter** Advisor Contributor  
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 Personal Finance



<https://www.forbes.com/sites/advisor/2020/07/15/how-airlines-make-billions-from-monetizing-frequent-flyer-programs/?sh=66da87a614e9>

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## The Role of Strategy



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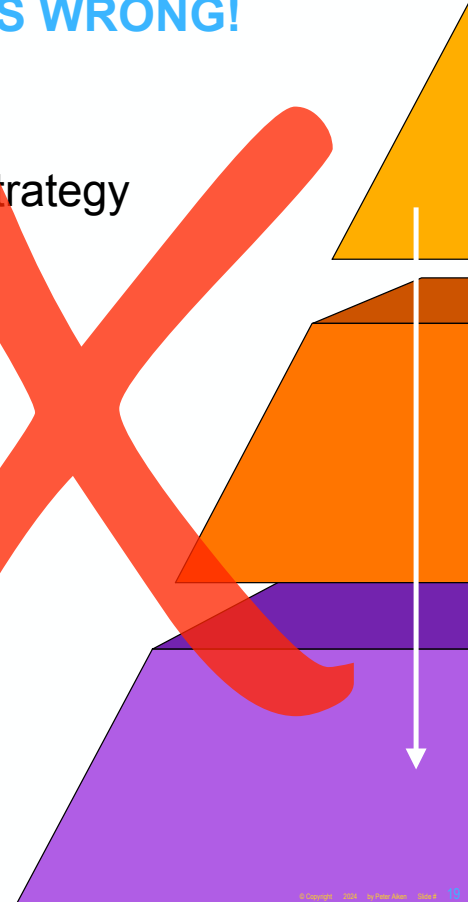
# Data Strategy in Context – THIS IS WRONG!



Organizational Strategy

IT Strategy

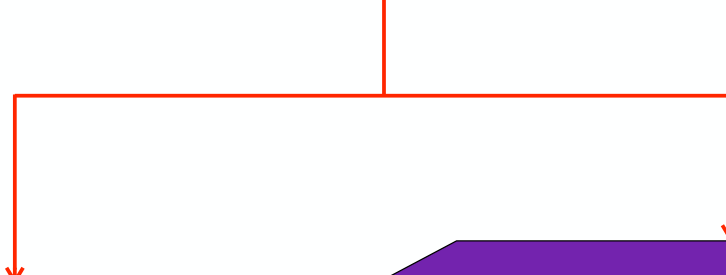
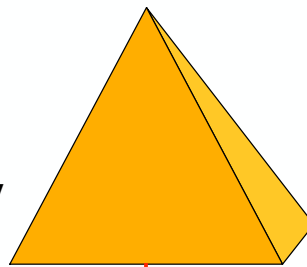
Data Strategy



## This is correct ...



Organizational Strategy



IT Strategy

Data Strategy



# What is Strategy?

strat·e·gy

/ˈstrætəjē/

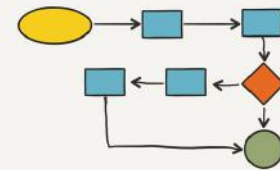
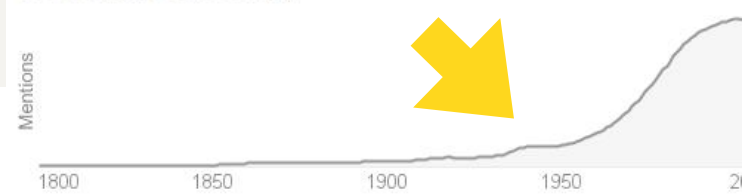
noun

1. a plan of action or policy designed to achieve a major or overall aim.  
"time to develop a coherent economic strategy"  
synonyms: master plan, grand design, game plan, plan (of action), action plan, policy, program; More

A thing

- Current use derived from military
  - **a pattern in a stream of decisions**  
[Henry Mintzberg]

Use over time for: Strategy



PROCESS

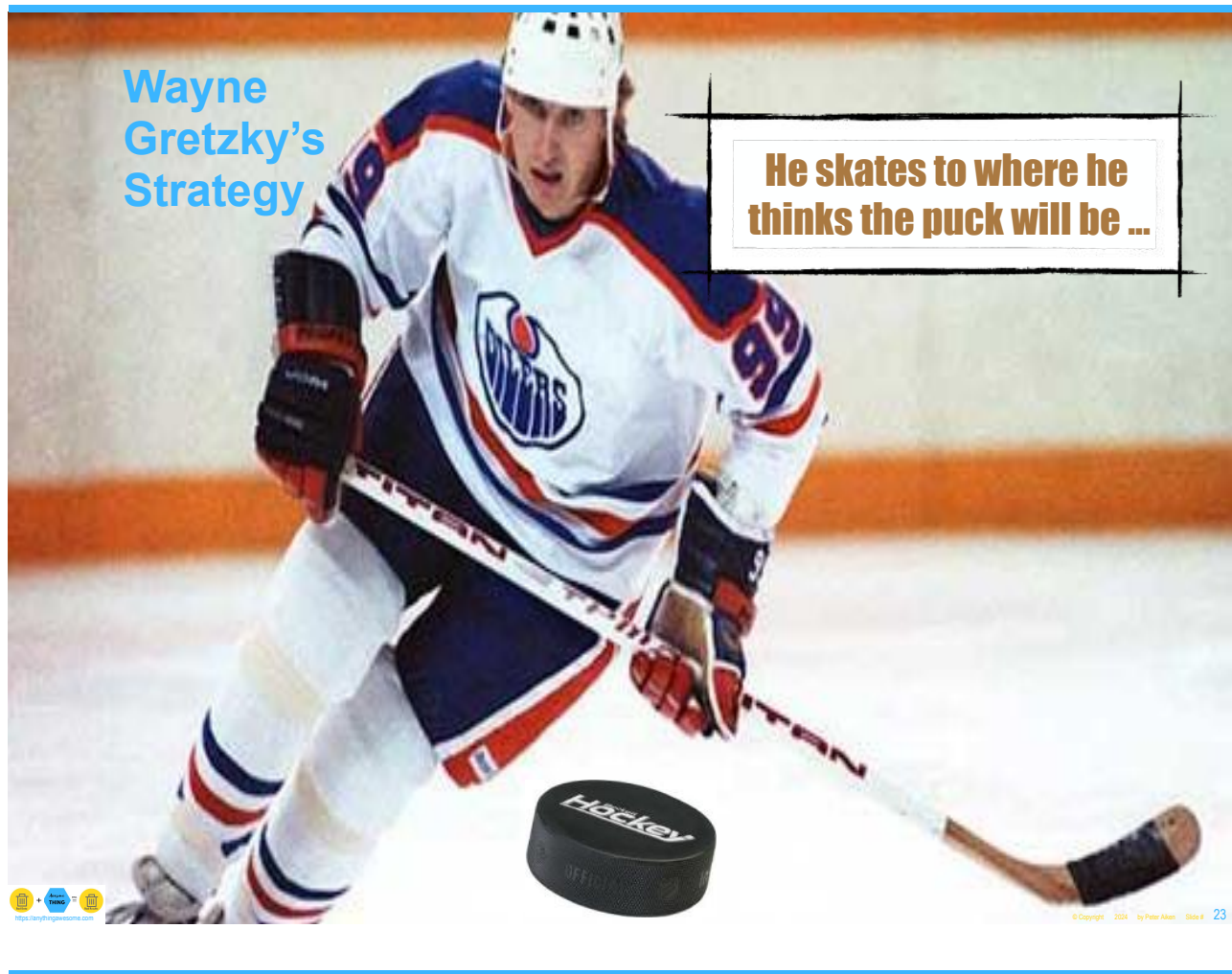


## Former Walmart Business Strategy

# Every Day

# Low Price





## Strategy in Action: Napoleon faces a larger enemy

- Question?
  - How do I defeat the competition when their forces are bigger than mine?
  
- Answer:
  - Divide and conquer!
  - “a pattern in a stream of decisions”



Supply Line Metadata  
(as part of a divide and conquer strategy)

# LINES OF SUPPLY



# First Divide



# Then Conquer

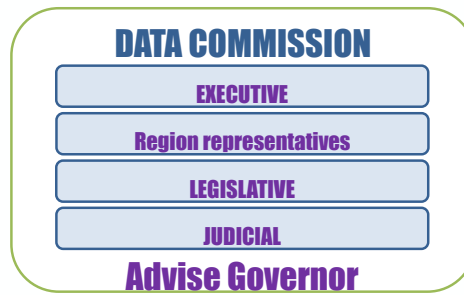


## Complex Strategy

- First
  - Hit both armies hard at just the right spot
- Then
  - Turn right and
- Then
  - and defeat British



# Complex Data Governance Environment



- Data sharing and analytics
- Identify goals and objectives
  - Prioritize initiatives
  - Study & report
  - Recommend changes to budget and code



**TRUSTEE**

**execute**

- Define, approve, and communicate data strategies, policies, standards, rules, guidelines, & best practices
- Provide a governance, policy, and technology framework
- Define agency data governance responsibilities
- Encourage & facilitate data sharing
- Facilitate coordination to prevent duplication
- Coordinate policy and technology proposals and recommendations
- Administer and manage the commonwealth data trust
- Track and enforce compliance and conformance
- Oversee dissemination of open data



## Strategy Guides Workgroup Activities

A pattern  
in a stream  
of decisions

# Governance and Architecture

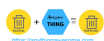


Example from: <https://www.slideshare.net/AnthonyDehnashi/architecture-governance>



## Corporate Governance

- "Corporate governance - which can be defined narrowly as the relationship of a company to its shareholders or, more broadly, as its relationship to society....", Financial Times, 1997.
- "Corporate governance is about promoting corporate fairness, transparency and accountability" James Wolfensohn, World Bank, President Financial Times, June 1999.
- "Corporate governance deals with the ways in which suppliers of finance to corporations assure themselves of getting a return on their investment", The Journal of Finance, Shleifer and Vishny, 1997.





# Maximizing shareholder value can no longer be a company's main purpose: top CEOs

Published: Aug 24, 2019 1:00 p.m. ET

CEOs split from a Milton Friedman mantra, expanding their view of all stakeholders that matter — including workers



## IT Governance

- "Putting structure around how organizations **align IT strategy with business strategy**, ensuring that companies stay on track to achieve their strategies and goals, and implementing good ways to measure IT's performance.
- It makes sure that all stakeholders' interests are taken into account and that processes provide **measurable results**.
- Framework should answer some **key questions**, such as how the IT department is functioning overall, what key metrics management needs and what return IT is giving back to the business from the investment it's making." *CIO Magazine (May 2007)*

IT Governance Institute, 5 areas of focus:

- **Strategic Alignment**
- **Value Delivery**
- **Resource Management**
- **Risk Management**
- **Performance Measures**



## 7 Data Governance Definitions

- The formal orchestration of people, process, and technology to enable an organization to leverage data as an enterprise asset – [The MDM Institute](#)
- A convergence of data quality, data management, business process management, and risk management surrounding the handling of data in an organization – [Wikipedia](#)
- A system of decision rights and accountabilities for information-related processes, executed according to agreed-upon models which describe who can take what actions with what information, and when, under what circumstances, using what methods – [Data Governance Institute](#)
- The execution and enforcement of authority over the management of data assets and the performance of data functions – [KiK Consulting](#)
- A quality control discipline for assessing, managing, using, improving, monitoring, maintaining, and protecting organizational information – [IBM Data Governance Council](#)
- Data governance is the formulation of policy to optimize, secure, and leverage information as an enterprise asset by aligning the objectives of multiple functions – [Sunil Soares](#)
- The exercise of authority and control over the management of data assets – [DM BoK](#)



## Elevator Pitch

An **elevator pitch**, **elevator speech**, or **elevator statement** is a short description of an idea, product, or company that explains the concept in a way such that any listener can understand it in a short period of time.  
(Wikipedia)



What is Data Governance?

# Managing Data with Guidance

Go Ask  
Anyone!™

*Would  
you  
want  
your  
sole,  
non-  
depletable,  
non-  
degrading,  
durable,  
strategic  
asset  
managed  
without  
guidance?*



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What is Data Governance?

# Managing Data Decisions with Guidance

Go Ask  
Anyone!™

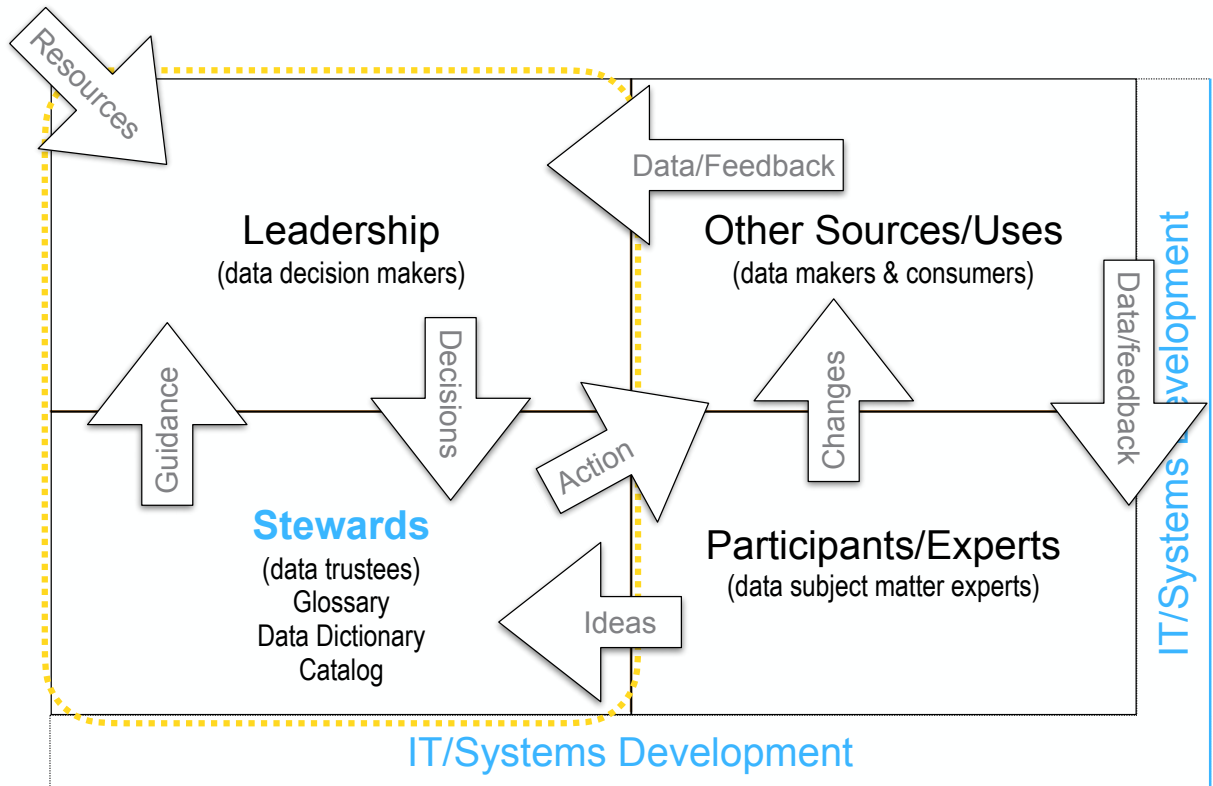
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## Data architecture = strategic focus implemented by stewards



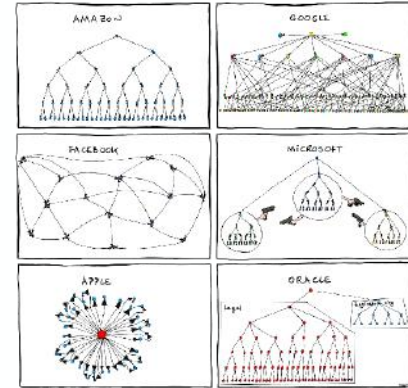
## Architecture

- Things
  - (components)  
data structures
- The functions of the things
  - (individually)  
sources and uses of data
- How the things interact
  - (as a system, towards a goal)  
Efficiencies/effectiveness

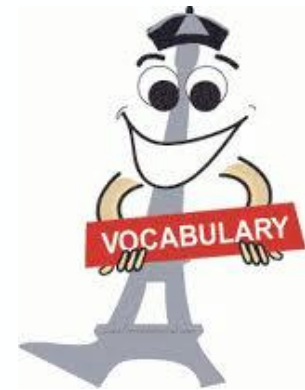


# Data/Information Architectures – Useful Definition

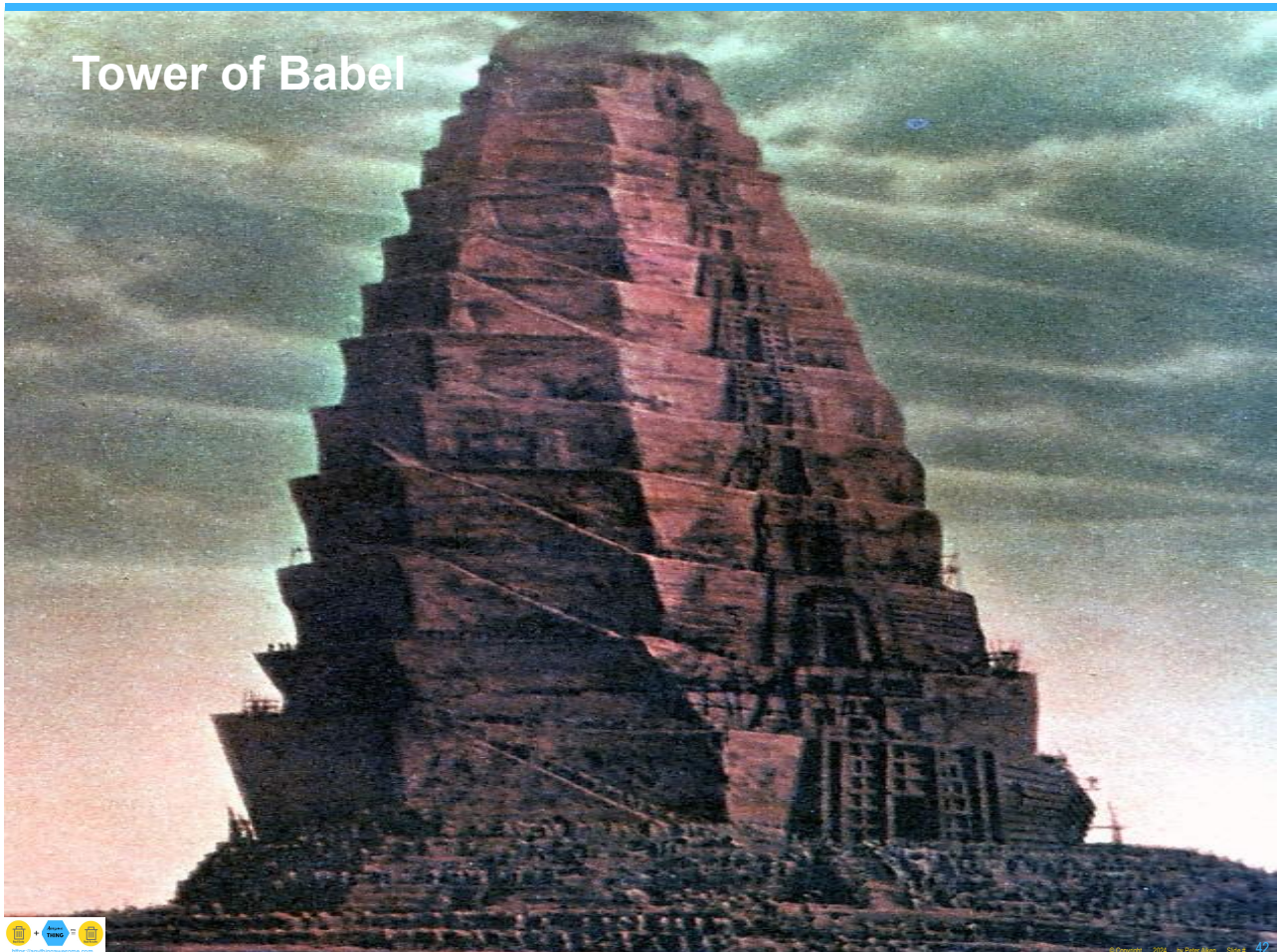
- Common vocabulary expressing integrated requirements ensuring that data assets are stored, arranged, managed, and used in systems in support of organizational strategy



- A primary form of collaboration among data governance professionals and between DG professionals and technical and business professionals



## Tower of Babel

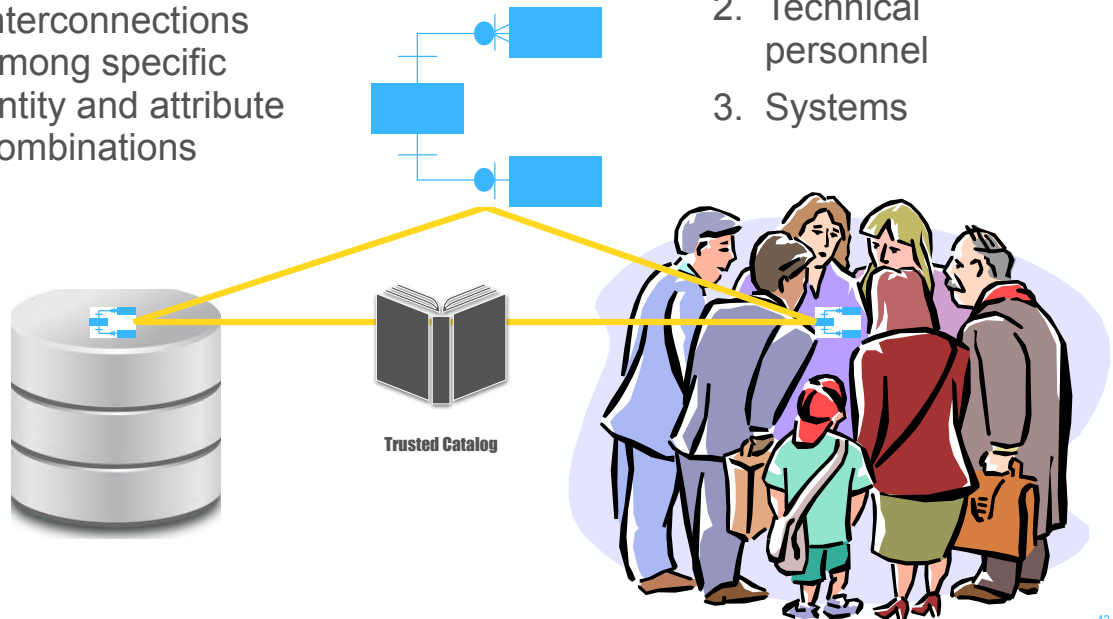


## Understanding = Interoperability



- Documented and articulated as a digital blueprint of the commonalities and interconnections among specific entity and attribute combinations

- Shared by
  1. Business users
  2. Technical personnel
  3. Systems



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## Architectures: here, whether you like it or not

- All organizations have architectures
  - Some are better **understood** and **documented** (and therefore more **useful** to the organization) than others



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## Data Architectures: here, whether you like it or not

- All organizations have **data** architectures
  - Some are better **understood** and **documented** (and therefore more **useful** to the organization) than others



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## Program overview

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**Data Stewards:  
Defining  
and  
Assigning**

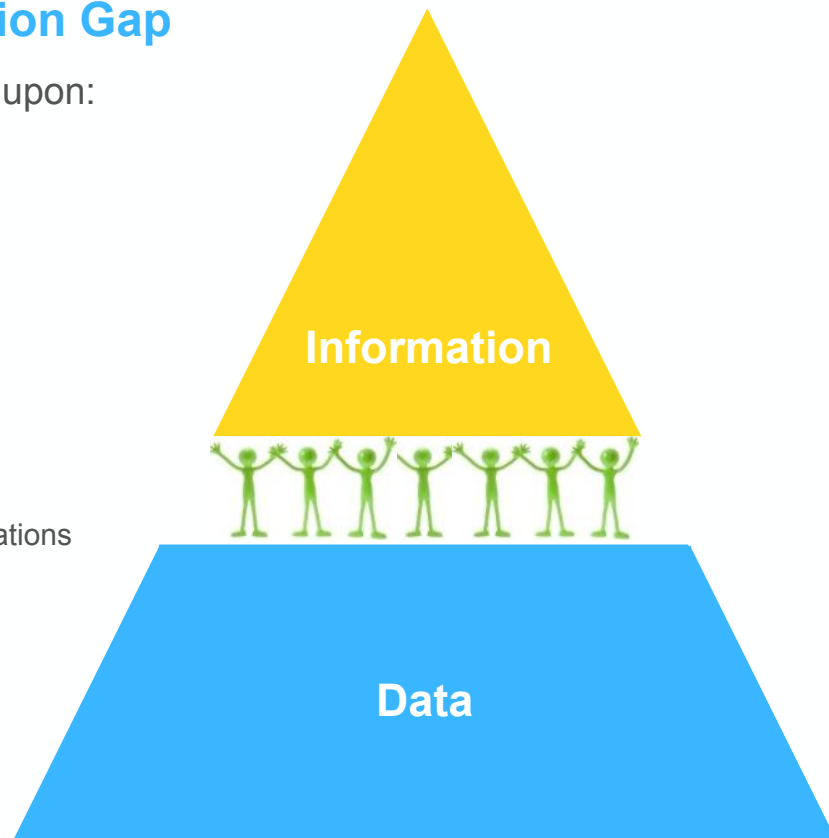


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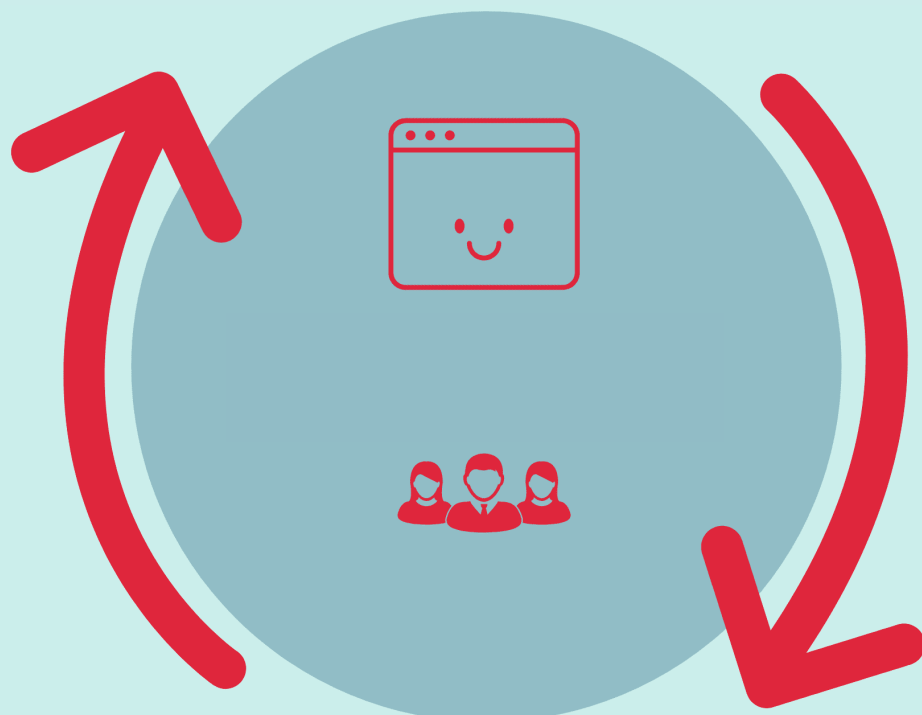
## Data / Information Gap

- Overly dependent upon:
  - Human-beings
  - Wetwear
  - Knowledge workers
  - Informal communications
  - Often described as the weakest link



## (Especially at first) stewards require a united purpose

- Enable the organization to better use its data in support of the mission





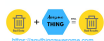
# Data Governance Frameworks



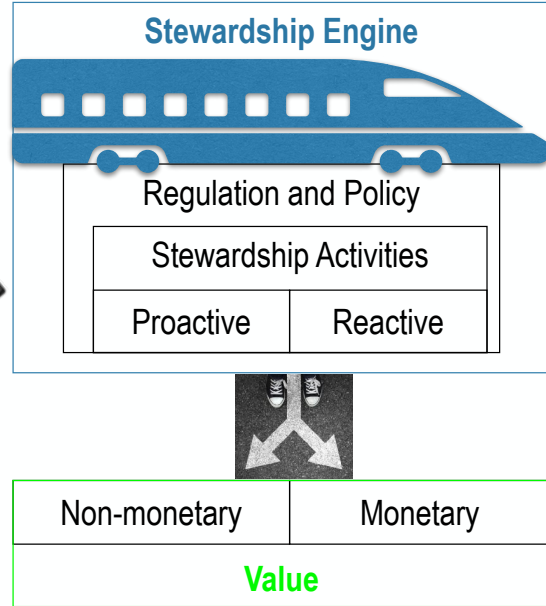
- A system of ideas for guiding analyses
- A means of organizing project data
- Priorities for data decision making
- A means of assessing progress
  - Don't put up walls until foundation inspection is passed
  - Put the roof on ASAP
- Make it all dependent upon continued funding



## A Framework For Stewardship

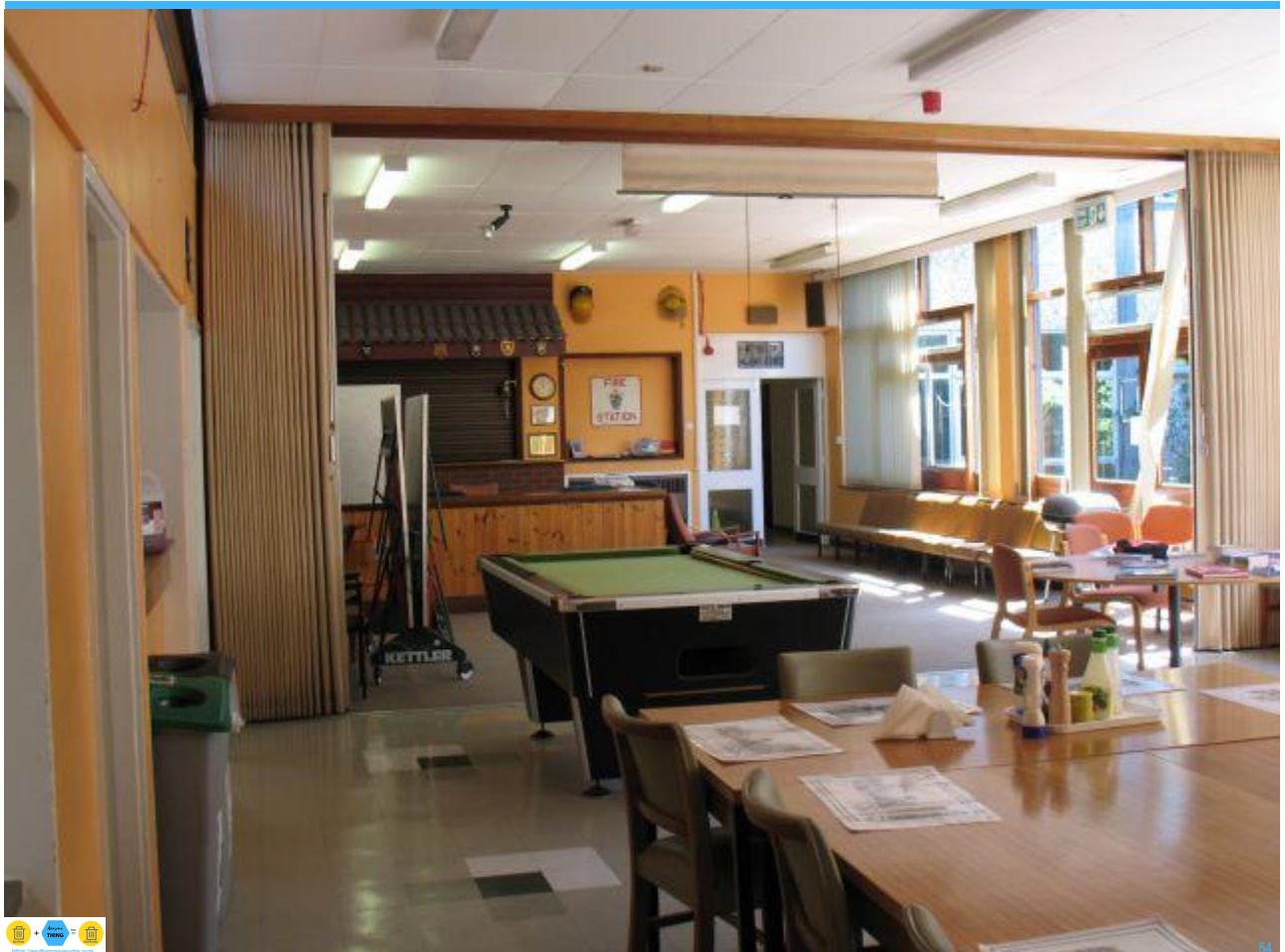


# A Framework for Data Stewardship



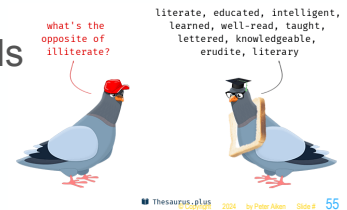
# Data and Duct Tape

# MACGYVER





- Always pick one full time over 10% of 10 individuals
- Generally low data literacy rates among knowledge workers and management



## Current approaches are not and have not been working

### What We Learned From Top Execs About Their Big Data And AI Initiatives

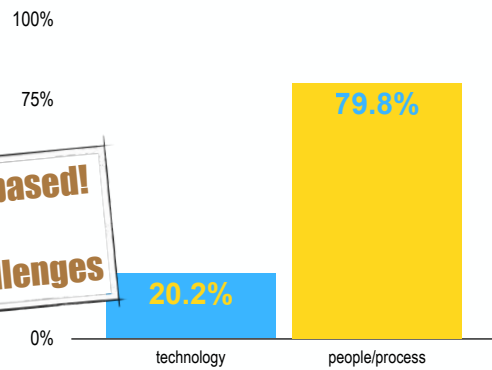


Randy Bean Contributor  
CIO Network Contributor Group @ Enterprise & Cloud

#### Culture still eats strategy for breakfast

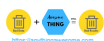
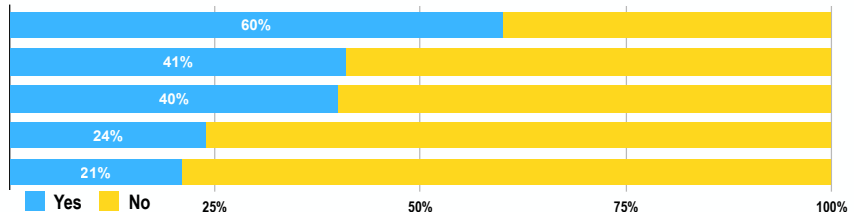
This aphorism is attributed to legendary management consultant Peter Drucker, and it certainly appears to hold true for data transformation efforts. Leading companies continue to identify culture – people, process, organization, change management – as the biggest impediment to becoming data-driven organizations – 92.2%. Few companies – only 30.0% – have even developed a well-articulated data strategy that culture could eat for breakfast. There is plenty of work to be done.

**80% of data challenges are people/process based!**  
&  
**DG is the only resource to address these challenges**



2023

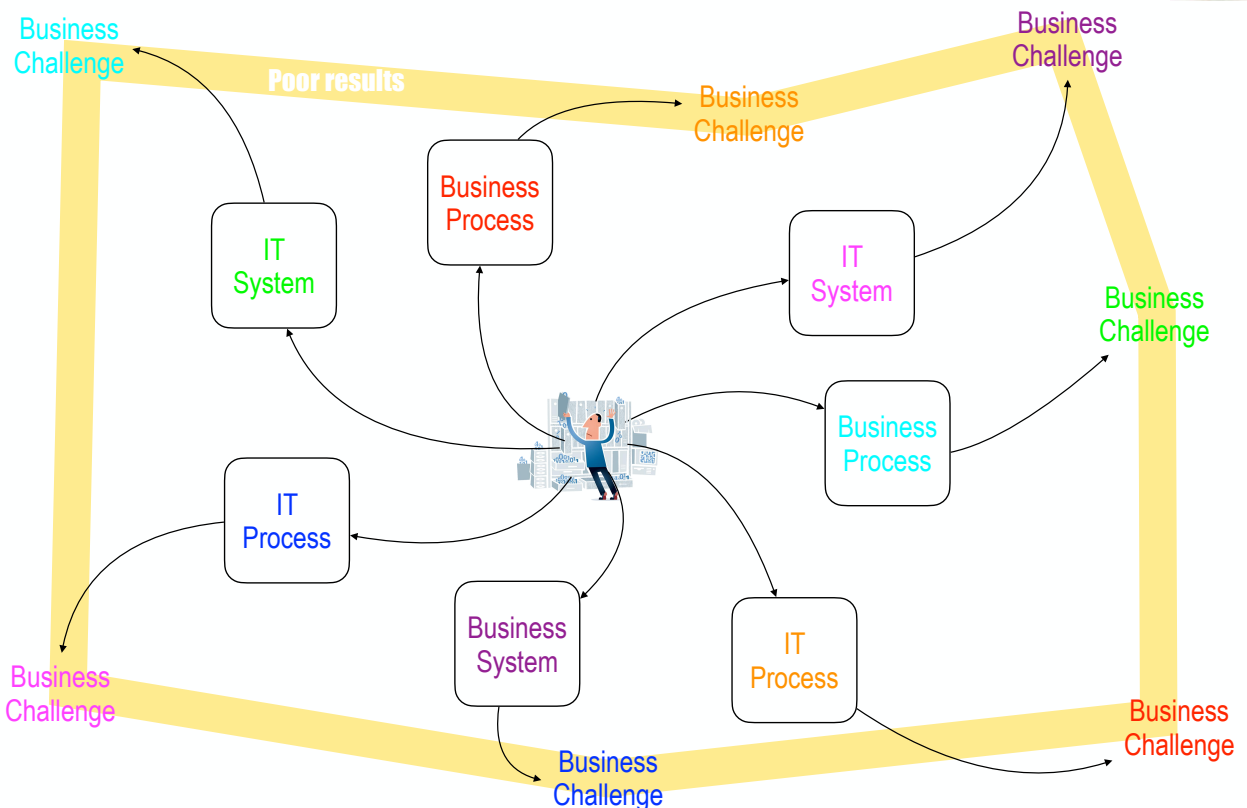
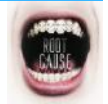
- Driving Innovation with Data
- Competing on data and analytics
- Managing data as a business asset
- Created a data-driven organization
- Forged a data culture



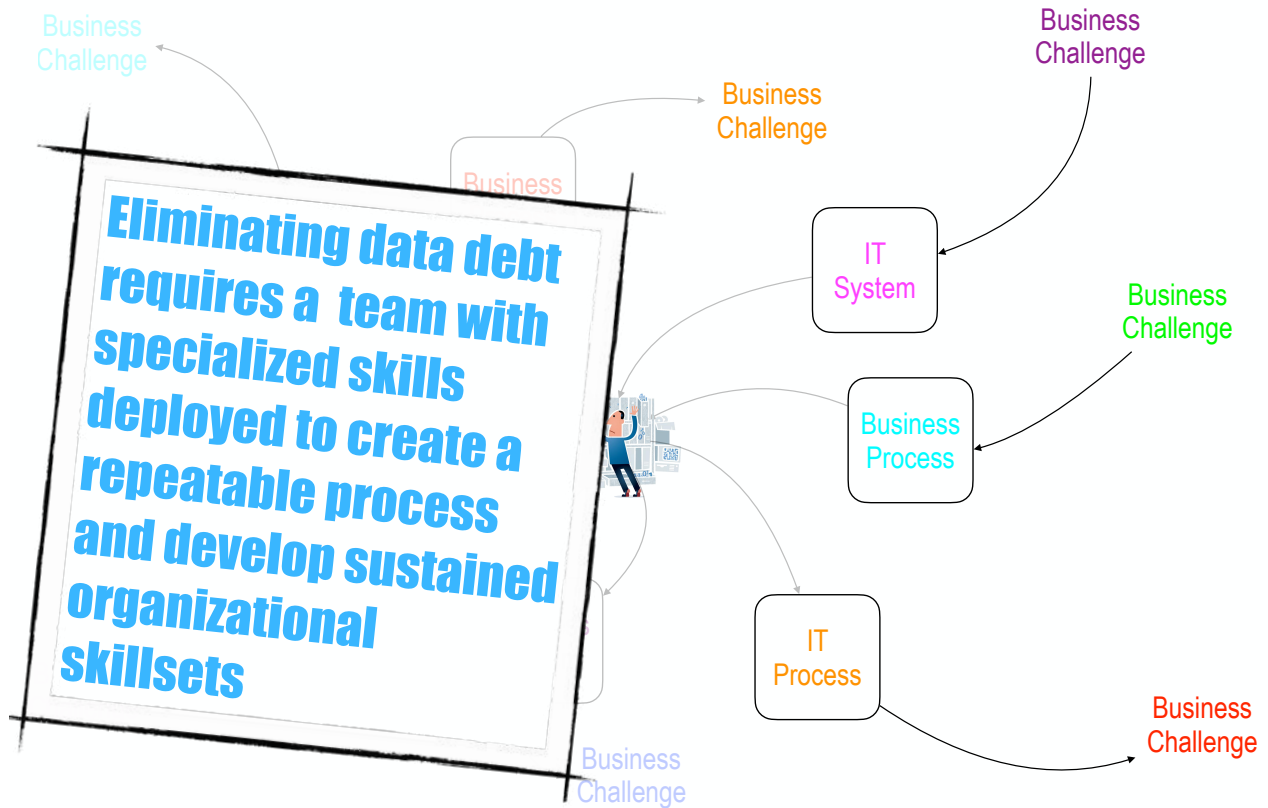
## Poor data manifests as multifaceted organizational challenges



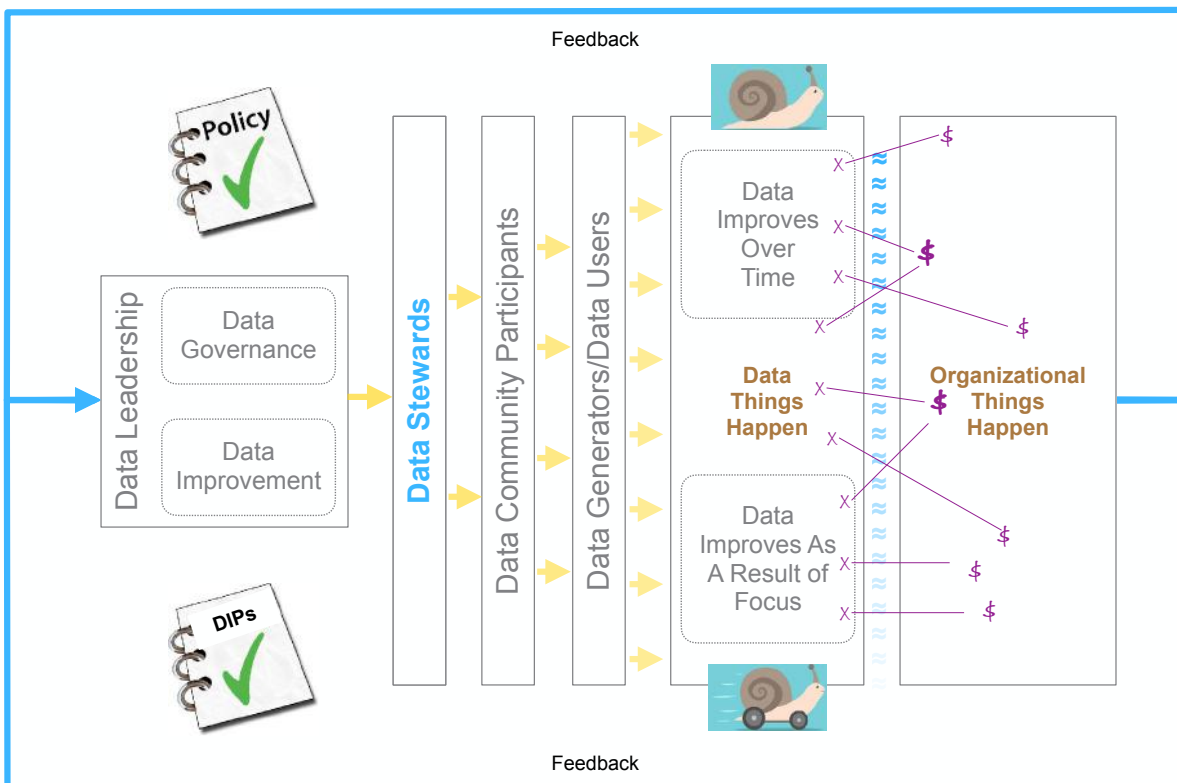
## Root cause analysis is part of data stewardship



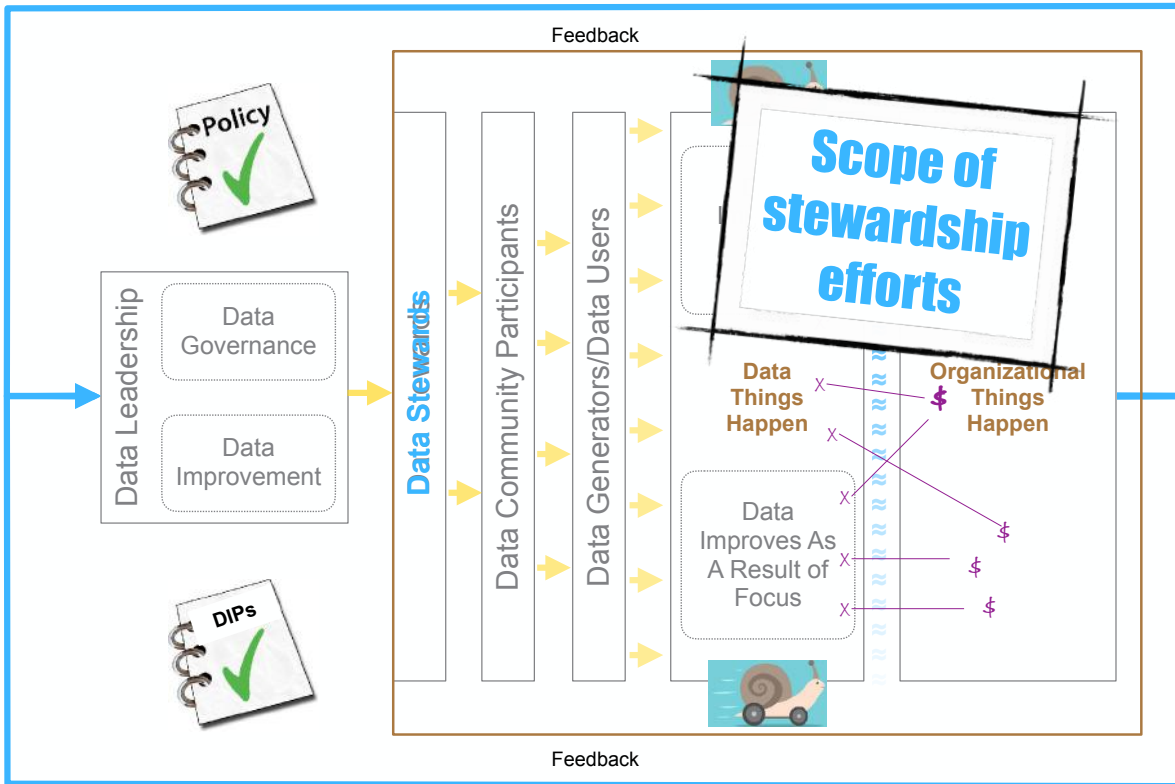
# Consistency Encourages Quality Analysis



## Data Governance Role: Produce systemic organizational changes that impact data and work practices over time



**Data Governance Role:** Produce systemic organizational changes that impact data and work practices over time



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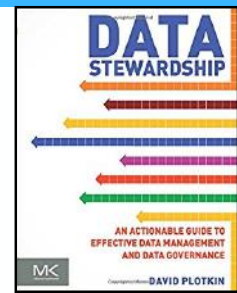


**Data Stewards:  
Defining  
and  
Assigning**



# Data Steward

- **Business data steward**
  - Manage from the perspective of business elements (i.e. business definitions and data quality)
- **Technical data steward**
  - Focus on the use of data by systems and models (i.e. code operation)
- **Project data steward**
  - Gather definitions, quality rules and issues for referral to business/technical stewards
- **Domain data steward**
  - Manage data/metadata required across multiple business areas (i.e. customer data)
- **Operational data steward**
  - Directly input data or instruct those who do; aid business stewards identifying root cause and addressing issues
- **Metadata Data Steward**
  - Manage metadata as an asset
- **Legacy Data Steward**
  - Manage legacy data as an asset
- **Data steward auditor**
  - Ensures compliance with data guidance
- **Data steward manager**
  - Planning, organizing, leading and controlling



(list adapted from Plotkin, 2014)



# Data Decisions Variety

Data Source	Steward
• Clinical-domain-specific data definitions	• Departmental clinician
• Master file of IDs (patient, provider, member, etc.)	• IT MDM steward or SME
• Lab codes (LOINC)	• Lab Director
• Pharmacy codes (RxNORM, etc.)	• Pharmacy Director
• Order catalog	• Member of IT staff (usually clinician)
• Diagnostic and procedure codes	• Director of HIM
• Charge master	• Director of Finance





# Data Steward

## Meet The Data Steward: Self Service Information Management and Data Stewardship

### Accountabilities

- Making data useful to the business
- Consistent use of data across the business
- Promoting and achieving high data quality standards
- Resolving data integrity issues across stakeholders

### Perspectives

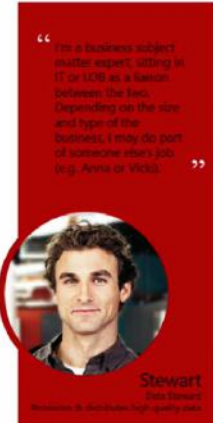
- Process and detail oriented with great organizational skills
- Prides himself on his creative resourcefulness, passion for quality and great interpersonal skills
- A 'de facto' steward because of deep industry expertise and understanding of his organization's data sources

### Skills

- 5+ years of industry experience
- Proficient with Office (Excel, Word, PowerPoint). Can learn to use Power Pivot
- Understands data relationships, data process flows. May know SQL.

### Work Activities

- Analyzes data for quality (particularly as part of BI work), reconciles data issues
- Identifies and acquires new data sources
- Actively analyzes data for 'semantic' quality
- Drives resolution of data integrity issues across business and technical stakeholders. Leads and / or participates in MDM / EIM / DQ initiatives
- Creates and maintains business metadata, references data values and meanings, and / or master data values and meanings



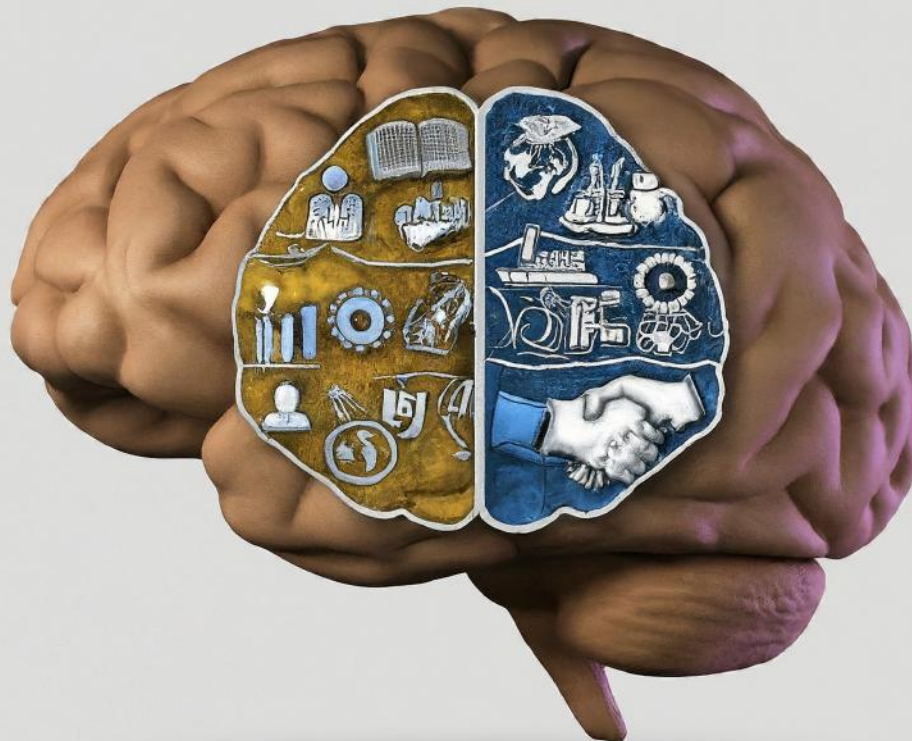
Source: Unknown

## What do data stewards do in our organization?

- Tangibly (within their scope)
    - Improve our data asset's value
    - Improve data's use achieving organizational objectives
- ~~Advocate/evangelize for increasing the scope/rigor of data-centric practices~~
- ~~Ensure efficient/effective data management practices~~



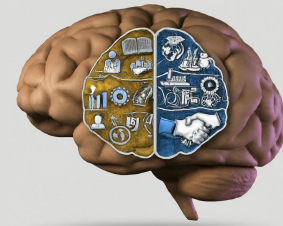
## Knowledge, Skills and Abilities for a Data Steward



# Knowledge, Skills and Abilities for a Data Steward

- In-depth knowledge of one or more data systems
- Knowledge of data standards
- Understanding of database design principles
- Understanding of private and sensitive data classification and protection
- Understanding of data interoperability challenges and solutions
- Ability to create and maintain metadata
- Ability to create and maintain business rules
- Ability to recognize and diagnose data quality issues
- Ability to develop data retention schedules
- Ability to identify and advocate for data quality and usability improvements
- Ability to effectively communicate technical information
- Ability to engage with data users to understand their needs

(Source: NCHRP Project 23-23 Implementing Data)



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# How to determine what to manage formally?

Too much requires expensive and slow bureaucracy ←

→ Too little misses opportunities

**All inputs are data**

**The  
Organizational  
Data Machine**

**All outputs are data**

**Interoperability is the primary value determinant**



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# A Data Steward's Goal/Process



Too much requires expensive and slow bureaucracy ←

→ Too little misses opportunities

All inputs are data



All outputs are data

**Interoperability is the primary value determinant**



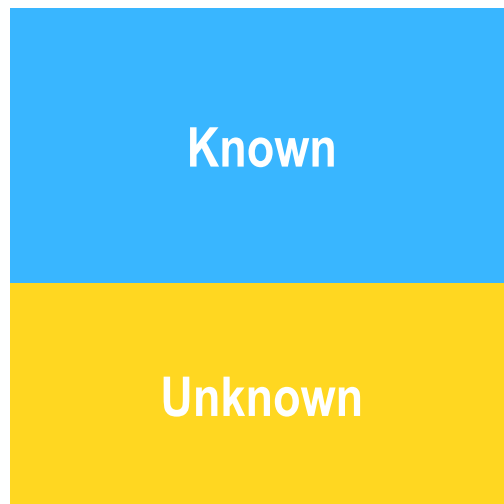
# A Data Steward's Goal/Process



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**Interoperability is the primary value determinant**

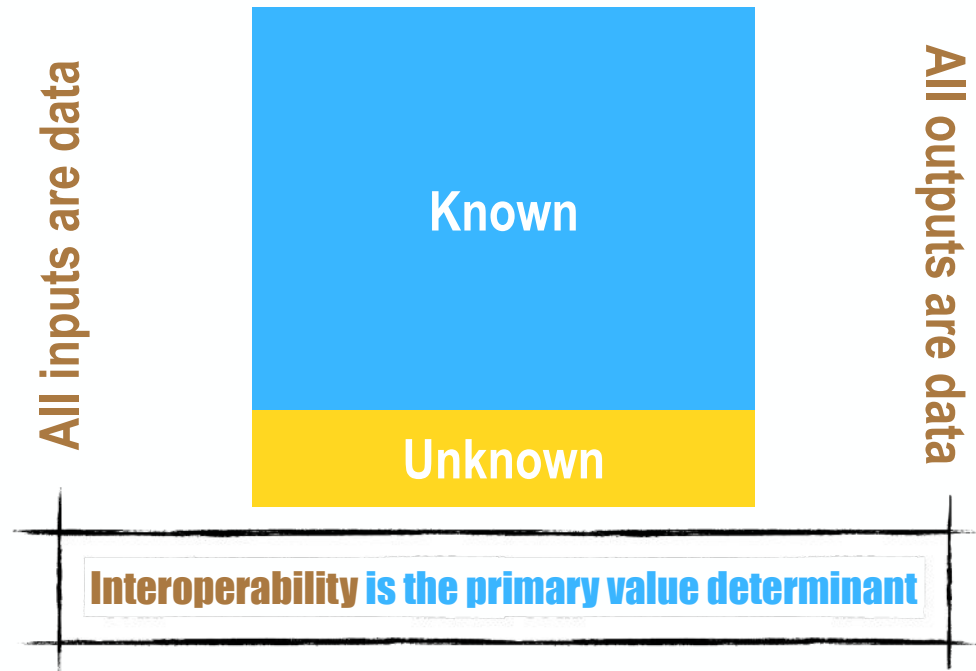


# A Data Steward's Goal/Process



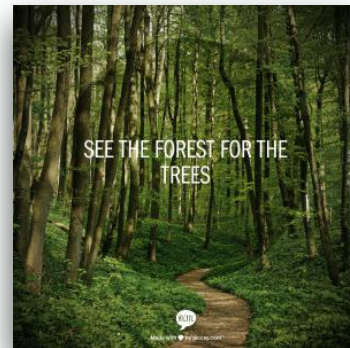
Too much requires expensive and slow bureaucracy ←

→ Too little misses opportunities



## Understanding Systems Thinking

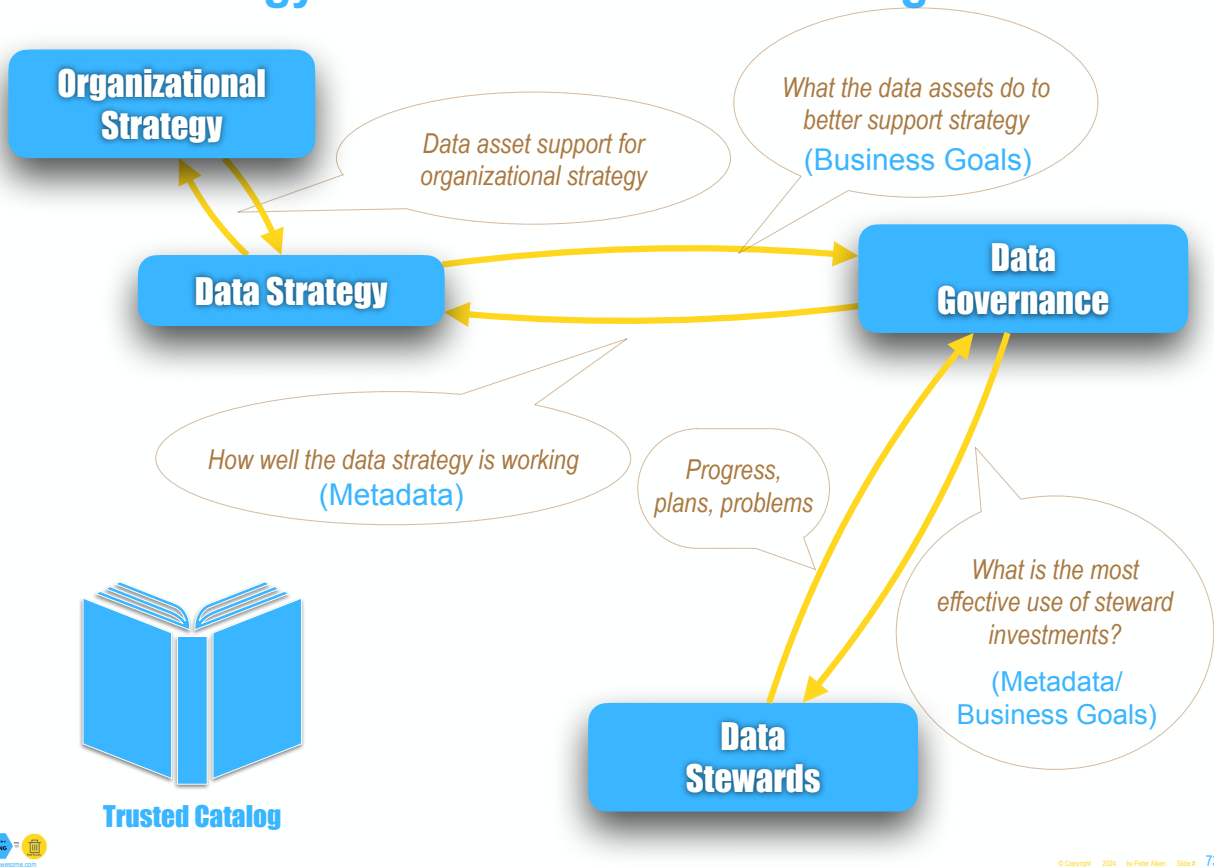
- *A framework that is based on the belief that the component parts of a system can best be understood in the context of relationships with other systems, rather than in isolation.*
- *The only way to fully understand why a problem or element occurs and persists is to understand the part in relation to the whole.*



Capra, F. (1996) *The web of life: a new scientific understanding of living systems* (1st Anchor Books ed). New York: Anchor Books. p. 30



# Data Strategy and Governance in Strategic Context



## Keep the proper focus

- Wrong question:
  - How should we manage this data?

- Right question:
  - Should we include this data item within the scope of our current stewardship practices?



- Either way document why!

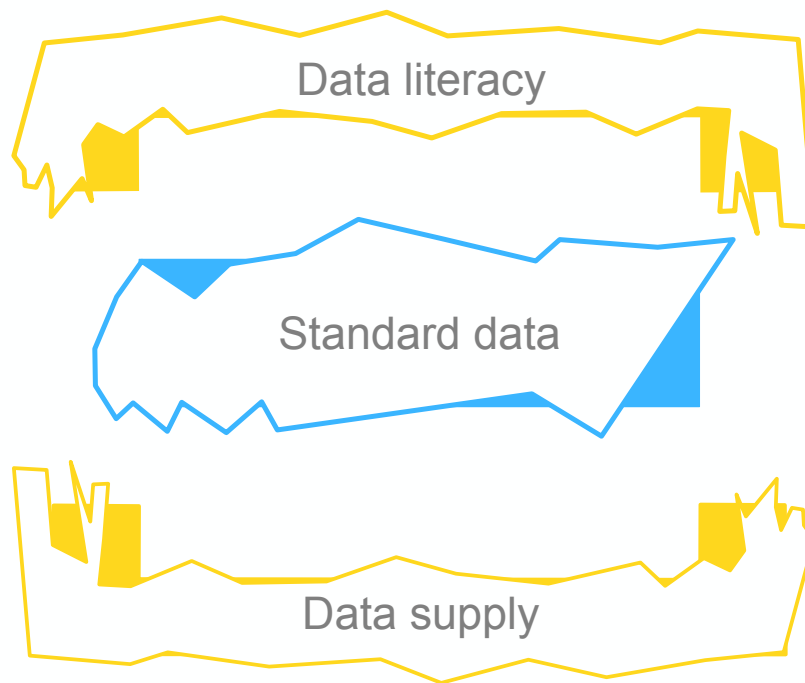
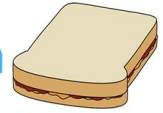


## Data Footprints

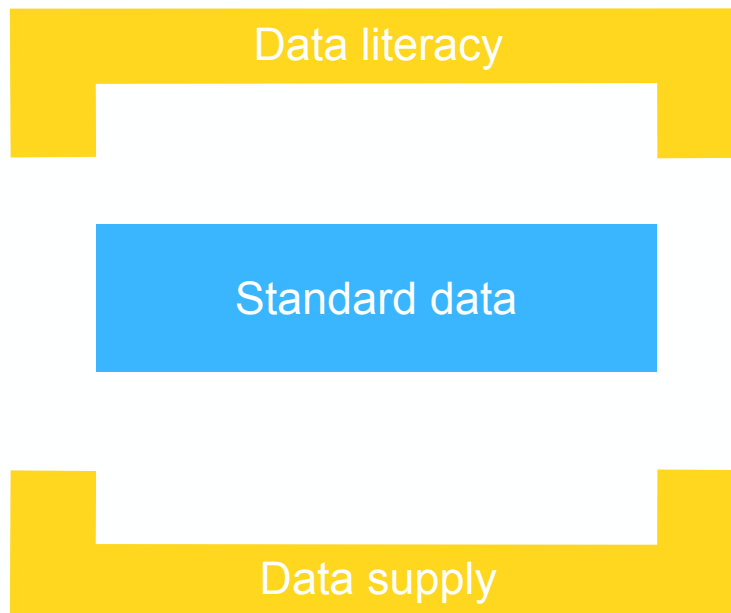
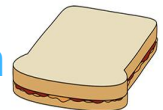
- SQL Server
  - 47,000,000,000,000 bytes
  - Largest table 34 billion records 3.5 TBs
- Informix
  - 1,800,000,000 queries/day
  - 65,000,000 tables / 517,000 databases
- Teradata
  - 117 billion records
  - 23 TBs for one table
- DB2
  - 29,838,518,078 daily queries



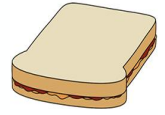
## Leverage point - high performance automation



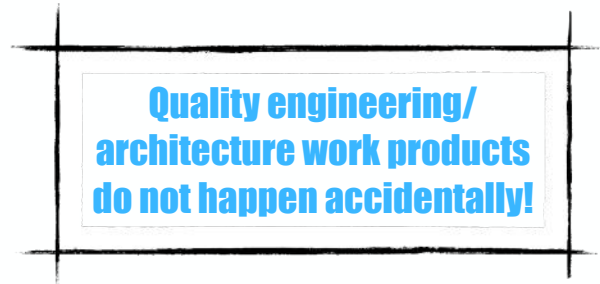
## Leverage point - high performance automation



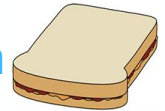
## Leverage point - high performance automation



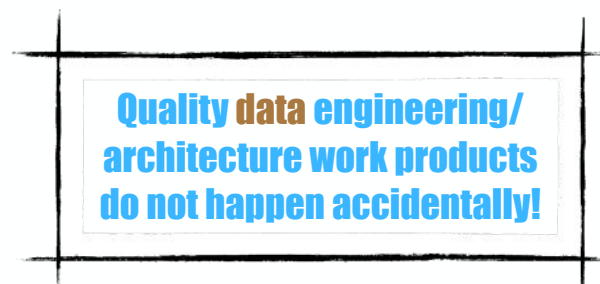
*This cannot happen without investments in engineering and architecture!*



## Leverage point - high performance automation



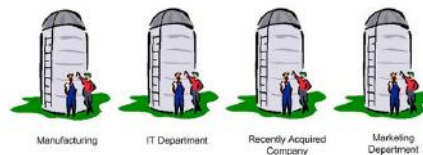
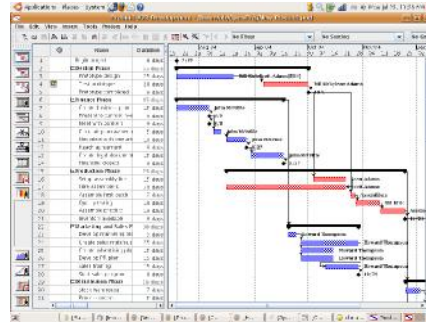
*This cannot happen without investments in data engineering and architecture!*





## Data is not a Project

- Durable asset
  - An asset that has a usable life more than one year
- Reasonable project deliverables
  - 90 day increments
  - Data evolution is measured in years
- Data
  - Evolves - it is not created
  - Significantly more stable
- Readymade data architectural components
  - Prerequisite to agile development
- Only alternative is to create additional data siloes!

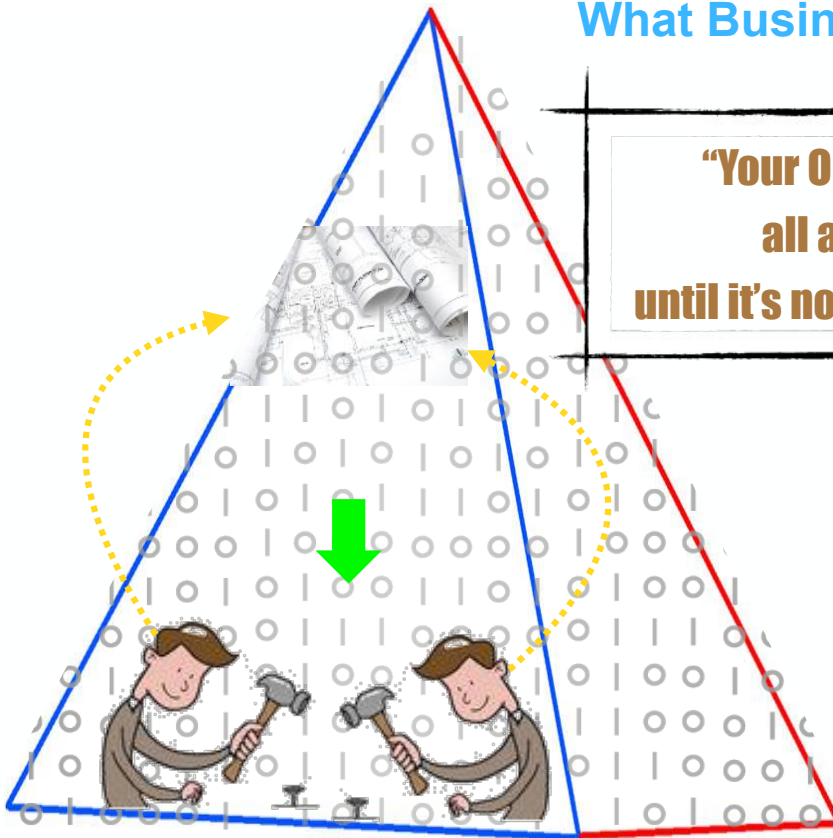


## Differences between Programs and Projects

- Programs are Ongoing, Projects End
  - Managing a program involves long term strategic planning and continuous process improvement is not required of a project
- Programs are Tied to the Financial Calendar
  - Program managers are often responsible for delivering results tied to the organization's financial calendar
- Program Management is Governance Intensive
  - Programs are governed by a senior board that provides direction, oversight and control while projects tend to be less governance-intensive
- Programs Have Greater Scope of Financial Management
  - Projects typically have a straight-forward budget and project financial management is focused on spending to budget while program planning, management and control is significantly more complex
- Program Change Management is an Executive Leadership Capability
  - Projects employ a formal change management process while at the program level, change management require executive leadership skills and program changes drive more by an organization's strategy and is subject to market conditions and changing business goals

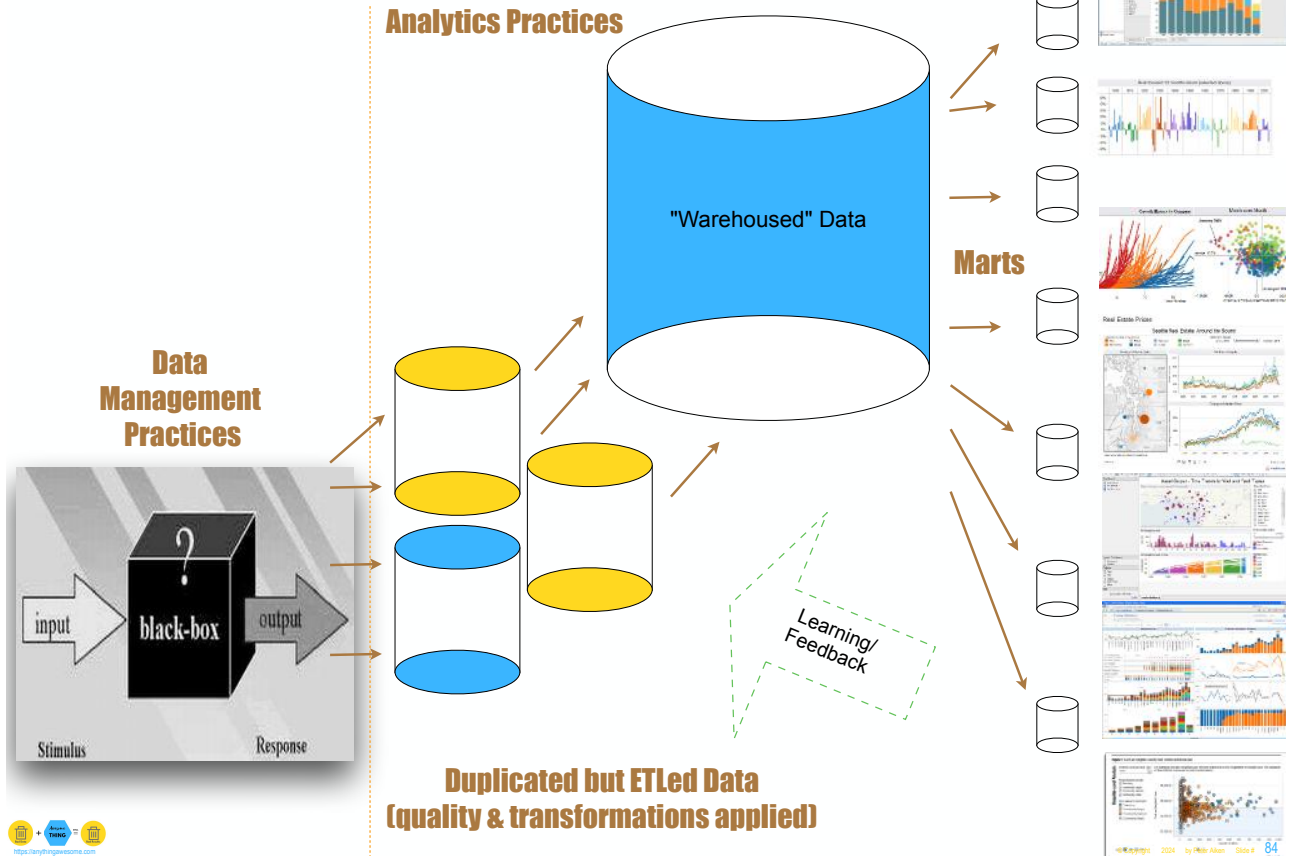


# What Business are you in?



**“Your Organization is all about Data, until it’s not about just Data”**

## Organizational Data Usage Practices



# The focus of data stewards should be sequenced



Sample from: <https://artist.com/kathy-linden/on-outside-looking-in/?artid=4385>

## External Comprehension



Everything Else Data

Data Management

Data Governance Program

Data (blah blah blah)

Most do not appreciate the difference between Data Governance and the other data stuff that needs to be done

**Data Program**

## Take Aways

- Since stewards own the results
  - They control the remediation process
- Need for professional data stewards is
  - Increasing
  - Data volume is increasing
  - Lack of practice improvement
- Data stewardship is a relatively new discipline
  - Must conform to organizational constraints
  - No one best way
- Data stewards
  - Must be driven by a data strategy complimenting organizational strategy
  - Direct data management application
  - Speak the language of metadata
  - Should drive process improvements



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## Upcoming Events

Essential: Reference vs.  
Master Data Management  
*9 April 2024*



Core Concepts of Data Ethics  
*9 May 2024*

**Time: 19:00 UTC (2:00 PM NYC) | Presented by: Peter Aiken, PhD**

Key Elements of a Successful Data Governance  
Program  
*11 June 2024*

Brought to you by:



[ Clicking any webinar title will link directly to the registration page ]

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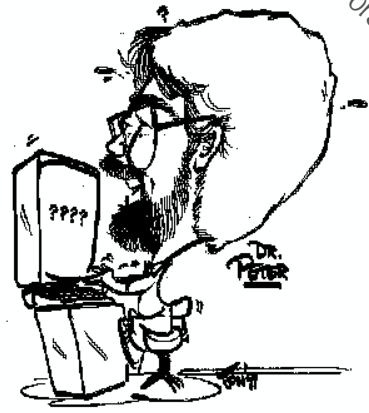
Independent Verification & Validation

Critical Design Review?

Mentoring?

Collaboration?

Executive Data Literacy Training?



Peter.Aiken@AnythingAwesome.com +1.804.382.5957

Reverse Engineering Expertise?

Hiring Assistance?

# Thank You!

Use your data more strategically?

Tool/automation evaluation?



Book a call with Peter to discuss anything - <https://anythingawesome.com/OfficeHours.html>