



Data

Stewards

Defining and Assigning



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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)
- Institute for Defense Analyses (ida.org)
- DAMA International (dama.org)
- MIT CDO Society (iscdo.org)
- Anything Awesome (anythingawesome.com)
- Experienced w/ 500+ data management practices worldwide
- Multi-year immersions
 - US DoD (DISA/Army/Marines/DLA)
 - Nokia
 - Deutsche Bank
 - Wells Fargo
 - Walmart
 - HUD ...

\$1,500,000,000.00 USD

- 12 books and dozens of articles



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Data Literacy: Achieving Higher Productivity for Citizens, Knowledge Workers, and Organizations

Citizens and organizations need to improve their data literacy to 'do more with data'

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Data Strategy and the Enterprise Data Executive

Ensuring that Business and IT are in Synch in the Post-Big Data Era

[Learn More](#)

The CDO Journey

Insights and Advice for Data Leaders

Note: the authors have donated all proceeds from this title towards the International Society for Chief Data Officers.

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Monetizing Data Management

17 Case Studies Illustrating How Data Leveraging (Big and Small) Can Produce Quantifiable Results That Are of Keen Interest to C-Suite Occupants

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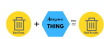


Program Overview

- 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)
 - Stewardship role (in context of data governance)
- 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**





Reference instead the term:

- Fiduciary relationship or
- Speak of owning data requirements

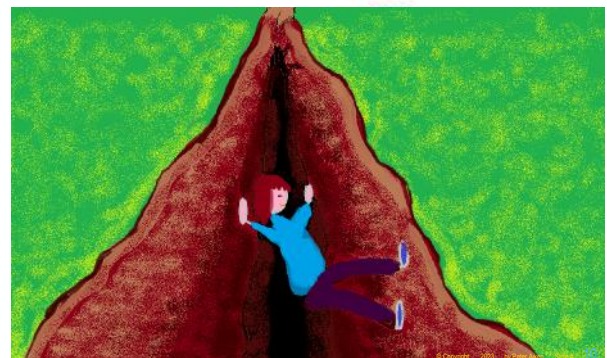


What data would accounting own?



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?"





It is not as easy to visualize the cost of Data Debt



You must address data debt proactively



Data debt:

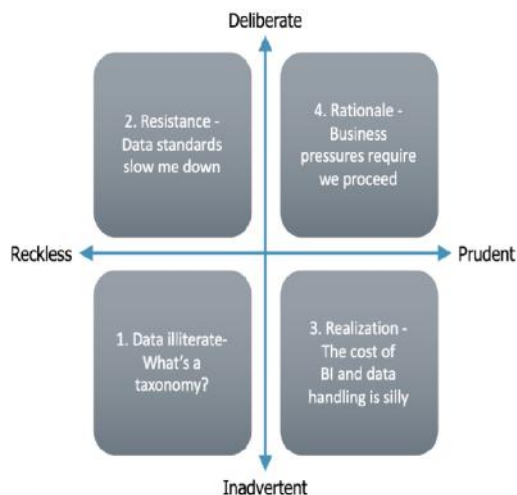
- Slows progress
- Decreases quality
- Increases costs
- Presents greater risks

How to Get Rid of Your Data Debt
 Five steps to identify, classify and eliminate excess data

TACKLE YOUR DEBT

NTT DATA

<https://uk.nttdataservices.com/en/blog/2020/february/how-to-get-rid-of-your-data-debt>



<https://johnladley.com/a-bit-more-on-data-debt/>

<https://www.merkleinc.com/blog/are-you-buried-alive-data-debt>

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?



<https://mint.intuit.com/blog/planning/what-is-a-fiduciary/>

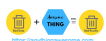
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The Princess on the Pea

by
Hans Christian
Andersen



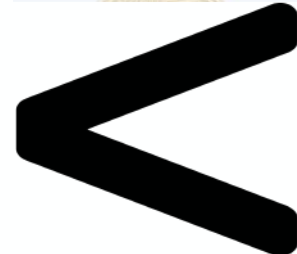
Sleepless



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Doing a poor job with data

- Failure to understand data models of 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 models cause everything else to
 - Take longer
 - Cost more
 - Deliver less
 - Present greater risk (with thanks to Tom DeMarco)



<https://anyringstone.com>

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Forbes

- **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
Advisor Contributor Group ©
Personal Finance

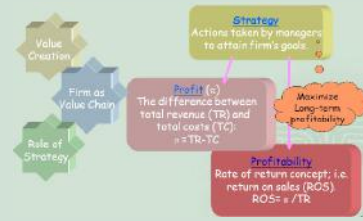


<https://anyringstone.com>

<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



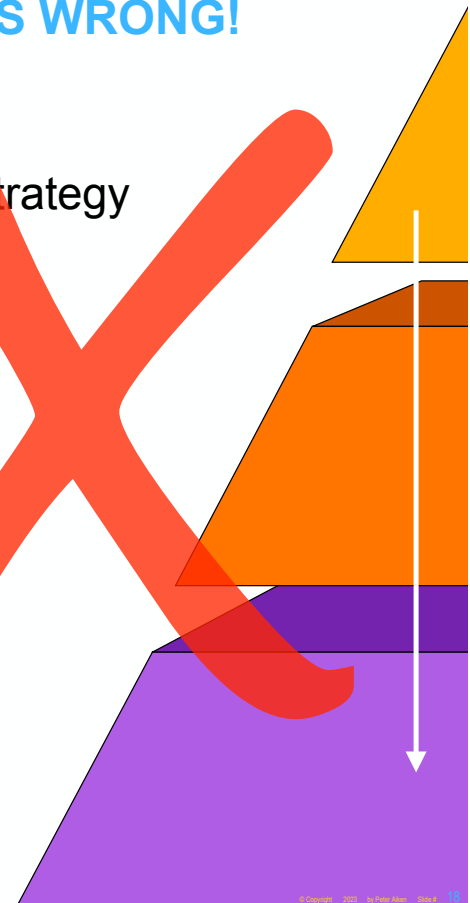
Data Strategy in Context – THIS IS WRONG!



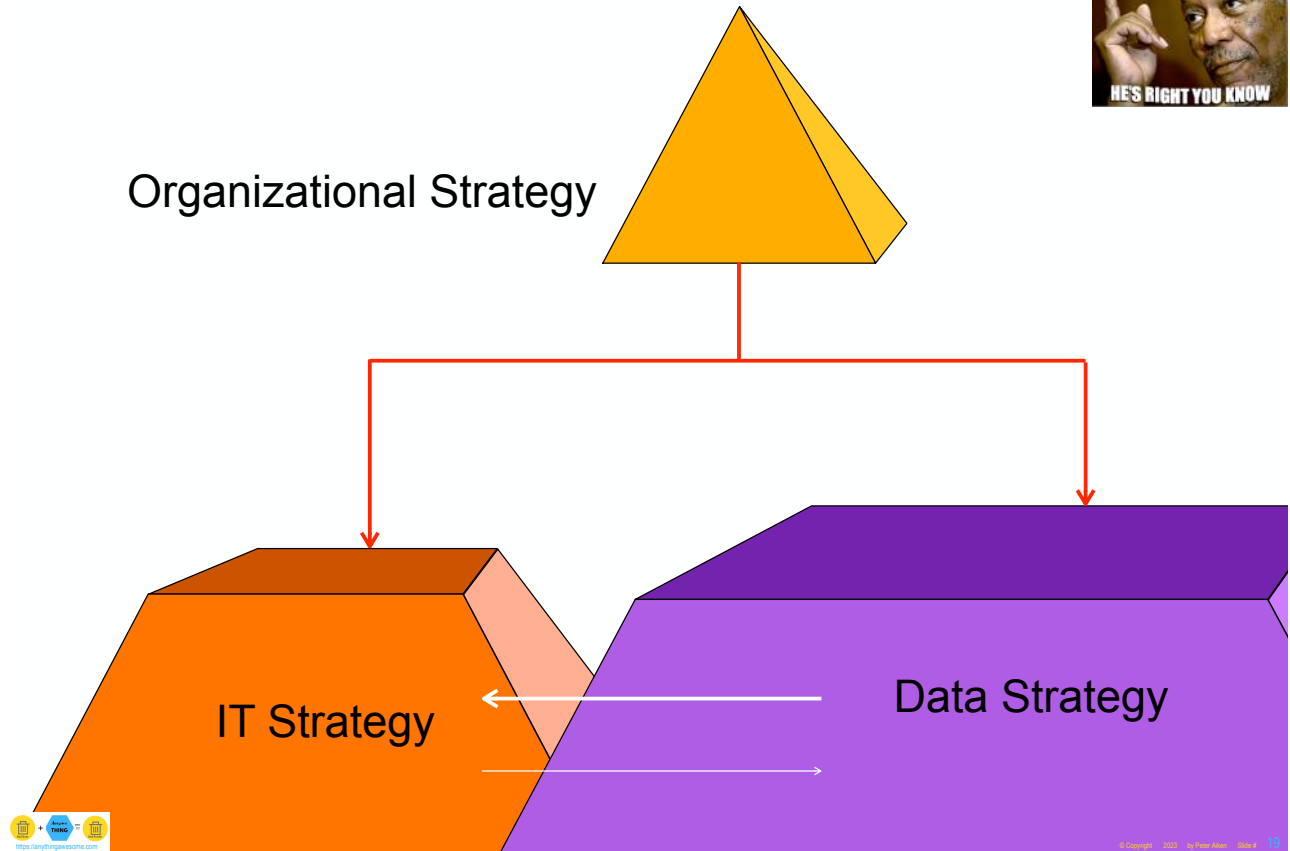
Organizational Strategy

IT Strategy

Data Strategy

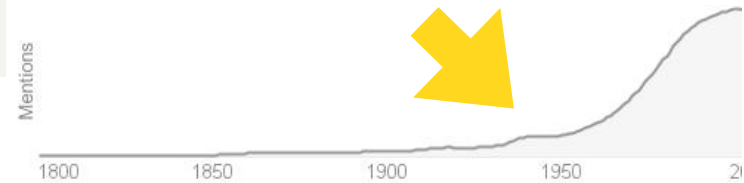


This is correct ...



What is Strategy?

Use over time for: Strategy



strat·e·gy

/ˈstrætəjē/

noun

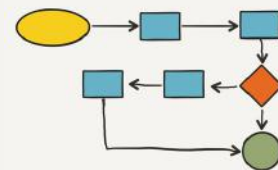
1. a plan of action or policy designed to achieve a major or overall aim.

"time to develop a coherent economic strategy"

synonyms: master plan, grand design, game plan, plan (of action), action plan, policy, program; More



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



PROCESS

Every Day Low Price



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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”



<https://daringwaystone.com>

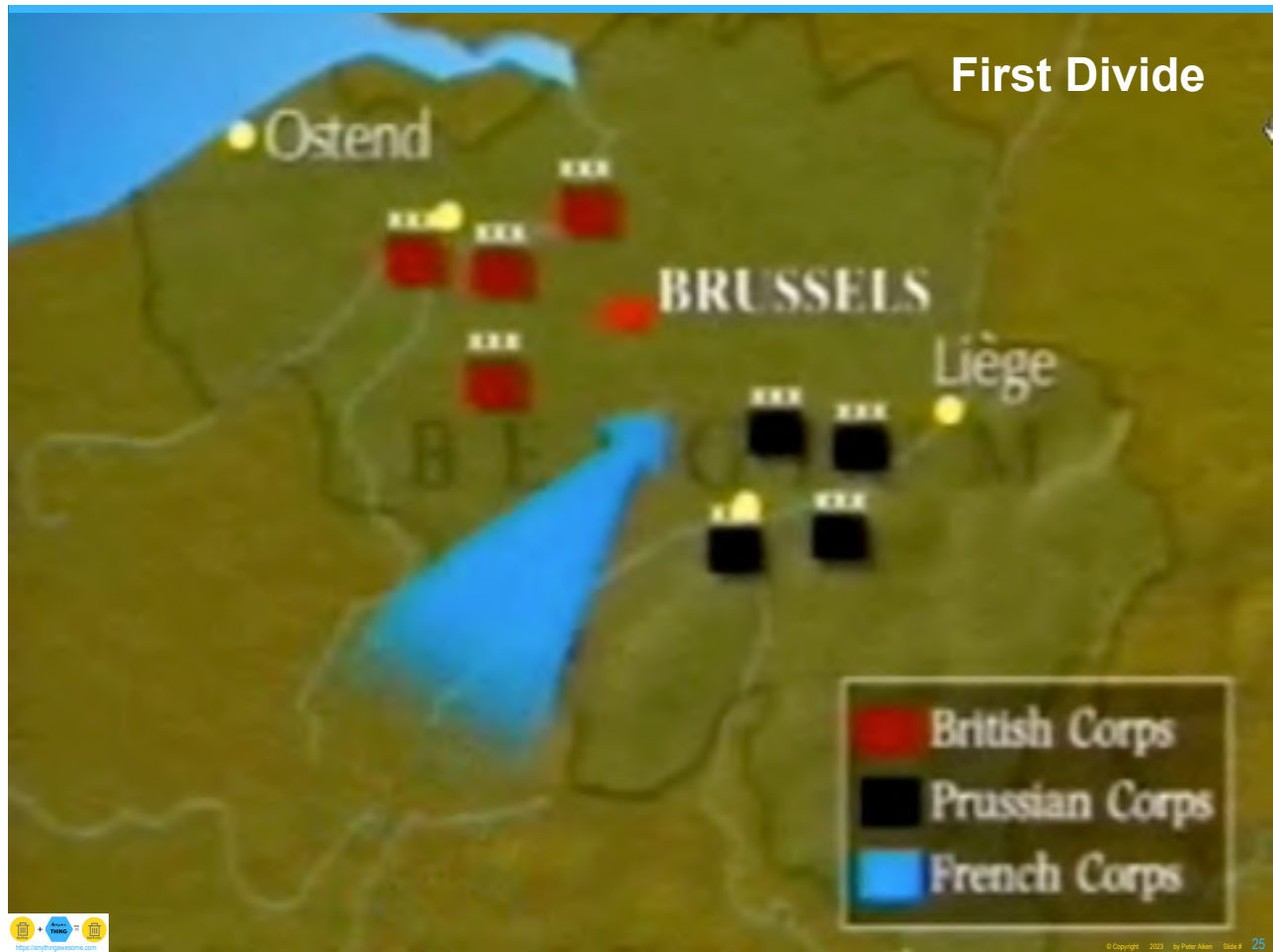
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<https://daringwaystone.com>

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First Divide

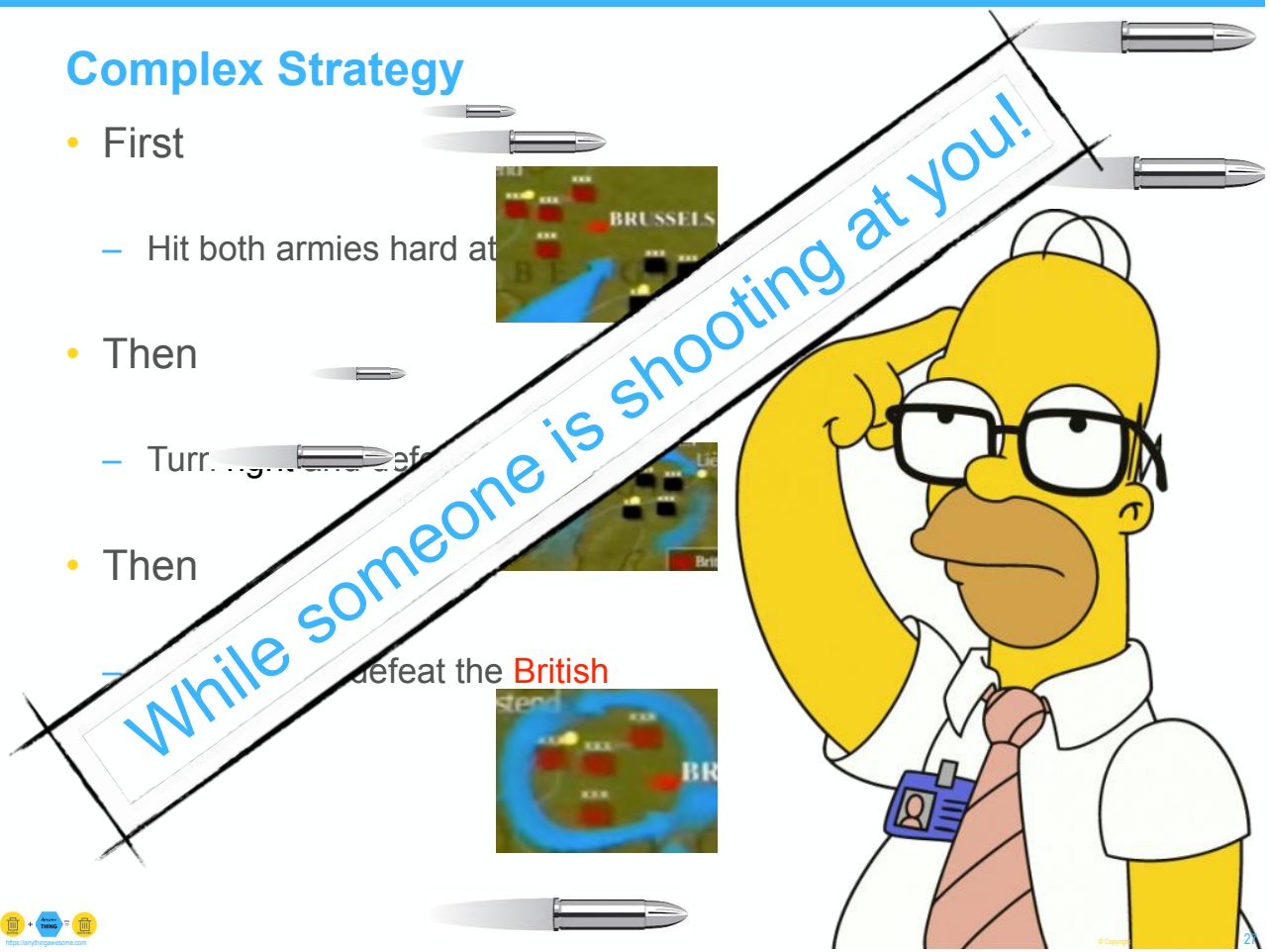
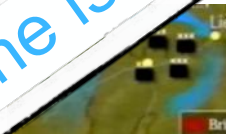


Then Conquer

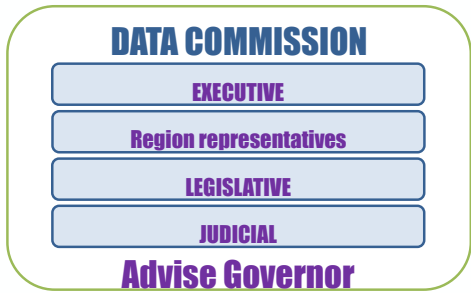


Complex Strategy

- First
 - Hit both armies hard at
- Then
 - Turn
- Then
 - defeat the British



Complex Data Governance Environment



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



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



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.



<https://www.forbes.com/sites/johnmacintosh/2019/10/03/jamie-dimon-and-other-ceos-say-shareholder-value-no-longer-top-priority-epiphany-or-pr-stunt/?sh=17d2895a5497>

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



Getty

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)



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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?

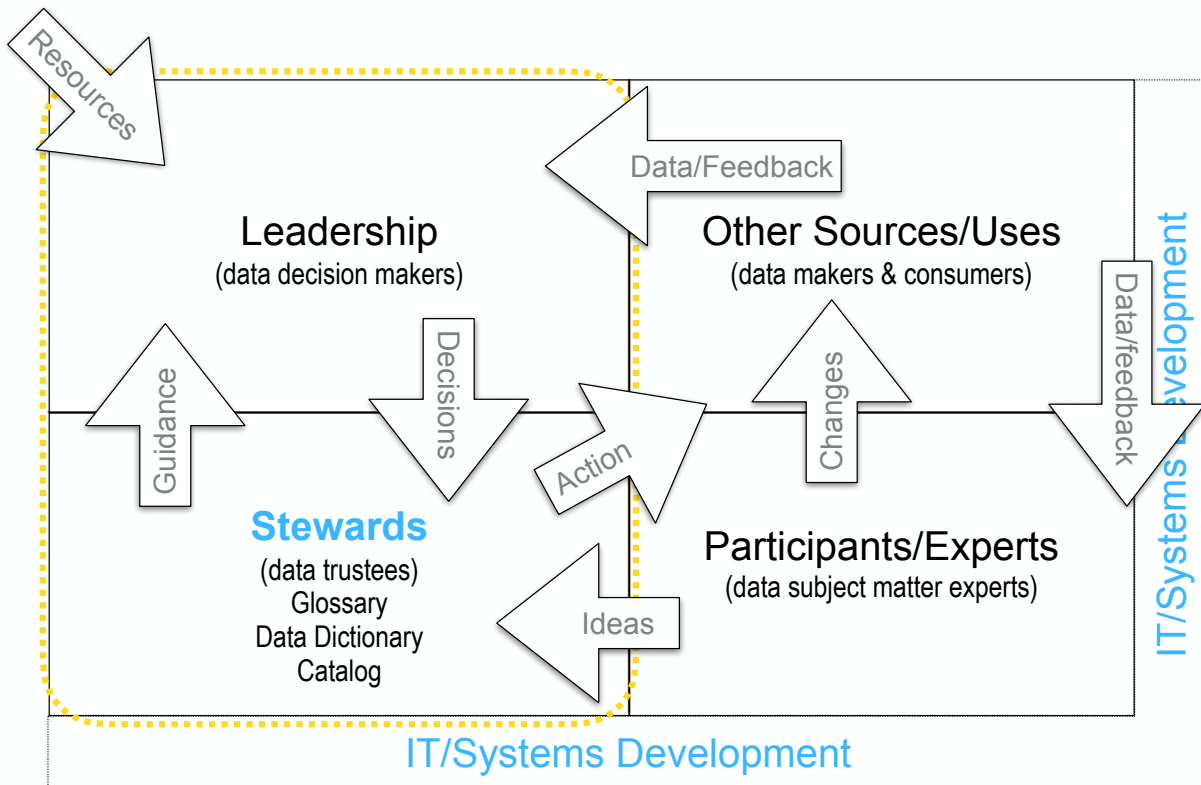
Go Ask Anyone!™

Managing Data Decisions with Guidance

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



Data architecture = strategic focus implemented by stewards



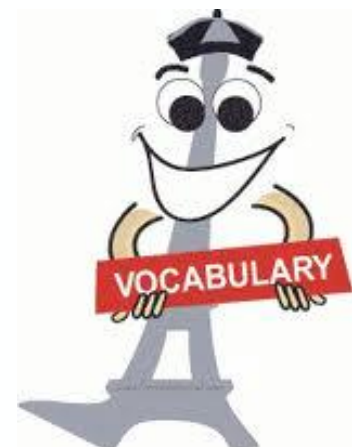
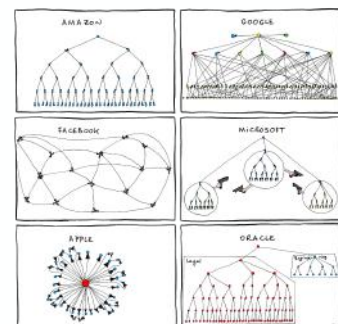
Architecture

- 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 [Aiken 2010]





Understanding = Interoperability

A specific definition

- 'Understanding an architecture'
- Documented and articulated as a (digital) blueprint illustrating the commonalities and interconnections among the architectural components



- Ideally the understanding is shared by

- Business
- Technical
- Systems



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



deviantart.com

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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**Data Stewards:
Defining
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Assigning**



**Reference instead
the term: fiduciary
relationship**

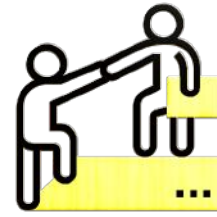


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Fiduciary Relationship

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 - 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?

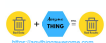
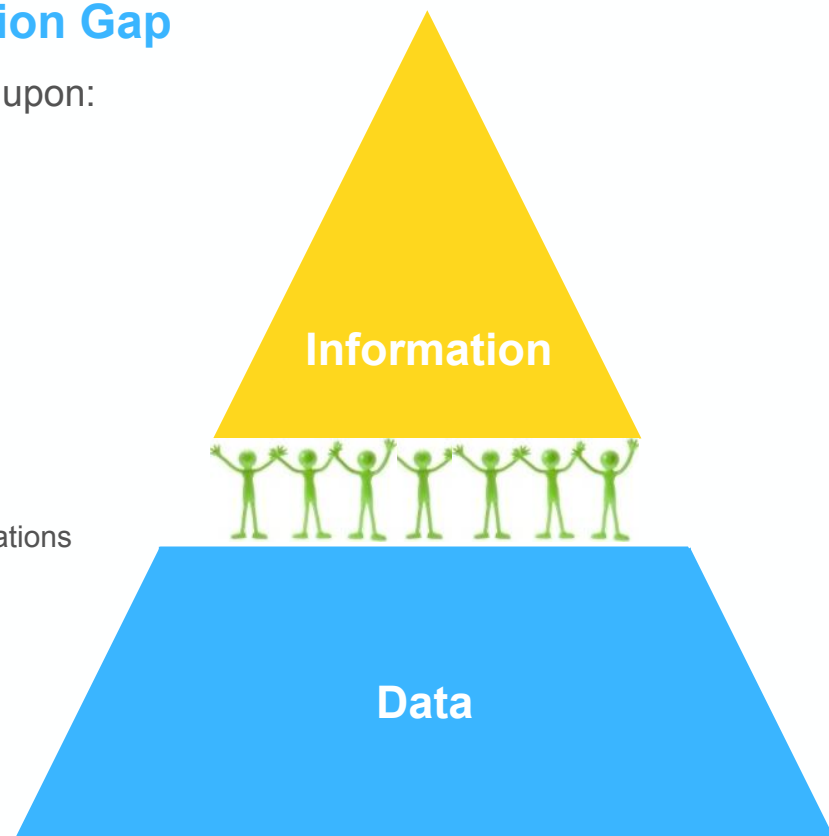


<https://mint.intuit.com/blog/planning/what-is-a-fiduciary/>

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Data / Information Gap

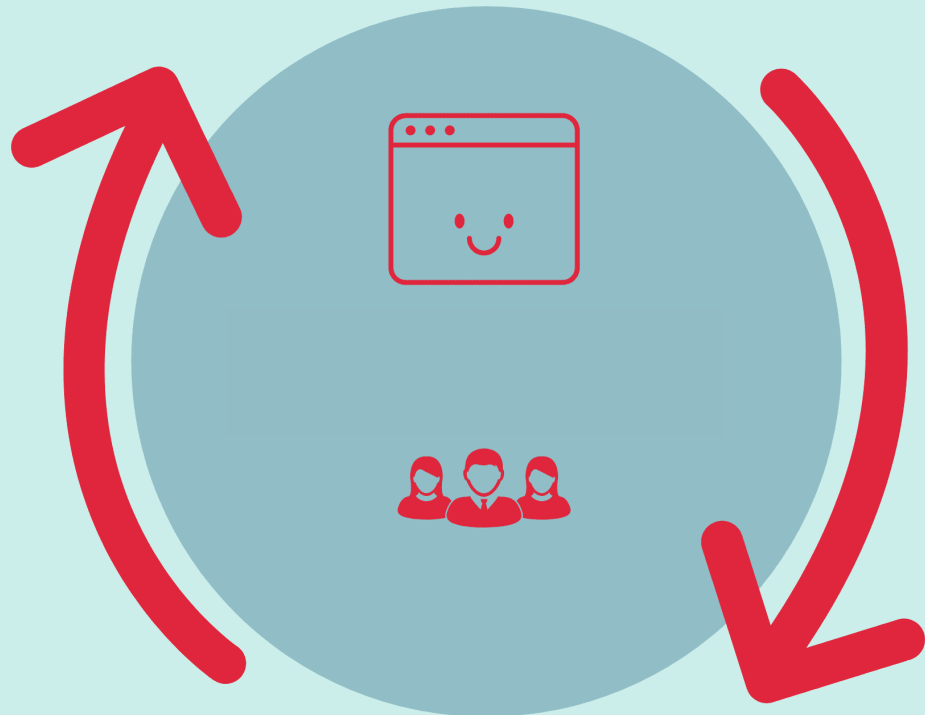
- Overly dependent upon:
 - Human-beings
 - Wetwear
 - Knowledge workers
 - Informal communications
 - Often described as the weakest link



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(Especially at first) stewards require a united purpose

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



Data Governance Frameworks



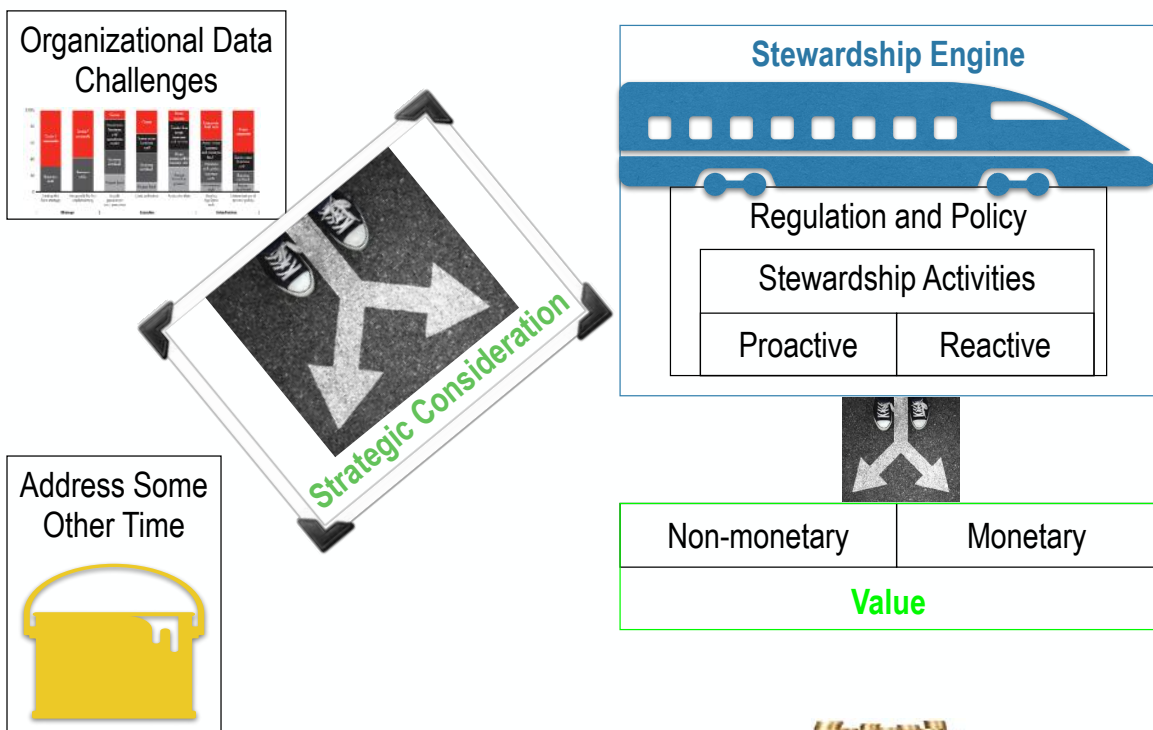
- A system of ideas for guiding analyses
- A means of organizing project data
- Priorities for data decision making
- A means of assessing progress
 - Don't put up walls until foundation inspection is passed
 - Put the roof on ASAP
- Make it all dependent upon continued funding

A Framework For Stewardship



A Framework For Stewardship
from <https://www.trainingjournal.com/articles/feature/stewardship>
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A Framework for Data Stewardship



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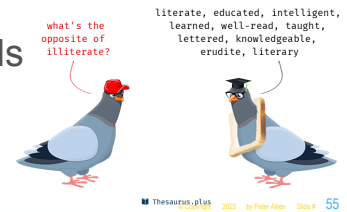


Data and Duct Tape

MACGYVER



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



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



Randy Bean Contributor
CIO Network Contributor Group
Enterprise & Cloud

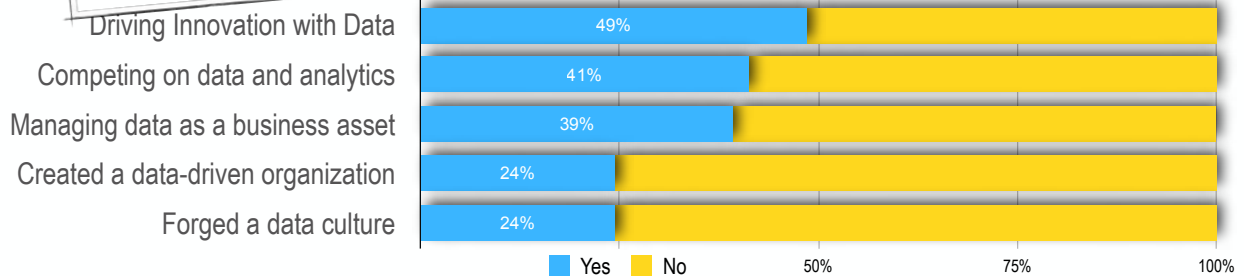
Culture still eats strategy for breakfast

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

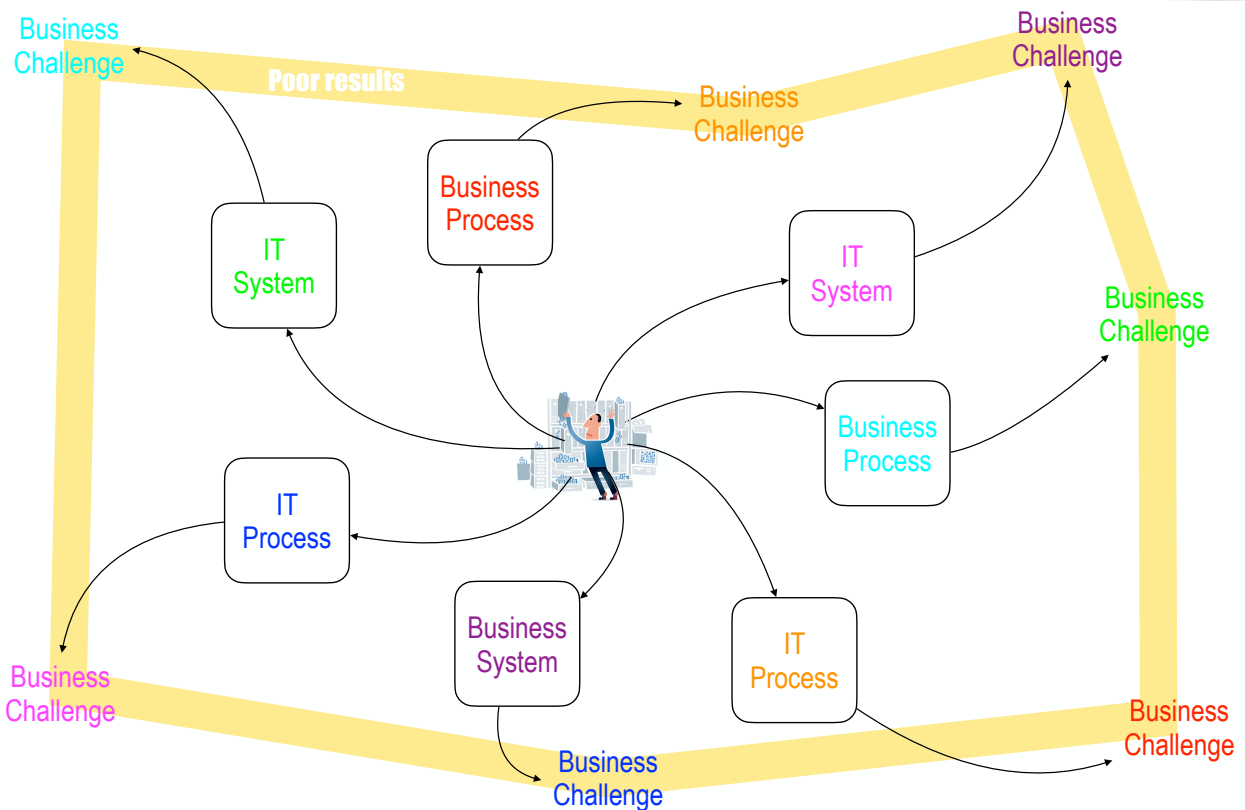
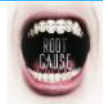
technology people/process
2021



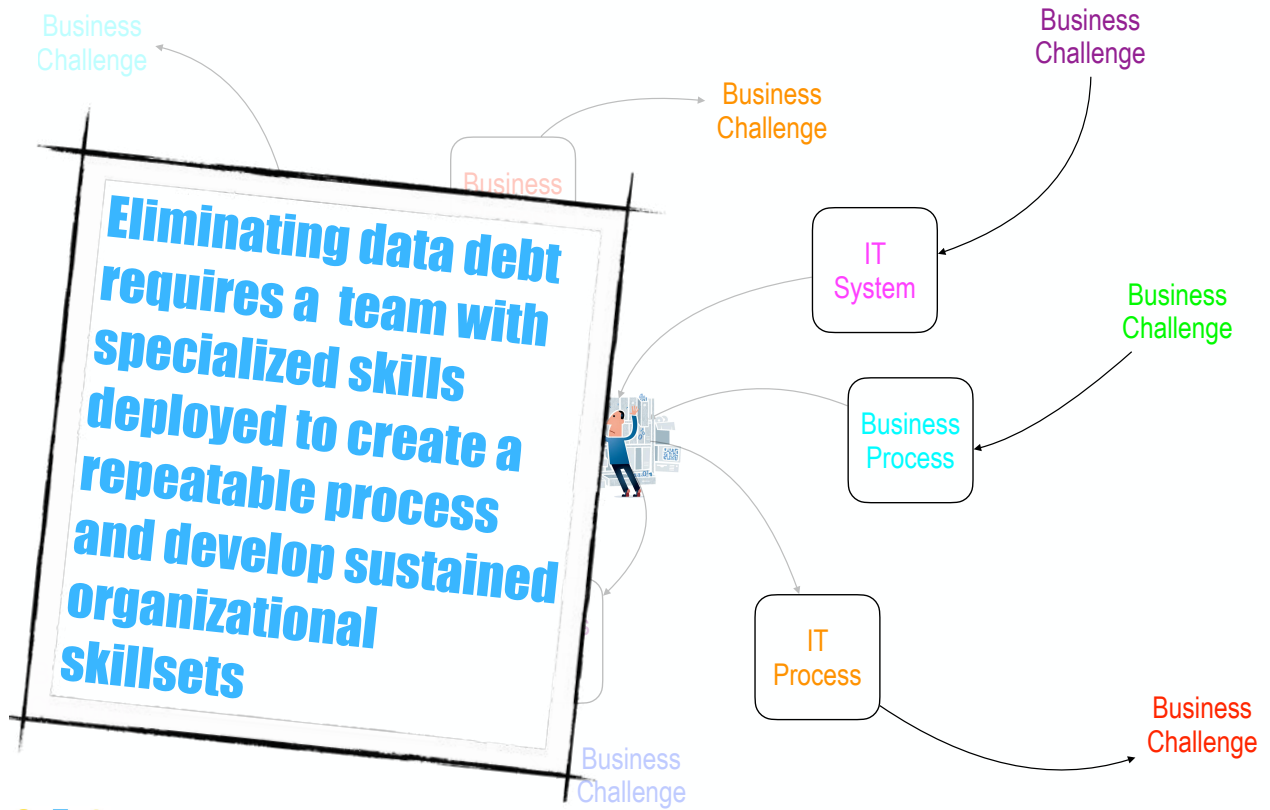
Poor data manifests as multifaceted organizational challenges



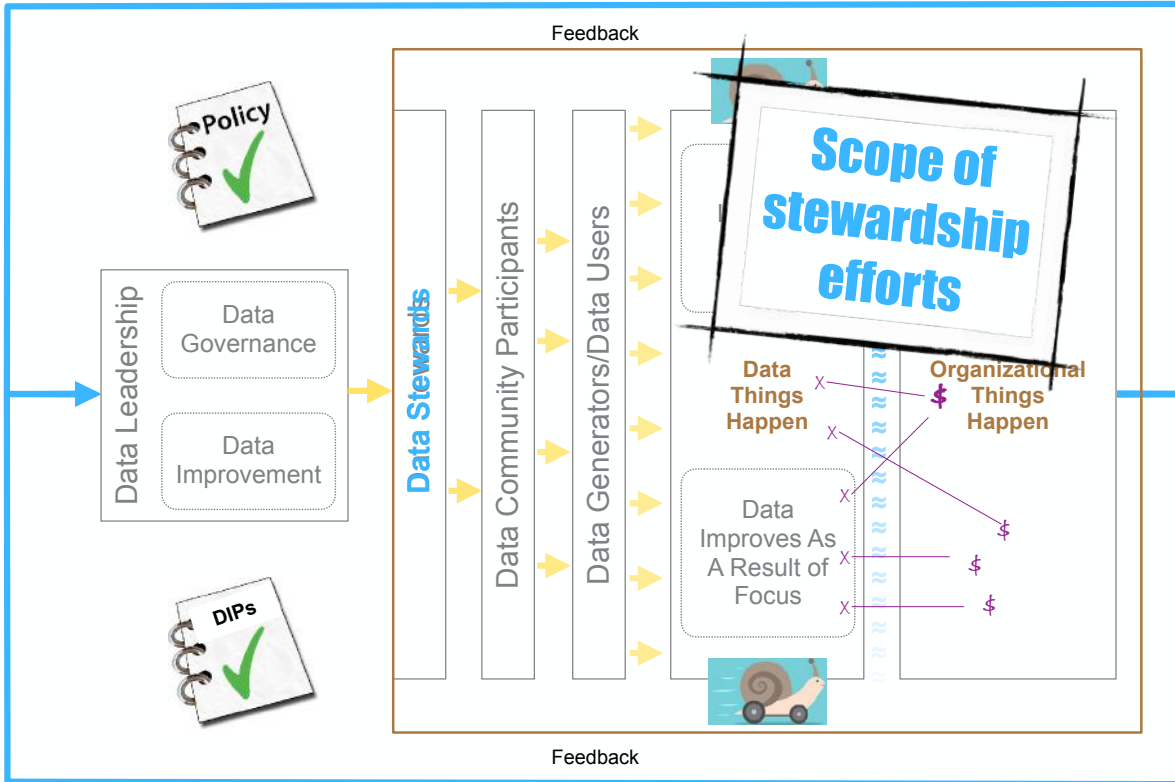
Root cause analysis is part of data stewardship



Consistency Encourages Quality Analysis



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



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Data Decisions Variety

Data Source	Steward
<ul style="list-style-type: none"> Clinical-domain-specific data definitions 	<ul style="list-style-type: none"> Departmental clinician
<ul style="list-style-type: none"> Master file of IDs (patient, provider, member, etc.) 	<ul style="list-style-type: none"> IT MDM steward or SME
<ul style="list-style-type: none"> Lab codes (LOINC) 	<ul style="list-style-type: none"> Lab Director
<ul style="list-style-type: none"> Pharmacy codes (RxNORM, etc.) 	<ul style="list-style-type: none"> Pharmacy Director
<ul style="list-style-type: none"> Order catalog 	<ul style="list-style-type: none"> Member of IT staff (usually clinician)
<ul style="list-style-type: none"> Diagnostic and procedure codes 	<ul style="list-style-type: none"> Director of HIM
<ul style="list-style-type: none"> Charge master 	<ul style="list-style-type: none"> Director of Finance

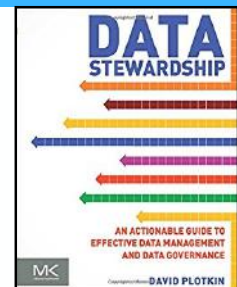


<https://www.healthcatalyst.com/why-are-data-stewards-so-important-for-healthcare>

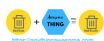
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Data Steward

- 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)



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Steward, Data

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



INTERNATIONAL DATA STEWARDS DAY



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

“I’m a business subject matter expert, sitting in IT on a 1:1 as a liaison between the two. Depending on the size and type of the business, I may do part of someone else’s job (e.g. Anna or Vicki).”

Stewart
Data Steward
Responsible for maintaining high quality data

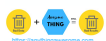
Source: Unknown

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

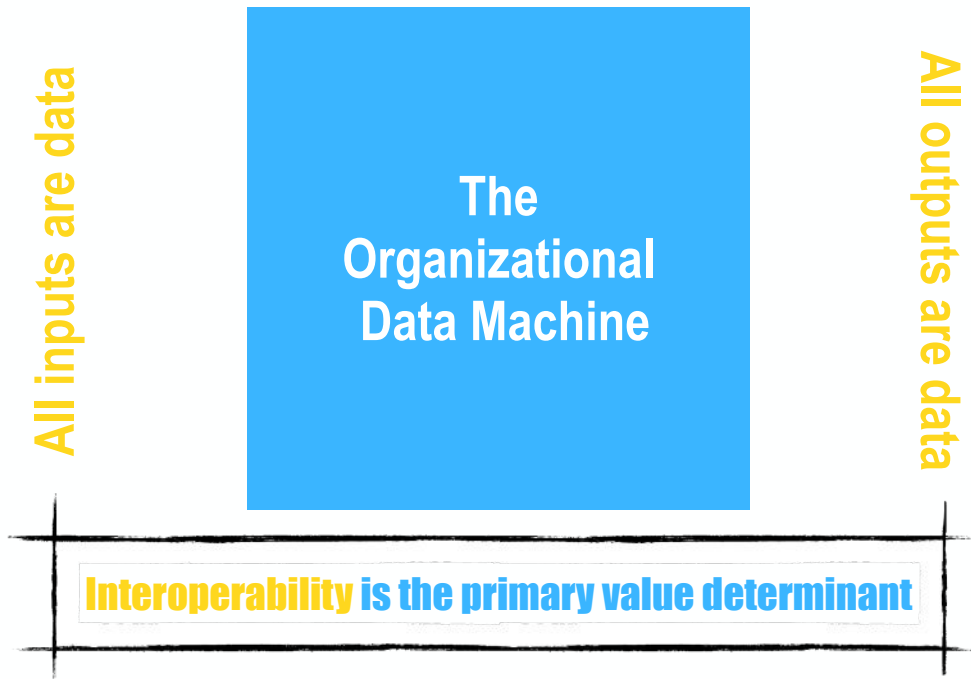
Ensure efficient/effective data management practices



How to determine what to manage formally?

Too much requires expensive and slow bureaucracy ←

→ Too little misses opportunities

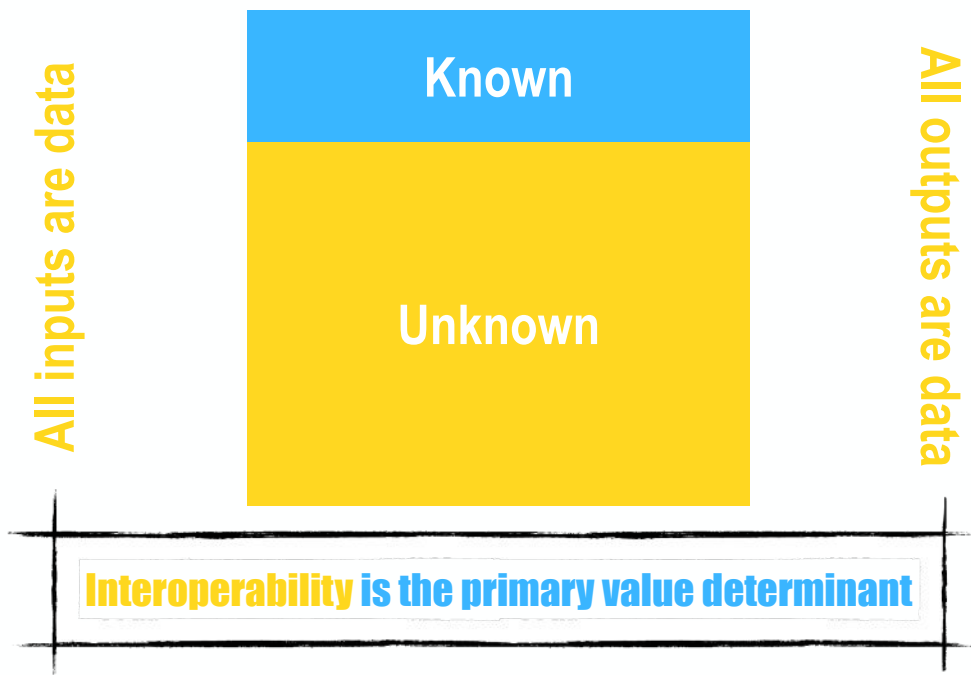


A Data Steward's Goal/Process



Too much requires expensive and slow bureaucracy ←

→ Too little misses opportunities

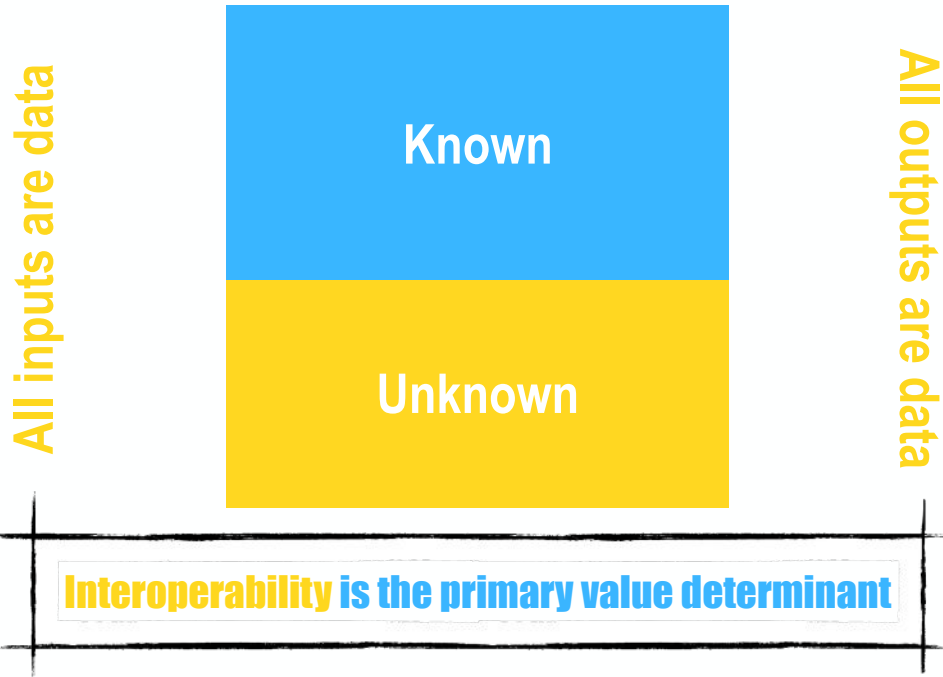


A Data Steward's Goal/Process



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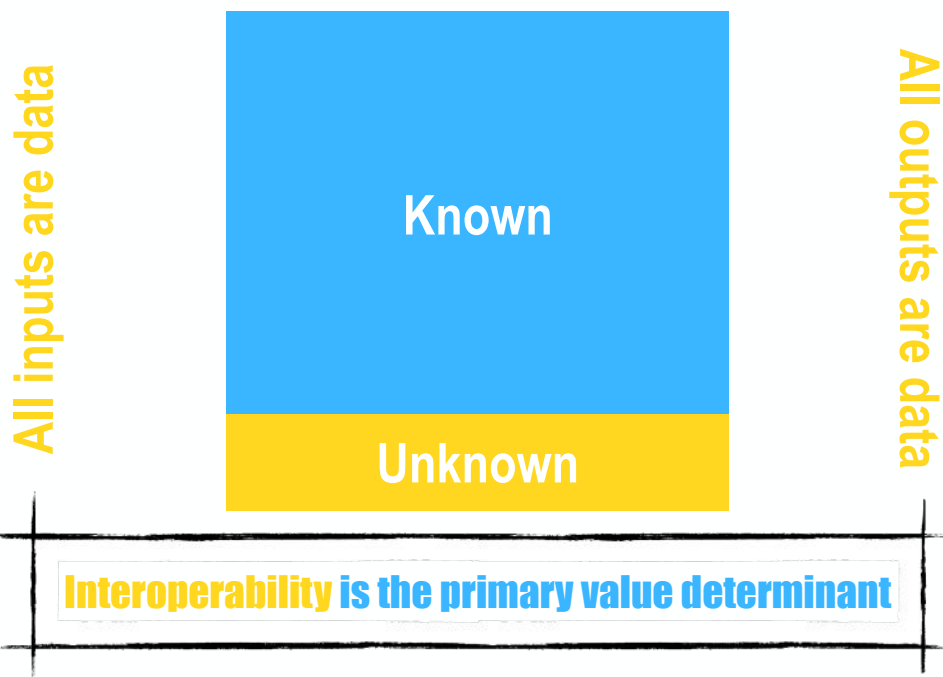


A Data Steward's Goal/Process



Too much requires expensive and slow bureaucracy ←

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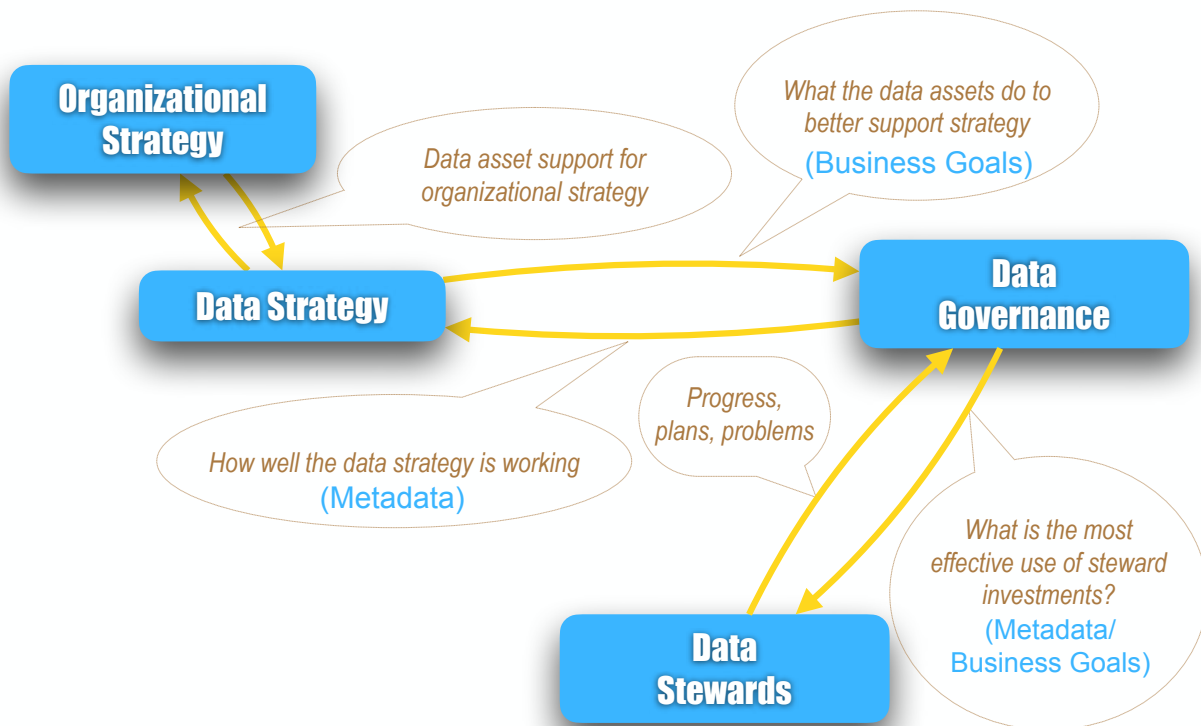
Understanding Systems Thinking

- 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!

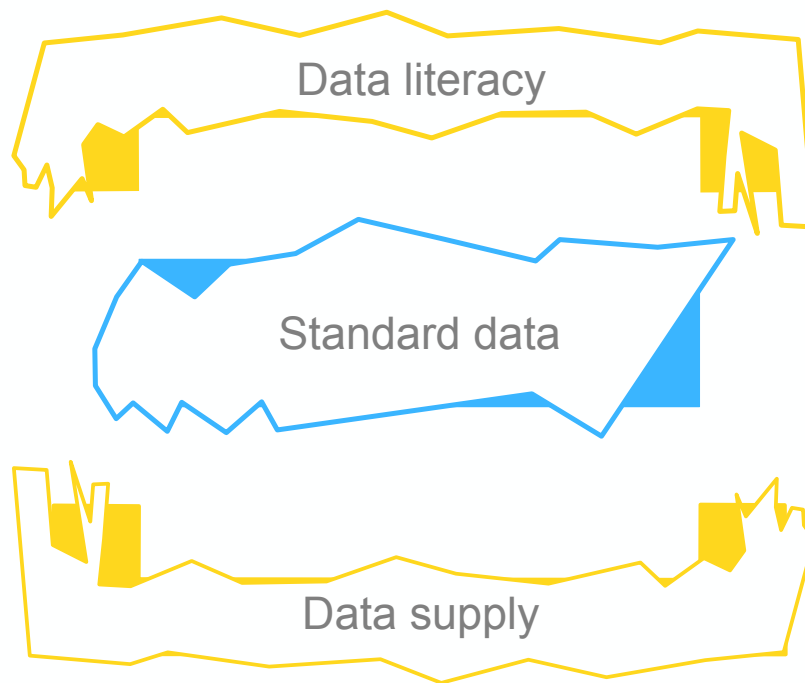


Data Footprints

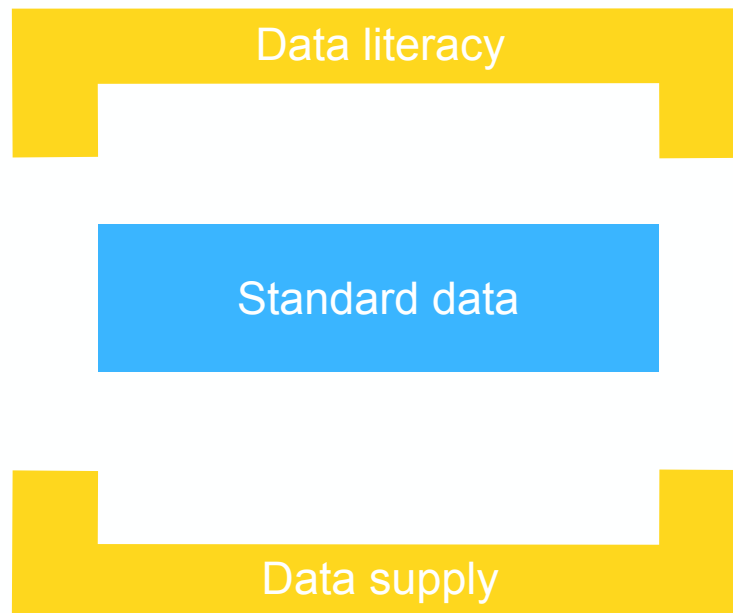
- SQL Server
 - 47,000,000,000,000 bytes
 - Largest table 34 billion records 3.5 TBs
- Informix
 - 1,800,000,000 queries/day
 - 65,000,000 tables / 517,000 databases
- Teradata
 - 117 billion records
 - 23 TBs for one table
- DB2
 - 29,838,518,078 daily queries



Leverage point - high performance automation



Leverage point - high performance automation



Leverage point - high performance automation



This cannot happen without investments in engineering and architecture!



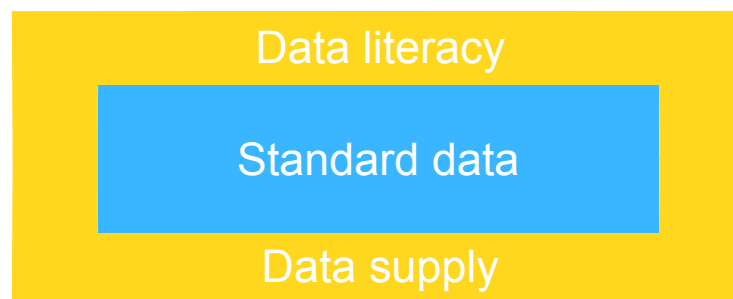
**Quality engineering/
architecture work products
do not happen accidentally!**

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Leverage point - high performance automation



This cannot happen without investments in data engineering and architecture!

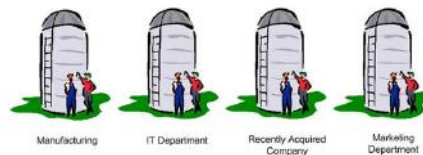
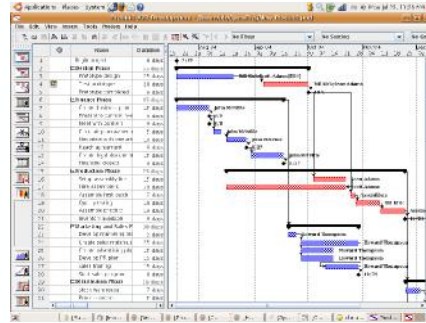


**Quality data engineering/
architecture work products
do not happen accidentally!**

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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!

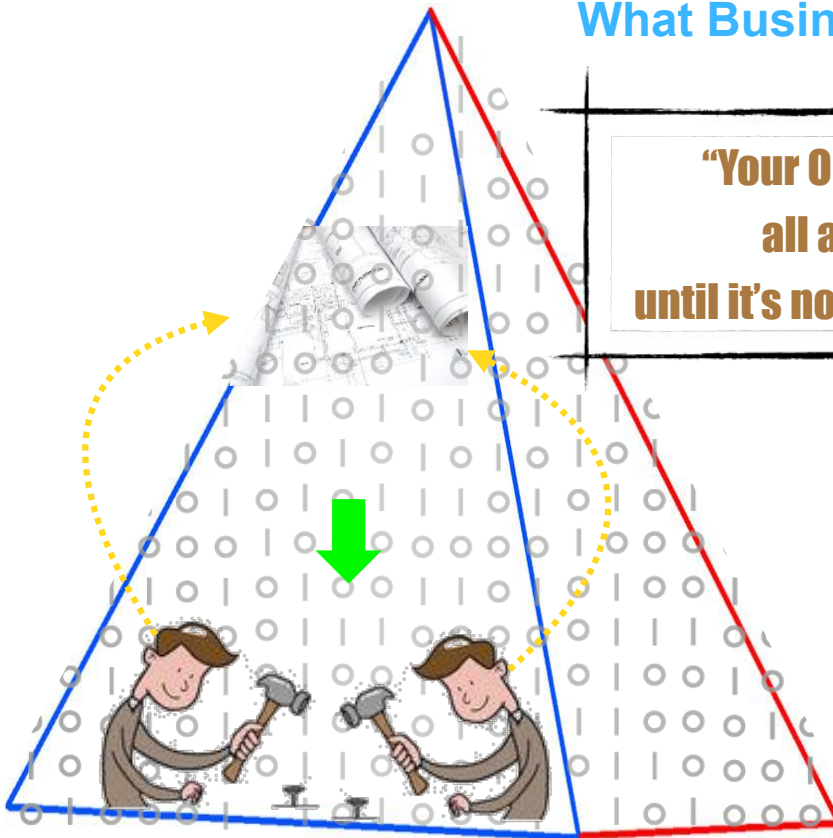


Differences between Programs and Projects

- 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

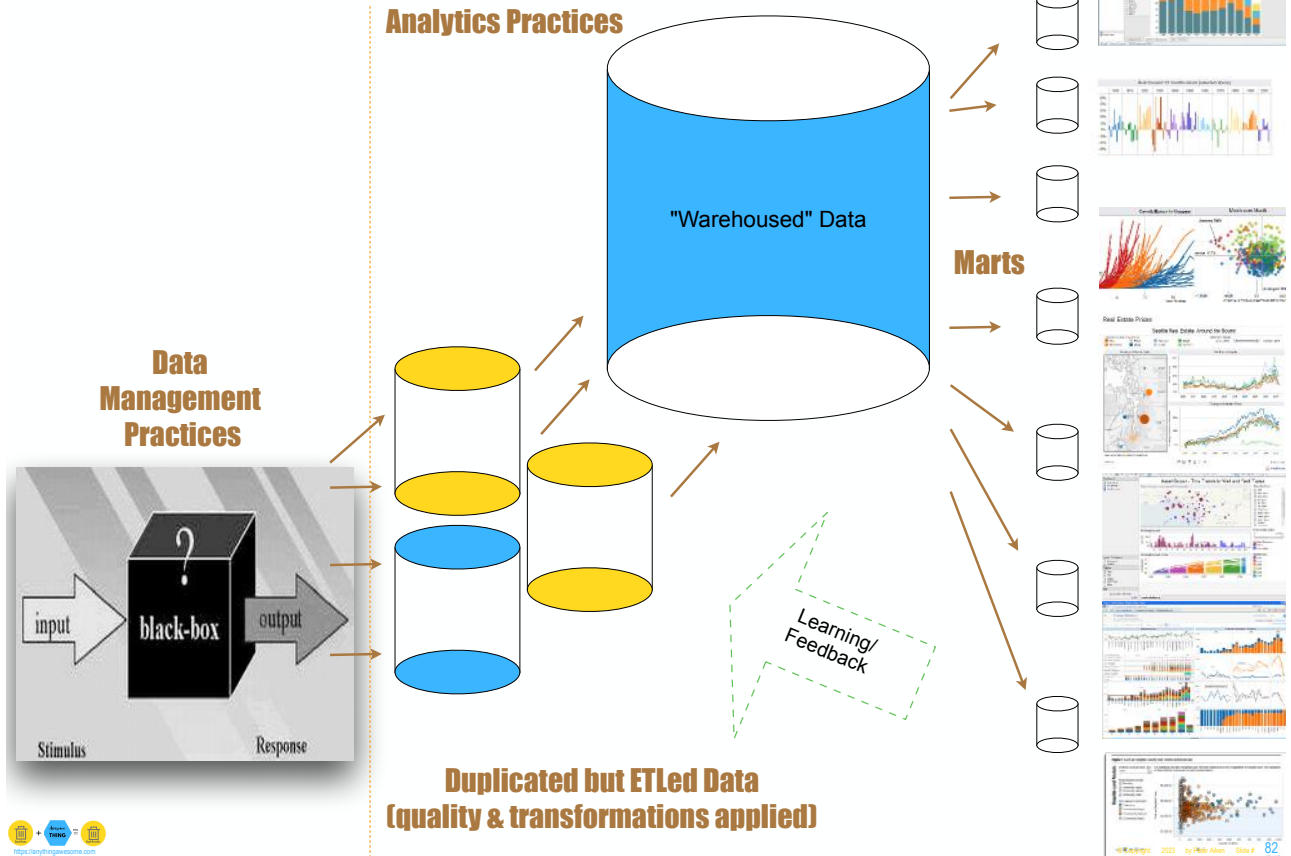


What Business are you in?

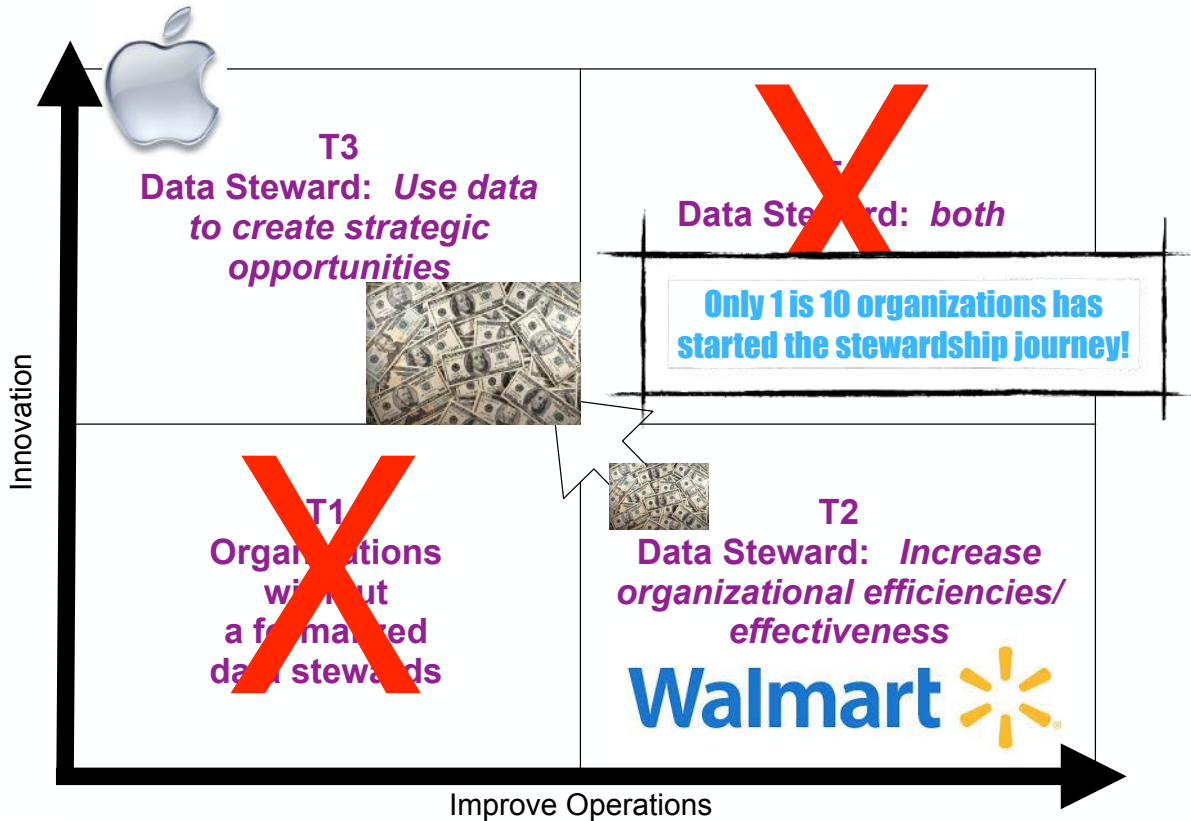


“Your Organization is all about Data, until it’s not about just Data”

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



Upcoming Events

Essential: Reference and Master Data Management
11 April 2023



Gaining Business & Executive Support for Data Management
9 May 2023

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

Key Elements of a Successful Data Governance Program
13 June 2023

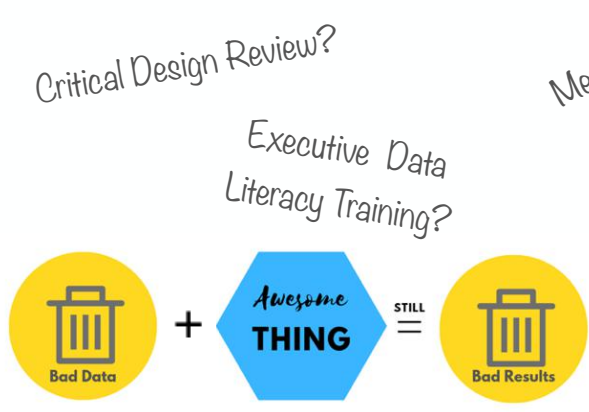
Brought to you by:



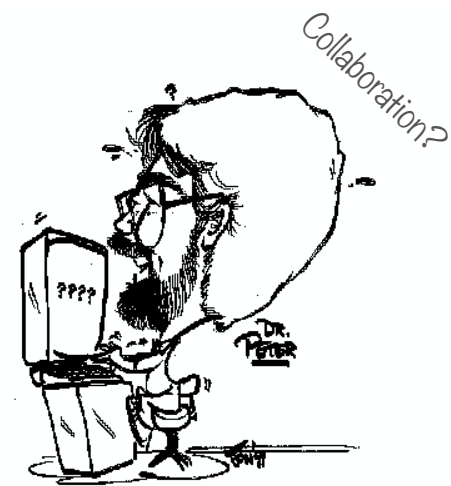
[Clicking any webinar title will link directly to the registration page]

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Independent Verification & Validation



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>

