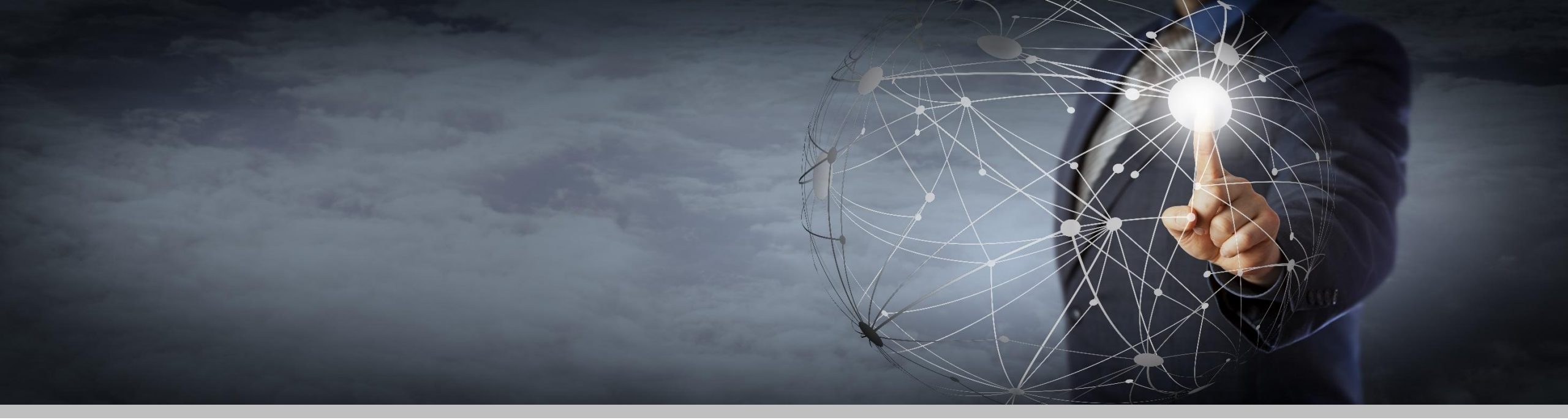


Data Architect vs. Data Engineer vs. Data Scientist – Making Sense of Roles in Today's Data-Centric Organization

Donna Burbank
Global Data Strategy, Ltd.

April 24, 2025

Donna Burbank

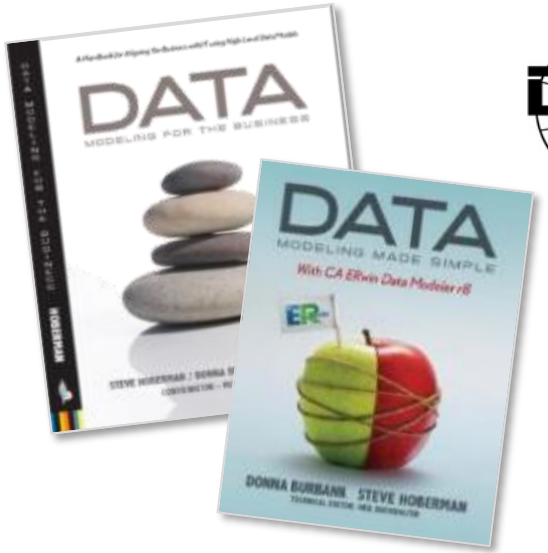
Donna is a recognized industry expert in data management with over 25 years of experience in data strategy, data governance, data modeling, metadata management, and enterprise architecture. Her background is multi-faceted across consulting, product development, product management, brand strategy, marketing, and business leadership.

She is currently the Managing Director at Global Data Strategy, Ltd., an international data management consulting company that specializes in the alignment of business drivers with data-centric technology.

In past roles, she has served in key brand strategy and product management roles for several of the leading data management products in the market.

As an active contributor to the data management community, she is a long time DAMA International member, contributor to the DMBOK 2.0, Past President and Advisor to the DAMA Rocky Mountain chapter, and was awarded the Excellence in Data Management Award from DAMA International.

She has worked with dozens of Fortune 500 companies worldwide in the Americas, Europe, Asia, and Africa and speaks regularly at industry conferences. She has co-authored several books and is a regular contributor to industry publications. She can be reached at donna.burbank@globaldatastrategy.com
Donna is based in Boulder, Colorado, US.



DATAVERSITY Data Architecture Strategies

This Year's Lineup

- **January** Trends in Data Architecture
- **February** Building a Data Strategy - Practical Steps for Aligning with Business Goals
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What We'll Cover Today

- The increasing focus on data in organizations has **increased demand for critical roles such as data architect, data engineer, and data scientist**.
- **But there is often confusion and ambiguity around what these roles entail**, and what overlap exists between them.
- This webinar will **discuss these data-centric roles and their place in the data-driven organization**.

Audience

- There exists a great deal of confusion and differing terminology in the data management industry.
- Typically, there are two main audiences:

"How do I get the right mix of skills on my team?"

"How do I find someone who understands my business?"

"Where are the right people to help us build our data-driven vision?"

Those Hiring

"How do I position my skills effectively?"

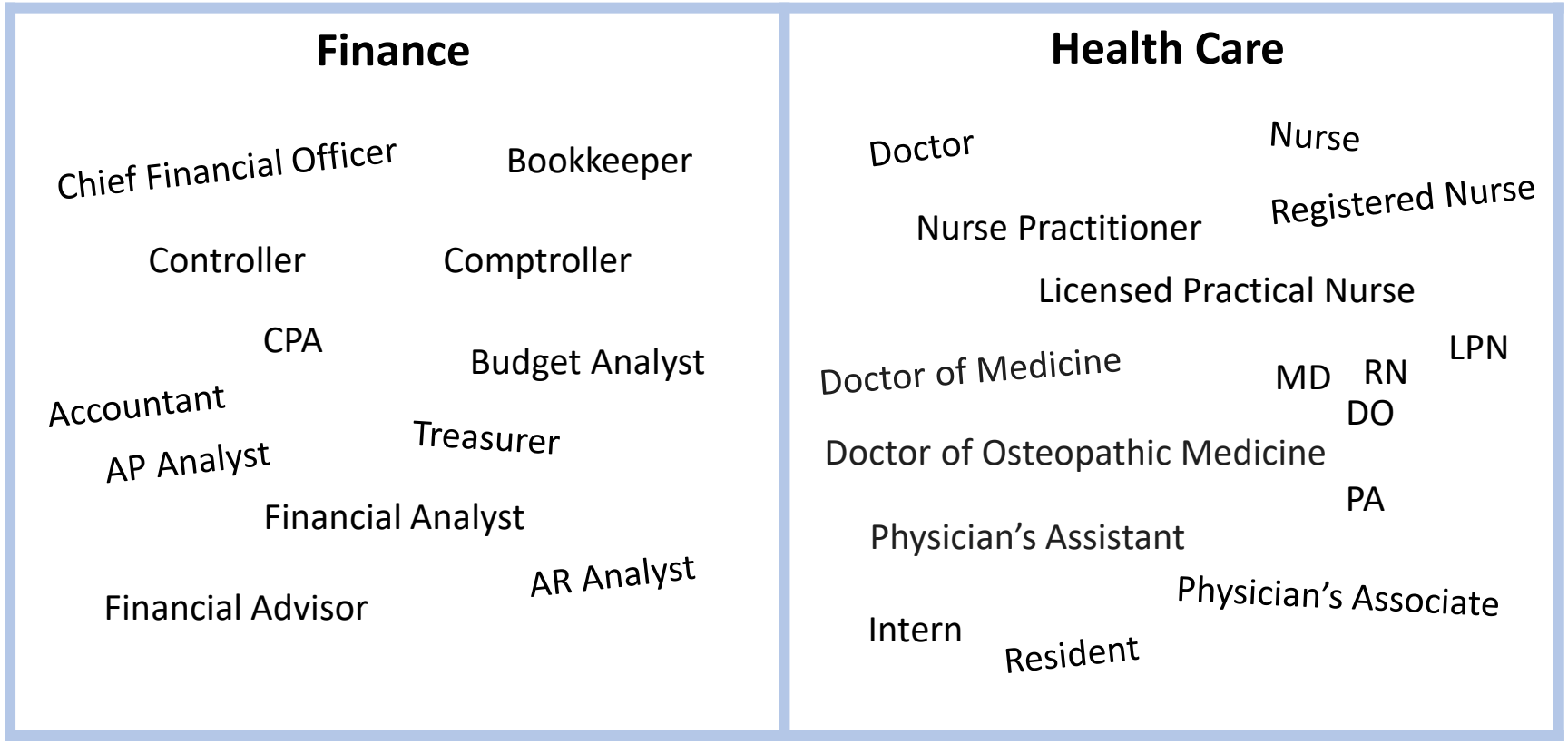
"How do I find the right role that fits my strengths and interests?"

"What's the right company to help me grow?"

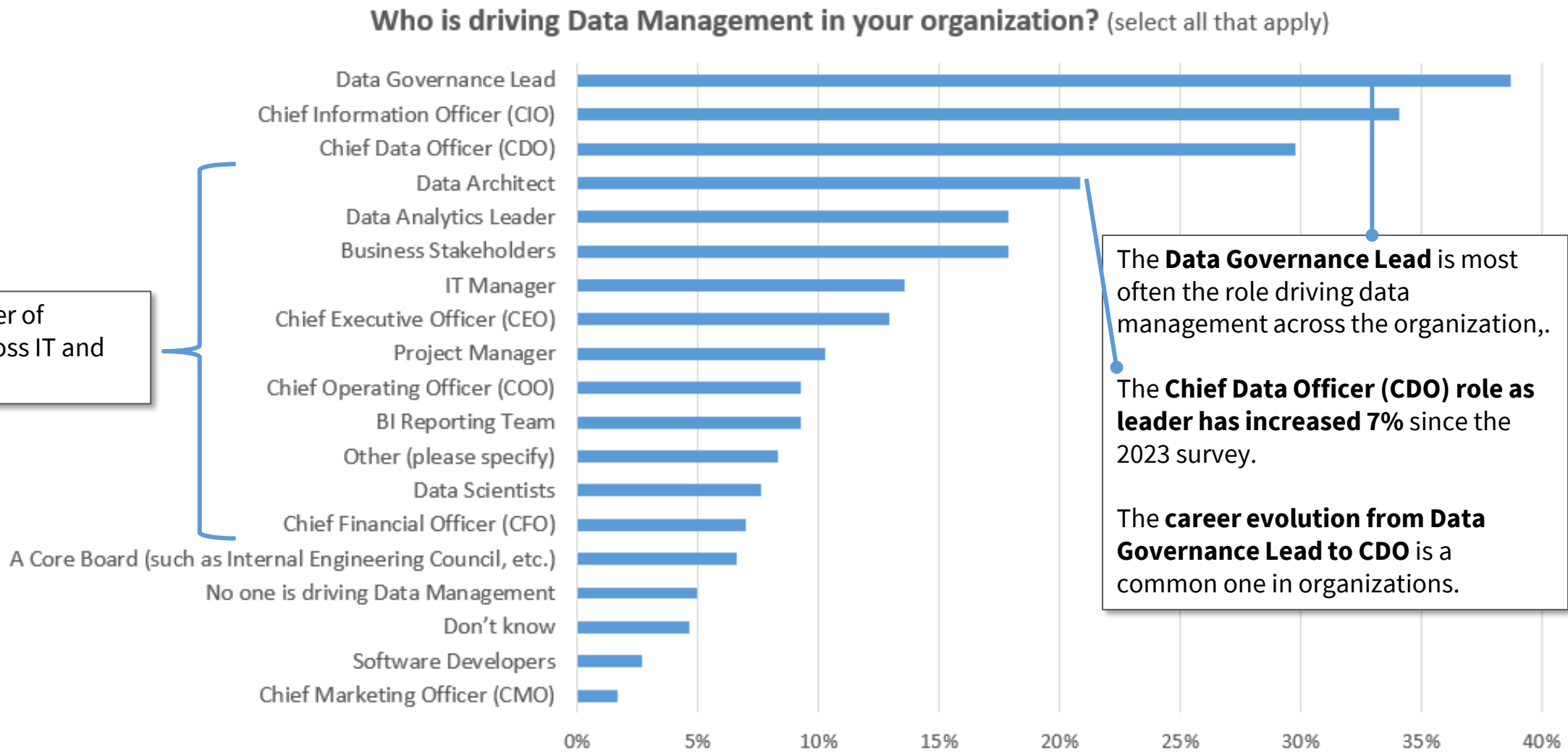
Those Looking for Work

We're Not Alone

- A similar issue exists in other industries as well.
- Can we easily articulate the difference between the following? Where do their tasks & skills overlap?



Successful Data Management Takes a Village …



There are also a number of "supporting" roles across IT and the business…

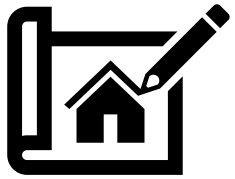
The **Data Governance Lead** is most often the role driving data management across the organization,.

The **Chief Data Officer (CDO) role as leader has increased 7%** since the 2023 survey.

The **career evolution from Data Governance Lead to CDO** is a common one in organizations.

From Trends in Data Management 2024, a DATAVERSITY Report, by Donna Burbank and Michelle Knight

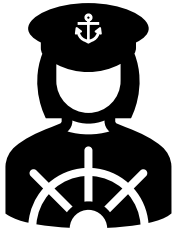
Let’s Break This Into Role “Patterns”



Design, Maintain & Build
Design, build, and maintain the data platform & ecosystem.

Govern & Orchestrate
Support the governance of and accountability for data across the ecosystem.

Analyze & Explore
Produce trends & insights from data via reporting & analytics.



Own & Use
Use data for business advantage. Accountable for the quality & protection of data.

A Sample Data Ecosystem

Data Catalog & Metadata Management – data lineage, data dictionary, business glossary, etc.

Operational Data

- Structured/Relational Data Storage
  - Registration System
  - Facilities Mgt
  - Order Mgt
  - Etc.
- Sensor Data
- Log files
- Social Media
- Video

ELT

Streaming

Data Lake/ Raw Landing

- Structured Data Storage
- Unstructured Data Storage

- Transformation

Structured Data Storage

- Structured format for trending over time
- Facts & Dimensions (often)

Semantic Layer

- Business-friendly view
- Common terms & calculations
- Ability to easily "slice & dice"

Reporting

- Business Intelligence Reporting

Advanced Analytics

- AI & ML
- LLM
- Graph Relationships
- Etc…

- Discovery & Analysis

- Publish & Subscribe

- Core data cleansed & governed for reuse (Customer, Product, Vendor)

Master Data

Modern Data Platform (Fabric)

Data Governance – roles, organization, policies, standards, etc.

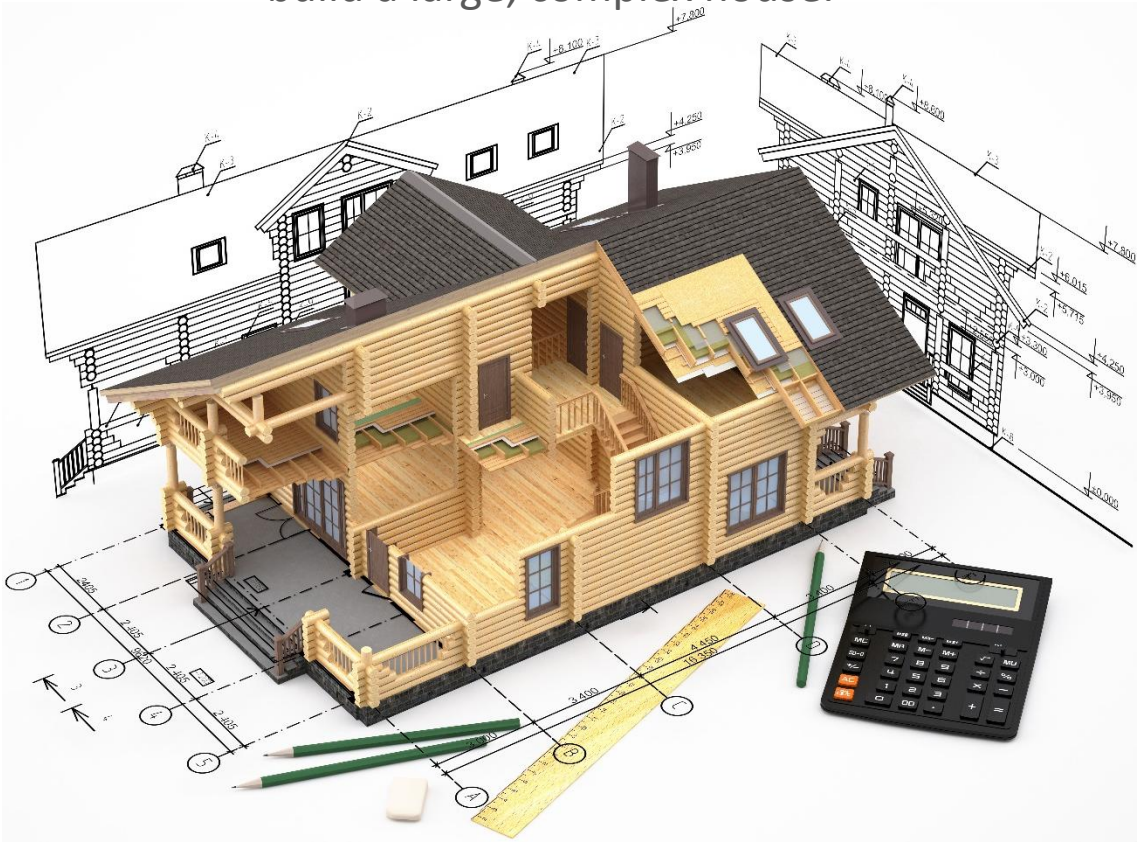
Design, Maintain & Build

Roles & Capabilities, Not Headcount

- The following descriptions describe **roles & capabilities , not headcount**
- In a small organization, they may be embodied in a single person.
- In a larger organization, there may be dozens of staff filling separate roles

Just as a single person might design and build a backyard shed

But it takes many in various roles to build a large, complex house.



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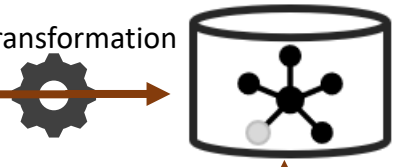

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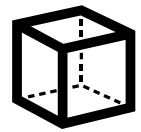

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Metadata Architect/Analyst: Designs & manages the metadata classification & storage ecosystem.

Application/System Engineer (IT)

- Manage the performance of system applications to support business operations
- System customizations and maintenance

Data Architect

- Designs the data structures for data storage (e.g. Data Warehouse) to align with business requirements for reporting or other use cases.
- Creates high-level data flow diagrams to align data transformation & movement
- Builds data standards for business semantics and technical formats

Data Engineer

- Builds and maintains data structures for data storage aligned with data architecture design
- Develops data movement pipelines (ETL/ELT) for data transformation.

DQ Analyst

- Designs Data Quality Rules & Dashboards

Data Architect

- Designs master data structures & hierarchies

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- Designs & Builds BI Reports & Dashboards
- Answers Business Questions via Visualizations

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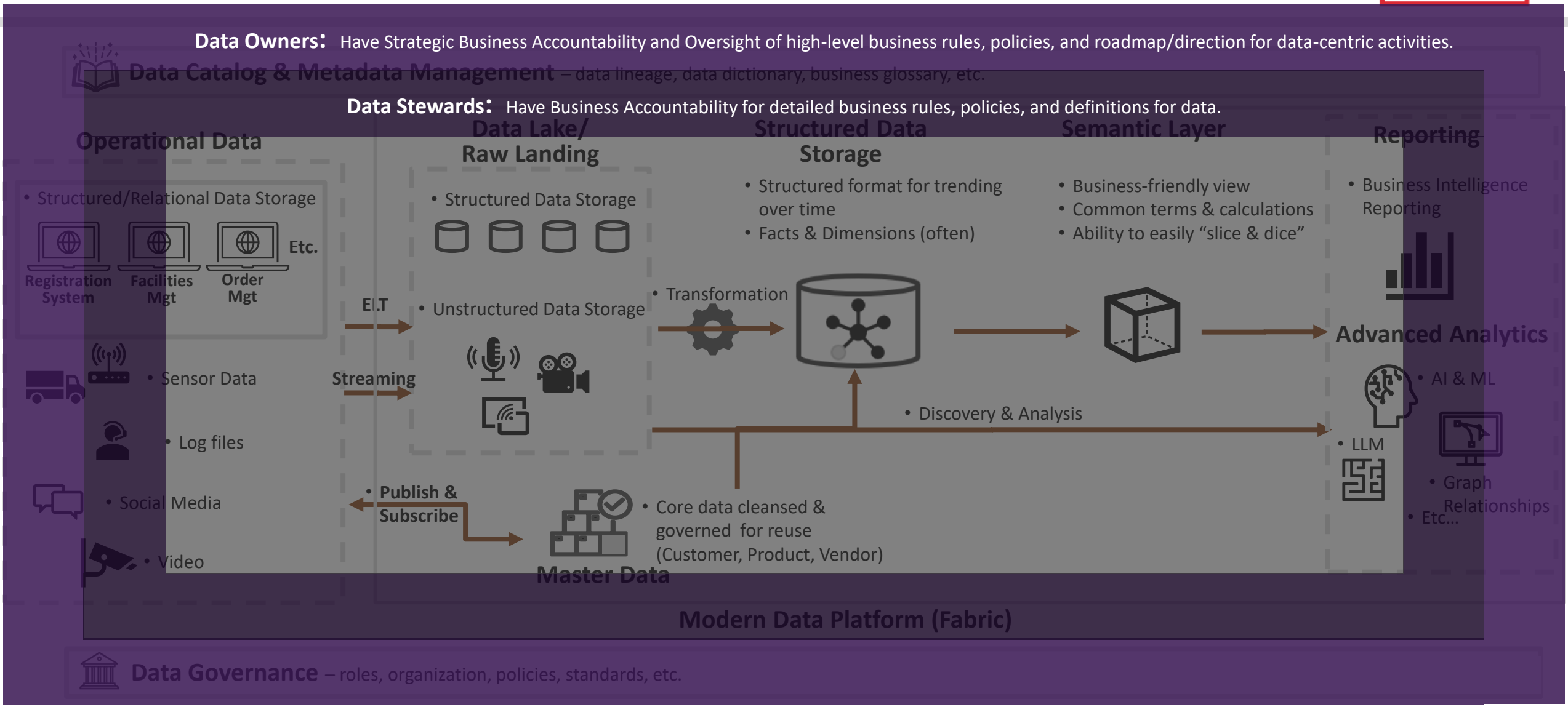

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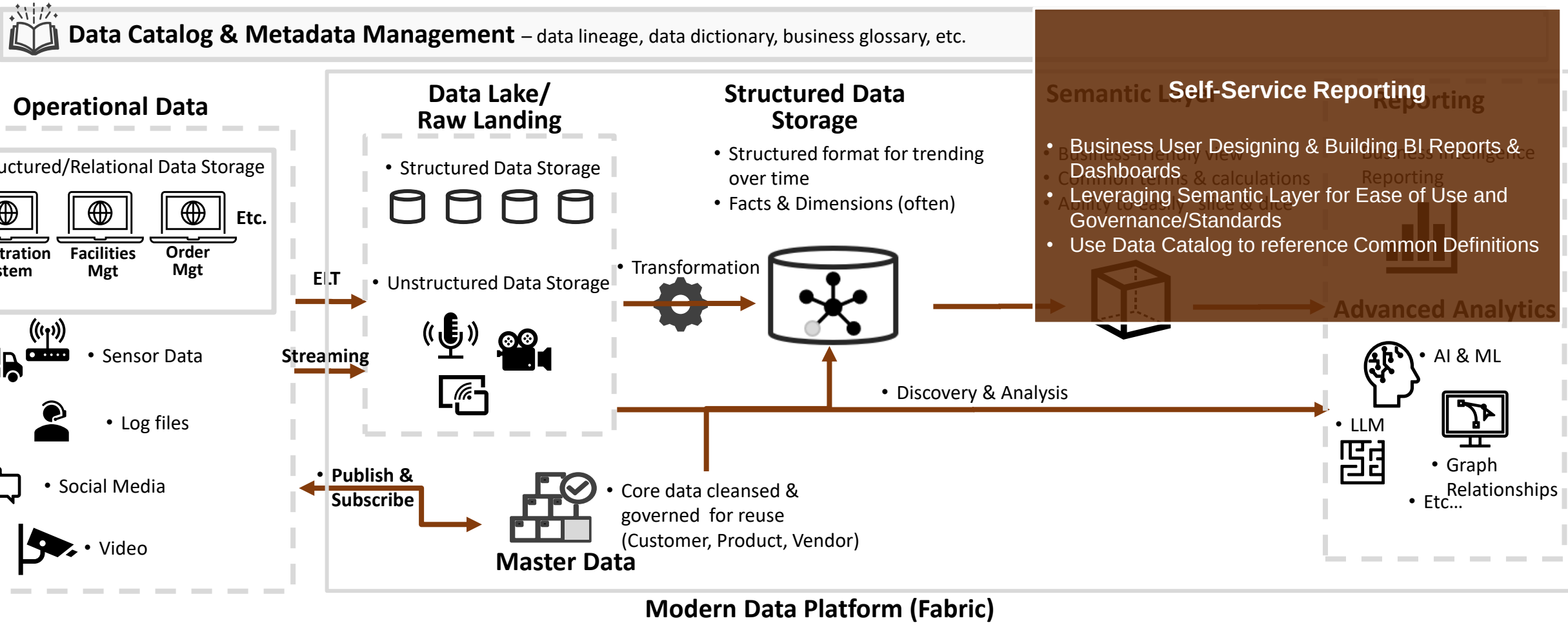
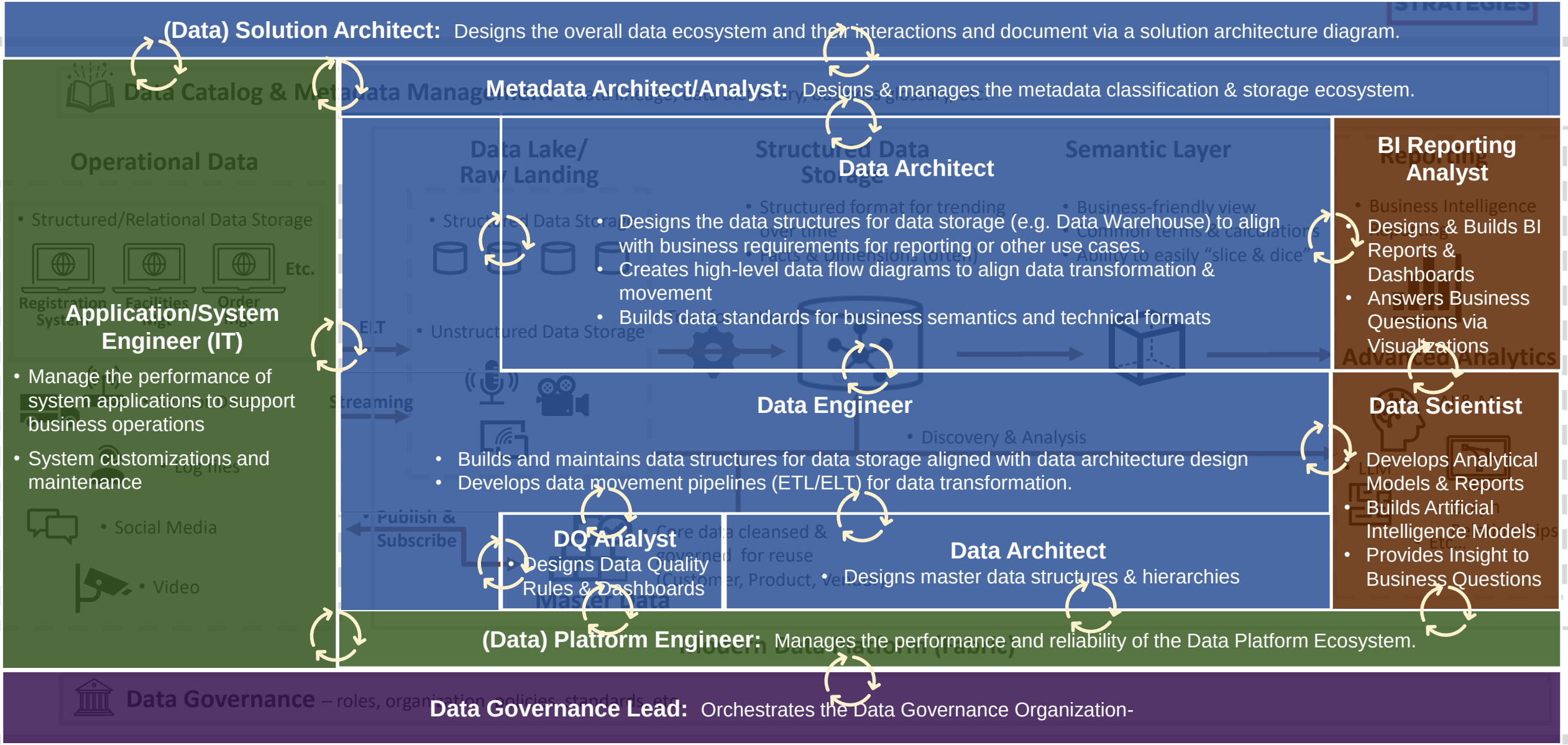


Execution / Implementation

Roles Work Together through Touchpoints/Deliverables/SLAs



What Does This Mean for Your Data Career Growth?

The Role of the Data Professional in the Data-Driven Business

- In the current environment of data-driven business, Data Professionals have an opportunity to have a “seat at the table”
  - Finding new opportunities to leverage data for business benefit
  - Creating efficiencies & business process optimization
  - Integrating data from disparate sources for new business insights
  - Supporting organizational change

The Role of the Data Professional

Technology

Business

Janus

Advice for Data Professionals Looking to Expand

Build on your strengths

- Do you have domain-specific knowledge in Finance, Manufacturing, Health Care, etc?
- Are you a good communicator?
- Do you love learning new technology?
- Are you a "big picture" thinker – can you connect concepts in a coherent, concise way?
- Are you great at delving into details that others can't?

Expand your knowledge

- What technical areas can you expand? Online learning options abound!
- How can you improve your communication? Toastmasters and other groups can help.

Expand your network

- Online platforms such as Linkedin
- Data-centric organizations such as DAMA (Data Management Professionals Association)
- Online conferences and venues (e.g. Dataversity)

Summary

- While there can be confusion around Data Roles, there are common patterns for responsibilities
- Responsibilities Designing, Building, Analyzing, Governing, and Using Data should be coordinated through clear, documented SLAs
- Both business and technical stakeholders have a role in creating a successful data ecosystem
- There is no “one size fits all” approach – while there are patterns, each organization is unique
- Data Professionals have a unique position to have a “seat at the table”, mixing business and technical skills

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Who We Are: Business-Focused Data Strategy

Maximize the Organizational Value of Your Data Investment

In today's business environment, showing **rapid time to value** for any technical investment is critical.

But technology and data can be complex. At Global Data Strategy, **we help demystify technical complexity** to help you:

- Demonstrate the ROI and **business value of data**
- Build a data strategy **at your pace to match your unique culture** and organizational style.
- Create an **actionable roadmap for "quick wins"**, which building towards a long-term scalable architecture.

Global Data Strategy shares experience from some of the largest international organizations scaled to the pace of your unique team.

Global Data Strategy has worked with organizations globally in the following industries:

Finance · Retail · Social Services · Health Care · Education · Manufacturing · Government · Public Utilities · Construction · Media & Entertainment · Insurance …. and more

Thoughts? Ideas?

Questions?