Lesson 8 – Tech Architecture Best Practices

## Topic 2 – Best practice principles
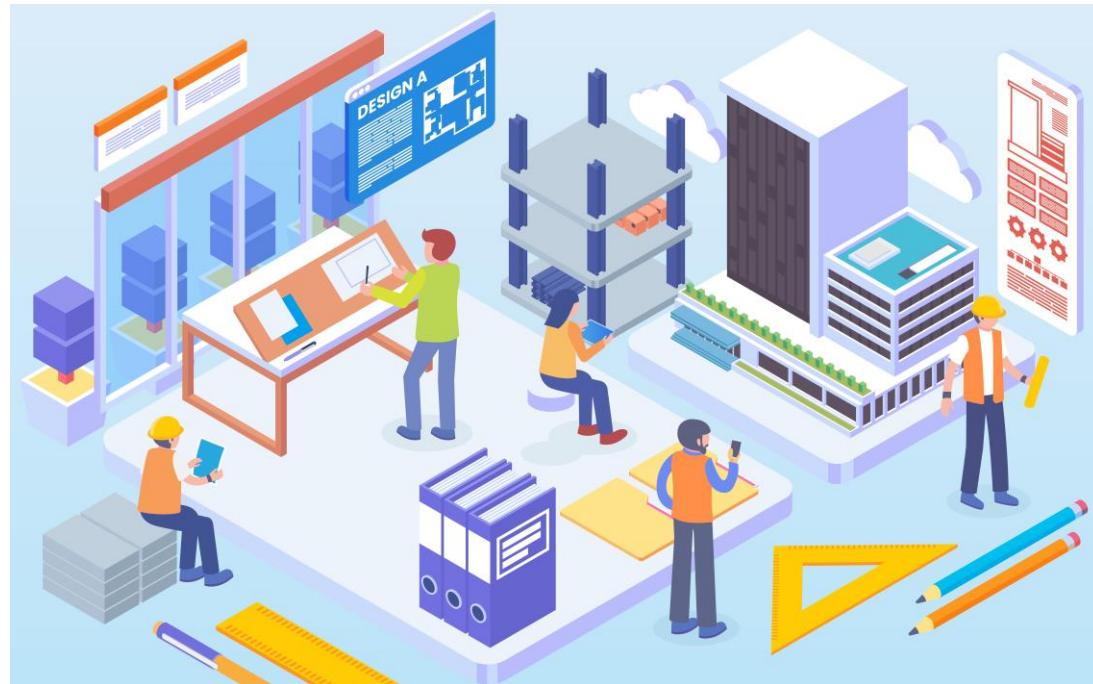
What we've learned so far

- The **primary purpose** of tech architecture is to **support the business architecture** so the firm can execute the strategy successfully

- To survive in a hyper-complex world, the business must be able to respond quickly to market changes – and this can only be done through technology

- So technology must be **flexible**, **scalable** and **easily adaptable** to external sources

- <u>BUT THIS IS NOT THE CASE TODAY!</u>

- Legacy systems are inflexible, unscalable monolithic constructs that requires significant resources just to be kept operating – not an optimal point of departure for a rapidly changing and evolving world

- There's a clear need for 'doing something'

…add to this nine digital insurance trends

CDI
CERTIFICATE
DIGITAL INSURANCE

Social media and mobile technology	Cloud computing	Internet of things
Open ecosystems	Big data and advanced analytics	Machine learning
Augmented reality	Biometric identification	Intelligent operations

Source: BCG analysis

Core concept – bi-modal IT

Source: Gartner's pace layered architecture
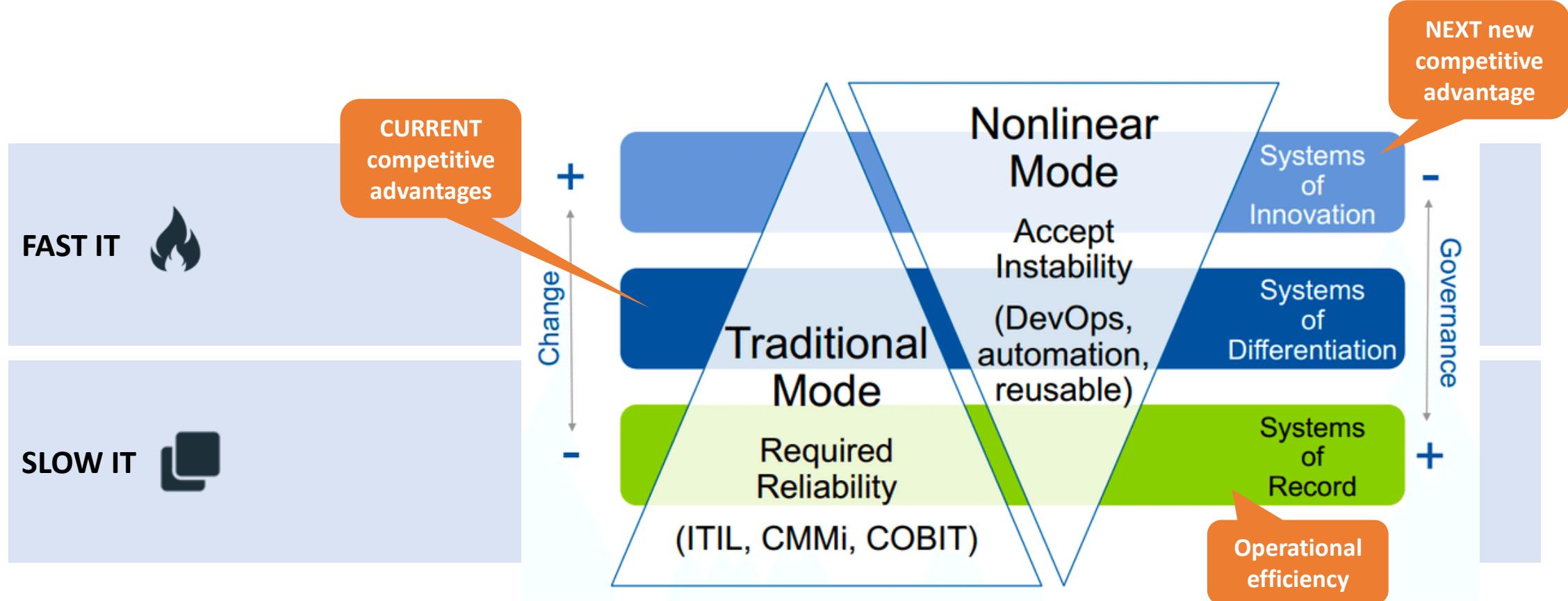
High-level example from an airline

Source: [Quality Spectrum: Intro to Pace Layered Application Strategy](#)
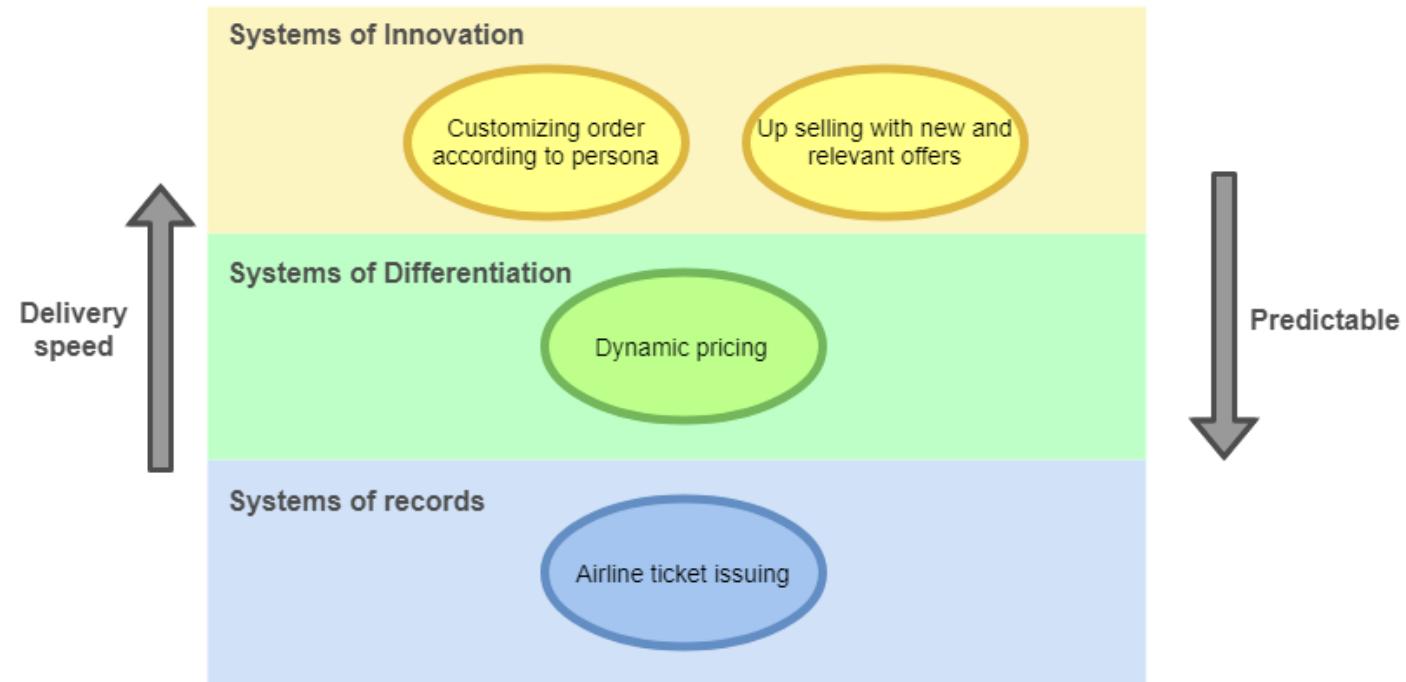
Case study: real-life bi-modal architecture

Partners

- Value Adds
- New products / aggregators
- Social media
- Affinities
- Partner Apps

External systems

- Regulators
- 3rd parties
- Other

System of engagement

Customer interface

- Website pages
- Quick renewal
- Customer login
- Buy online
- Microsites
- Generate quote
- Content management

System of differentiation

CRM

- UW models
- Lead management
- Claims intimation
- Renewal quotes
- Customer service
- 360 customer view

Document management

- ECM system

"Legacy system"

- Master data
- BI / MIS
- Security & authorities
- Policy issuance
- Org. setup
- Finance
- Endorsements
- Claims mgt.
- Workflow

Portals

- Employees
- Agencies
- Partners

- Agent / broker mgt. (commissions, etc.)
- Mobile App

System of records

6 Source: Retail insurer

Pros and cons of bi-modal IT

Advantages

- Speed of implementation
- Innovation opportuntiies
- Agility and adaptability
- Less shadow IT

Challenges

- Separation of teams can create disharmony ("us" vs. "them")
- Confusion – the business may not know how to proceed
- Resistance to change
- Overall higher costs

Connecting the architecture (lesson 2.7)

Three Tier API Layer Architecture

Source: *Slideshare: Transform Your Business with API-led Connectivity*
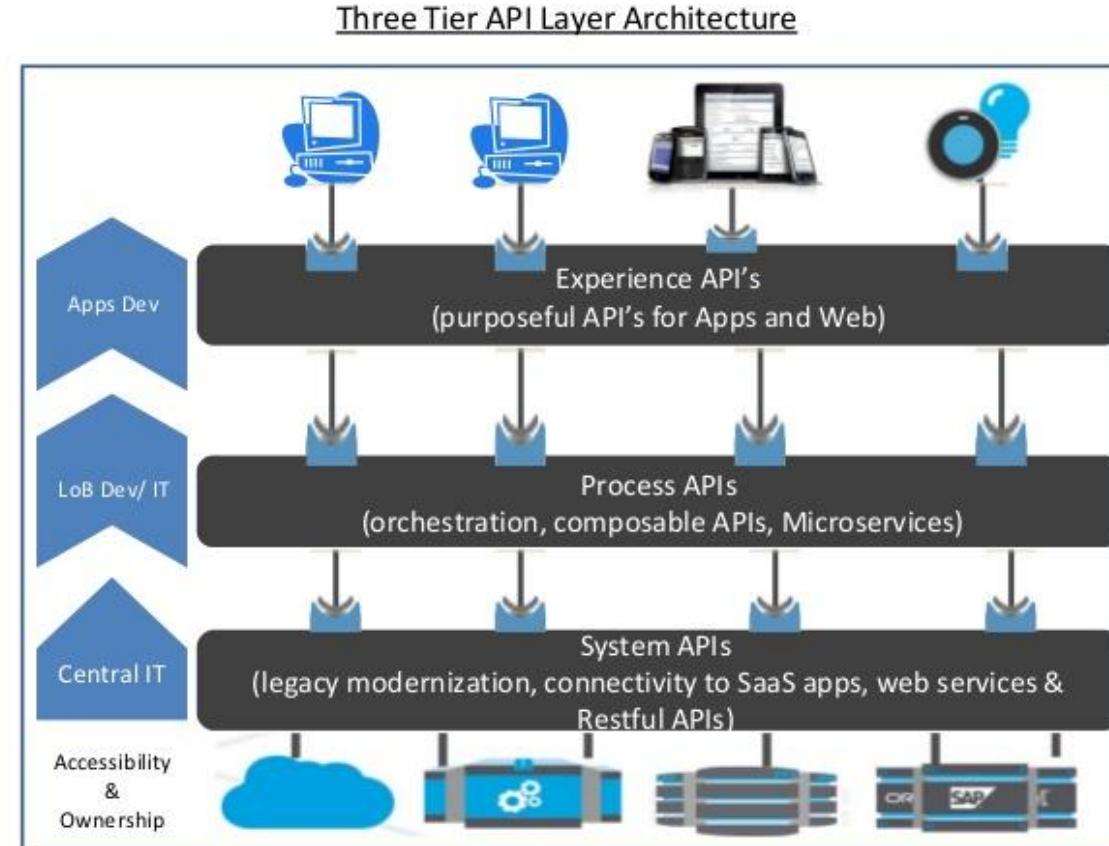
,,,but it all begins and ends with data

"Top-Down" alignment with business priorities

Managing the people, process, policies & culture around data

Leveraging & managing data for strategic advantage

Coordinating & integrating disparate data sources

"Bottom-Up" management & inventory of data sources

Business Strategy — Alignment — **Data Strategy**

Data Governance
- People
- Process
- Policy
- Culture

Master Data Management | Data Warehousing | Business Intelligence | Big Data Analytics | Data Quality | Data Architecture & Modeling

Data Asset Planning & Inventory | Data Integration | Metadata Management

Databases | Big Data | Unstructured Data | Semi-Structured Data | Document & Content Mgt.

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Understanding data 3.0

Support enterprise-wide analytics and business processes; CRM, supply chain management, and quote to cash. Solutions for data quality, cloud data integration, data security, data archiving, etc.

Data 3.0

NOW
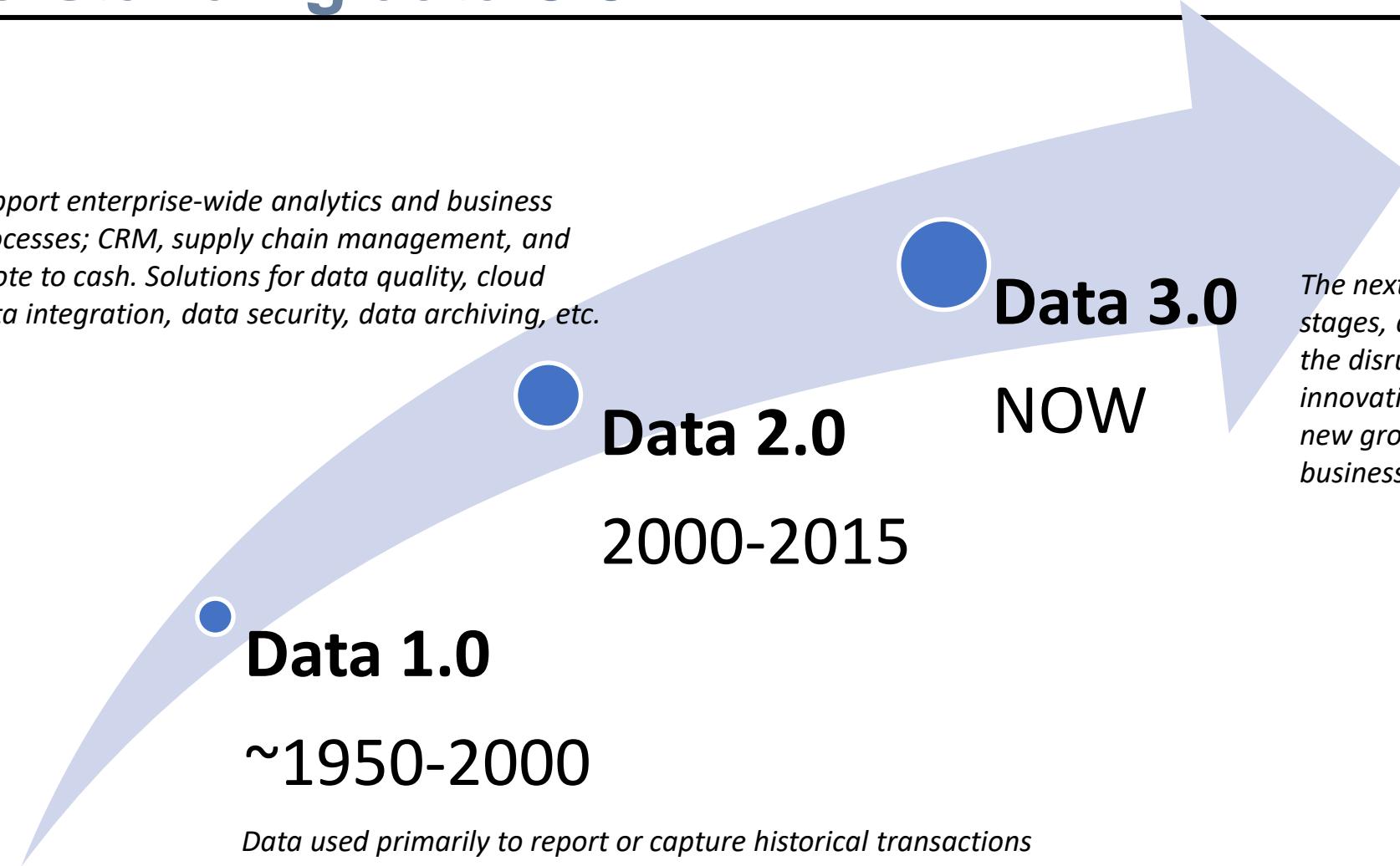
The next generation of data is in the early stages, and entire businesses are realizing the disruptive power of data to fuel innovation, become more agile, and realize new growth opportunities through new business models and processes

Data 2.0

2000-2015

Data 1.0

~1950-2000

Data used primarily to report or capture historical transactions within specific departments sup- ported by individual business applications, such as payroll automation, enterprise resource planning (ERP), and point-of- sale (POS) systems

Master Data Management

- **The underlying premise of a master data strategy is to create trusted data for the organization to use. <mark>If you can't trust your data, you can't rely on insights derived from it</mark>**

- **Master data** is the consistent and uniform set of identifiers and extended attributes that describes the core entities of the enterprise including customers, prospects, citizens, suppliers, sites, hierarchies and chart of accounts

- **Master data management (MDM)** is a technology-enabled discipline in which business and IT work together to ensure the uniformity, accuracy, stewardship, semantic consistency and accountability of the enterprise's official shared master data assets

- An effective MDM strategy entails an end-to-end, comprehensive view of trusted, relevant, governed, and authoritative data
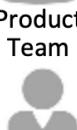
- Master data, when managed and reconciled, creates a *master record* (also known as a *golden record* or *best version of the truth*) that contains the essential information that the firm relies on

- The master record contains what your business needs to know about a customer, location, product, supplier — that business-critical "thing" — in order to facilitate, say, a marketing campaign, a service call, or sales conversation

Data architecture – a brief overview
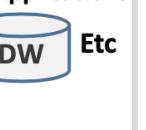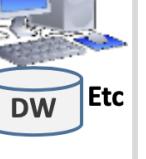
Operational Data

CRM — Customer X orders Product Y at 2pm on Oct 24, 2017 — Sales

CRM — Customer X calls Support at 1pm on Nov 1, 2017 — Customer Care

ERP — Inventory consists of x number of Product X components on Oct 24, 2017 — Supply Chain

IoT — Customer turns on foot warmer at 11pm on Oct 30, 2017 — Product Team / Customer
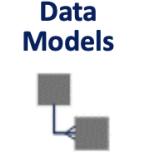
Reporting & Analytics

Enterprise Historical Reporting

DW — What were total sales for Product X in 2016 by region? — ELT / Managers

Analytics & Discovery

Lake — What variables most influence customer repeat purchases? — Analytics Team

Operational Reporting

CRM & other systems — How many support calls are currently open? — Managers

Limited Personal Use

Access — Limited ad hoc analysis for small data sets. — ✗ Not recommended for enterprise data management.

Master & Reference Data

"Golden Record" for Customer, Product, etc.

Customer Master / Product Master — Mary Smith lives on 101 Main ST, Minneapolis, MN and has been a customer since 2011. SuperProd has a product code of SS720 & a suggested retail price of $11,000 USD. — Applications / DW Etc

Reference Data

Valid Return Codes are "X, Y, & Z" State Codes include MA, MD MI … — DW Etc

Hierarchies

The Sales management reporting hierarchy is structured as follows. — DW Etc

Metadata

Business & Technical Context & Descriptions

Business Glossary — How is Total Sales calculated? What is a Qualified Lead? — Business Users / Developers

Data Models — How do we uniquely identify a customer? Can a customer have more than 1 email? — Business Users / Developers

Data Dictionary — What is this DW table used for? The standard length for customer ID is CHAR(12) — Developers

Data Lineage — How was this field calculated? What will break downstream if I make a change? — Developers

Source:Data Architecture Strategies
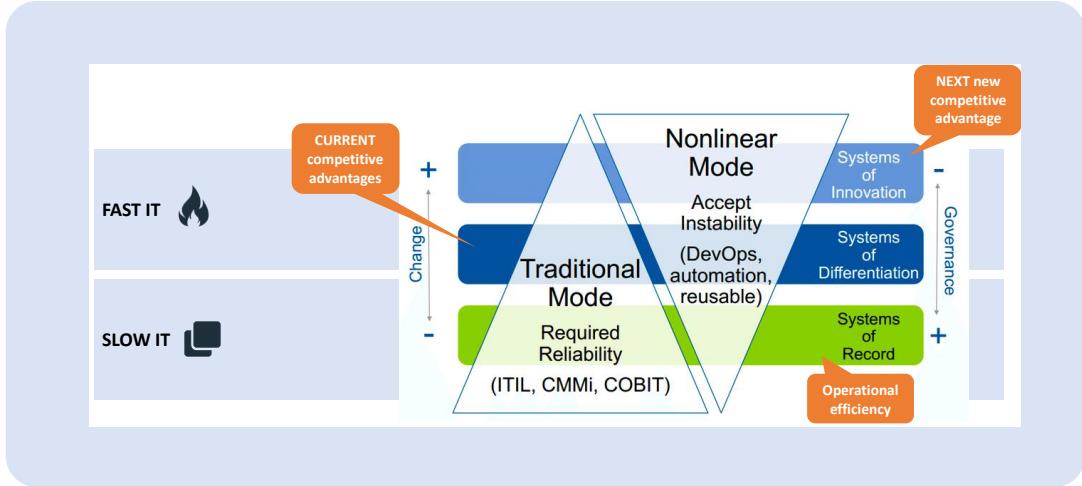
You cannot have a meaningful tech architecture without valid and structured data

...and you cannot have a meaningful way of using data without a structured way of storing and accessing them