CON-6657

A Practical Path to Enterprise Data Governance

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Safe Harbor Statement

The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decisions. The development, release, and timing of any features or functionality described for Oracle's products remains at the sole discretion of Oracle.

Oracle Cloud Platform

Develop & Deploy

Integrate & Extend

Publish & Engage

Analyze & Predict

Secure & Manage

Innovate with a
Comprehensive, Open,
Integrated and Hybrid
Cloud Platform
that is
Highly Scalable, Secure
and Globally Available

Oracle Cloud Platform

| Comprehensive | Open | Integrated | Hybrid |

Oracle Public Cloud

Oracle Data Center

- Data Management
- Application Development
- Enterprise Integration
- Data Integration

- Analytics and Big Data
- Content & Experience
- Identity & Security
- Systems Management

Oracle Cloud at Customer

Your Data Center

Built on High Performant Oracle Cloud Infrastructure

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Oracle Cloud Platform Momentum

14,000+
Oracle Cloud Platform **Customers**

3,000+
Apps in the Oracle Cloud **Marketplace**

$1.4 Billion
FY17 Oracle Cloud Platform **Revenue**
(60% YoY Growth)

10 PaaS
Categories where Oracle is a **Leader** According to **Industry Analysts**

Oracle Cloud Platform for Integration
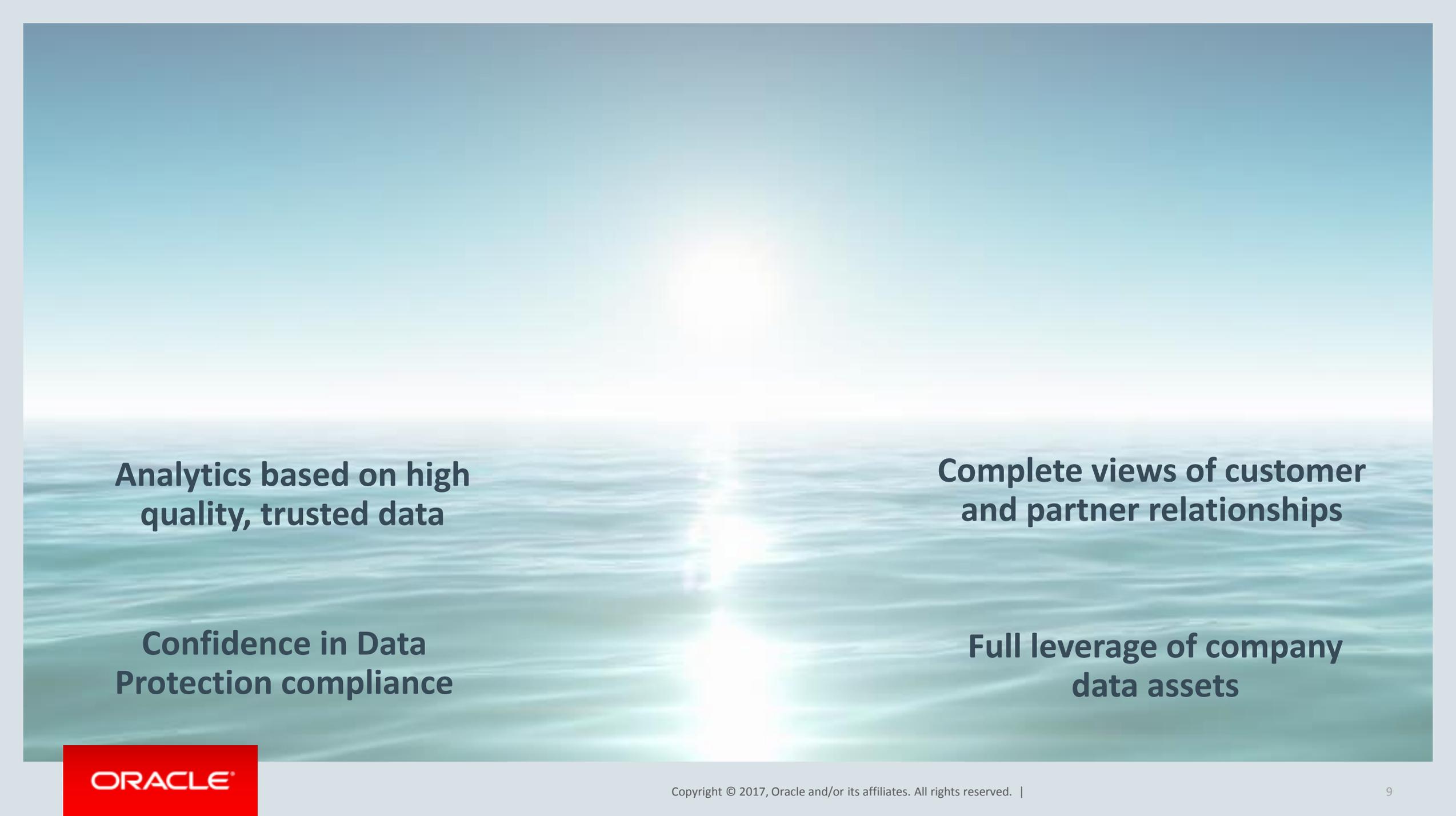**Application and Data Integration**

Complete

Simplified

Open

APPLICATION INTEGRATION

API MANAGEMENT

DATA GOVERNANCE

ORACLE® Cloud Platform Integration

PROCESS AUTOMATION

DATA QUALITY

STREAM ANALYTICS

BULK DATA TRANSFORMATION

REAL TIME DATA STREAMING AND DATA REPLICATION

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What does strong Enterprise Data Governance look like?

Analytics based on high quality, trusted data

Complete views of customer and partner relationships

Confidence in Data Protection compliance

Full leverage of company data assets

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Oh…

Data Governance is Hard...

- ❑ average cost of an unplanned data outage at $7,900 a minute, a 41% increase from 2010, when the cost per minute at $5,600.

- ❑ Typical data outages last 86 minutes, totaling an average of $690,200 of costs.

- ❑ 72% of big data projects have issues with data integration reliability

- ❑ 17 month average implementation time for a BI project; 5 months before there is any usable BI artifacts

- ❑ <32% of BI projects are declared successful

- ❑ **36% confidence rate that the right data is available to the right people at the right time**

- ❑ 42% firms managing over $200B in assets do not have regular processes and procedures to control data usage

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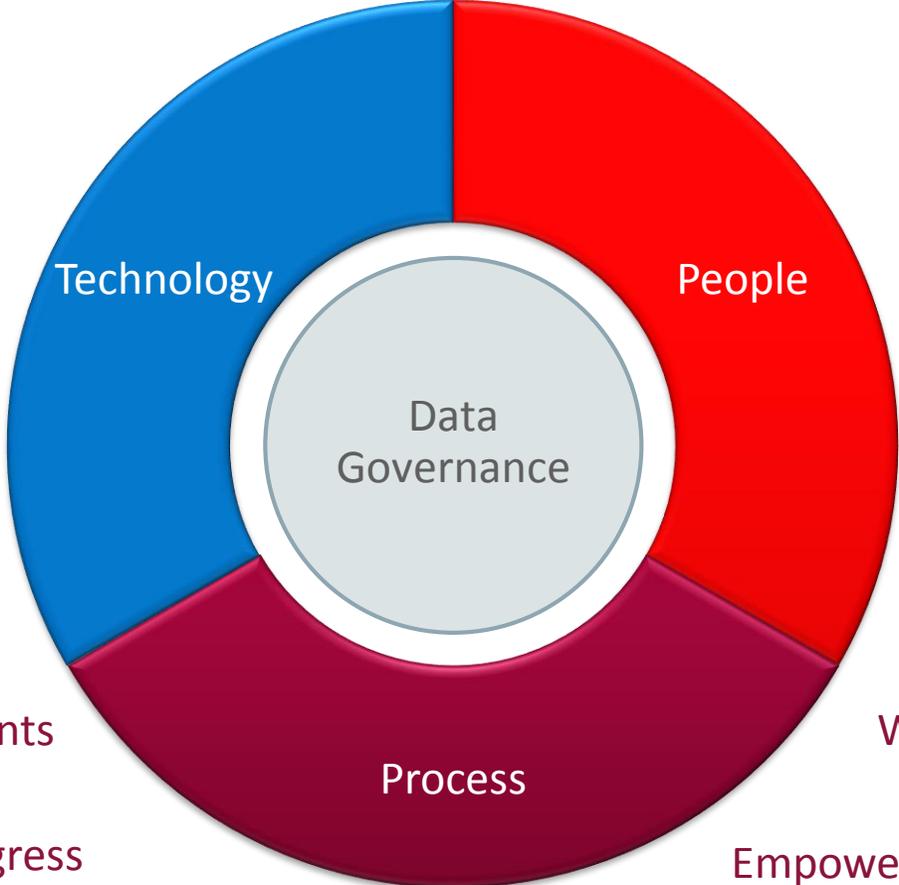# Essential Ingredients for good Data Governance

Data Quality tools

Data Standards Documentation

Metadata Management

Data Profiling and Analysis tools

Clear Baseline and Problem Statements

Ongoing Measurement of Progress

Technology

People

Process

Data Governance

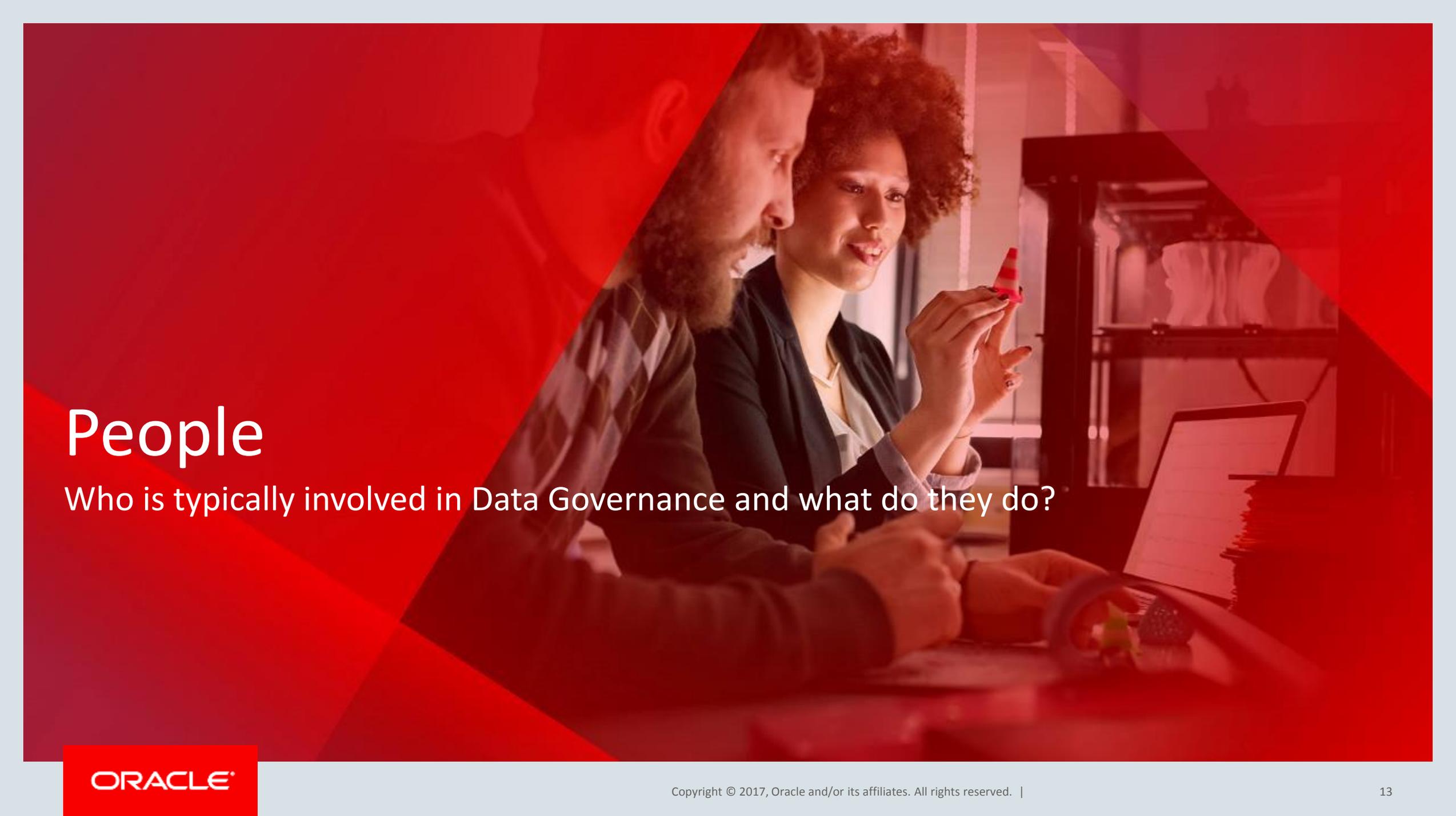Chief Data Officer, or other Executive Owner

Data Analysts

Data Stewards

Active Data Stakeholders

Well-defined Goals and Success Criteria

Empowerment to enact Business Change

People

Who is typically involved in Data Governance and what do they do?

People and Operating Models

- No single Operating Model that works for everyone!

- Considerations in how to scale:
  - How many Data Domains (Customer / Product / Supplier) etc.?
  - How many source systems?
  - Do different people know the data in these domains?

- Ensure you have **Ownership** at every stage:
  - Executive – sponsorship, evangelism and funding of the Data Governance work
  - Data Quality ownership – business people responsible for the quality of data in source systems
  - Data Governance framework ownership – normally a small group of specialists providing policy, process and tools support
  - Business Rules and Data Standards ownership – defining how to measure 'good' in each data domain
  - Mini-project ownership – for each step towards Data Governance, identify an owner that will deliver on the business need

- **Empower** business roles (esp. Data Stewards and Data Analysts) with tools and training

Some Key Roles and Functions

Chief Data Officer / Executive Owner

Strategic owner of enterprise data assets

Data Stewards

Define and own data standards

Data Analysts

Analyze and solve data problems
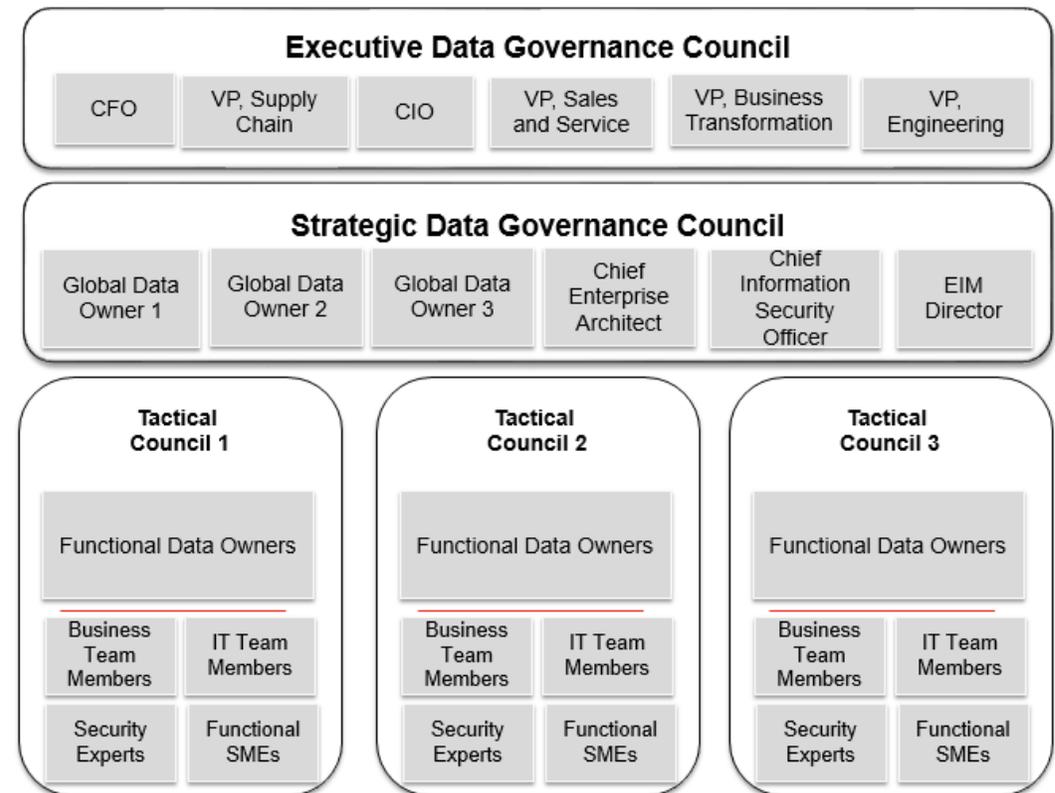
Data Stakeholders

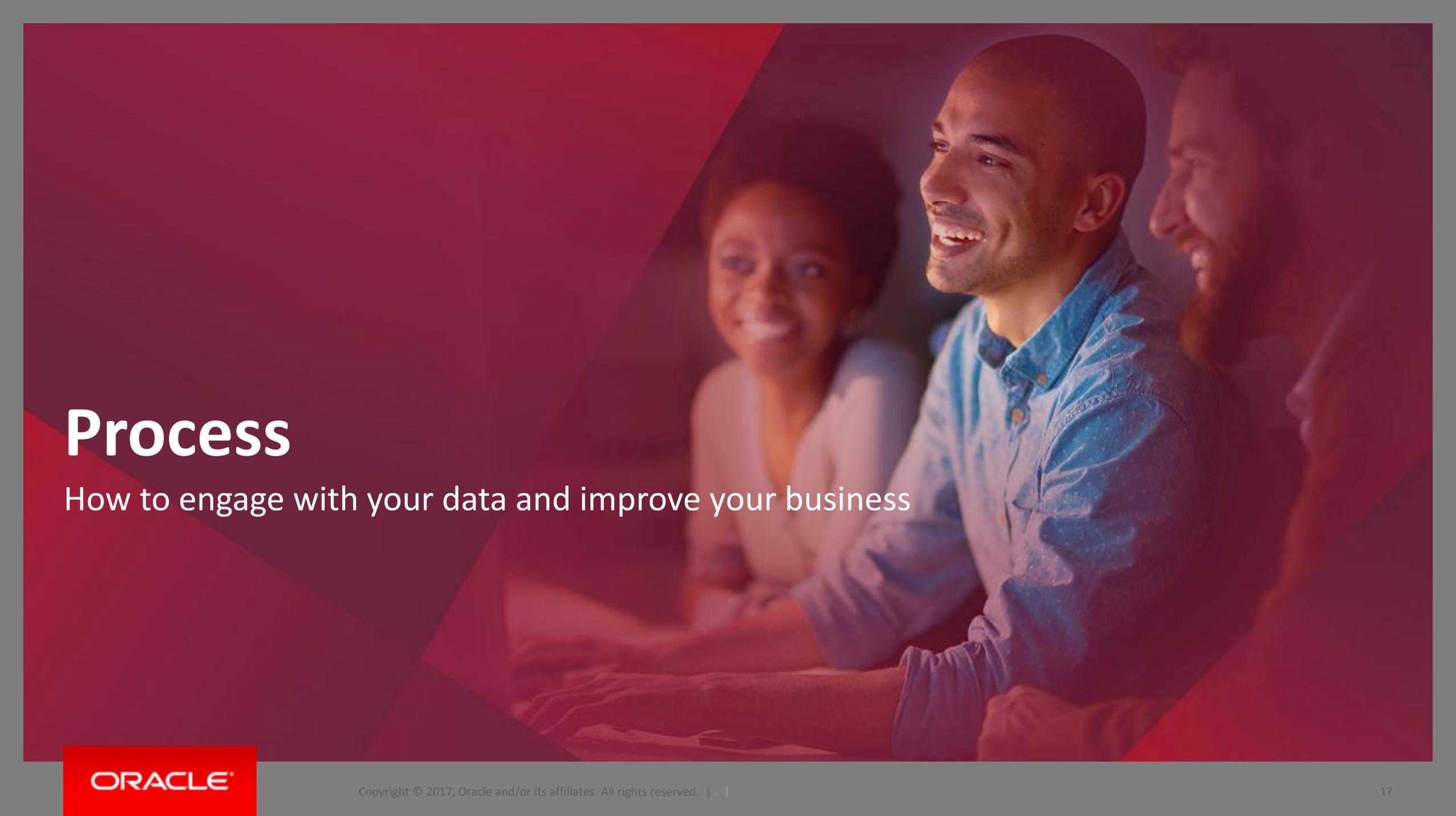Provide data application requirements

The Data Governance Model at Cummins

- Information Governance Council structure aligns with the operating model

- Several tactical councils with separate scopes

- Single Strategic and a single Executive council for common oversight and sponsorship

Information Governance Council Structure

Process

How to engage with your data and improve your business

How to Start

- What is the **current status**?
  - How bad is the problem?
  - Where is it coming from?
  - What is it affecting?

- Who **owns** the problem?
  - What powers do they have?
  - Who are the other stakeholders?

- What are our **goals**?
  - What are the short and long term goals?
  - What practical steps can we take towards them?
  - Are there any 'quick hits' that can have a rapid impact?

- What **needs to change**?
  - What new policies should we have?
  - How do we define 'good'?
  - How can we enforce rules and improve quality?

- How can we **measure** our progress?

The Data Governance process

- Set goals and resolve conflicts
- Enforce and promote program goals through standardized DQ processes, business glossary, case management, etc.

- KPI status and trends
- Metrics drive further actions to attain goals

- Identify current status of data and process
- Data Profiling & Metadata analysis

- Propose solutions to data problems including rough scope and ROI
- CDO/Governance Committee assigns priority and ownership

- Implement series of point solutions in priority order
- Define and implement business rules & validations, remediation workflows, source system changes, etc.
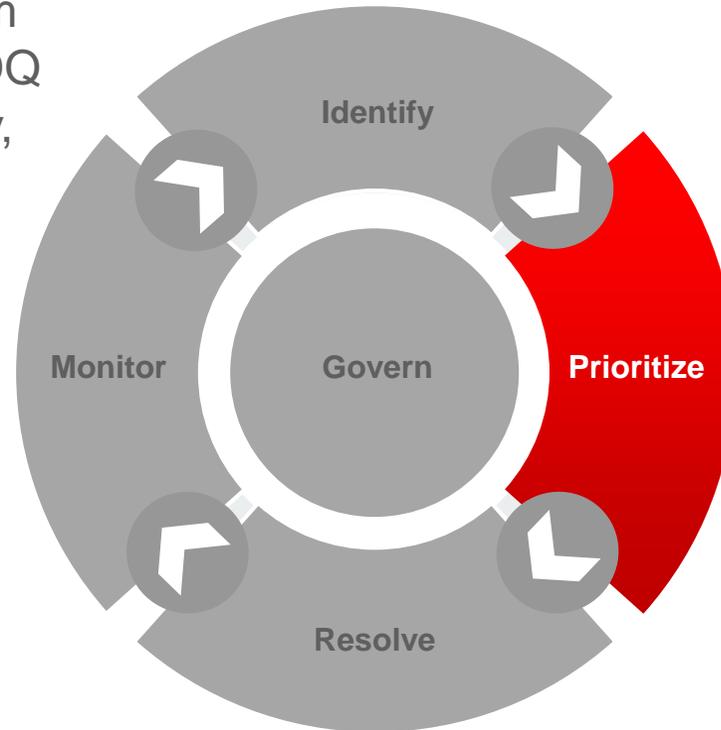
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Monitor

Govern

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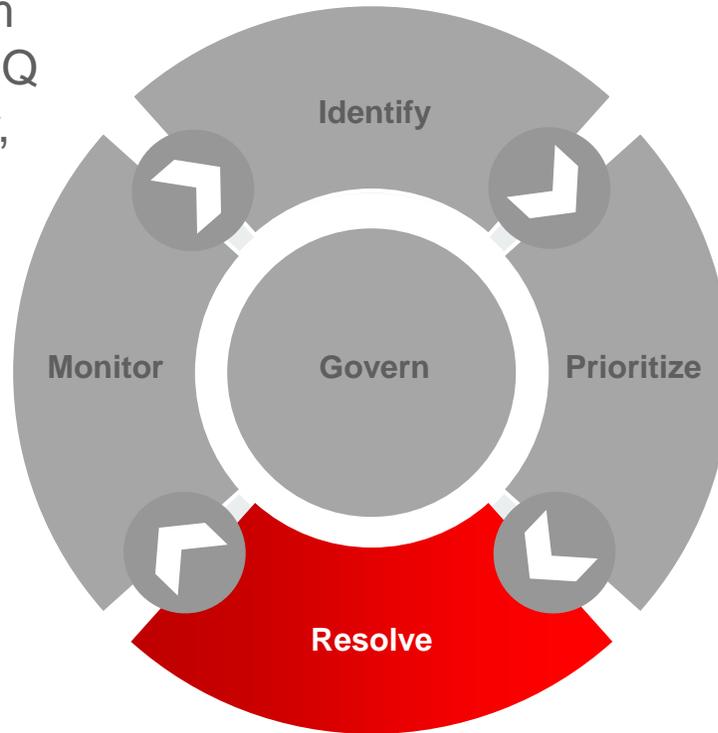- Data Profiling & Metadata analysis

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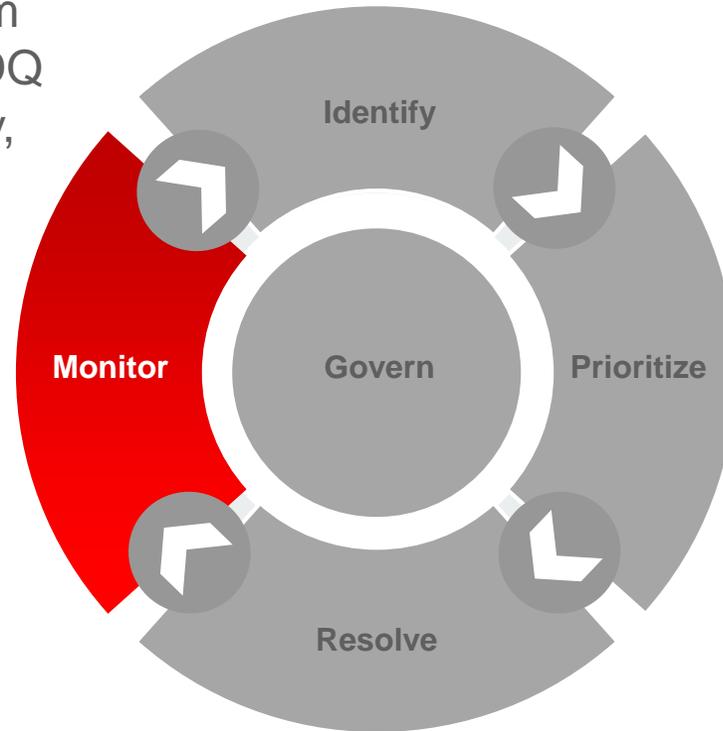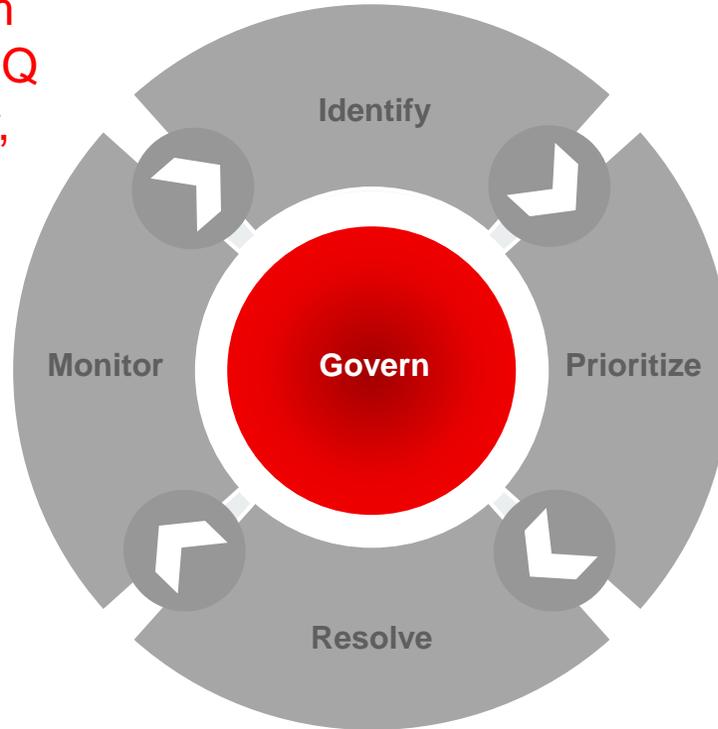
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The Data Governance Process at Cummins
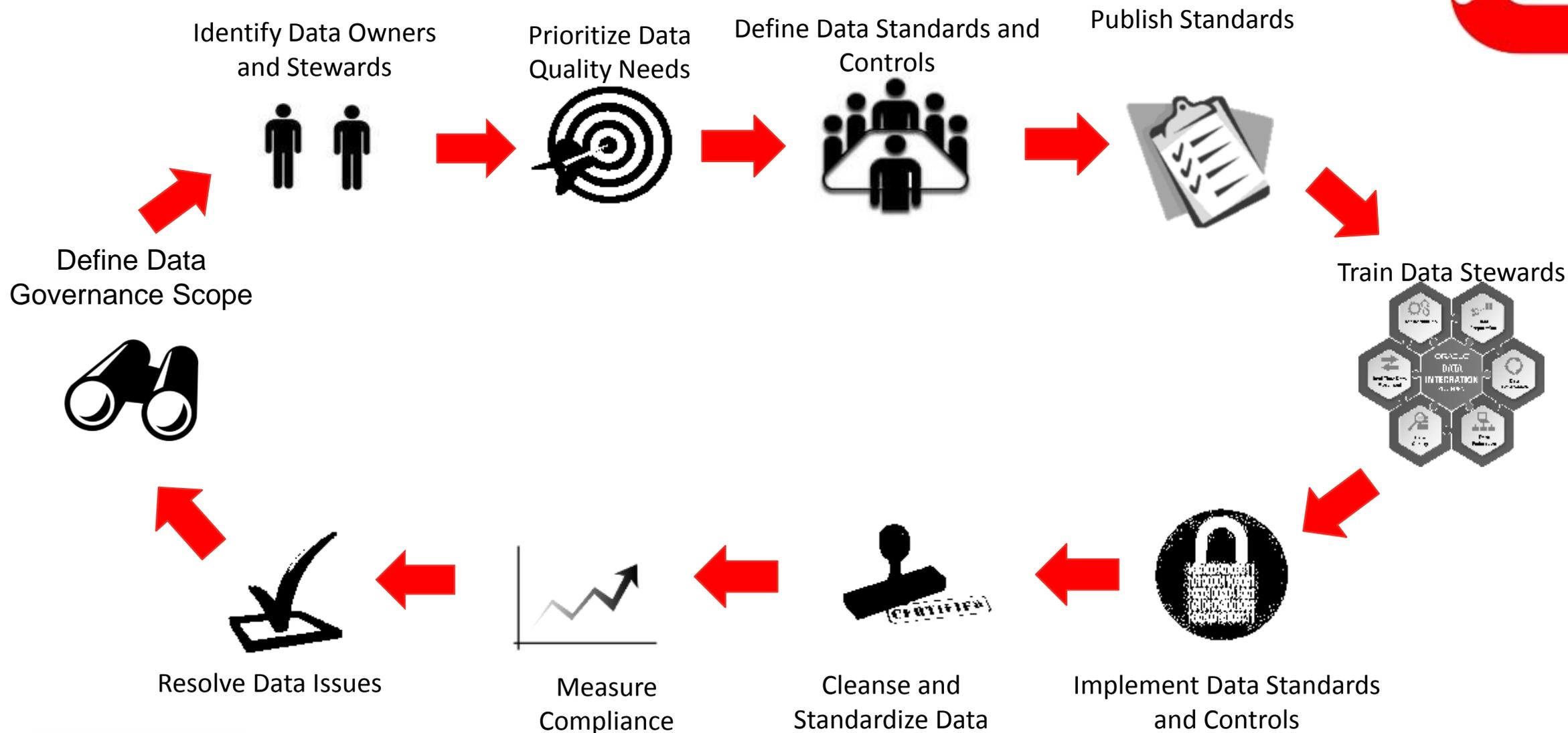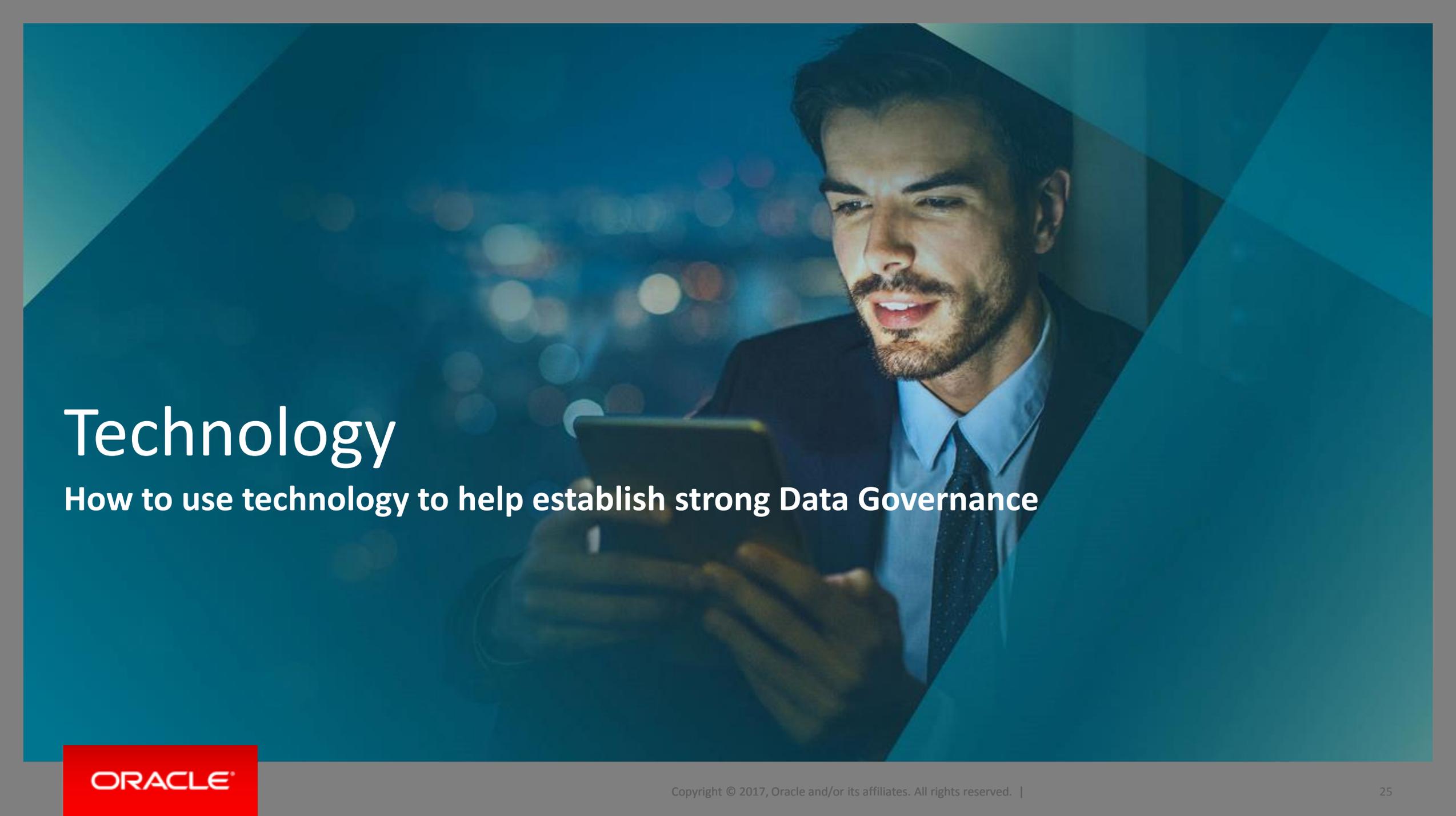
Identify Data Owners and Stewards

Prioritize Data Quality Needs

Define Data Standards and Controls

Publish Standards

Define Data Governance Scope

Train Data Stewards

Resolve Data Issues

Measure Compliance

Cleanse and Standardize Data

Implement Data Standards and Controls

Technology

How to use technology to help establish strong Data Governance

EDQ · Collaborative Data Quality Governance

Data Analysts

- Immediate Data Insight
- Reusable DQ Services and Rules
- Transparent, self-documenting configuration

Data Stewards

- Flexible Data Review and Remediation options in EDQ Case Management
- Integrated with DQ Rules
- Fully audited with comments, attachments, history, reports

Data Stakeholders

- Zero Training EDQ Dashboard
- View by Data Asset, Data Domain, Rule
- Trend Analysis

OEMM · Data Lineage and Business Glossary
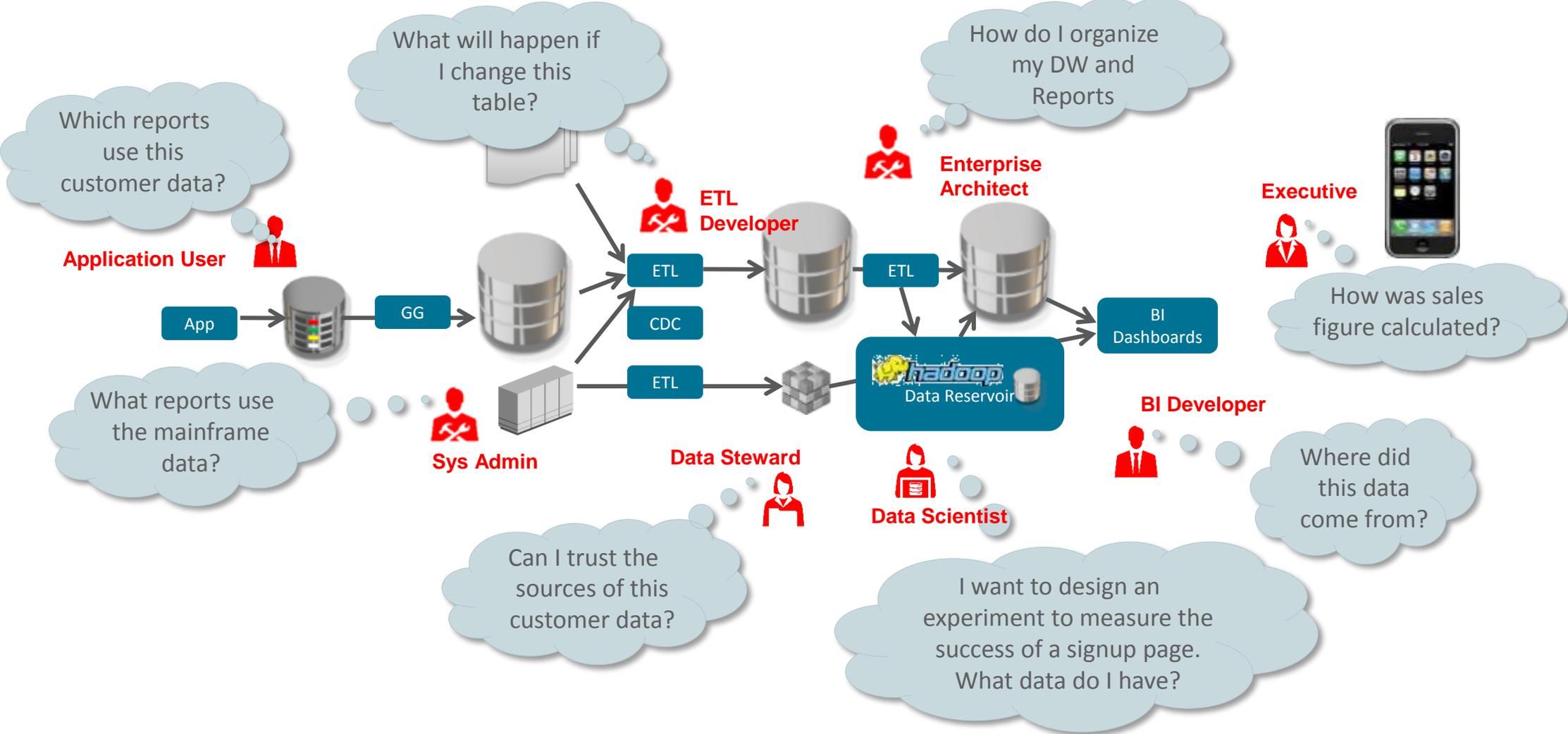
Data Governance in Action!

Kraig Sauter
Kaygen Enterprise Solutions

Data is a Strategic Asset

50%
time spent on finding data

60%
time spent on cleaning data

75%
cost of hidden data factories

$3.1 trillion
per year

$136 billion
per year

The amount of time that knowledge workers waste in hidden data factories, hunting for data, finding and correcting errors, and searching for confirmatory sources for data they don't trust.
- Source: HBR July 2016

The estimated fraction of time that data scientists spend cleaning and organizing data,
- Source: CrowdFlower.

An estimate of the fraction of total cost associated with hidden data factories in simple operations
- Source: HBR July 2016

Cost of poor data quality in the US in 2016
- Source: IBM Business Consulting

2016 spend on big data and business analytics applications, tools, and services
50% spend will increase by 2019
- Source: market research firm IDC

KAYGEN
Information Excellence

Kaygen Data Management Solution Framework

Data Model & Architecture

1 Manage data from multiple systems and trading partners

Data Quality

2 Ensure data is appropriately classified, standardized and de-duplicated

KAYGEN™
Information Excellence

Trusted Enterprise Information & Analytical Insights

Data Integration

3 Share relevant, timely and validated data to all consuming systems

Data Governance

4 Establish business aligned data governance to manage the lifecycle of data

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Information Excellence

Kaygen Data Governance Approach

Strategy	Data Governance Organization	Policies, Procedures Standards & Measures	Roles and Responsibilities	Technology	Execution Communication & Change Management

- **Strategy**
  - Business Framework
  - Data Strategy
  - Vision & Mission
  - Objectives and Goals
  - Alignment
  - Guiding Principles

- **Data Governance Organization**
  - Operating model
  - Data governance council framework
  - Data governance organization members
  - Issues, escalation and resolution process

- **Policies, Procedures Standards & Measures**
  - Policies and business rules
  - Data governance process
  - Data standards & definitions
  - Data classification
  - Business Data Glossary
  - Data Quality Metrics and KPI's

- **Roles and Responsibilities**
  - Data stewardship
  - Data ownership and accountability
  - CRUD
  - RACI

- **Technology**
  - Data mastering and sharing
  - Data Sources
  - Data Quality
  - Integration
  - Data Dictionary
  - Meta Data Repository

- **Execution Communication & Change Management**
  - Knowledge Transfer
  - Communication Plan
  - Organizational Management
  - Data Governance council meetings
  - Data stewardship and operations

Customer Success – Financial Services

BCBS239 - Principles for Effective Data Aggregation and Risk Reporting

- Kaygen delivered:
  - The use of Oracle Enterprise Data Quality as an effective tool to aggregate, cleanse, and analyze Financial Transaction and Risk related information
  - The Collibra Connect integration connector for Oracle EDQ (built for Collibra by Kaygen) for KPI monitoring and tracking
  - Enabled regulatory compliance with key data elements
  - Enabled workflows for change management
  - Enhanced ability to rapidly and effectively respond to changing Federal regulations

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Information Excellence

Customer Success – Financial Services

Managed Data Quality for effective Data Governance

Data Strategy

- Data Mgmt Strategy
- Data Mgmt Function
- Business Case
- Funding

Data Governance

Data Requirements

Data Definition and Ownership

Stakeholder Approvals

Business Glossary

Data Quality

Profile

Integrate

Validate

Standardize

Enhance

Data Operations

Data Requirements

Data Life Cycle Management

Data Architecture

Platform and Standards

Project Alignment

Business Alignment

Strategic Goals and Objectives

Business Outcomes

- Compliance
- Efficiency
- Effective Risk Mgmt
- Growth
- Effective M&A

Customer Success - Oil and Gas industry

Regulatory Compliance

Client Snapshot:

- A leading chemicals, refining and biofuels company with more than 20 facilities across North America

KAYGEN deployed solution:

- Streamlined Air Emission Reporting through Enterprise Data Quality

- Profiled, integrated, validated, standardized and enhanced the source data with real-time data lookups.

- Provided capabilities to process the raw operational data into quality checked and standardized information

Highlights:

- Integrated source systems and streamline data collection process from multiple oil and gas applications (SCADA, PI Historian)

- Enabled effective error and exception handling processing and reporting

- Provided ability to identify meter failures, sensor inconsistencies

- Provided ability to explain the data and apply business rules

- Implemented business rules to check and validate data value ranges, unit of measure changes, and apply other requirements

- ✓ **Assisted client to avoid multi-million dollar compliance fines and achieve green initiative objectives!**

KAYGEN
Information Excellence

How to get Started – Data Quality & Data HealthCheck

● — up to 8 hrs — ● ● — up to 40 hrs — ● ● — up to 4 hrs — ●

rVA Engagement	Onsite Discovery	Data Health Check & Value Assessment	Readout & Roadmap

- NDA and SOW
- Scope and Milestones
- Team and stakeholders

- Business Alignment
- Governance
- Information Management

- Demo configuration
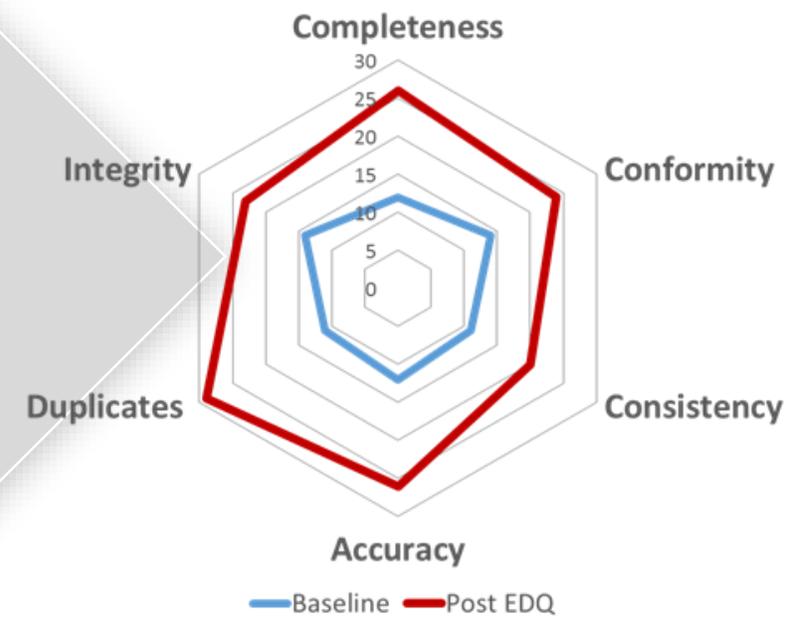- Data profiling
- Data matching
- Value Analysis

- Executive and stakeholder presentation
- Data Management Maturity Assessment
- Recommendations and roadmap

KAYGEN rVA and Data Management Results

Radar chart with axes: Completeness (30, 25, 20, 15, 10, 5, 0), Conformity, Consistency, Accuracy, Duplicates, Integrity. Legend: Baseline, Post EDQ

Get a sneak peek at cutting-edge data integration designs and receive a free gift!

- Oracle is constantly developing new software and features that will make your work easier, and Oracle's User Experience team would love to get your feedback on new data integration designs.

- Feedback sessions will take place at a date and time of your own choice.

- You can take part via webconference, from the comfort and convenience of your own office.

- If you're interested, please fill out the 1-page form at `http://bit.ly/2vIHlSg` `uppercase I lowercase l`

- **To show our appreciation, we will post all participants their choice from a wide selection of thank-you gifts.**

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Data Integration Programme – <u>**FOCUS ON DOC LINK**</u>

Presen-tations on:	Oracle Data Integration Platform Cloud	Oracle Data Integrator	Oracle GoldenGate	Oracle Enterprise Data Quality	Oracle Enterprise Metadata Management

Hands-on Labs:	Oracle GoldenGate Real-Time Data Replication in the Cloud HOL7715	Oracle Enterprise Data Quality HOL7653	ODI and OGG for Big Data HOL7708	Oracle Data Integration Platform Cloud HOL7673

Demo Stations:	The EXchange Integration Area - Moscone West	The EXchange Data Management Area - Moscone West	The EXchange Analytics & Big Data Area - Moscone West

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Data Integration Programme – FOCUS ON DOC LINK

Sunday, October 1
- Lift and Shift Workloads to Cloud with Oracle Data Integration Platform Cloud [SUN6653]
- Data Movement between On-Prem, Fusion ERP Cloud, Fusion HCM Cloud and Salesforce [SUN7286]
- Accelerate Migration to Cloud Infrastructure with Data Integration Platform [SUN6896]

Monday, October 2
- Oracle Data Integration Platform Strategy and Roadmap [CON6646]
- Filling Your Data Lake with Potable Data, Using Data Integration [CON5465]
- GoldenGate : Deep Dive into Automating OGG using the new Microservices [CON6569]
- Oracle Data Integration Platform: Foundation for Cloud Integration [CON6650]
- Oracle Data Integration Platform Empowers Enterprise Grade Big Data Solutions [CON6893]
- Oracle Data Integration Platform Cloud Deep Dive [CON6651]
- Oracle GoldenGate Cloud Service: Real-Time Data Replication in the Cloud [HOL7715]

Tuesday, October 3
- Oracle Data Integrator Product Update and Strategy [CON6654]
- Oracle Enterprise Data Quality: Product Overview and Roadmap [CON6656]
- Accelerate Cloud On-Boarding Using Oracle GoldenGate Cloud Service [CON6894]
- Oracle Enterprise Data Quality for All Types of Data [HOL7653]
- Oracle Data Integration Platform: a Cornerstone for Big Data [CON6655]
- GoldenGate: MAA and Best Practices for Oracle GoldenGate Microservices [CON6570]
- Oracle GoldenGate Product Update and Strategy [CON6897]

Wednesday, October 4
- **A Practical Path to Enterprise Data Governance with Oracle Enterprise Data Quality [CON6657]**
- Oracle Data Integrator and Oracle GoldenGate for Big Data [HOL7708]
- Introduction to Oracle Data Integration Platform Cloud [HOL7673]
- An Enterprise Databus: GoldenGate in the Cloud Working with Kafka and Spark (CON6895)
- GoldenGate: Best Practices & Deep Dive on OGG 12.3 Microservices at Cloud [CON6568]
- Oracle GoldenGate for Big Data [CON6898]
- Oracle Data Integration Platform Cloud Service Governance Edition [CON6652]

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Integrated Cloud
Applications & Platform Services

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