WHY

Leadership

OF

Data Governance and Controls

IS **Critical**

A perspective on how leadership and accountability can create more reliable information

Key Questions

What would be your answer to these questions?

CONSIDER	

- ▶ **What is your data? What data do you get, and what do you produce?**
- ▶ **How much of your data is reliable? How would you answer that question?**
- ▶ **Did you have data problems this month that led to rework or even financial impact? How many…**
  - ➢ Transactions delayed or in arrears
  - ➢ Negatively affected customers
  - ➢ Instances of fines or funding costs
- ▶ **Why did those problems occur?**
- ▶ **Who owns your information, and is responsible for its quality?**
- ▶ **What detective and preventative controls do you have for maintaining data integrity and quality?**
- ▶ **How much of your data is 4C:**
  - ➢ Current?
  - ➢ Correct?
  - ➢ Complete?
  - ➢ Consistent?

Data Reliability

The Chief Data Officer role is best known for owning and leading data science and database architecture. But they are also responsible for <u>data reliability</u>:

WHY?

Unreliable data creates:

▶ Operational failures

▶ Accidental data exposure

▶ Negative exam findings

▶ Discouragement and doubt

HOW?

Leadership and accountability for:

▶ Setting and improving **controls**

▶ **Automating** manual data operations

▶ **Monitoring and resolving** data problems

▶ Managing **roles and responsibilities,** and driving **culture**

WHERE?

It's needed everywhere:

▶ Across all LOBs for synergy

▶ Across all layers of technology

4 C's of Reliable Data

▶ **Consistent:** same information across any system; certified sources

▶ **Current**: is the latest version of the desired timeframe; reflects timely amendments

▶ **Correct:** information is error-free, validated against known values

▶ Complete**:** full data set; all necessary characteristics and elements
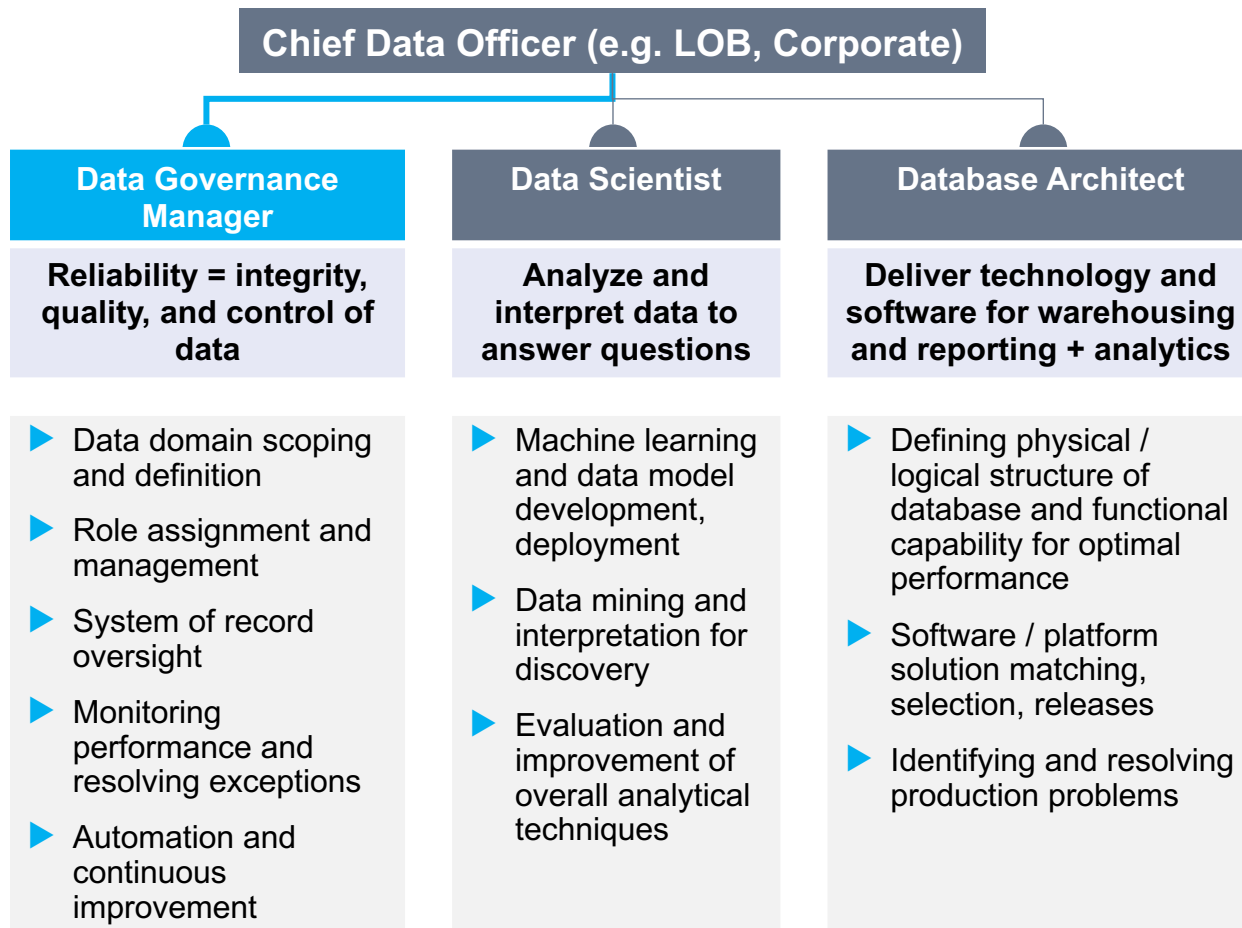
Benefits and Outcomes

Implementing a data governance management role can provide overall improvements, especially those that can be used for operational savings.
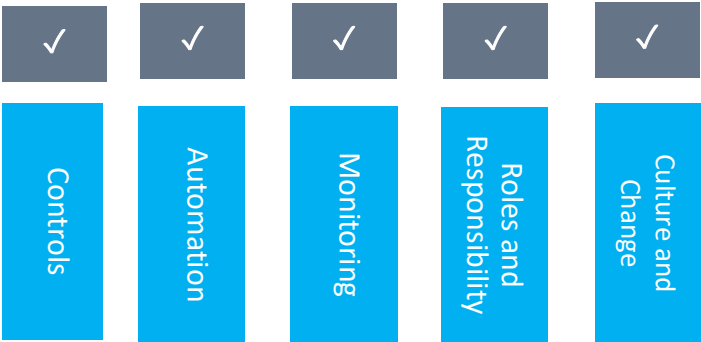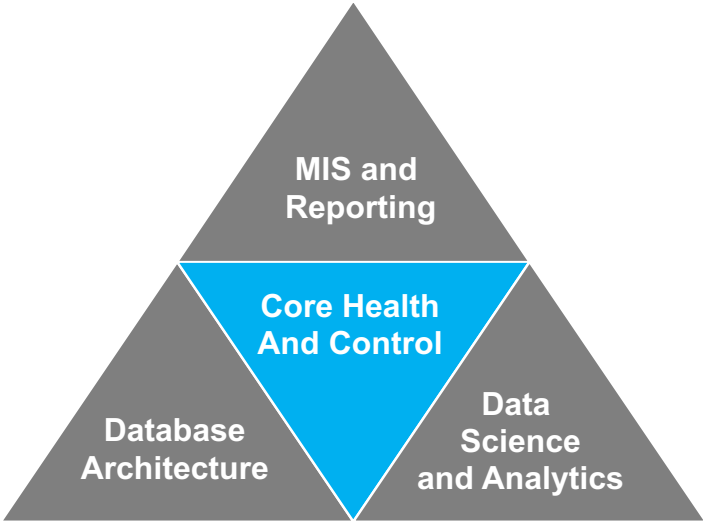
Overall:

▶ Confident reporting and analytics, knowing that the underlying data is reliable and unimpeachable

▶ Comfort and focus in knowing that data is compliant with internal and regulatory standards

▶ More time spent on delivering value, rather than supporting data cleanup and manual operations

Monetizable:

▶ Redeployment of overhead from manual effort and fixes into higher value activities

▶ Avoidance of persistent funding or penalties due to broken processes

▶ Reduction of developer cost for technology improvements through clearer requirements and needs
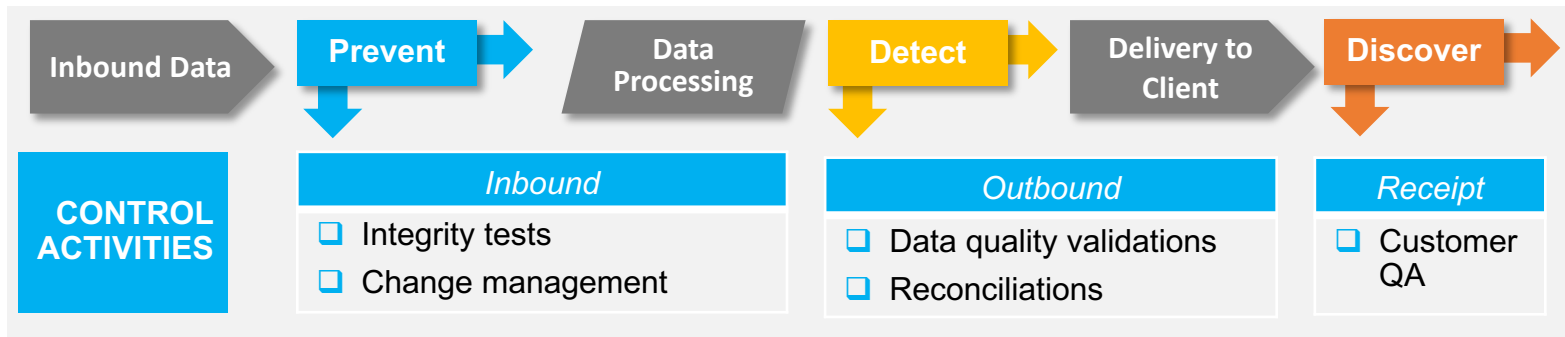
▶ Goal: ~10-15% reduction of direct operating costs p.a

Different Than Database Architecture or Data Science

A Data Governance Manager designs, implements, and meets our control and overall business objectives to ensure processing, reporting, analytics, and data science is 4C reliable. For comparison:


Chief Data Officer (e.g. LOB, Corporate)

Data Governance Manager	Data Scientist	Database Architect
Reliability = integrity, quality, and control of data	Analyze and interpret data to answer questions	Deliver technology and software for warehousing and reporting + analytics
▶ Data domain scoping and definition ▶ Role assignment and management ▶ System of record oversight ▶ Monitoring performance and resolving exceptions ▶ Automation and continuous improvement	▶ Machine learning and data model development, deployment ▶ Data mining and interpretation for discovery ▶ Evaluation and improvement of overall analytical techniques	▶ Defining physical / logical structure of database and functional capability for optimal performance ▶ Software / platform solution matching, selection, releases ▶ Identifying and resolving production problems

Controls

Implement preventative and detective controls to ensure that the data we receive, process, and delivery within our systems of records is flawless.

Inbound Data	Prevent	Data Processing	Detect	Delivery to Client	Discover

CONTROL ACTIVITIES	*Inbound*		*Outbound*		*Receipt*
	❑ Integrity tests ❑ Change management		❑ Data quality validations ❑ Reconciliations		❑ Customer QA

PREVENT

Preventative controls check inbound integrity, and tune our processes to a changing data environment:

▶ Having integrity controls in place to examine inbound data and detect discrepancies

▶ Robust change management and review to change and adapt
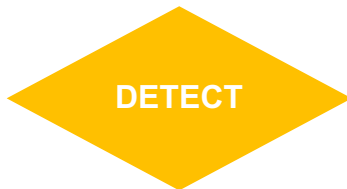
DETECT

Detective controls identify post-processing data abnormalities:

▶ We first conduct non-reconciliation based tests to identify outliers in our output from expected valid values or quantitative thresholds (volume, balances)

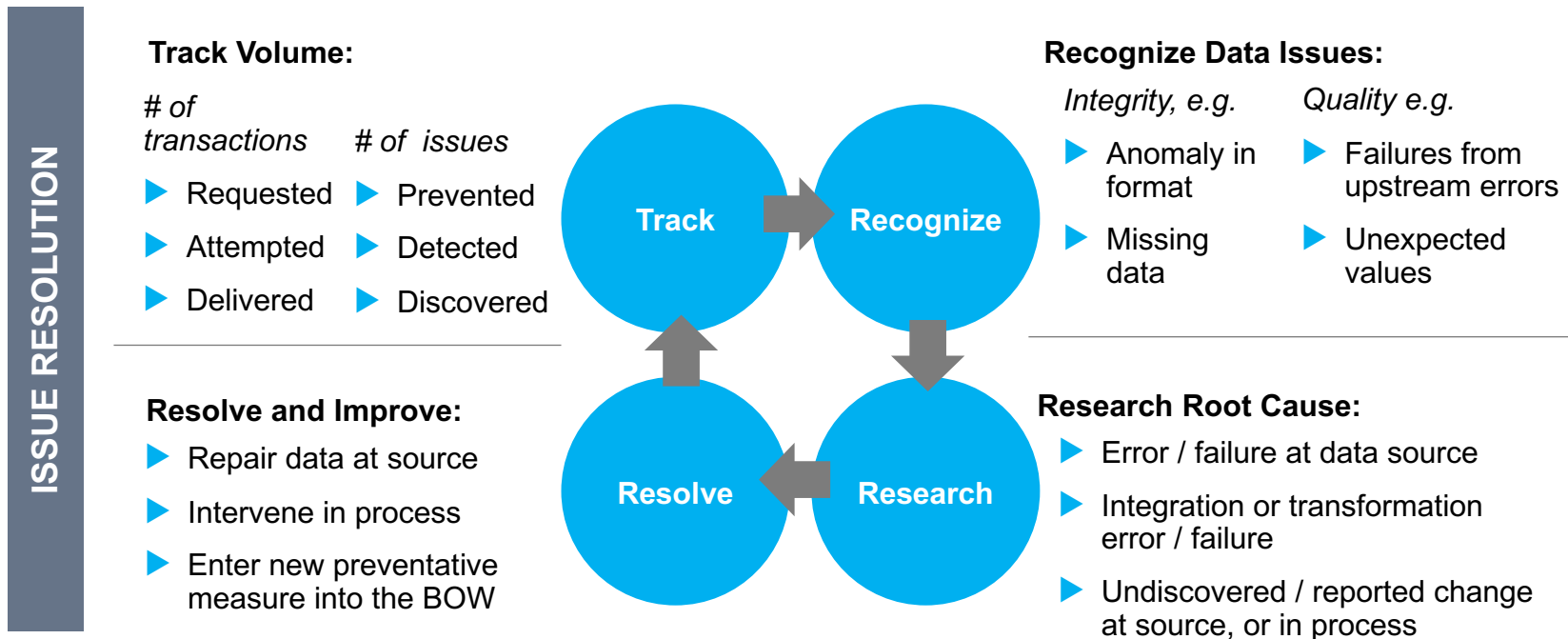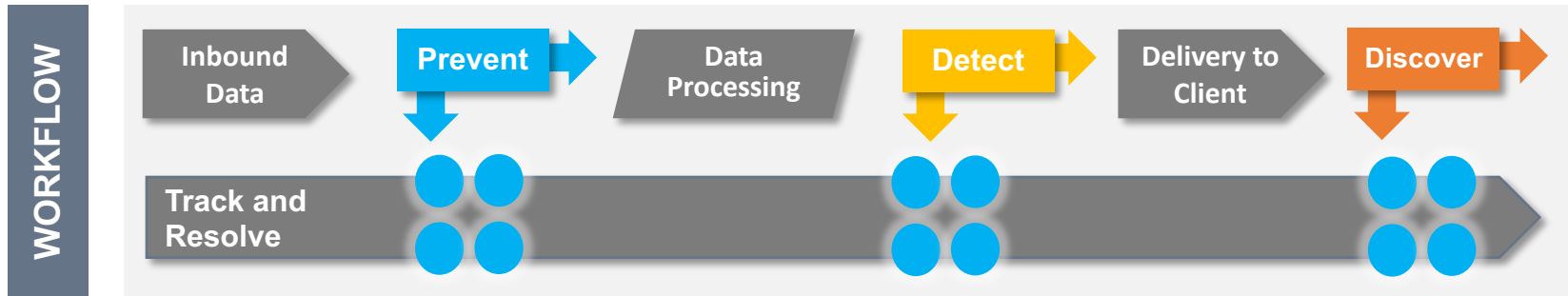▶ We then reconcile between data transformation steps to detect failure point

DISCOVER

Discovery is not a control; represents a measurable control failure:

▶ Occurs when a downstream customer identifies a problem with our data

▶ Minimum proposition is zero negative data quality and customer experience

▶ Our ideal proposition is a rapid, efficient set of controls
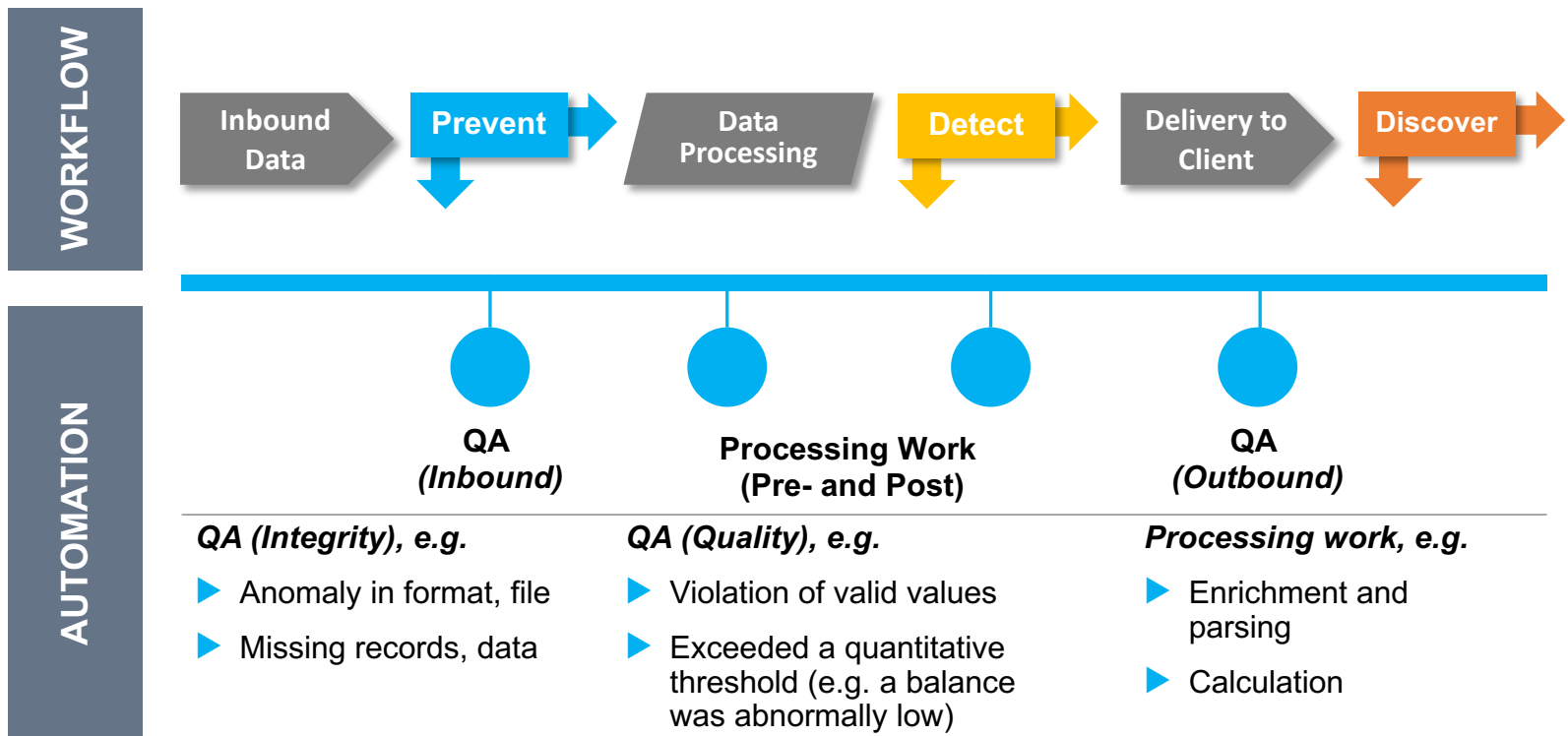
Controls: Issue Resolution

Design and implement how we recognize, prioritize, and resolve data problems.

WORKFLOW

Inbound Data	Prevent	Data Processing	Detect	Delivery to Client	Discover

Track and Resolve

ISSUE RESOLUTION

Track Volume:

# of transactions
- ▶ Requested
- ▶ Attempted
- ▶ Delivered

# of issues
- ▶ Prevented
- ▶ Detected
- ▶ Discovered

Resolve and Improve:
- ▶ Repair data at source
- ▶ Intervene in process
- ▶ Enter new preventative measure into the BOW

Track → Recognize → Research → Resolve (cycle)

Recognize Data Issues:

Integrity, e.g.
- ▶ Anomaly in format
- ▶ Missing data

Quality e.g.
- ▶ Failures from upstream errors
- ▶ Unexpected values

Research Root Cause:
- ▶ Error / failure at data source
- ▶ Integration or transformation error / failure
- ▶ Undiscovered / reported change at source, or in process

Automation

The control and governance workflow can benefit from automation at key points:

▶ Inbound QA (prevention), where data from approved data sources may feature integrity or quality issues that originated upstream or upon delivery

▶ Pre- and post- processing cleanup, where manual efforts to format data for processing or downstream data can create additional integrity or quality issues

▶ Outbound QA (detection), where we have a final opportunity to ensure that data products are pristine and delivered according to our SLAs

WORKFLOW				
Inbound Data	Prevent	Data Processing	Detect	Delivery to Client	Discover

AUTOMATION

QA
(Inbound)

Processing Work
(Pre- and Post)

QA
(Outbound)

QA (Integrity), e.g.

▶ Anomaly in format, file

▶ Missing records, data

QA (Quality), e.g.

▶ Violation of valid values

▶ Exceeded a quantitative threshold (e.g. a balance was abnormally low)

Processing work, e.g.

▶ Enrichment and parsing

▶ Calculation

Automation Alternatives

Larger technology projects can bring us quality assurance and processing automation, but we often have to wait for:

▶ Approval and funding

▶ Longer implementation cycles

▶ Cross-functional requirements and synchronization of opportunities across different schedules

In the meanwhile, we can rapidly deploy inexpensive, more nimble tools for immediate automation (and get insight into business/functional requirements):

▶ Data transformation tools that can be used for QA or cleanup

▶ Presentation and visualization tools for summarization and presentation of workflow performance

	Strength		Sophistication		Overall Health Monitoring
	Low Volume, Batch	High Volume, Real Time	Moderate	Significant	
User friendly data transformation *e.g. Alteryx*	▲		▲		
User friendly RPA *e.g. Xceptor*		▲	▲		
Console / studio coding *e.g. SQL, VBA*	▲			▲	
Presentation and visualization *e.g. Tableau, Qlikview/Qliksense*					▲

Data Health Monitoring

Monitor the performance of our controls, as well as the pace of the research and resolution of the issues.
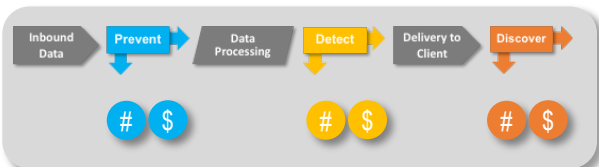
Data Health Metrics

Balances and Control Totals
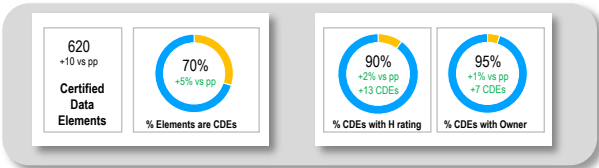
Tracking Progress and Control Totals

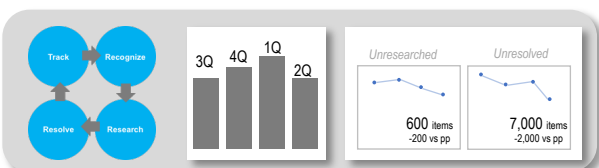▶ How much of our data is certified and owned?

▶ How is that trending?

Workflow

Tracking Our Transactions: How many…

▶ Did we attempt and complete?
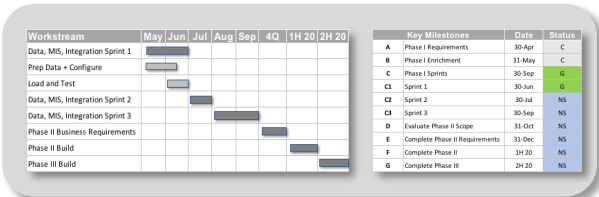
▶ Triggered a quality or integrity issue?

Issue Types and Resolution

Fixing our Data Issues

▶ What trends / kind are we experiencing?

▶ How long is it taking for us to fix them?

Book of Work

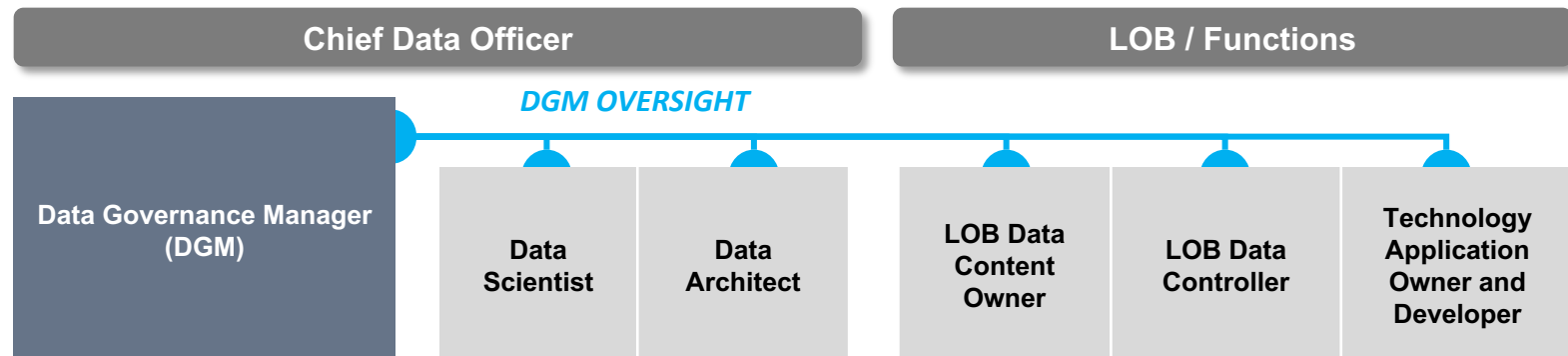### *Fixing and Improving Our Platform*

▶ Are we rapidly resolving problems?

▶ What's our progress on process and technology improvements?

Oversight Role and Responsibility

DGM OVERSIGHT

DGM also provides oversight for:

▶ Chief Data Officer functions:

  ➢ e.g. ensuring that the data science team is carefully defining unique use cases, and is using certified data sources

  ➢ e.g. ensurring that the architecture team is designing and maintaining a stable platform that addresses the business and functional needs

▶ LOB and Functional Data Leadership

  ➢ e.g. ensuring that data content owners define and maintain their data domain definitions, and resolve data-specific issues not created by underlying technology

  ➢ e.g. ensuring that the data controllers ensure sound and functioning controls for data security and integrity, and identify / resolve breaches of control

  ➢ e.g. ensuring that the technology application owners and developers reflect business and functional objectives in their builds, and maintain platform stability and performance per service level agreements

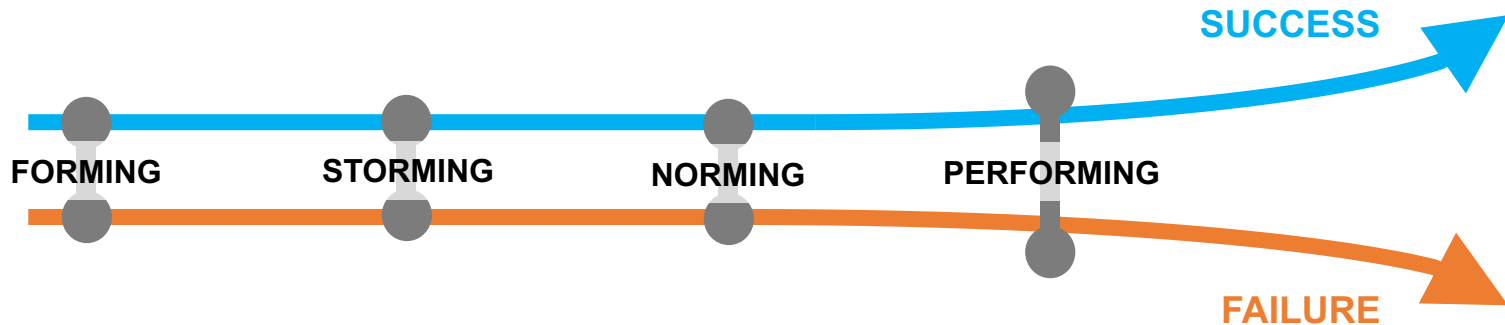| Chief Data Officer			LOB / Functions		
DGM OVERSIGHT					
Data Governance Manager (DGM)	Data Scientist	Data Architect	LOB Data Content Owner	LOB Data Controller	Technology Application Owner and Developer

Change Essentials

Establishing and sustaining data governance needs to 'house' all of these:

▶ The **leadership** to develop a vision, bring management together, and to have fortitude and an appetite for risk

▶ A **culture** that embraces quality and continuous improvement

▶ Specific roles in the **organizational structure** that are clearly titled and accountable for data quality and governance, with sufficient authority to incent and discipline

▶ A focus on incorporating data quality and governance into the overall **education and training** of all levels of personnel and management, especially via a Chief Knowledge or Learning Officer

▶ Formal organization of a **change program management office** that will ensure the coordination of the change effort across the enterprise

▶ Planning and earmarking for the right technology needed to establish the software, development, and other investment needed for the platforms to achieve the governance vision

Change Program Management			
Leadership	Culture	Org Structure	Education
Technology Investment			
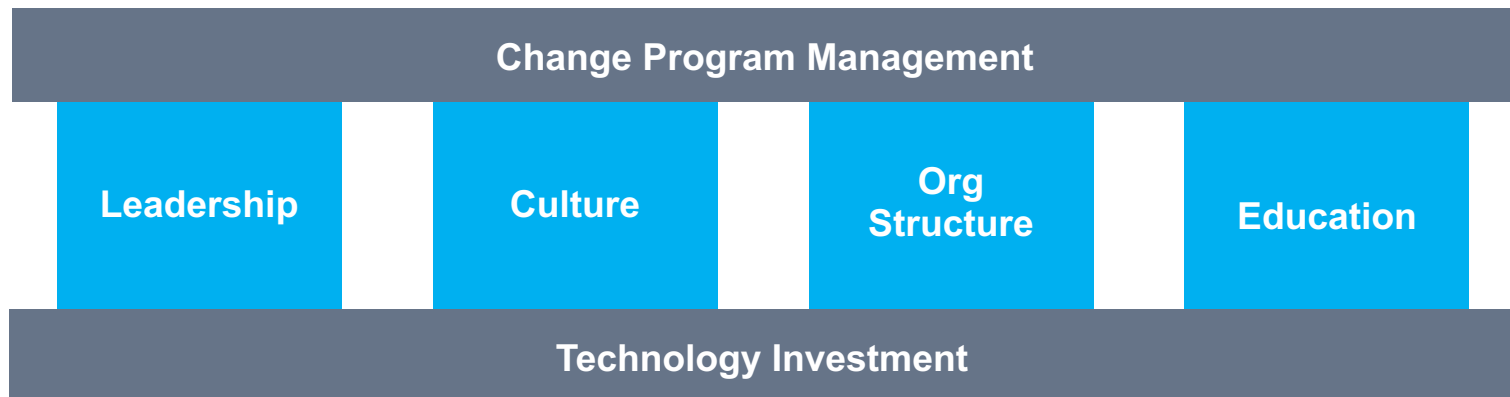
The Human Side of Change – And Success Factors*

The difference between failure and success will be whether we are willing to confront occasionally difficult and human challenges.

	Forming	Storming	Norming	Performing
WHAT TO EXPECT	*Bringing people together for the work*	*Confronting confusion, fear, and discouragement*	*Learning, growth, and confidence through persistence*	*Competence and culture leads to high performance*
SUCCESS FACTORS	▶ Building a coalition of willing leaders ▶ Forming a vision ▶ Creating urgency	▶ Having strong rules for change and discipline ▶ Removing barriers and friction	▶ Generating short term wins ▶ Setting expectations	▶ Institutionalization of change essentials (e.g. culture, structure, investment)

* Adapted from Tuckman's stages of group development and Kotter's 8-step process for change

Michael Thompson as *Information for Humans™* helps companies create reliable, understandable information.

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