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What Does Information Management Maturity Look Like in 2024?

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3 X **Inc 5000**

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TOP VOICE ★ 2024 ★ thinkers 360 OVERALL

I'VE BEEN FEATURED IN THE 2024 dataIQ™ 100 USA THE MOST INFLUENTIAL PEOPLE IN DATA

McKnight Consulting Group Partial Technology Implementation Expertise

Big/Analytic/Vector/Mixed Data Management

databricks
Pinecone
Google BigQuery
snowflake
Azure Synapse
MySQL HeatWave
teradata.
amazon REDSHIFT
CLOUDERA
DIAMANTI
Exasol
VERTICA
Starburst
ACTIAN activate your data
Azure HDInsight
SingleStore
Apache Impala
amazon EMR
Yellowbrick
Cloud Dataproc
ORACLE AUTONOMOUS DATABASE
ORACLE

Data Movement and APIs

Airbyte
Informatica
Fivetran
Qlik Replicate®
SYNADIA
CONFLUENT
talend
apigee
MATILLION
Stitch
Kong
Astera

Data Management

SNOWPLOW
SAP Datasphere
alteryx DESIGNER CLOUD
splunk>
NGINX Part of F5
Collibra
IMMUTA
elasticsearch
Azure MLOps

Operational/Transactional Data Management

Couchbase
DataStax
Cockroach
MongoDB.
PostgreSQL
yugabyteDB
Google Cloud Spanner
neo4j
ORACLE
redis
Azure Cosmos DB
SQLite
Amazon Aurora
Microsoft SQL Server

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Data.....

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The Approach

Last 30 intimate enterprise projects

Mostly clients
- Power Hour to Full Implementation

Confidential

50 Questions

Probing Answers

40 on Data Topics

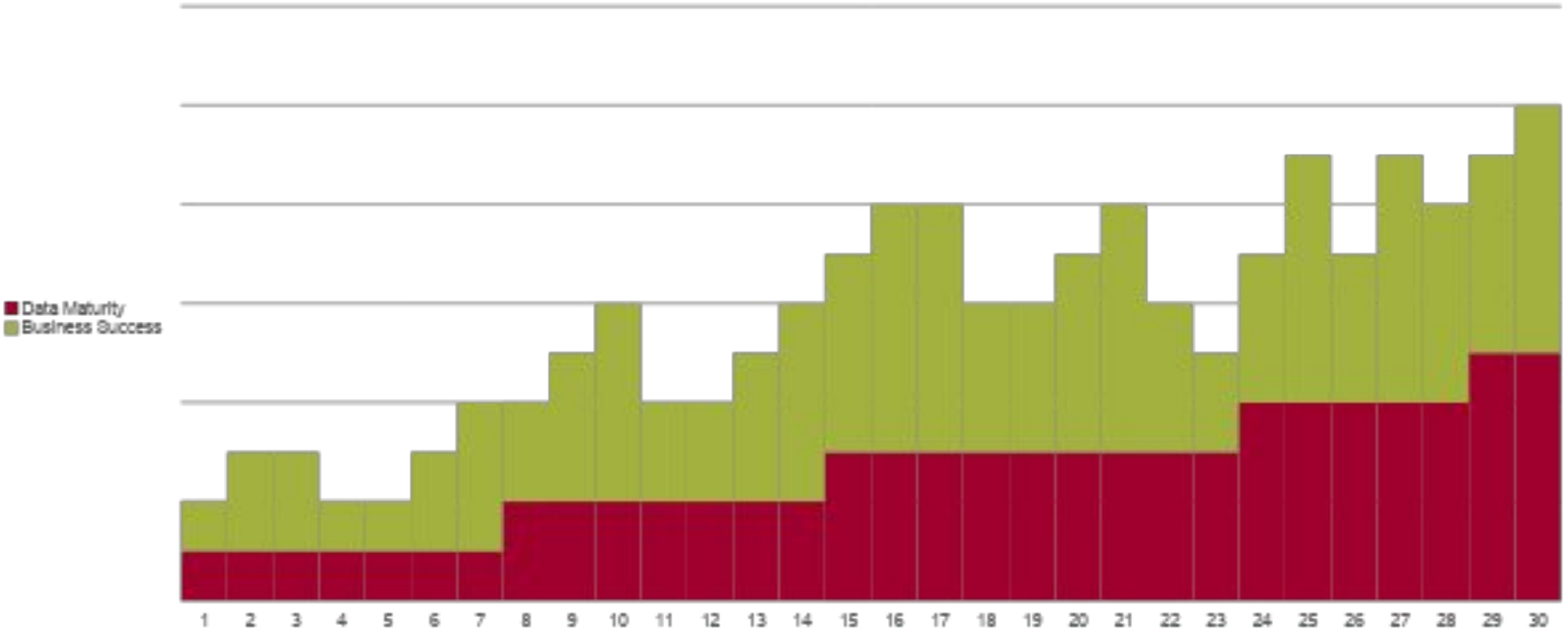
10 on Business Success
- We used public information as well

Progression in data topics ~= data maturity

Key Areas

- Data Lakehouse
- Analytics
- Master Data Management
- AI
- Data Quality & Observability
- Data Governance
- Vector Database Use
- Multi-Model Use
- Distributed Data Architecture
- ROI-based Projects
- Microservices Architecture
- Cloud FinOps

Results


Data Maturity
Business Success
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Beyond the Mountain is another mountain

Maturity Modeling

- Capabilities emanate from the presence of the items shown
- Should give you a sense of priority
- You Can't Skip Levels – in any category
- Maturity Levels tend to move in harmony
- Midsize and smaller companies can +1
- Momentum is paramount!

•Categories:

Information Management Professional Success Metrics

Data Maturity Scorecard

	Score	Next Steps
Strategy		
Architecture		
Technology		
Organization		
Total		
Average		

Maturity Level 1

"The Data Warehouse is a Struggle and that's the way it is and will always be"

Software at End of Life

"Artificial Intelligence is for Others"

Infrastructure Overwhelmed

Compliance Challenges

"One Vendor" Mentality

Outdated Tools

Cloud Costs Out of Control

Organizational Silos

High Data Skills Turnover

Resistance to Change

Multiple Overlapping Data Stores

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Achieve Business Goals While Increasing Data Maturity

Maturity Level 2

Data Strategy

- Emerging Data Standards
- Data Decentralization
- Executive Awareness of Data
- Partial Self-Service BI
- Cloud First Direction

Architecture

- Central Data Warehouse(s)
- Emerging Platform Heterogeneity

Technology

- Third Party Data Utilized
- Data Integration=ETL, ELT
- Dashboards

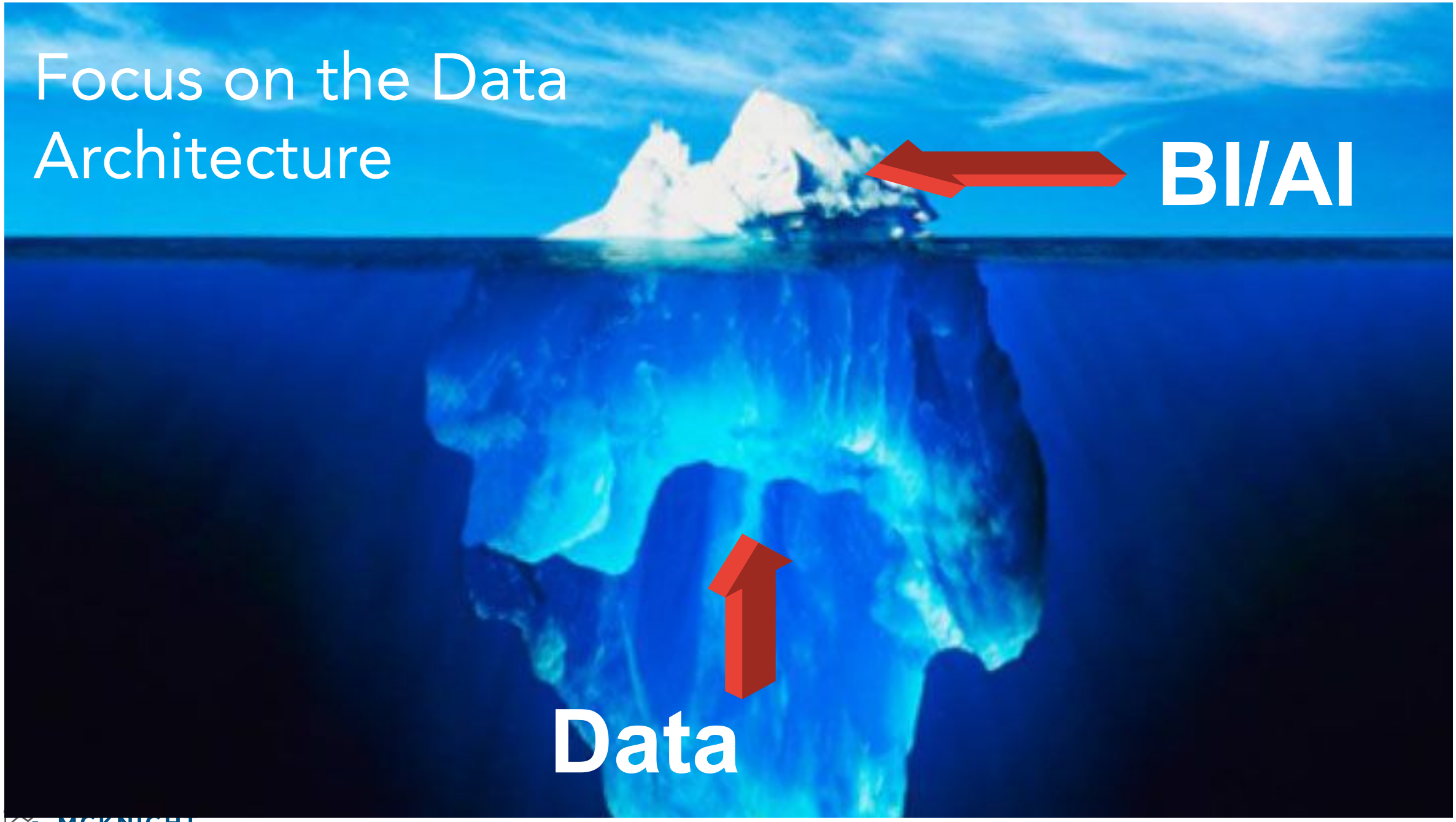
Organization

- Agile Methodology
- Data Specialists

Maturity Level 2 Key Areas

- Data Lakehouse: Raw Data Lake
- Analytics: Descriptive Analytics
- Master Data Management: Basic Entity Management in 1 SA
- AI: Rule-based
- Data Quality & Observability: Basic DQ Monitoring
- Data Governance: Minimal
- Vector Database Use: None
- Multi-Model Use: None, mostly Relational data
- Distributed Data Architecture: Centralized, No Mesh/Fabric
- ROI-based Projects: No ROI Concept
- Microservices Architecture: None
- Cloud FinOps: N/A (much On-premises)

Focus on the Data Architecture



Maturity Level 3

Data Strategy

- Data Layer Acknowledged
- Self-Service is Dominant Model

Technology

- Data Warehouse in Cloud
- Graph Database For Relationship Data
- Use of Data Marketplace
- Use of Data Catalog
- Integration=Streaming

Architecture

- Multi-Year Architecture Direction/Plans
- Data Virtualization
- Managing Many Data Types

Organization

- Organizational Change Management added to data projects
- Chief Data Officer
- Data Scientists
- Strong Devops

Maturity Level 3 Key Areas

- Data Lakehouse: Data Lakehouse Emerges
- Analytics: Diagnostic Analytics
- Master Data Management: Centralized MDM of 1-2 SAs
- AI: Basic automation projects
- Data Quality & Observability: Data Quality program emerges, Data Profiling
- Data Governance: Data Catalog, Basic Access Control
- Vector Database Use: Indexing
- Multi-Model Use: Document-oriented data
- Distributed Data Architecture: Hub-and-Spoke, No Mesh/Fabric
- ROI-based Projects: Business Cases, emergence of ROI
- Microservices Architecture: Service-oriented development
- Cloud FinOps: Manual

Follow the data profile to the right platform

Maturity Level 4

Data Strategy

- Data As Asset In Financial Statements / Executives

Technology

- Data Catalog Populated
- Search is Augmented and Interactive

Architecture

- Rest APIs

Organization

- Chief Information Architect/Equivalent
- Strong MLops

Maturity Level 4 Key Areas

- Data Lakehouse: Mature Data Lakehouse
- Analytics: Predictive Analytics
- Master Data Management: Real-time MDM, Many SAs
- AI: Machine Learning
- Data Quality & Observability: Full DQ Program
- Data Governance: Meetings, Organizational Attention, Data Lineage, Audit Trails
- Vector Database Use: Similarity Searches
- Multi-Model Use: Graph-oriented
- Distributed Data Architecture: Event-driven
- ROI-based Projects: Selective ROI Analysis
- Microservices Architecture: Microservices
- Cloud FinOps: Cloud First, Adopting Cloud-native, Realization of Cloud FinOps need

"To do information management right does not require more expense or time - it takes know-how and focus."

Maturity Level 5

Data Strategy

- Hyper-personalization
- Producing Information Products
- AI considered for everything

Technology

- Databases & Processing At Edge In IOT
- Embedded Database In Applications
- Vector db + RAG
- AutoML / MLOps platforms

Architecture

- Real-Time Data Processing

Organization

- LLM Ops & Prompt Engineering
- Data Driven / Data Maturity
- AI Ethics Policy

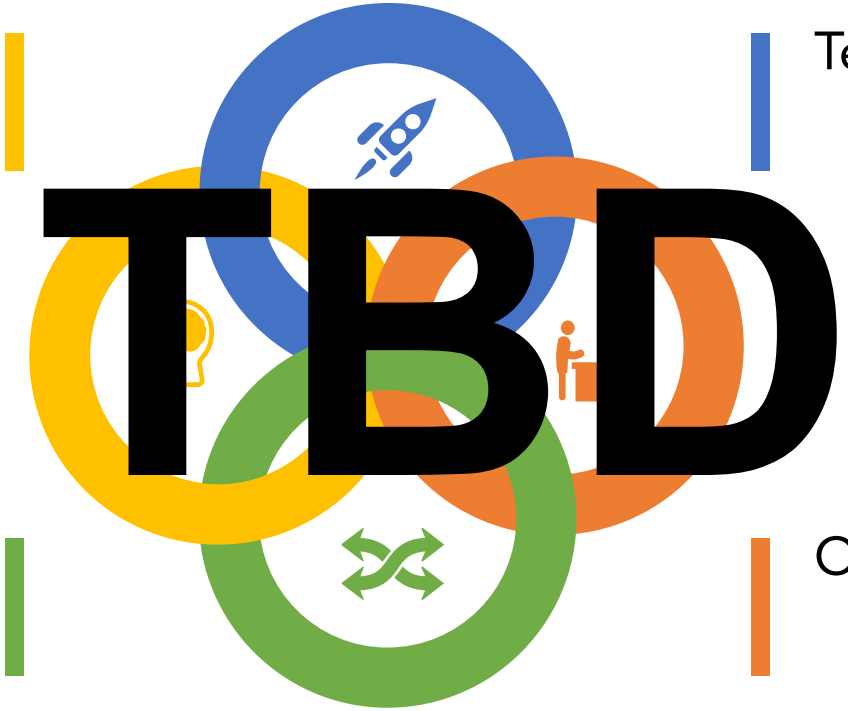
Maturity Level 5 Key Areas

- Data Lakehouse: AI-powered Lakehouse
- Analytics: Prescriptive Analytics
- Master Data Management: Autonomous MDM
- AI: Cognitive AI
- Data Quality & Observability: Real-time Observability
- Data Governance: Self-service Governance
- Vector Database Use: Vector-based Analytics and RAG
- Multi-Model Use: Multi-model (Graph, Document, etc.)
- Distributed Data Architecture: Distributed, Edge-first
- ROI-based Projects: Continuous ROI Monitoring
- Microservices Architecture: Serverless Architecture
- Cloud FinOps: Cloud FinOps Automation

Maturity Level 1-5 in 2025

Data Strategy

Technology



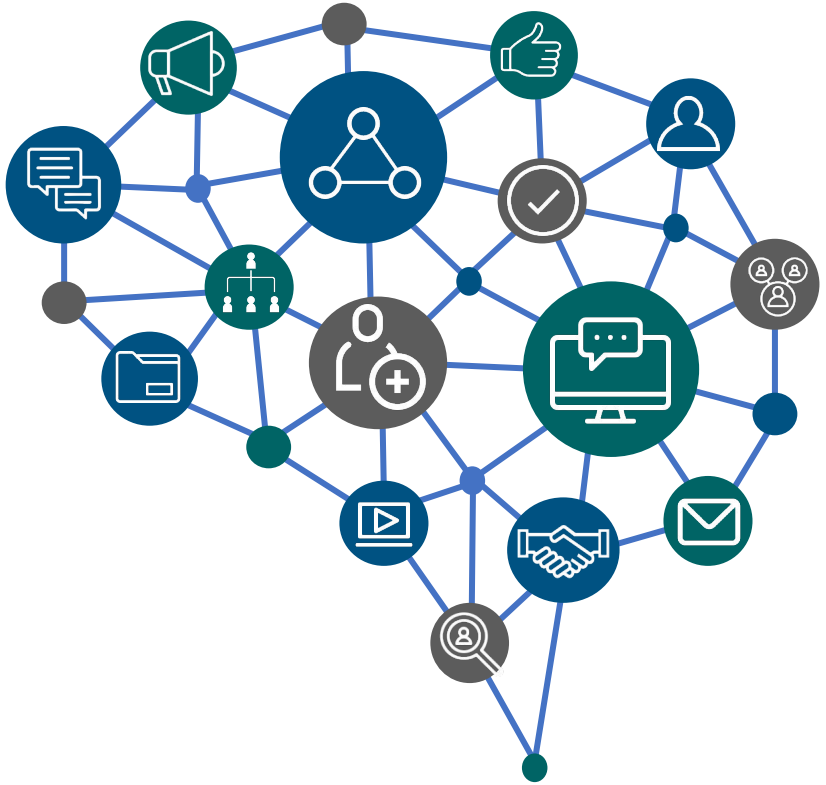
Architecture

Organization

We Are in the Business of Information

- Information volume is exploding
- Data is the lifeblood of artificial intelligence
- Business is real-time, all the time
- Information usage differentiates the competition
- Information quality impacts all stakeholders
- Information is reused over and over
- Even seldom-used data is essential to be under management
- Third-party information is essential to use
- Information is a key business asset

We are at the start of General AI



Companies Seek Safe Harbor in a Simplified Data Architecture

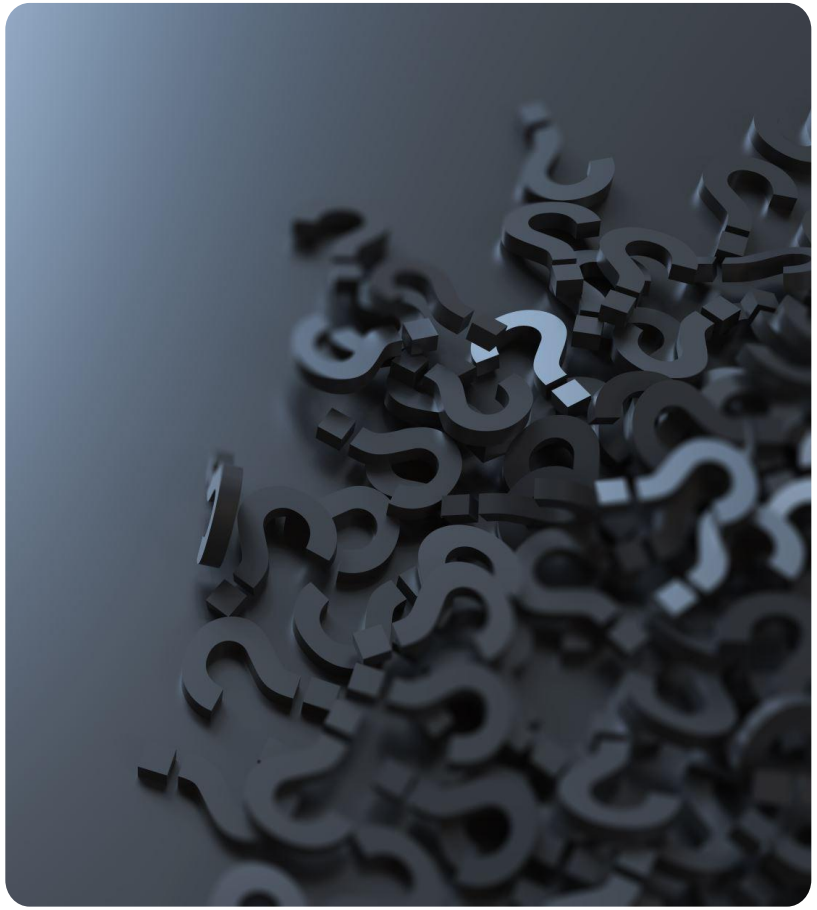
- Consolidation is essential for organizations to reduce operational costs and improve resilience
- It drives down costs while instilling architectural discipline, allowing focus on specific domains
- For security, CxOs are seeking a single solution for their hybrid cloud environment, ensuring visibility across the entire threat profile
- Consolidating tools allows for context sharing and greater efficiency, making consolidation a key strategy for businesses

Unstructured Data Almost at Parity with Structured Data

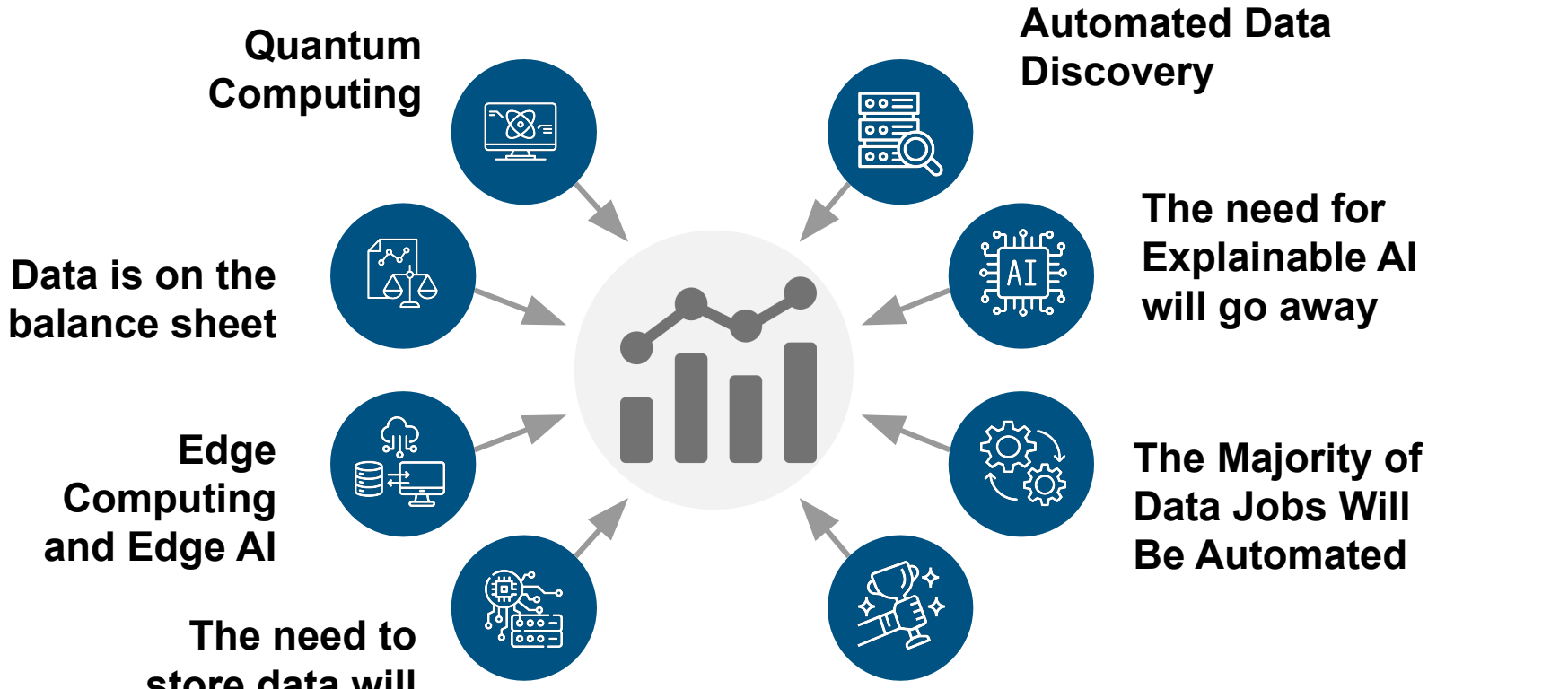
- Decentralized Architectures support all data
- Data Warehouses – best for data modeling, structured data, reporting
- Data Lakes – price-performance advantages for big data, best for data engineering/science, cold data
- With data formats like Apache Iceberg, Delta, and Apache Hudi, the data lakes start to resemble data warehouses
- Data warehouses can seamlessly bridge the gap with data lakes, enabling reliable access to files using open, ACID-compliant formats

Data Engineering Becomes the Highest Value Profession

- Data Engineer's knowledge of data will be more important than before, albeit in novel and inventive ways
- Data engineers will need to comprehend the value that generative AI brings in order to stay up to date with the changing scenario
- For companies looking to unlock value, the data pipelines constructed and overseen by data engineers may be the initial point of contact with language models
- The people who know how to use a model and plug it into a data pipeline in order to automate value extraction are the data engineers
- They will also be expected to supervise and comprehend the tasks related to AI



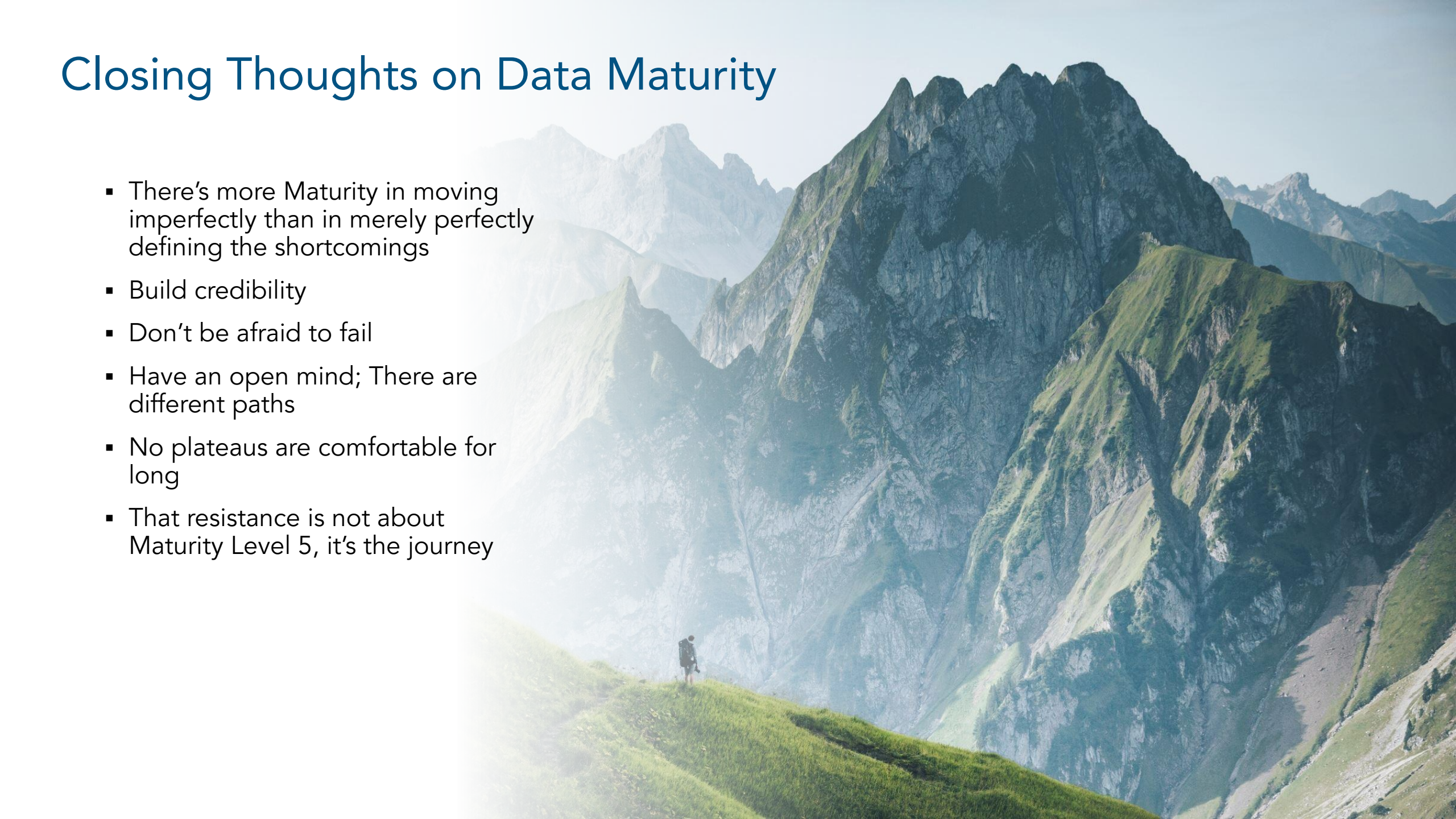
Beyond 2025



Given the rise of generative AI, those companies with strong monetizable data and a dedicated use case will be winners

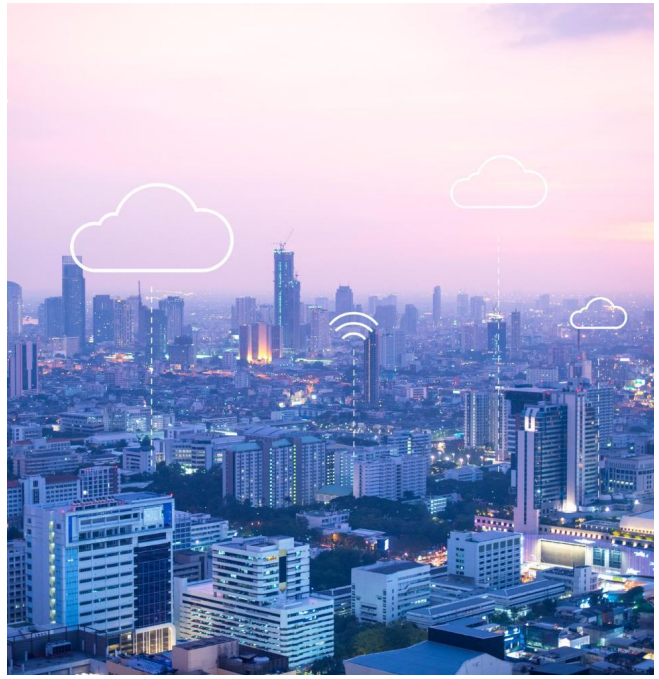
Closing Thoughts on Data Maturity

- There's more Maturity in moving imperfectly than in merely perfectly defining the shortcomings
- Build credibility
- Don't be afraid to fail
- Have an open mind; There are different paths
- No plateaus are comfortable for long
- That resistance is not about Maturity Level 5, it's the journey



Summary

- Business success is correlated with data maturity
- Key Areas include Data Lakehouse, Analytics, Master Data Management, AI, Data Quality & Observability, Data Governance, Vector Database Use, Multi-Model Use, Distributed Data Architecture, ROI-based Projects, Microservices Architecture, Cloud FinOps
- Strategy, Architecture, Technology and Organization Maturity go together
- Achieve Business Goals while Increasing Maturity
- Focus on the Data Architecture
- Beyond the Mountain is Another Mountain



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