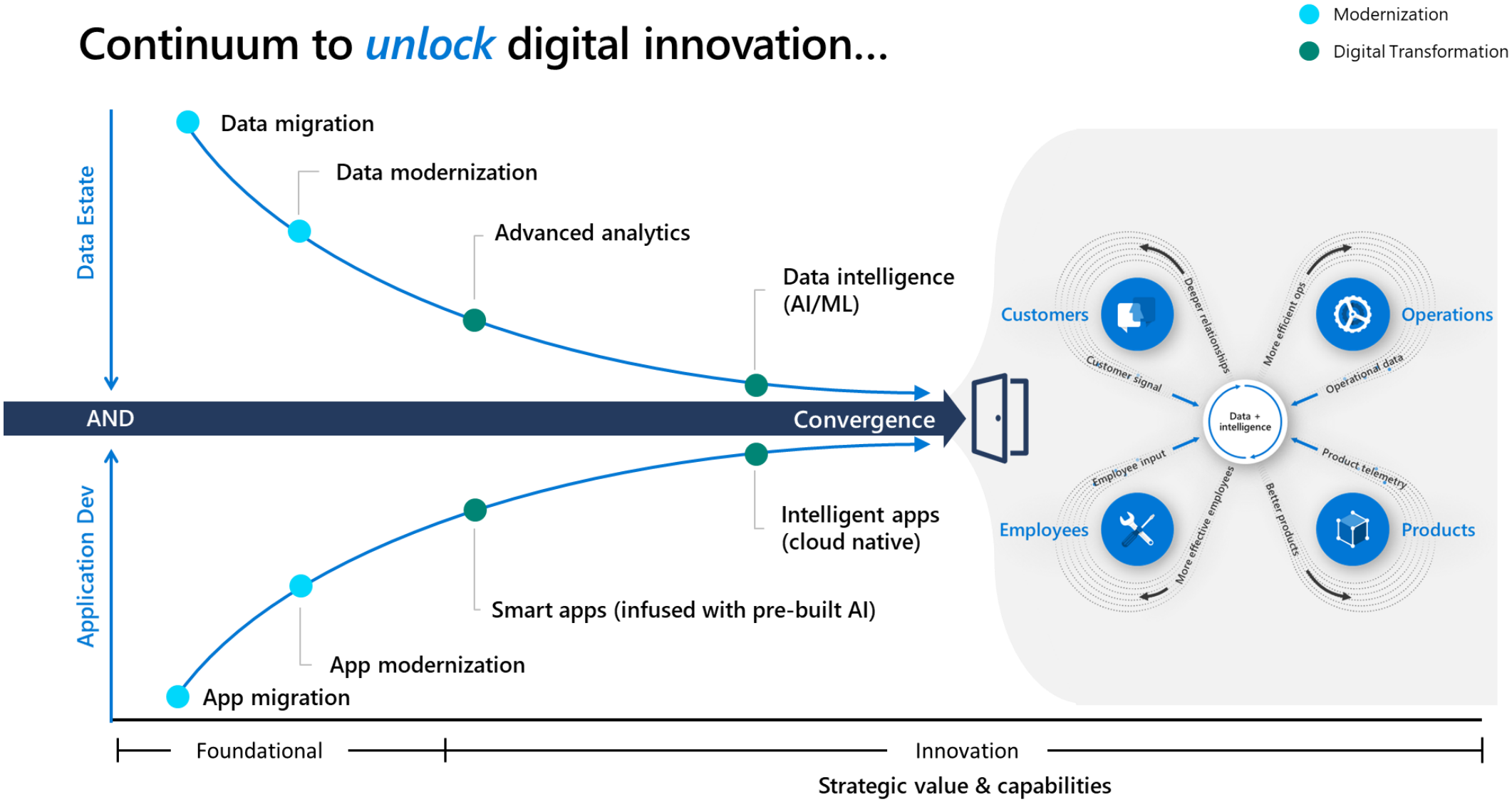
Intro

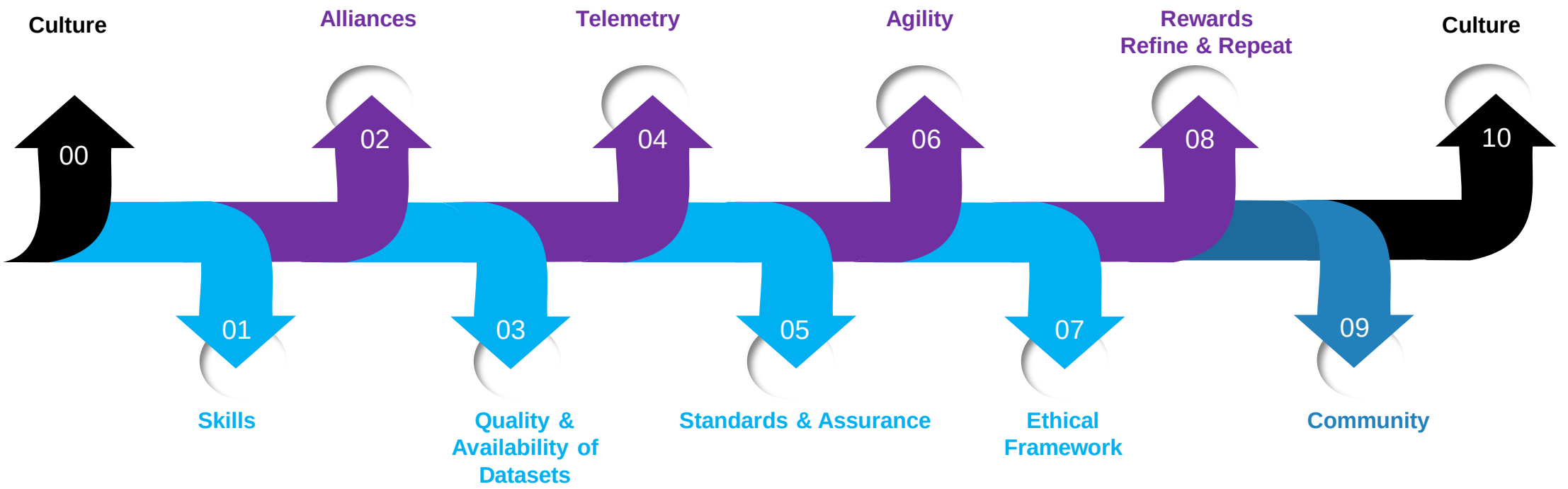
Continuum to *unlock* digital innovation...



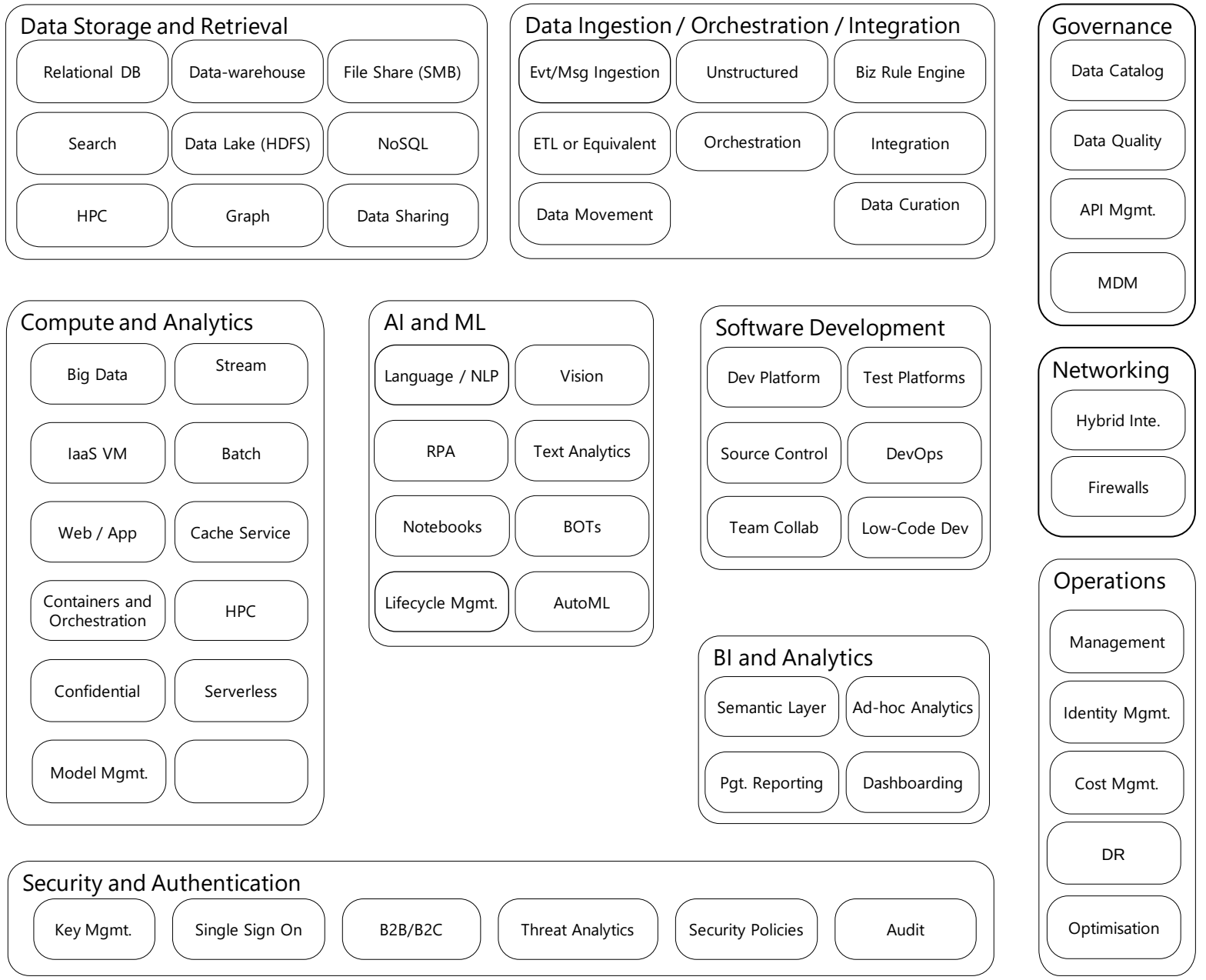
Capability

Microsoft

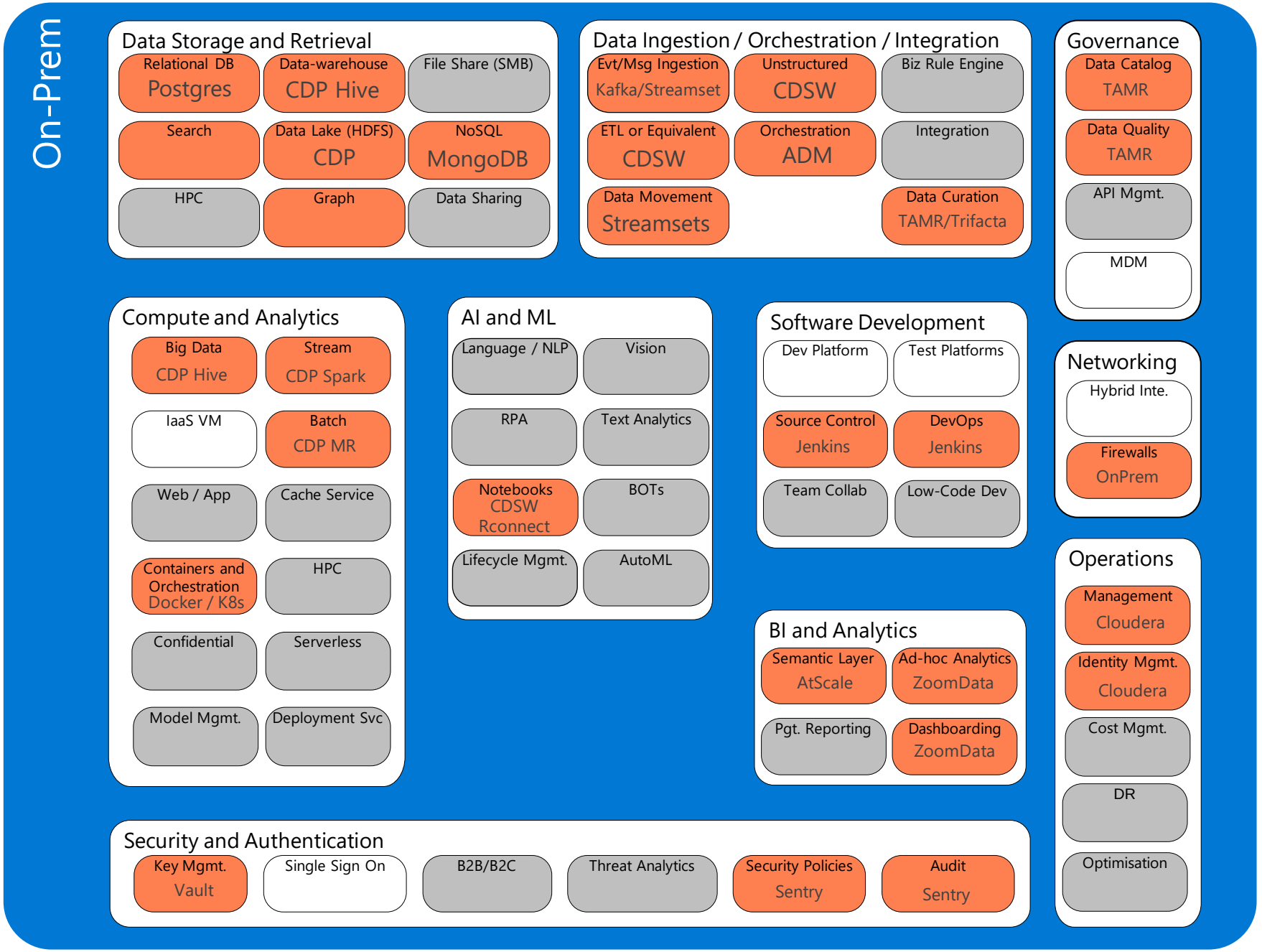
So, how do you build that capability?

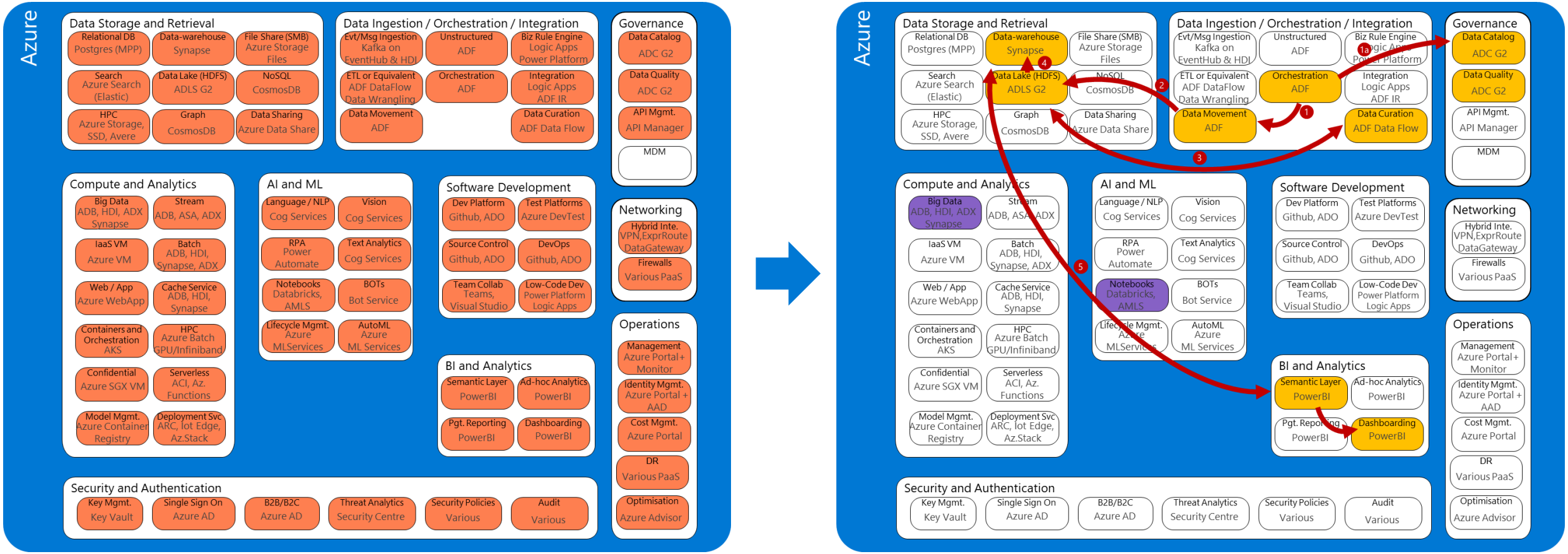


Capabilities



As-Is Capabilities



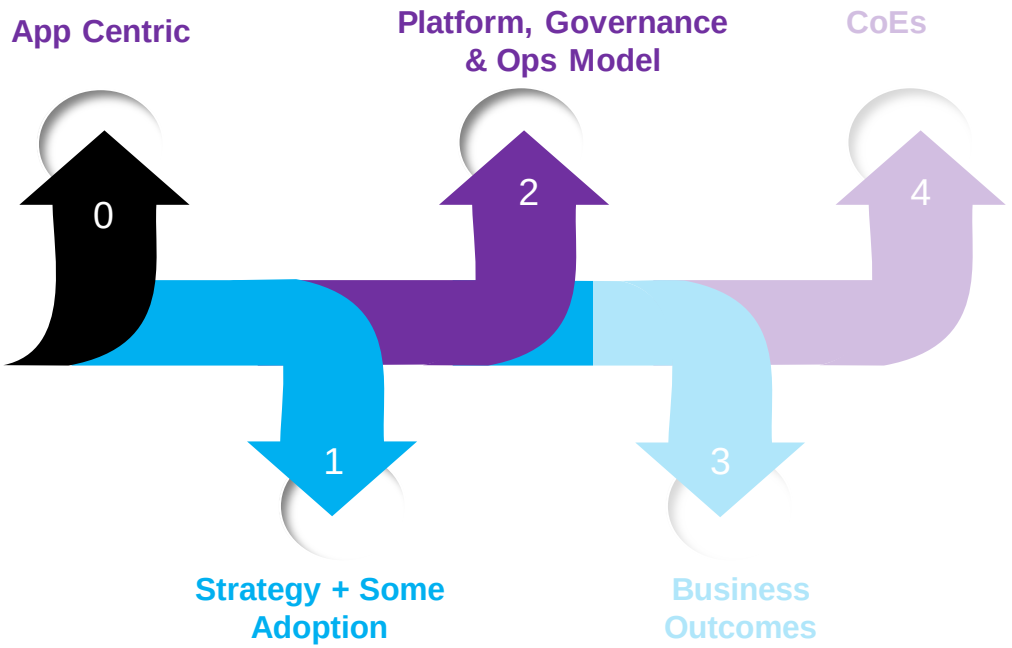


Cloud Native Capabilities

Maturity

Microsoft

Maturity Model



Preparation

Agility

Resilience

People

Organisation

Culture

Process

Process, Method & Practices

Plans & Programs

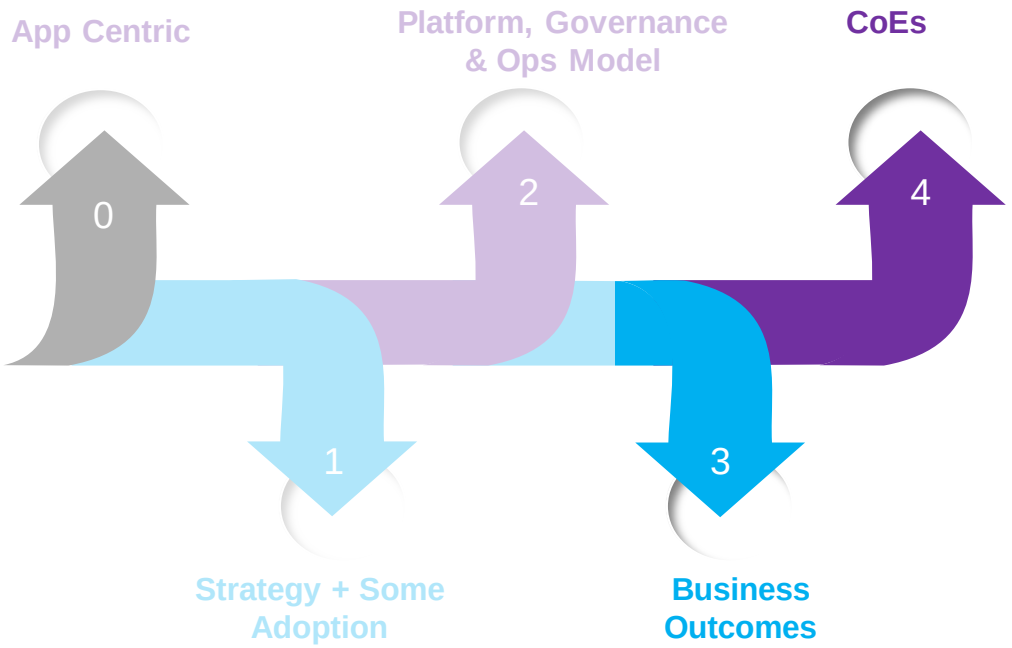
Demand Management

Technology

Data

Tools & Technology

Maturity Model



Preparation

Agility

Resilience

People

Organisation

Culture

Process

Process, Method & Practices

Plans & Programs

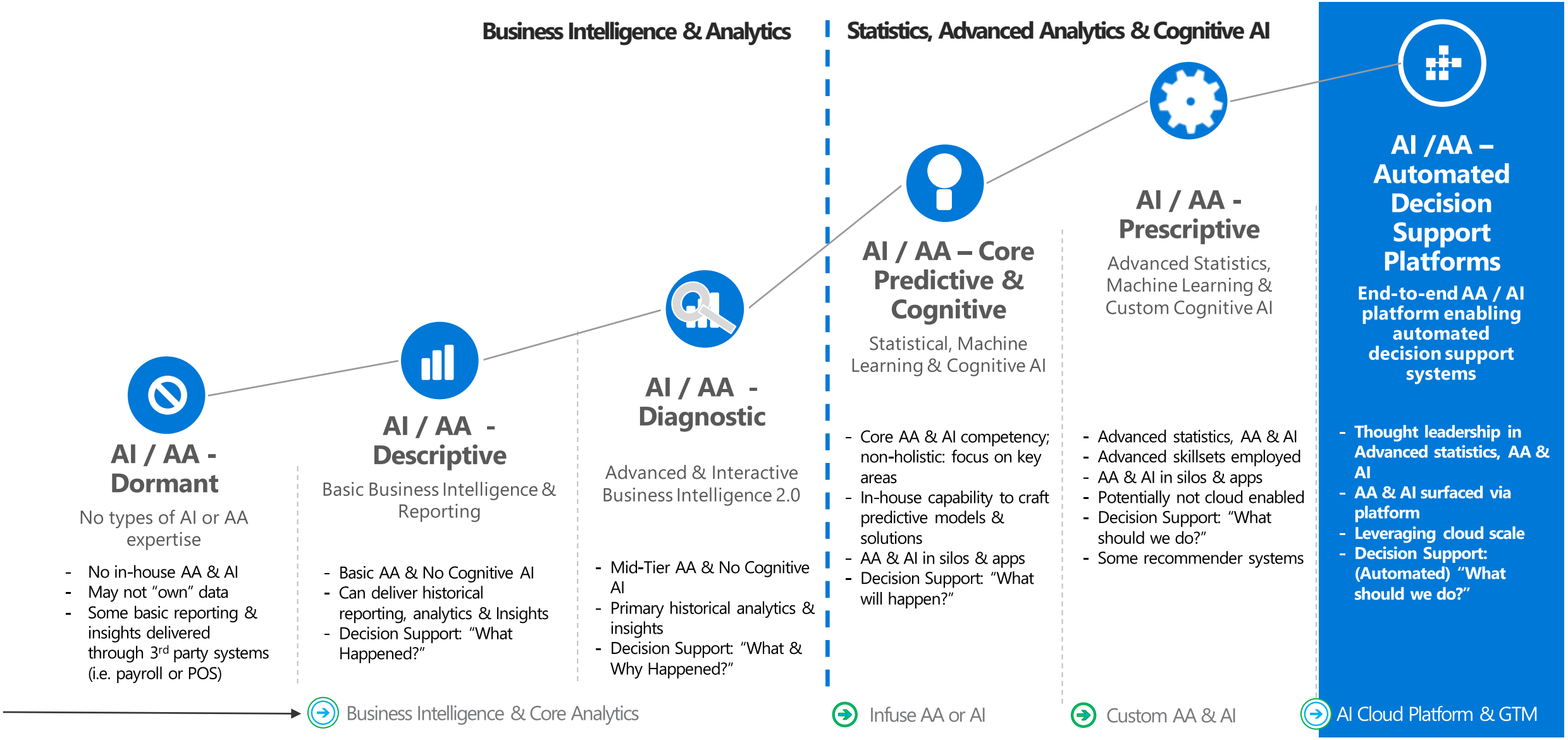
Demand Management

Technology

Data

Tools & Technology

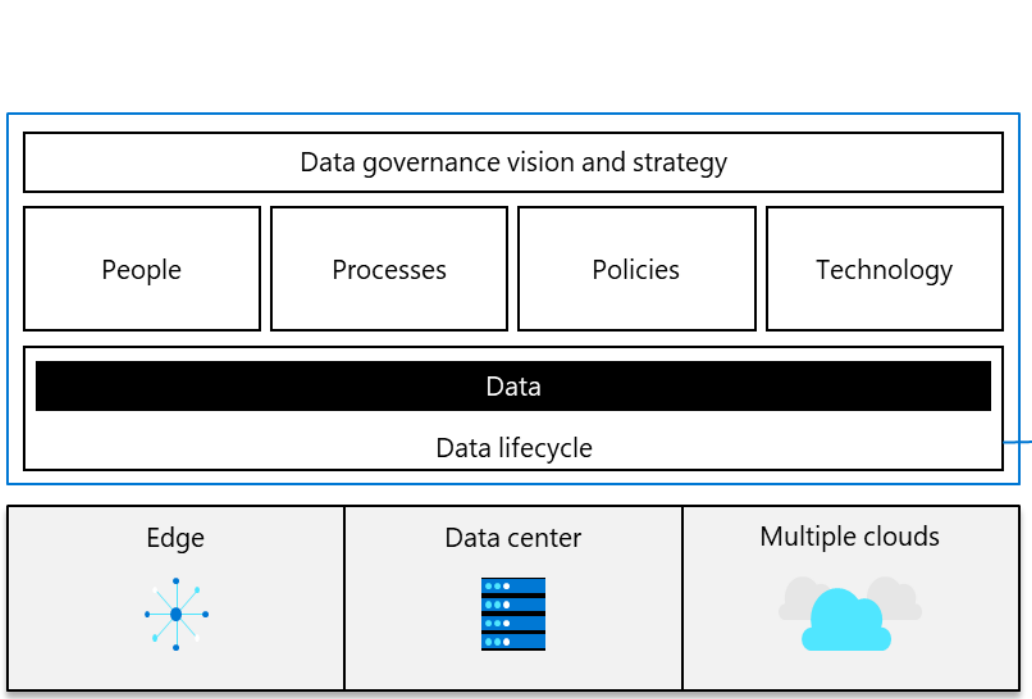
Maturity evolution of organization across reporting, deriving insights & decision support

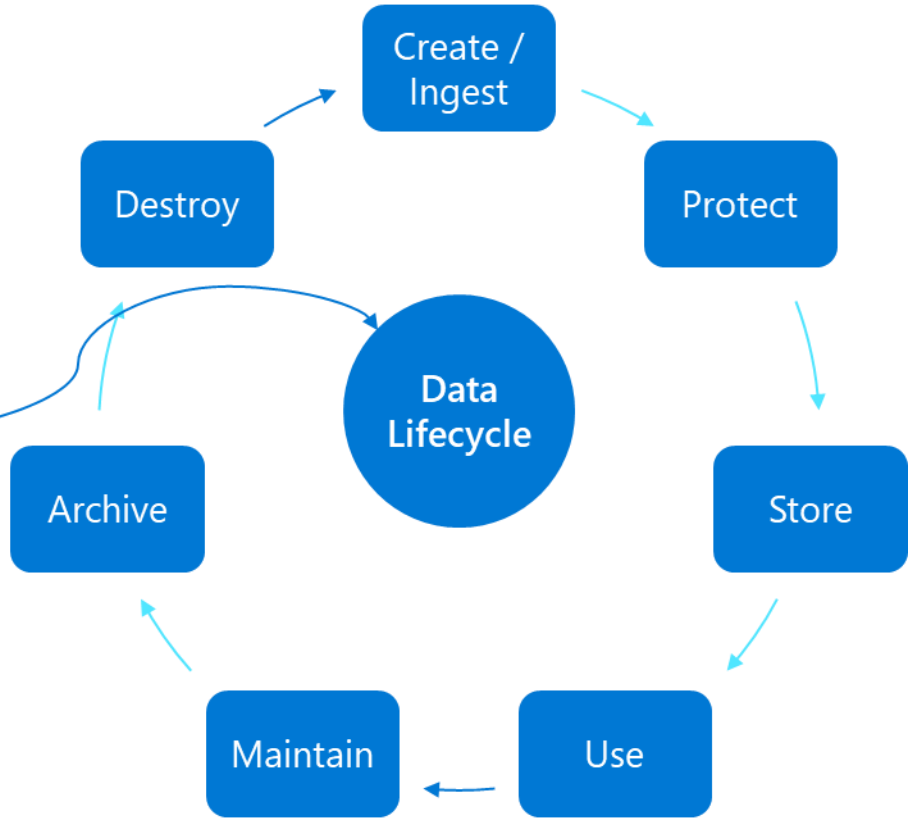


Governance

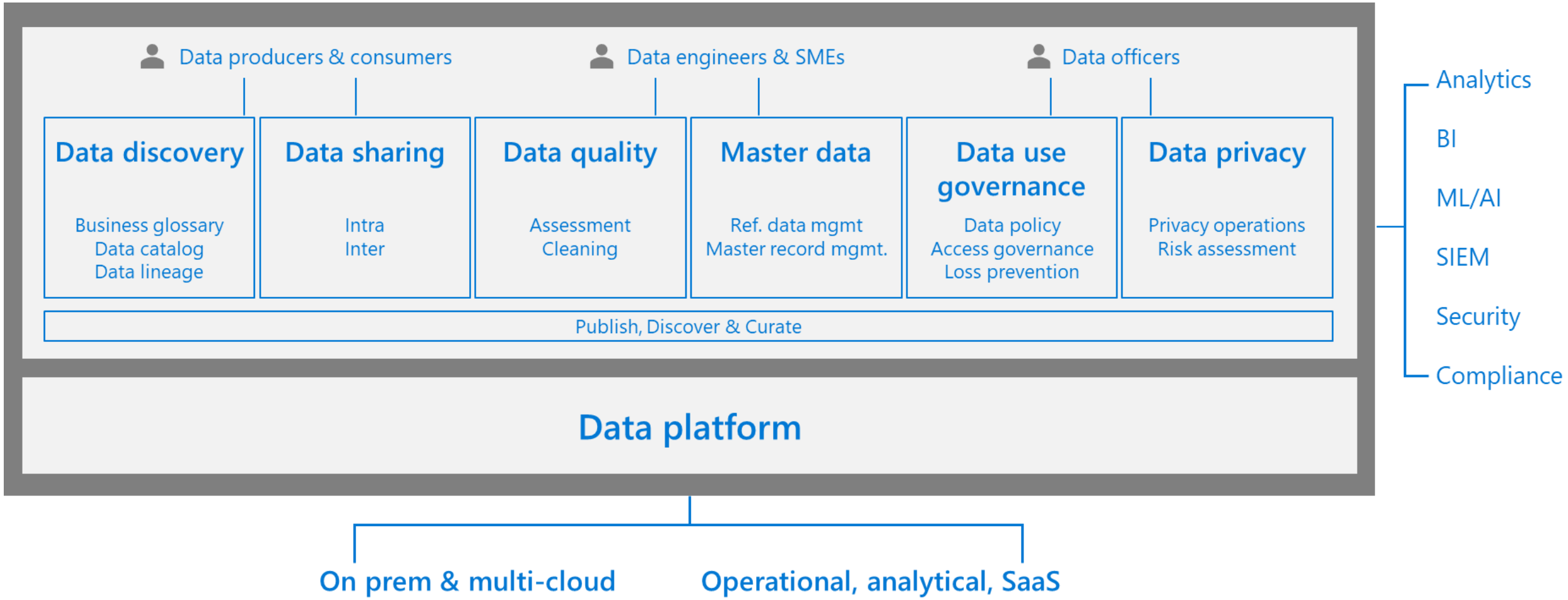
Microsoft

What about Governance





Bake Data & AI ethics in your governance model



Build Governance Framework: Putting responsible AI into practice

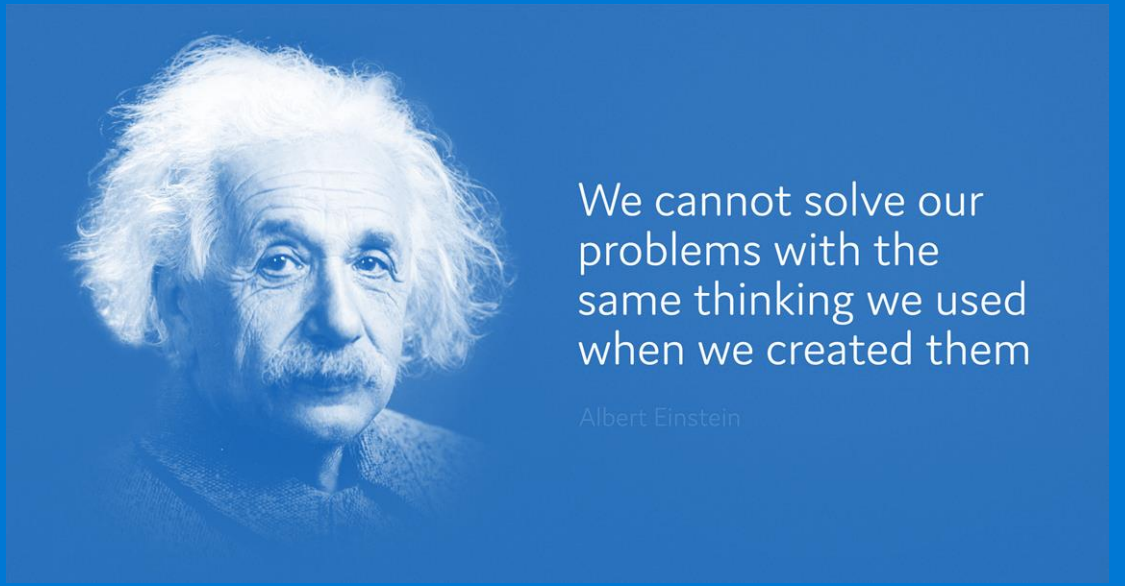
- Chief RAI Officer
- RAI Office
- RAI Committee
- AI Handbook

- Understand
- Protect
- Control

- Human-AI Guidelines
- Conversational AI Guidelines
- Inclusive Design Guidelines
- AI Fairness Checklist
- Datasheets for Datasets

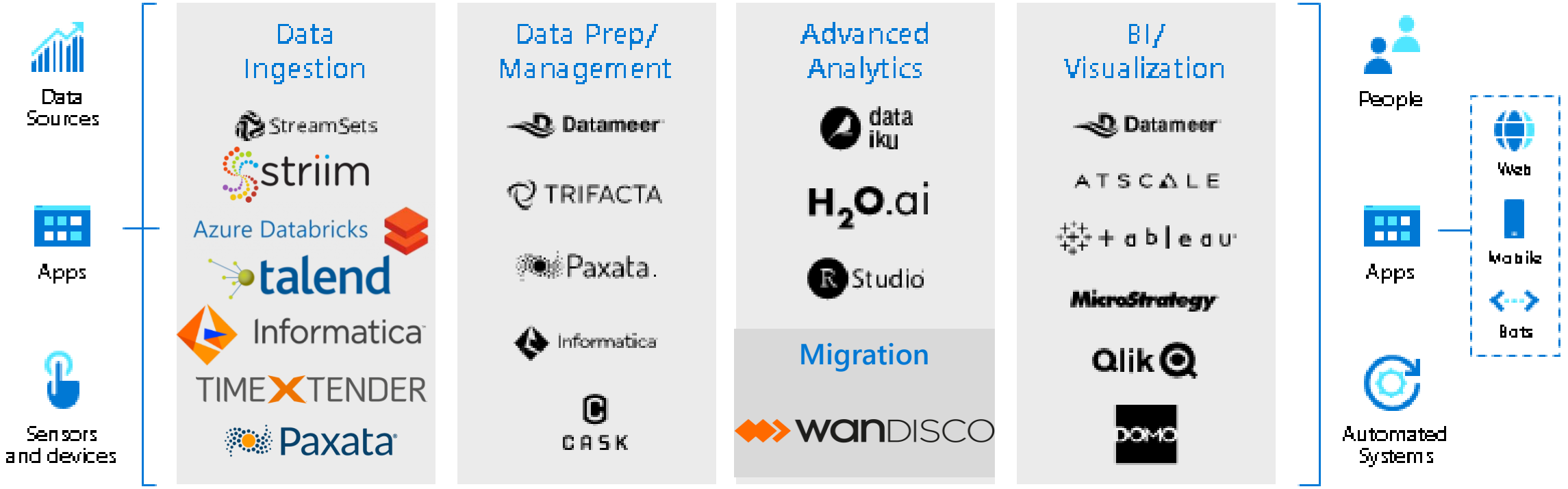
https://aka.ms/rai-in-action

Tools & Agility



Microsoft

Tools and agility (Partner solutions on Azure)



Productivity Tools

Data catalog / Governance / Lineage

Waterline Data

Connectors: JDBC, ODBC

Simba

Enterprise grade add-ons (hybrid, backup, DR, security, performance)

IMANIS DATA

wanDISCO

Tools and agility

Azure Data Factory

Azure Import/Export service

Azure CLI

Azure SDK

Azure IoT Hub

Azure Event Hubs

Kafka on Azure HDInsight

Azure SQL DB

Azure Cosmos DB

Azure Blob Storage

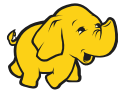
Azure Data Lake Store

Azure Search

Azure Purview

Azure Synapse Analytics

Azure Data Lake Analytics


Azure HDInsight

Azure Databricks

Azure Stream Analytics

Azure Analysis Services

Power BI

Azure ML

ML Server

Azure Databricks

Bot service

Cognitive Services

Azure ExpressRoute

Azure Active Directory

Azure network security groups

Azure key management service

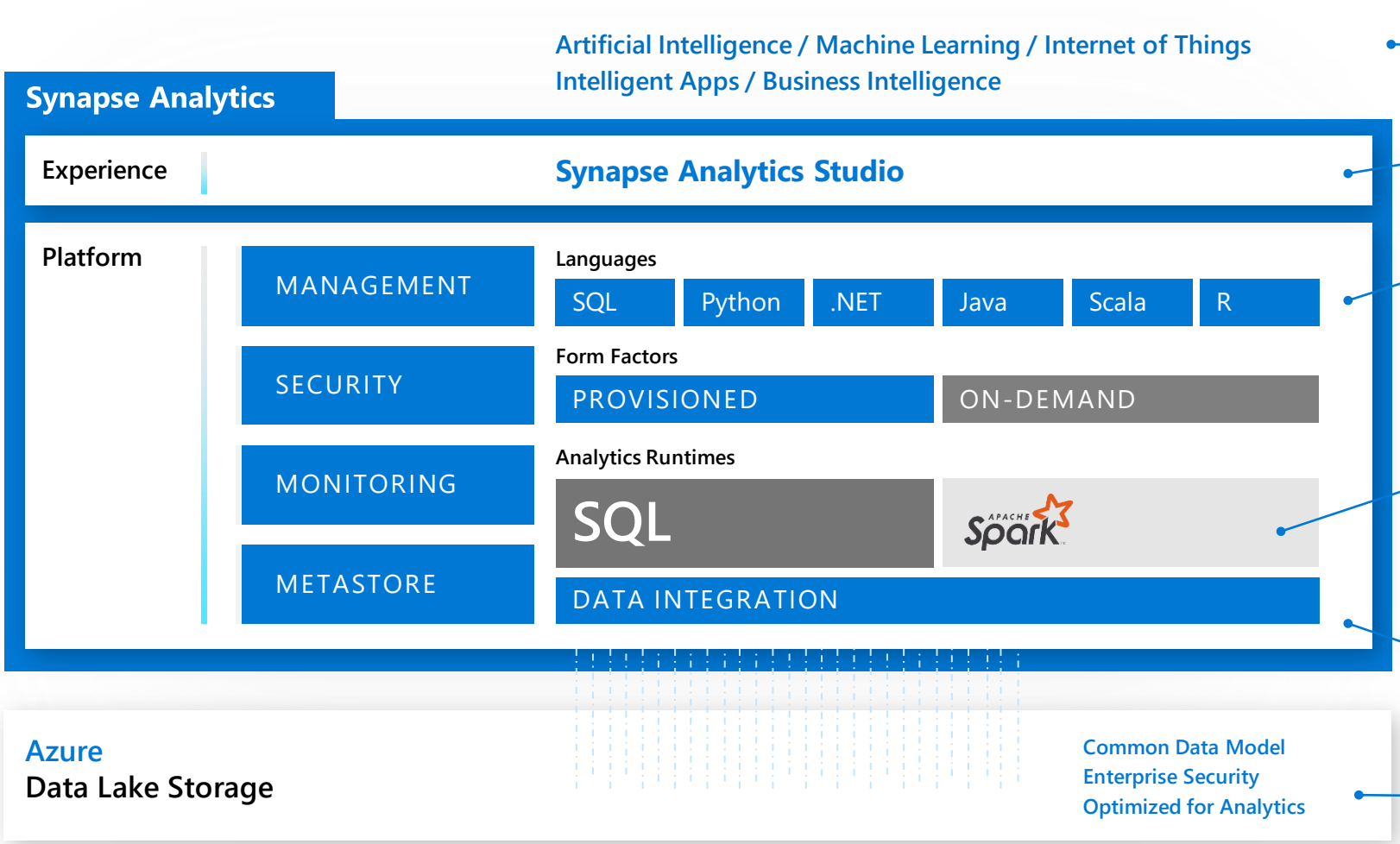
Operations Management Suite

Azure Functions

Visual Studio

Azure Synapse Analytics

Integrated data platform for BI, AI and continuous intelligence



Designed for analytics **workloads at any scale**

SaaS **developer experiences** for code free and code first

Multiple **languages** suited to different analytics workloads

Integrated analytics runtimes available provisioned and serverless on-demand

SQL Analytics offering T-SQL for batch, streaming and interactive processing

Spark for big data processing with Python, Scala, R and .NET

Integrated **platform services** for, management, security, monitoring, and metastore

Data **lake integrated** and Common Data Model aware

Principled Architecture Approach

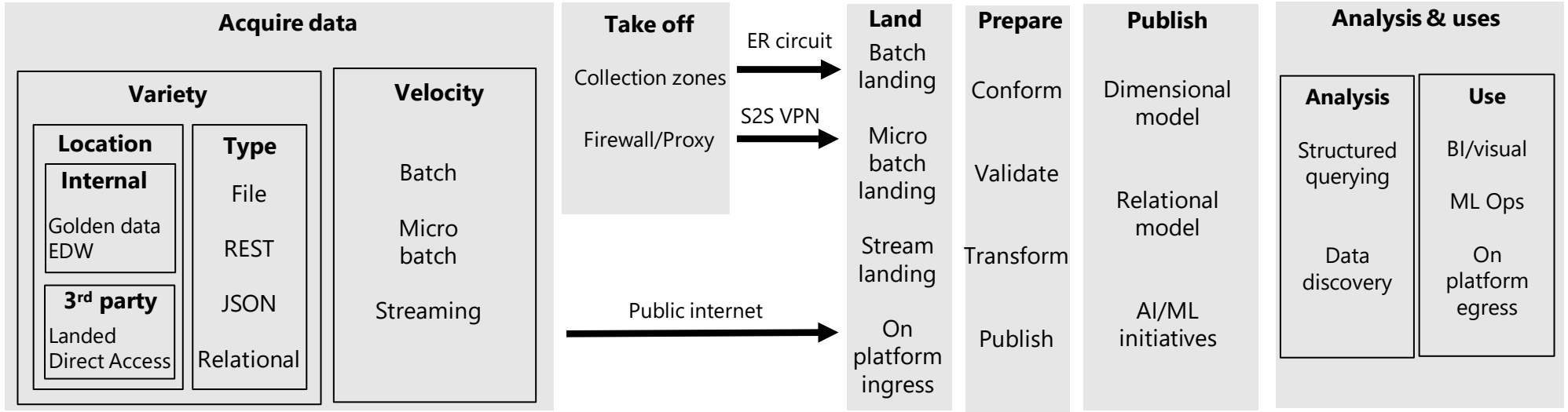
Microsoft

Data strategy – building blocks of digital transformation

Target capability cloud architecture

Operate & Liaise

Group IT liaison | Azure Customer Success CSA | 3rd party vendor liaison | Microsoft Partner | Demand management | Cost control | Cloud competency liaison



Model and manage data

Obfuscation | Catalogue / Search analytics | Data governance | Source reconciliation | Data quality | Enterprise data model

Build, test and run the platform

Monitoring | Scheduling | Logging analytics | Data lifecycle mgmt | Performance | Platform availability | RBAC | CI/CD | IaC | Data preparation

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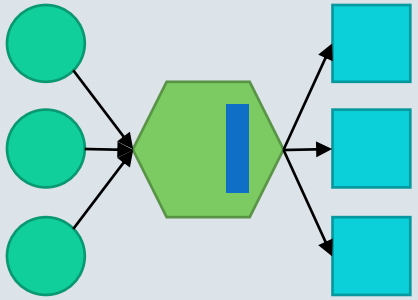
Platform Topologies : Different Approaches

Source data | Analytics platform | Data-lake | Consumer group

Centralised Platform

Traditional monolithic architecture operated centrally



✔ Pros

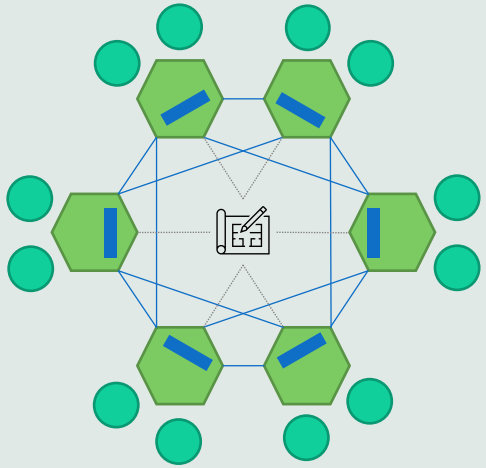
Streamlined consistent processes
One-stop shop

✘ Cons

... not federated
Restricts speed of innovation/agility
Monolithic
Unsuitable for multi-stakeholder global enterprise scenarios

Harmonised Mesh

Leverage common policies and templates that ensure baseline security and compatibility.



✔ Pros

Consistent core design
Enable domain specialisation
Encourage self-service
Offers organisational flexibility

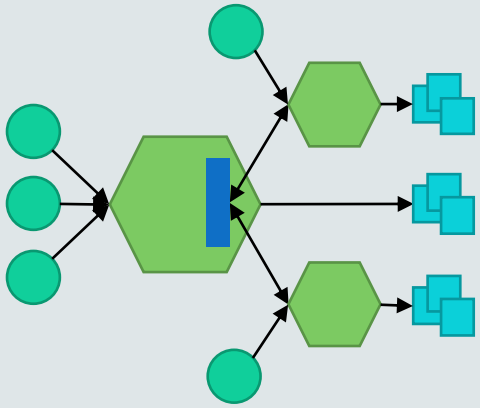
✘ Cons

Increased management overhead
Requires strong governance and cataloguing

Centralised (Control) ⟷ Distributed (Agility)

Core Services Provider

Build-out common core services with flexibility to bolt-on domain specific customisations



✔ Pros

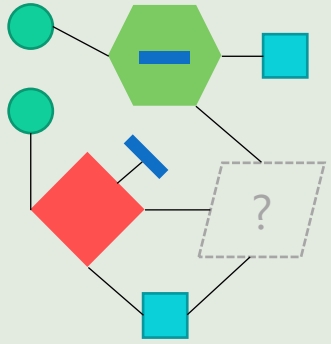
Consistent core processes
Enable domain specialisation
Encourage self-service
Offers flexibility

✘ Cons

Increased management overhead
Requires governance and data asset indexing

Highly Federated

Complete autonomy for groups to implement own stack in different environments.



✔ Pros

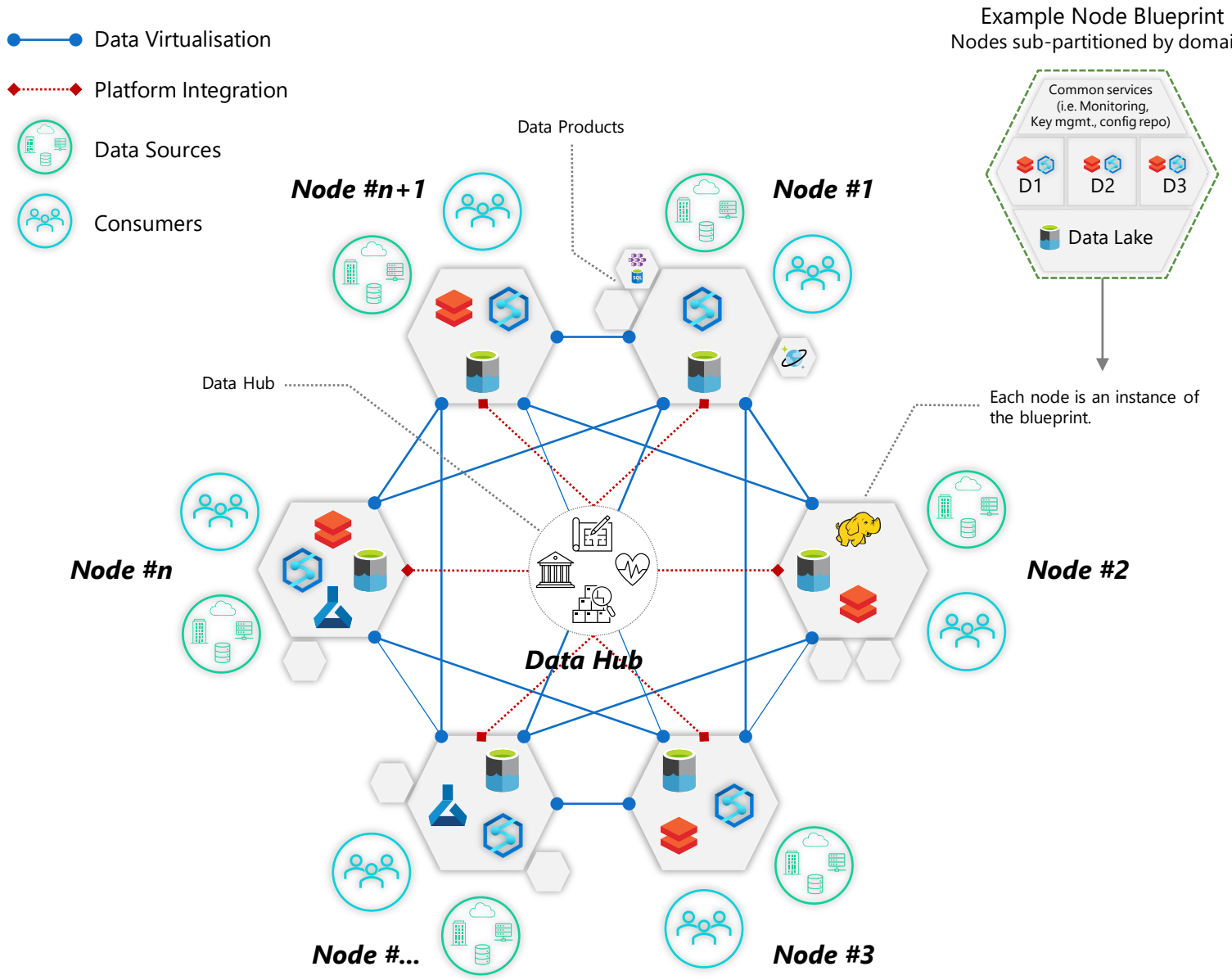
Offers flexibility
Reduced time to market

✘ Cons

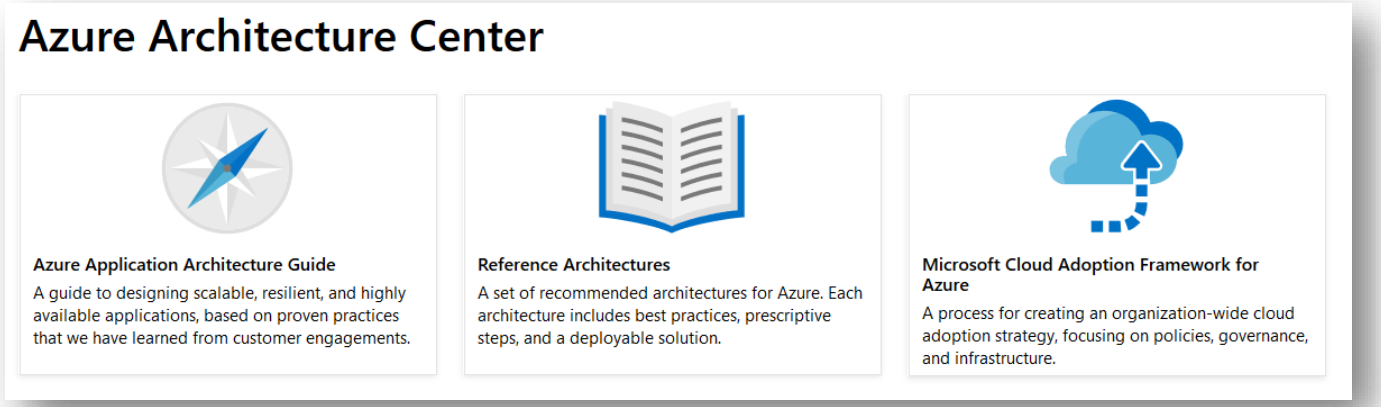
Poor visibility across platform
Incompatible interfaces
Capability duplication, increased costs
Russian doll data integration
Creates technology debt

Enterprise Scale Analytics aka Harmonised Mesh

- Azure Harmonised Mesh allows multiple groups within an organisation to operate their own analytics platform whilst adhering to common policies and standards.
- The central datahub hosts data catalogue, mesh wide audit capabilities, monitoring, and auxiliary services for automation.
- The central data platform group defines blueprints that encompass baseline security, policies, capabilities and standards.
- New nodes are instantiated based on these blueprints, which encompass key capabilities to enable enterprise analytics (ie. Storage, monitoring, key management, ELT, analytical engines, and automation)
- Node instances can be augmented to serve respective business requirements, i.e. deploying additional domains, customising domains and data products within the node.
- Nodes are typically split by either org-division, function, or region.



So how do you start?



AI and machine learning

Distributed training of deep learning models
Run distributed training of deep learning models across clusters of GPU-enabled VMs.

Training of Python scikit-learn models
Recommended practices for tuning the hyperparameters of a scikit-learn Python model.

Batch scoring for deep learning models
Automate running batch jobs that apply neural style transfer to a video.

Batch scoring of Python models
Batch score many Python models in parallel on a schedule using Azure Machine Learning.

Batch scoring of Spark models on Azure Databricks
Build a scalable solution for batch scoring an Apache Spark classification model using Azure Databricks.

Real-time scoring of Python and deep learning models
Deploy Python models as web services to make real-time predictions, using regular Python models or deep learning models.

Real-time scoring of R machine learning models
Implement a real-time prediction service in R using Microsoft Machine Learning Server running in Azure Kubernetes Service (AKS).

Real-time recommendation API
Train a recommendation model using Azure Databricks and deploy it as an API using Azure Machine Learning.

Enterprise-grade conversational bot
How to build an enterprise-grade conversational bot using the Azure Bot Framework.

Big data solutions

Enterprise BI with SQL Data Warehouse
ELT (extract-load-transform) pipeline to move data from an on-premises database into SQL Data Warehouse.

Automated enterprise BI with Azure Data Factory
Automate an ELT pipeline to perform incremental loading from an on-premises database.

Stream processing with Azure Databricks
Stream processing pipeline that joins records from two streams, enriches the result, and calculates a rolling average.

Stream processing with Azure Stream Analytics
End-to-end stream processing pipeline that correlates records from two data streams to calculate a rolling average.

https://aka.ms/**data-strategy-blog**

Microsoft
Thank you