

# Data Operating Models

The Missing Link Between Strategy and Execution

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YMMV

Operating models are  
**foundations for execution**

They should be  
**lean, learning and enabling**

Enable people with  
**actionable, relevant** information

I'm **not** going to tell you about  
**<insert tool here>**

This isn't about  
**solution architecture**

This is about  
**business architecture**

No **MBA** or

# **Management Consultant**

required

Look here for extra  
resources

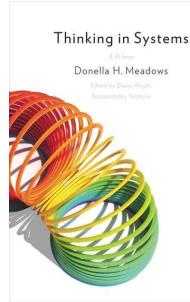


# People

## Processes

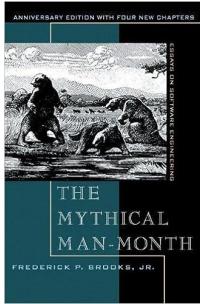
## Tools

Engineers can only execute to the  
**constraint of the systems**  
they inhabit



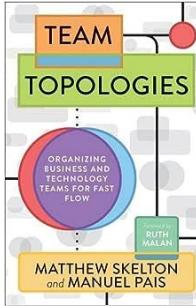
“Organizations, who design systems, are constrained to produce designs which are copies of the communication structures of these organizations”

Melvin Conway (1967)

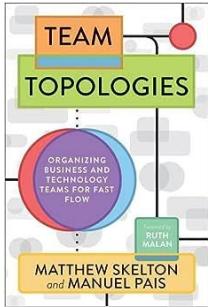


The best way to improve the quality and efficiency of your organisation's software is to focus on team design

Matthew Skelton & Manuel Pais (2019)



# The Inverse Conway Maneuver





# Quokka Incorporated

Strategy to become **data driven** and **AI ready**

Existing centralised data approach **isn't scaling**

Looking to **data mesh** as a solution

O'REILLY®  
**Data Mesh**  
Delivering Data-Driven Value at Scale



Zhamak Dehghani

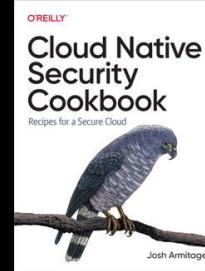
# Josh Armitage

Senior Engagement Partner @ Cognizant Servian

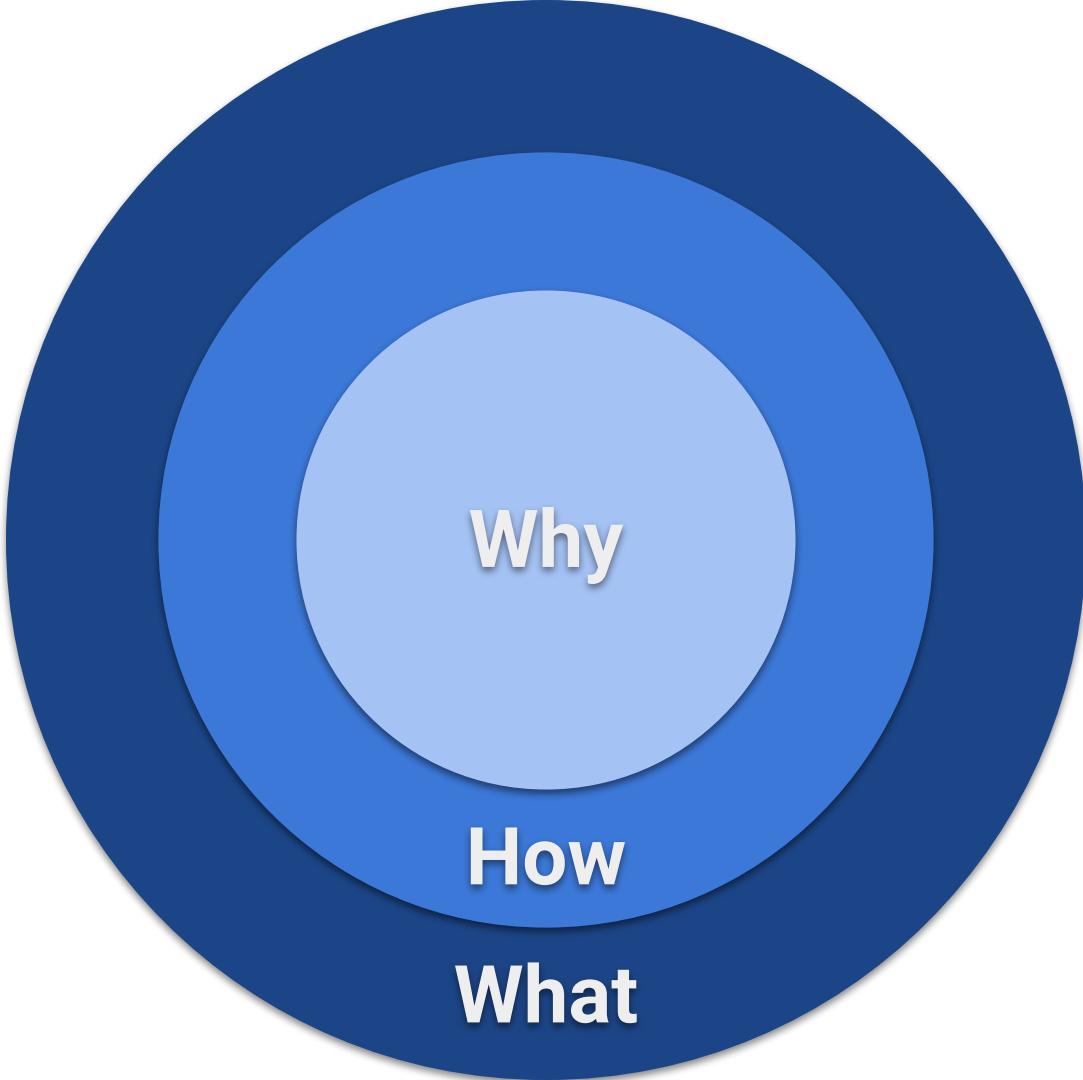
 <https://www.linkedin.com/in/josh-armitage-b7825a41/>

 @josharmi

- Worked with some of the world's biggest enterprises
- Reader of books, drinker of wine, supposed knower of things
- Built world-first serverless architectures on AWS
- Has worked with everything from mainframes to machine learning
- International speaker
- O'Reilly author



# Strategy **vs** Operating Model



**START**  
HOW GREAT LEADERS INSPIRE  
EVERYONE TO TAKE ACTION.  
**WITH**  
SIMON SINEK  
THE GLOBAL BESTSELLER  
**WHY**



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THE GLOBAL BESTSELLER  
**WHY**

# Strategy

**Why** are we doing this?

Strategies are  
abstract by design



They enable  
prioritisation



More importantly says  
**what not to do**



They don't say  
how to execute



We need a  
**foundation for**  
**execution**

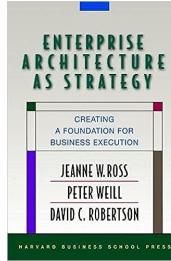


# Operating Model

**How** are we doing this?

It's a **blueprint**

It's a source of  
**competitive advantage**



Data is  
**knowledge work**

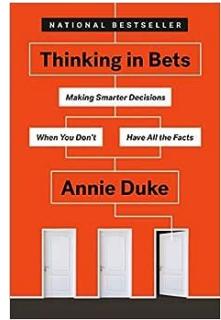
“We Have No Moat, And  
Neither Does OpenAI”  
Google

It's not first mover  
advantage any more

It's fastest mover

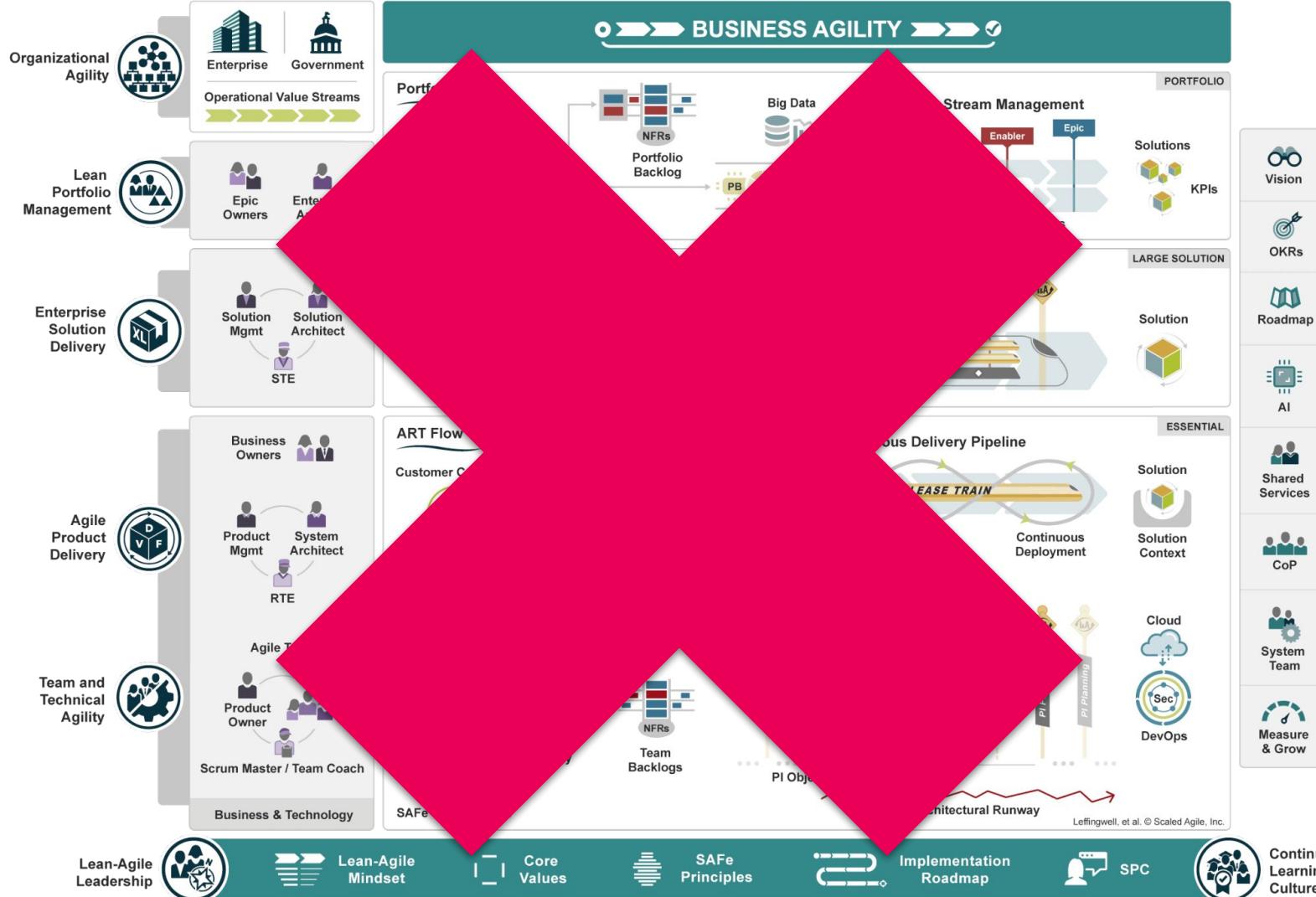
advantage

# Execute more bets



There is no  
**one size fits all**  
approach





Build from **proven** components

Refine to **your context**

# Tools & Techniques

**What** are we doing?

# Strategy

A house for a growing family

# Operating Model

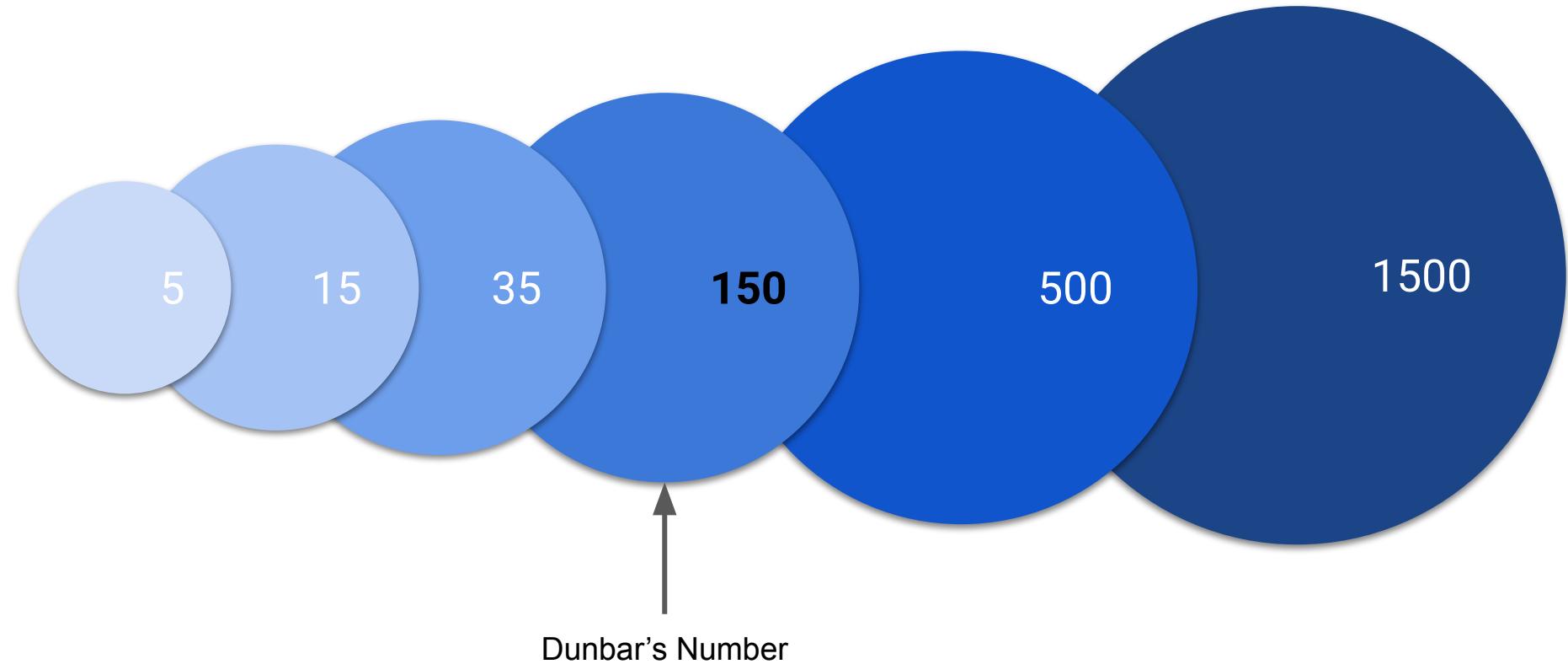
The blueprint

# Tools & Techniques

The building activities

# Why it's worth the effort

# The **Danger** of **Tacit** Knowledge



We need  
**Institutional Knowledge**

We need to

**Write Things Down**

# Operating Model Levels

Each level focuses on certain  
**components** and produces  
**visual artifacts**

**Level 1**  
**Guiding Structure & Alignment**

**Level 2**  
**Teams & Interactions**

**Level 3**  
**Detailed Day to Day**

Tl;dr

# Tl;dr

Unless you're Amazon

## **Level 1**

### **Guiding Structure & Alignment**

**Executive Level**

**High Impact of Change**

**Alignment Focused**

## **Level 2**

### **Teams & Interactions**

**Team Level**

**Medium Impact of Change**

**Coordination Focused**

## **Level 3**

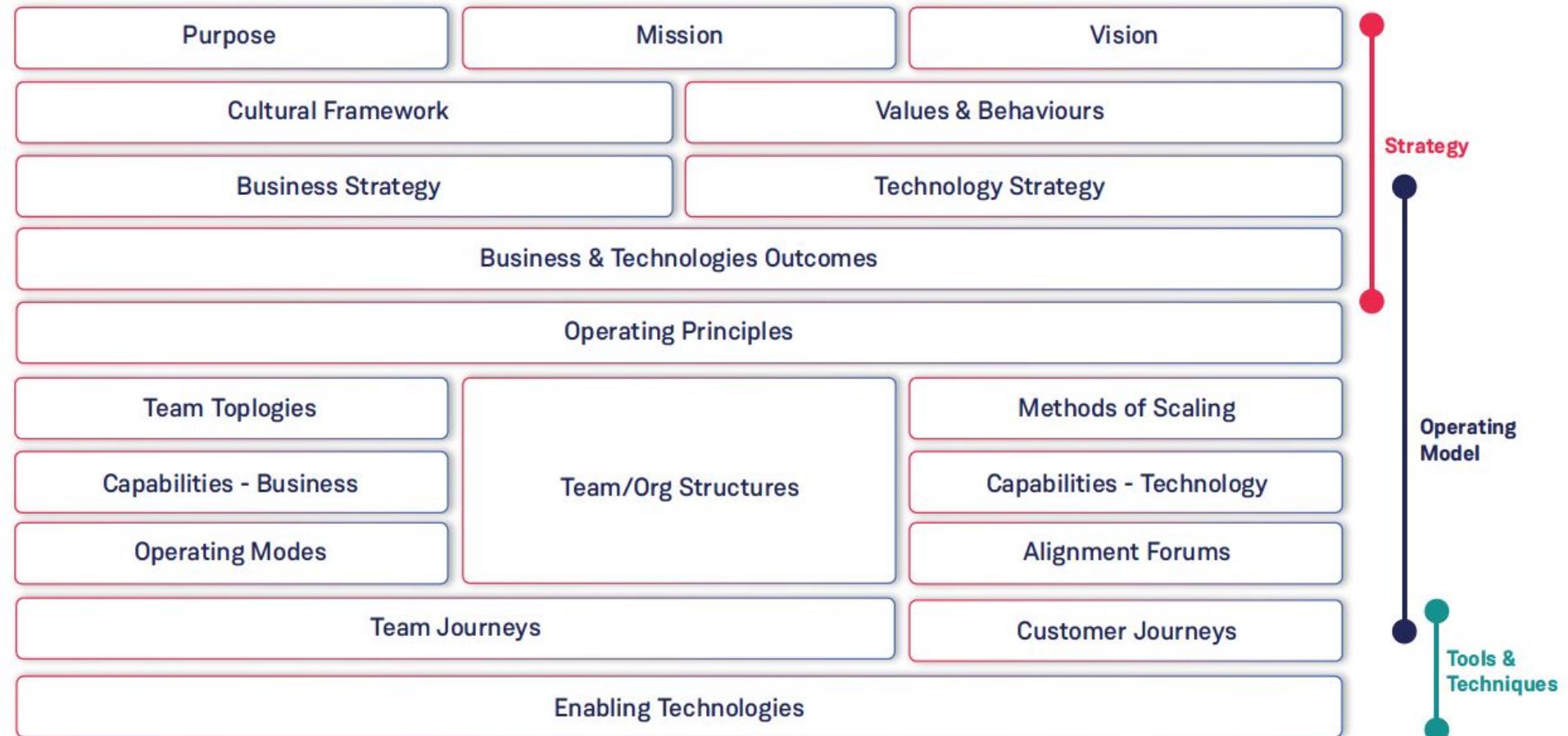
### **Detailed Day to Day**

**Engineer Level**

**Low Impact of Change**

**Execution Focused**

# Component Taxonomy



The **bigger** the area,  
the **deeper** you go

Economies   Capacity for  
of Scale      vs      Innovation

# **Efficiency**

**VS**

# **Experimentation**

**Store Bought Toaster: £3.99**

**Thomas Thwaites' Toaster: £1187.54**

Prioritise One

**but**

Design for Both

## Level 1

Guiding Structure & Alignment

Operating Canvas

## Level 2

Teams & Interactions

Operating Modes

Squad Structures

Shared Accountability Model

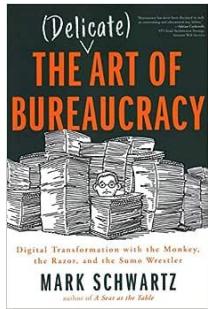
## Level 3

Detailed Day to Day

Journey Maps

# Operating Model Design Principles

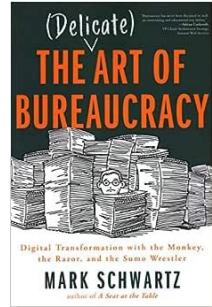
# An Operating Model should be lean



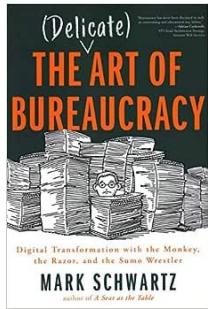


Channel our inner  
Goldilocks

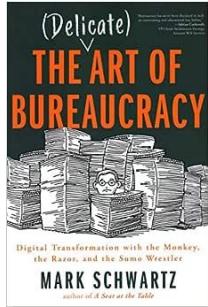
**Just the right amount**



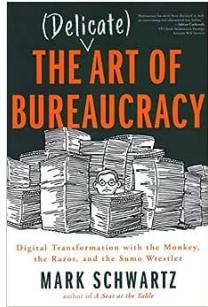
# An Operating Model should be learning



This isn't  
set and forget



# An Operating Model should be enabling

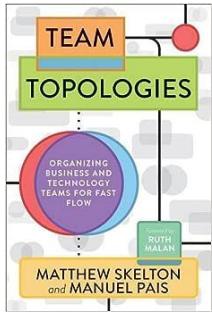


# Stream Aligned

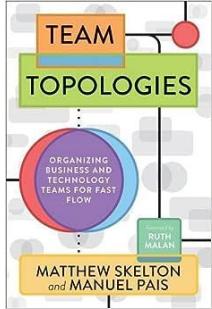
## Platform

## Enablement

## Complex Subsystem

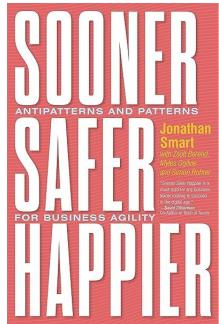


# ~~Gatekeeping~~



Change is done **with**  
**not to** people

# Invite, don't inflict

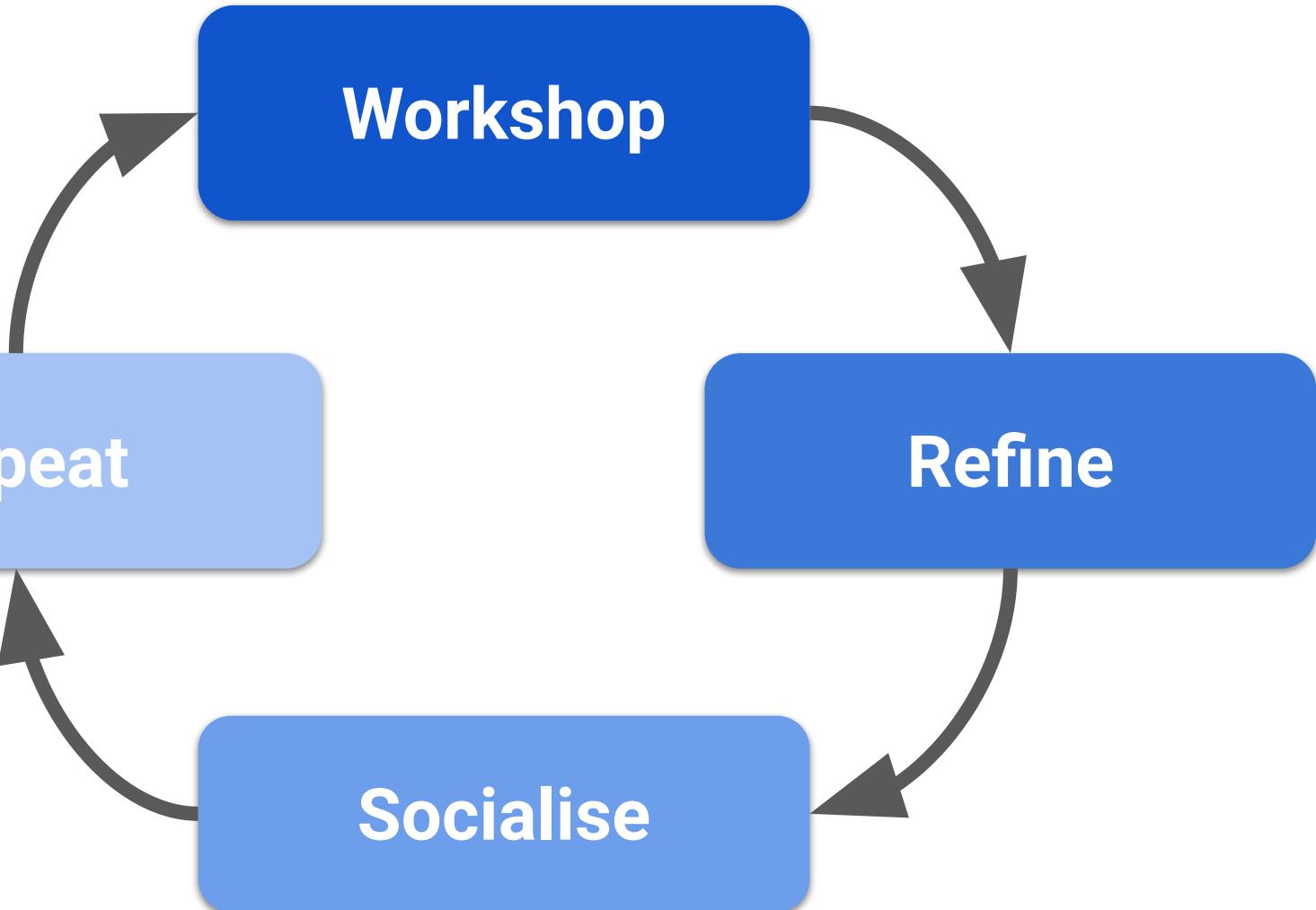


**Workshop**

**Repeat**

**Refine**

**Socialise**



## **Level 1**

### **Guiding Structure & Alignment**

**Mission & Vision**

**Macro Value Journey**

**Performance Metrics**

**Core Technologies**

**Picture on a Page**

**Principles**

# Mission & Vision

Mission - Why we exist

Vision - What we aim to achieve

# Performance Metrics

# Sustainability

# Infinite Games

## Stability

# Trust

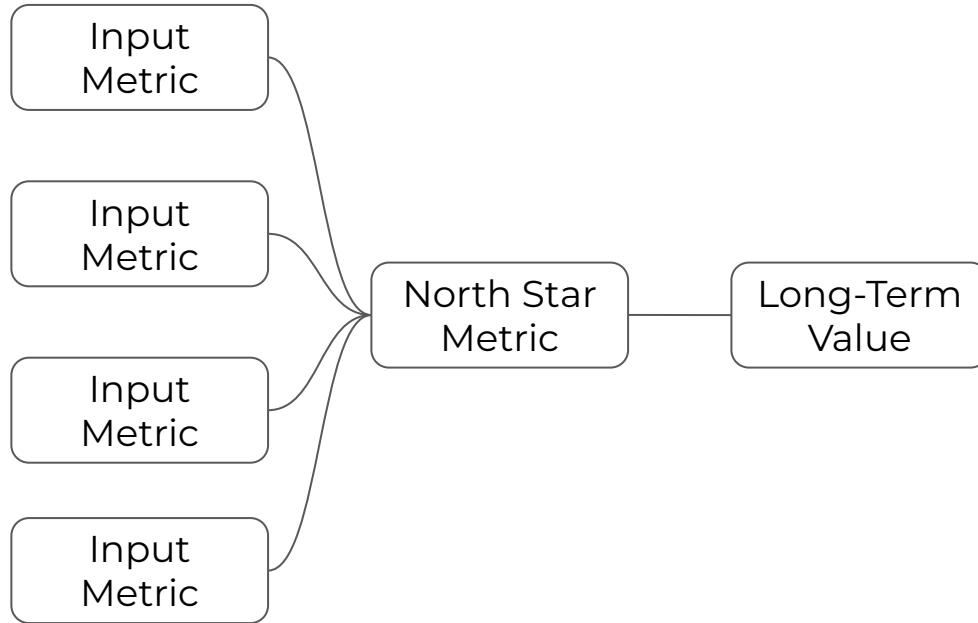
# Efficiency

# Kaizen

# Team Health

# People First

# Performance Metrics



Amplitude

The North  
Star Playbook

The guide to discovering your  
product's North Star

# Macro Value Journey

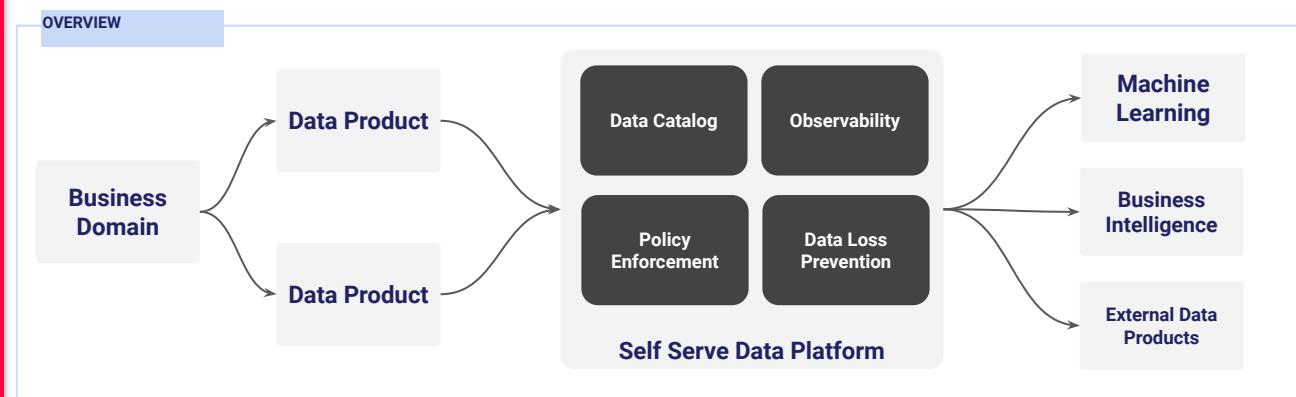


**Principles**

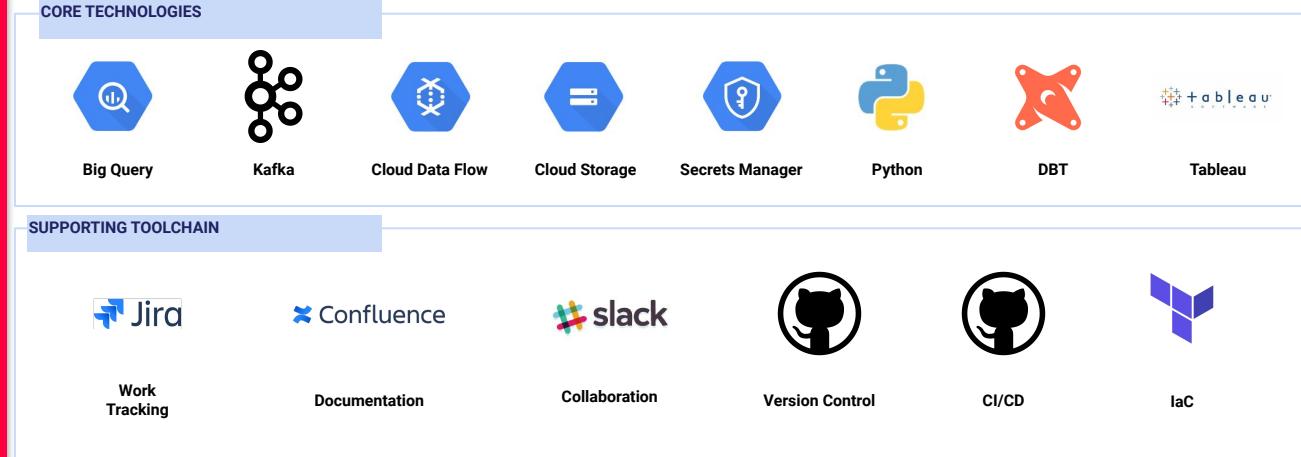




# Picture on a Page



# Core Technologies



## MISSION

To bring the glory of Quokkas to the entire world

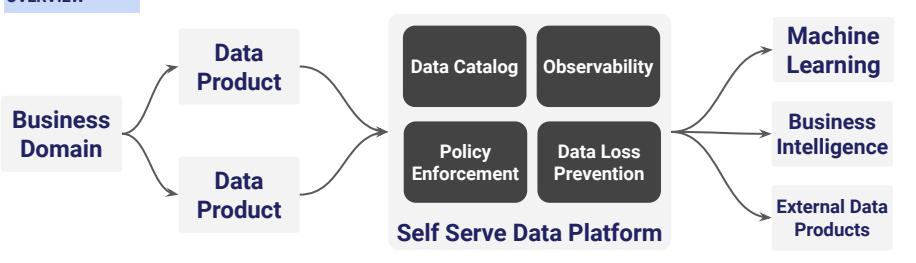
## VISION

To make high quality, actionable data available to the entire business

## DATA PRODUCT JOURNEY



## OVERVIEW



## SKILL SETS



## OPERATING PRINCIPLES

## Ways of working (WoW)

## Design &amp; Development

## Delivery

## Operations &amp; Management

Lean	Agile	Push Capability Down	Decentralised Accountability	Flexible & Scalable	Outcome Focused	Actionable not Canonical	Security First	Automation	Product-Centric	CI/CD	Resiliency & Stability	Metrics & Visibility
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## **Level 2**

### **Teams & Interactions**

**Modes of Operation**

**Shared Accountability  
Model**

**Squad Structures**

# Modes of Operation

Growth

Cradle to grave product teams

Optimise

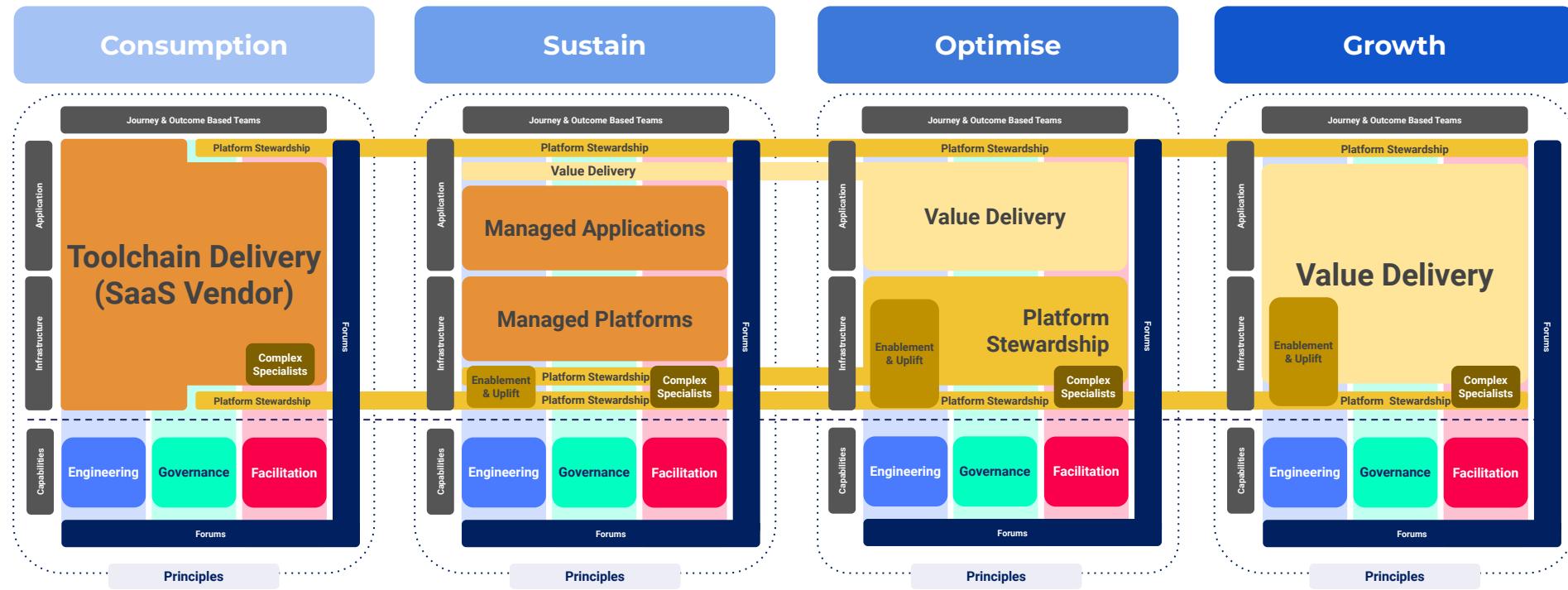
Decentralised build,  
centralised operations

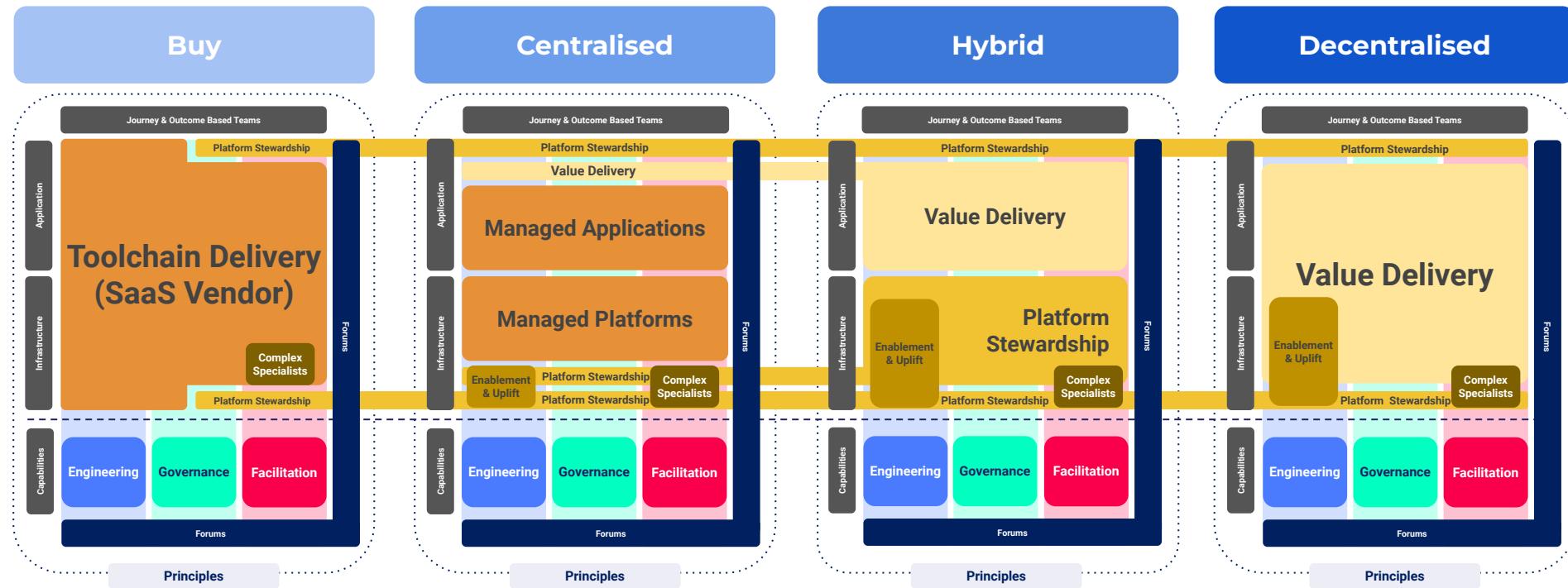
Sustain

Centralised build and  
operations

Consumption

Consuming SaaS







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Strategy to become **data driven** and **AI ready**

Existing centralised data approach **isn't scaling**

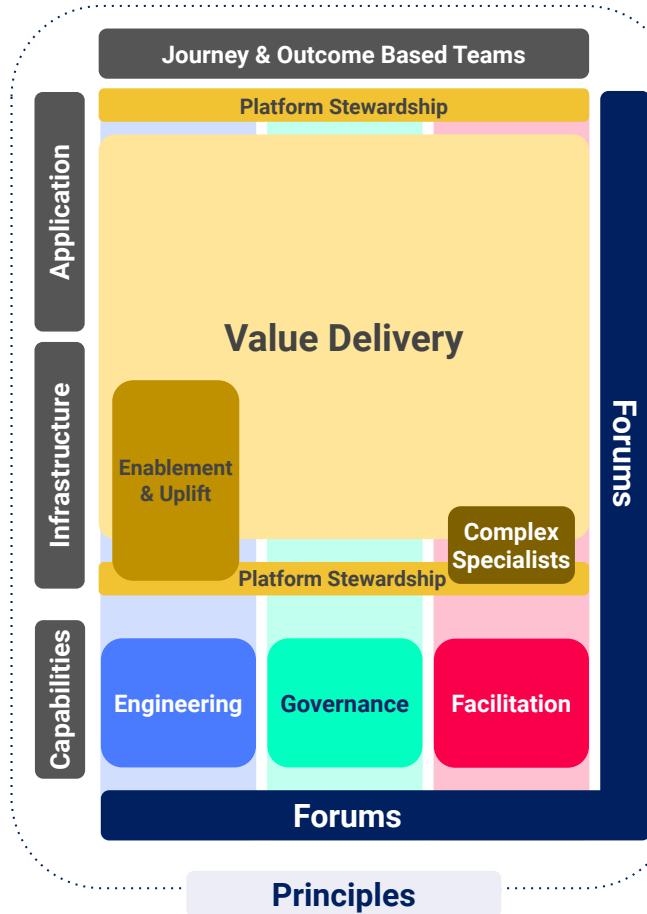
Looking to **data mesh** as a solution

O'REILLY®  
**Data Mesh**  
Delivering Data-Driven Value at Scale



Zhamak Dehghani

# Growth



# Shared Accountability Model

Engineering

Delivering value

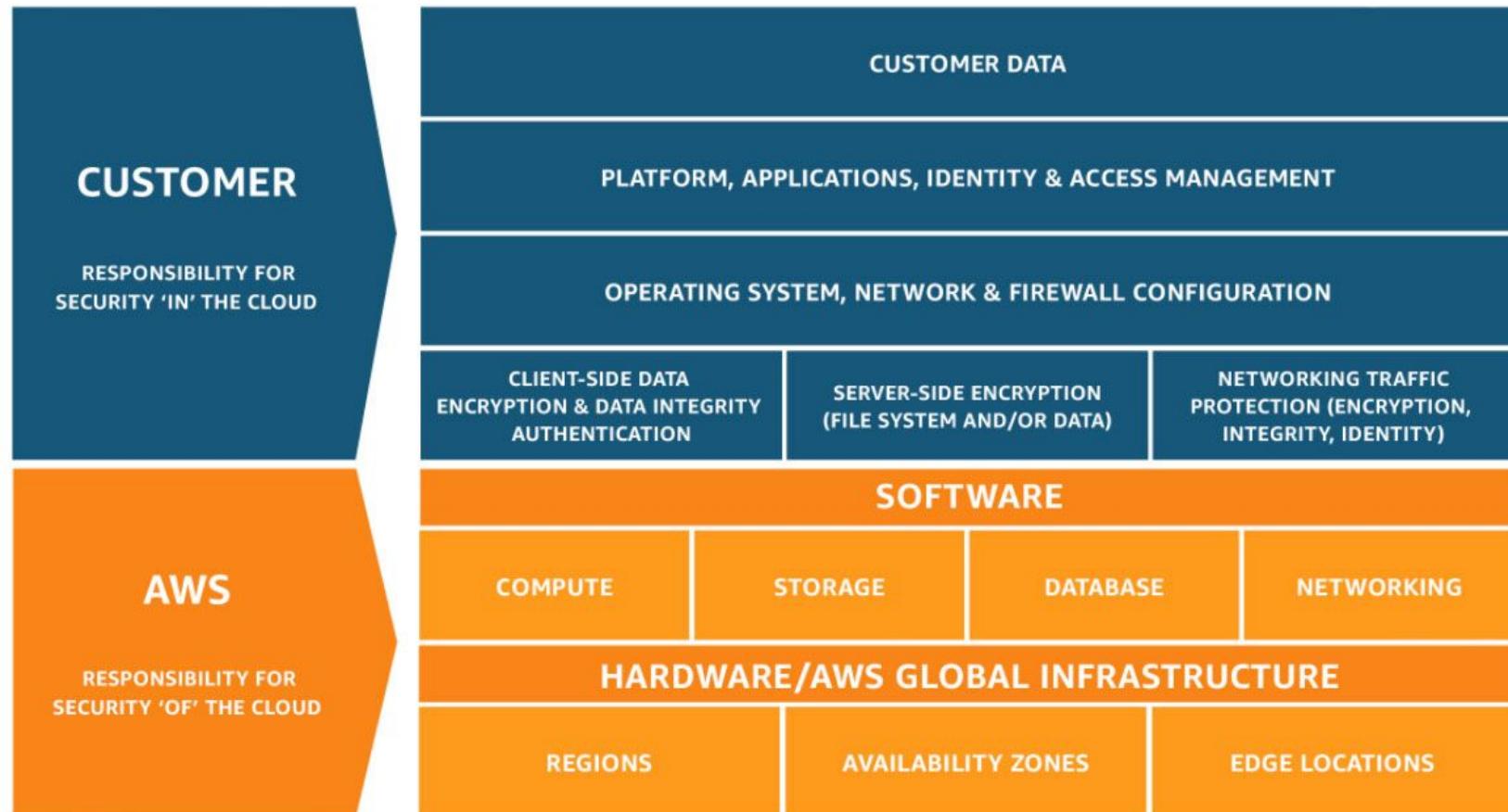
Governance

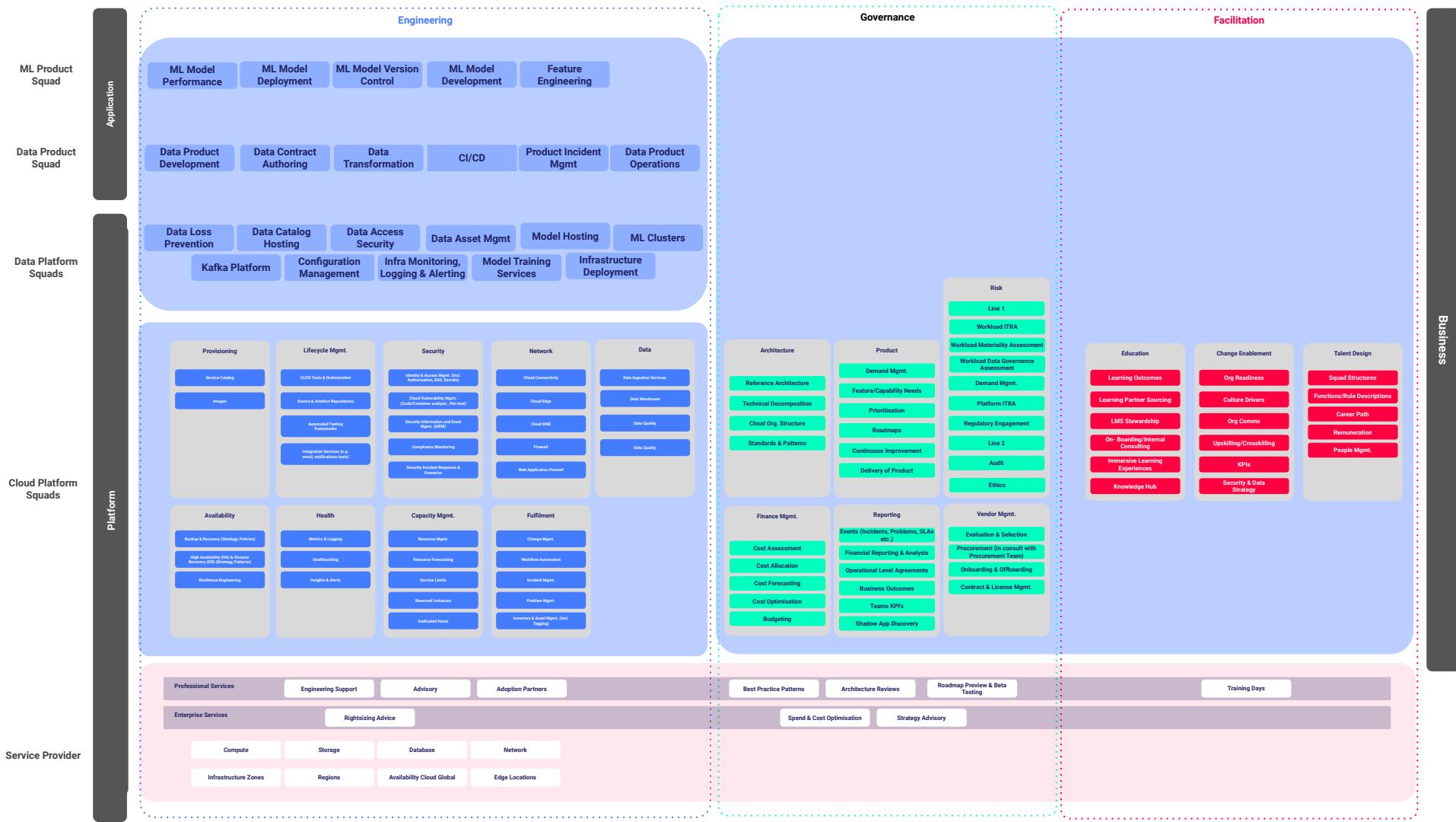
Enabling value

Facilitation

Building capability

Who is responsible  
when something goes  
**wrong**





ML Product  
Squad

Application

Data Product  
Squad

Platform

Data Platform  
Squads

Engineering

ML Model  
Performance

ML Model  
Deployment

ML Model Version  
Control

ML Model  
Development

Feature Engineering

Data Product  
Development

Data Contract  
Authoring

Data Transformation

CI/CD

Product Incident  
Mgmt

Data Product  
Operations

Data Loss Prevention

Data Catalog Hosting

Data Access Security

Data Asset Mgmt

Model Hosting

ML Clusters

Kafka Platform

Configuration  
Management

Infra Monitoring,  
Logging & Alerting

Model Training  
Services

Infrastructure  
Deployment

That's quite explicit

# Cunningham's Law

The Implicit **Danger**



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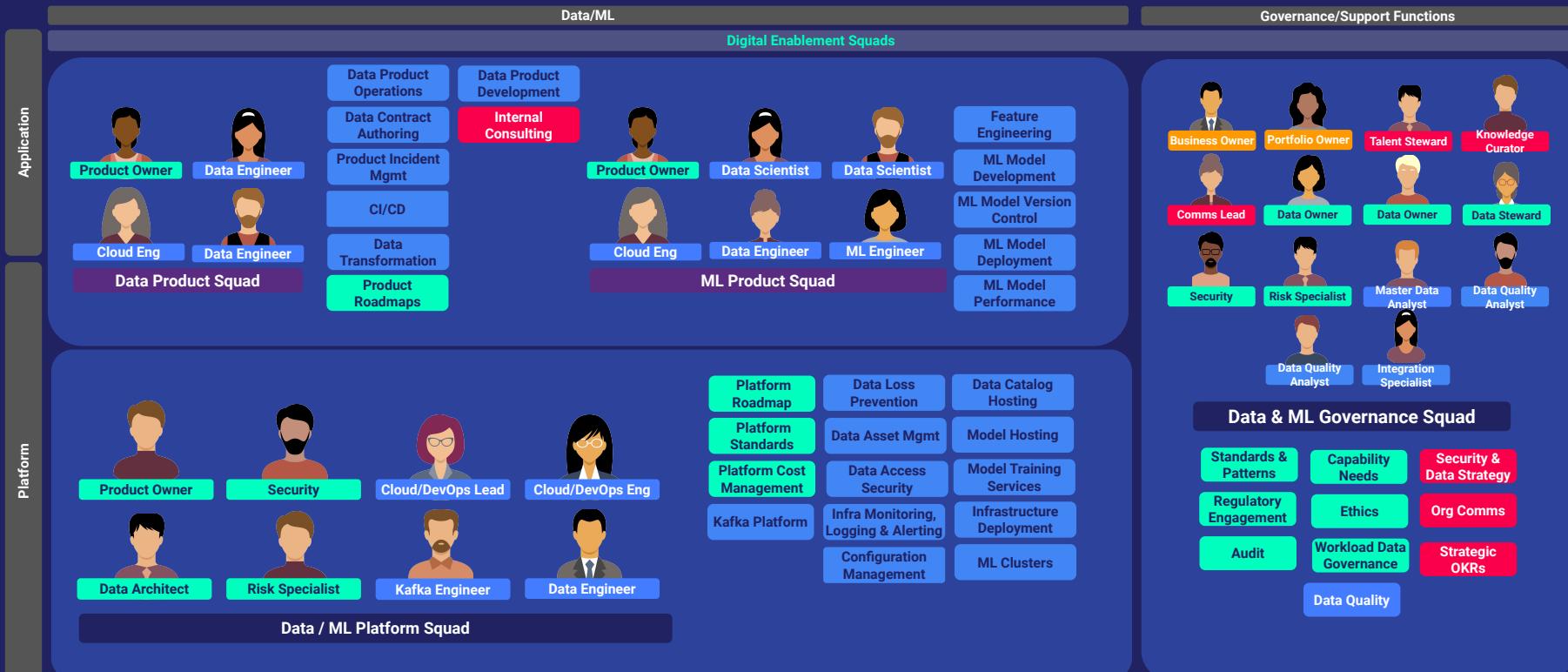
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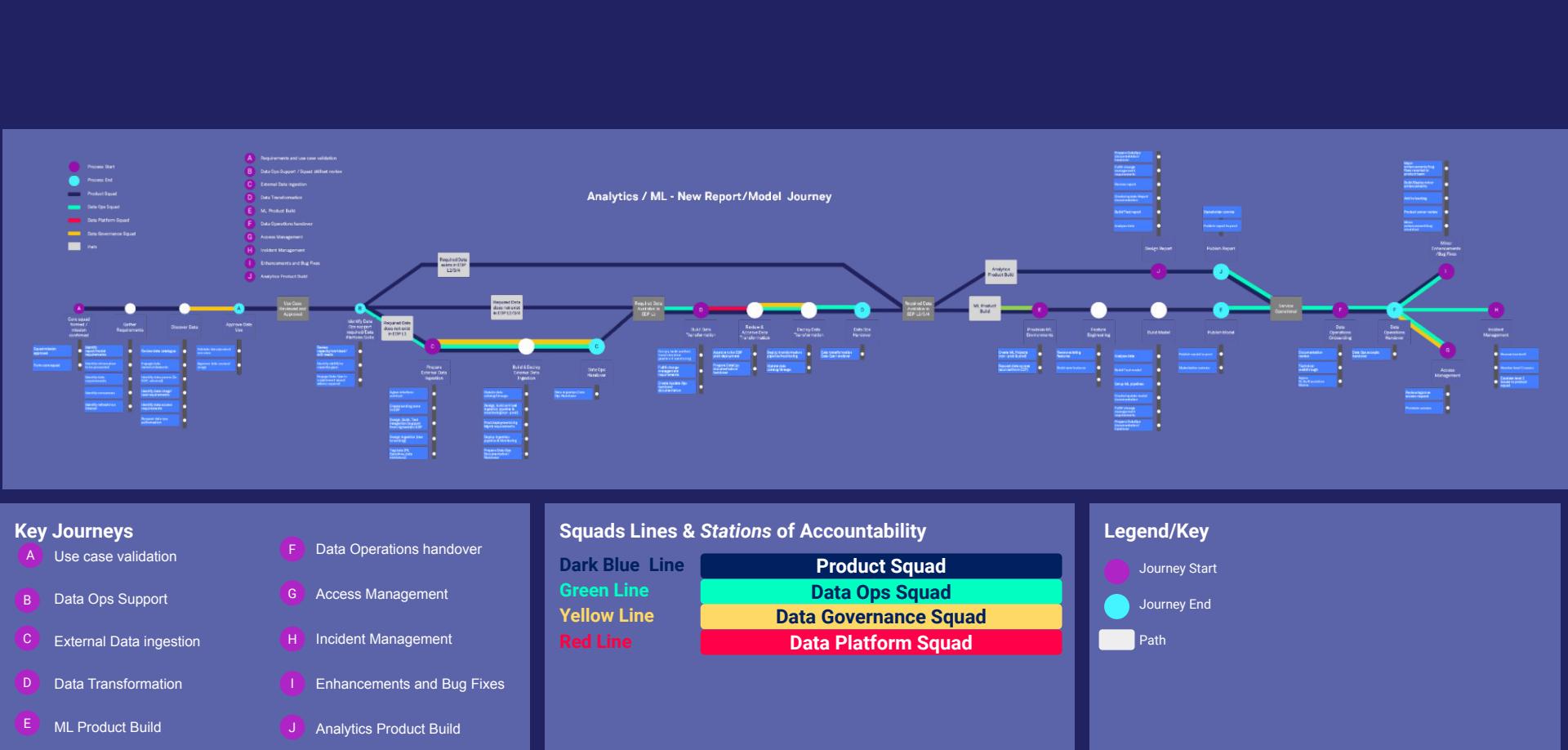
Engineering  
Facilitation  
Governance  
Steering

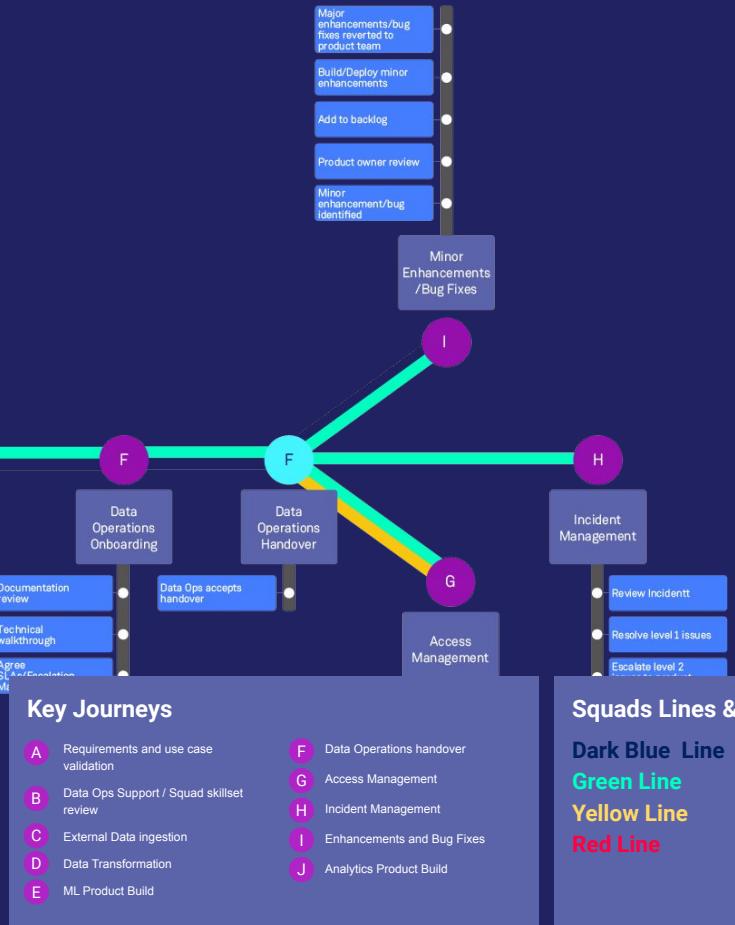


## **Level 3**

### **Detailed Day to Day**

**Team Journeys**





# Industrialised Data Product Journey

Operating models are  
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They should be  
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Enable people with  
**actionable, relevant** information