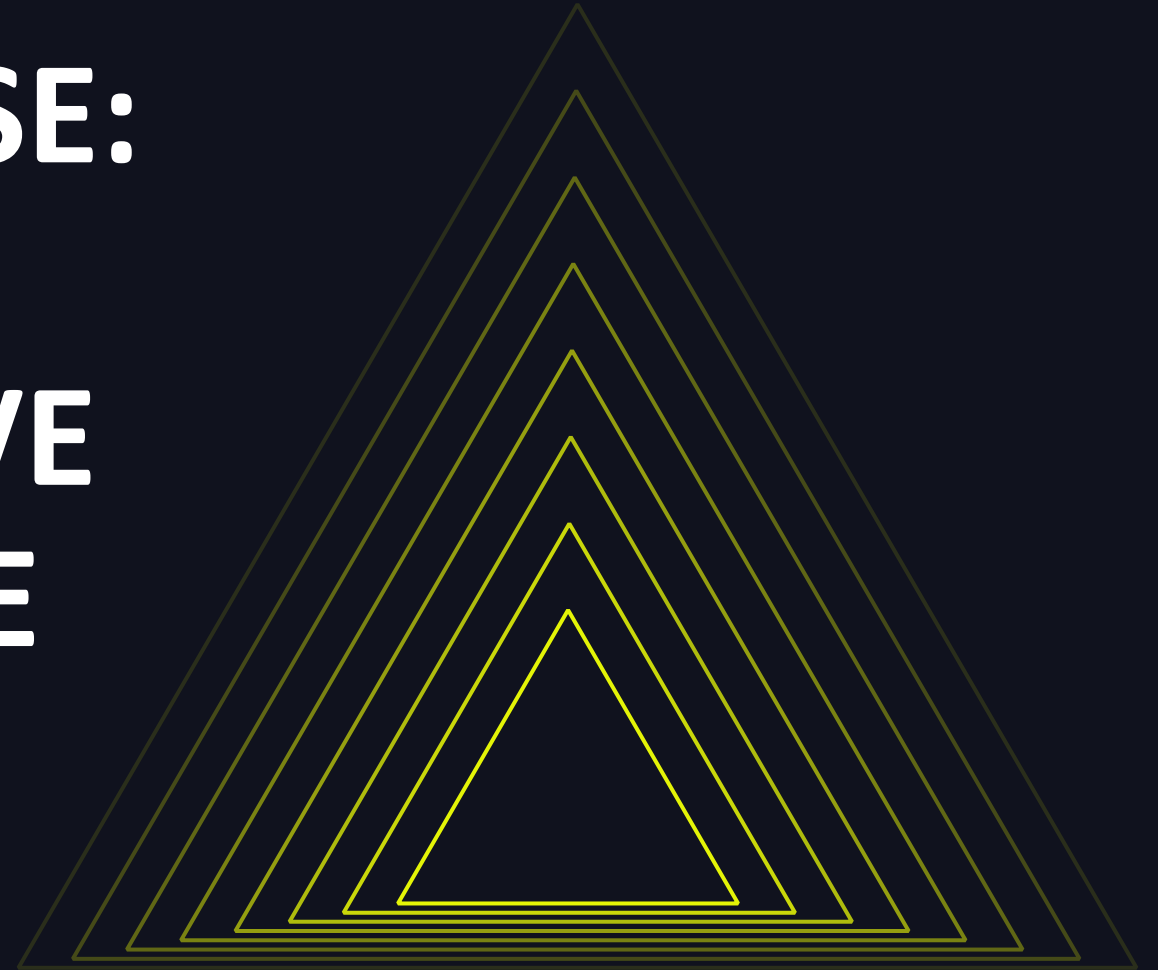


# AI & THE LAKEHOUSE: SHELL'S JOURNEY TOWARDS EFFECTIVE DATA GOVERNANCE

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John O'Brien  
June 2024





# AI & THE LAKEHOUSE

SHELL'S JOURNEY TOWARDS  
EFFECTIVE DATA GOVERNANCE

John OBrien

Product Manager - Data, Shell Energy Australia  
T&S



# SHELL ENERGY TRADING (SET)

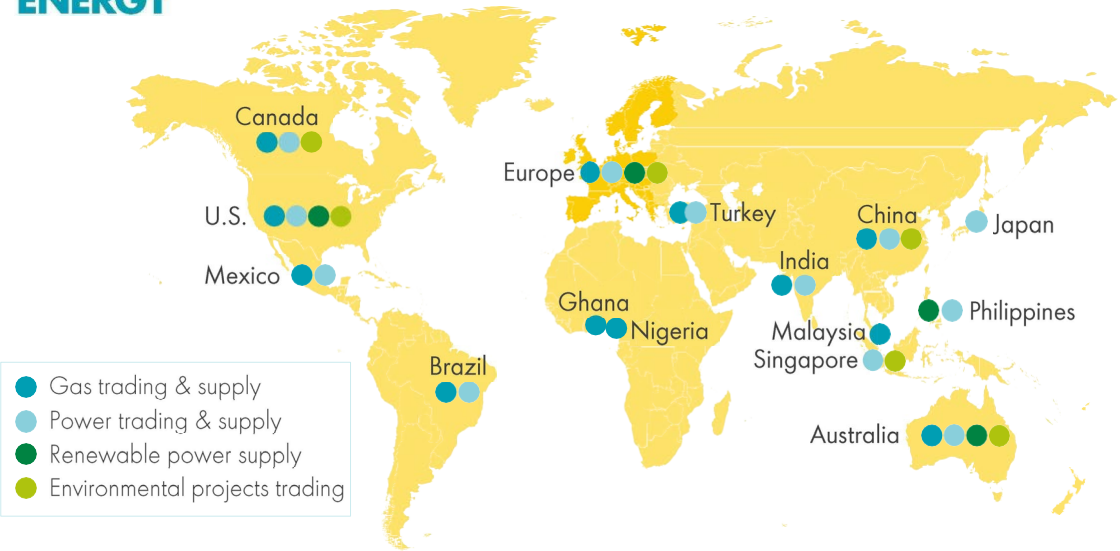
Supported by Shell's global supply portfolio and expansive trading network

Shell Energy Trading is a global leader in trading gas, power, and environmental products. We bring decades of marketing and trading experience to offer more and cleaner energy solutions to our customers.

We work in partnership with Shell businesses across oil regions to offer energy solutions that help our customers on their decarbonisation journey. Technology underpins all that we do to improve our performance and competitiveness.



## OUR GLOBAL FOOTPRINT



Over **850** full time employees plus our business partners



**5** key businesses covering Americas, Europe & Africa, Asia, Australia and Environmental Products Trading



**37%**  
Women



**63%**  
Men

One of our goals is to improve this ratio to create a more diverse and equitable workforce

## OUR CORE SKILLS INCLUDE ...

Commercially minded

Decisive

Financial modelling expertise

Highly collaborative

Programming

Customer focused

Entrepreneurial

Relationship management

Risk management mindset

## KEY ROLES



Traders



Origination /  
Business Development



Structuring /  
Analysts



Regulatory  
Affairs



Deal  
Management

## DID YOU KNOW?



We have meteorologists on the team who play a critical role in better managing market volatility



We are one of the world's largest environmental product traders, working with regulatory requirements and helping companies use carbon credits to decarbonise



We sold 193 TWh (2022) of energy which is equivalent to the electricity demand of Thailand



We sold 20 TWh of renewable power in the last year, equivalent to energy use of around 5.4 million households in Europe



We manage renewable projects that generate power for around 2.4 million electric vehicles a year



NSW

QLD

VIC

SA

TAS

Chart view ▾

Pre-Dispatch ▾



CURRENT SPOT PRICE

**\$80.33** (MWh)

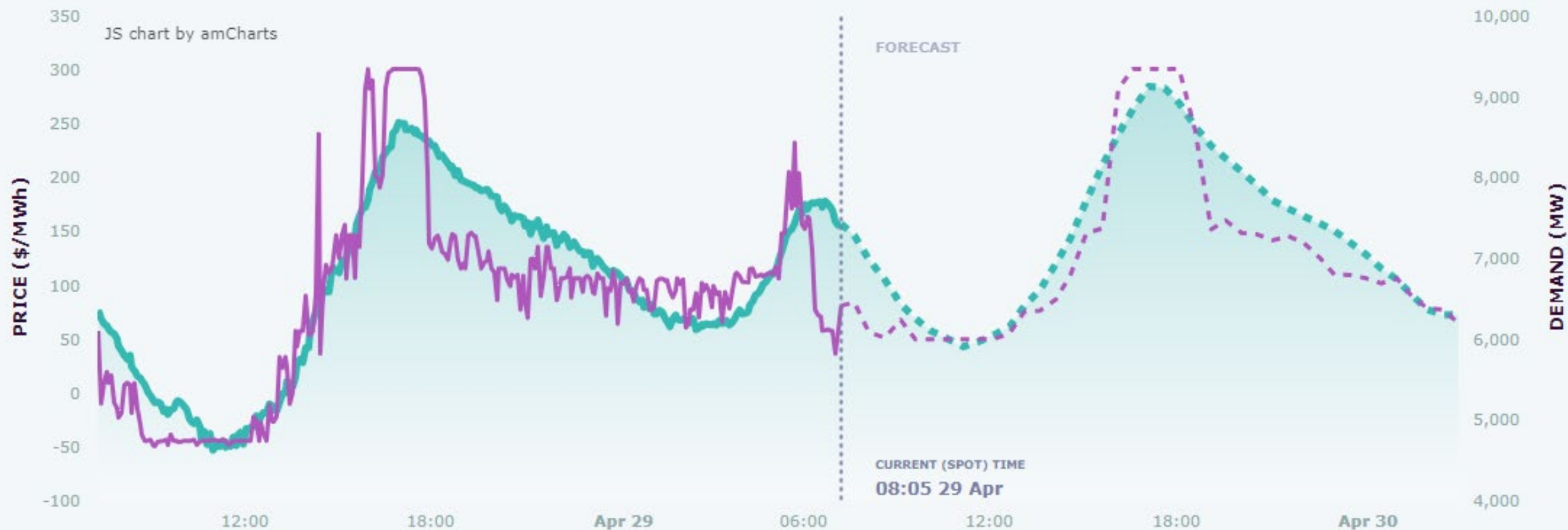
CURRENT DEMAND

**7,420** (MW)

FORECAST PRICE (NEXT 30MIN)

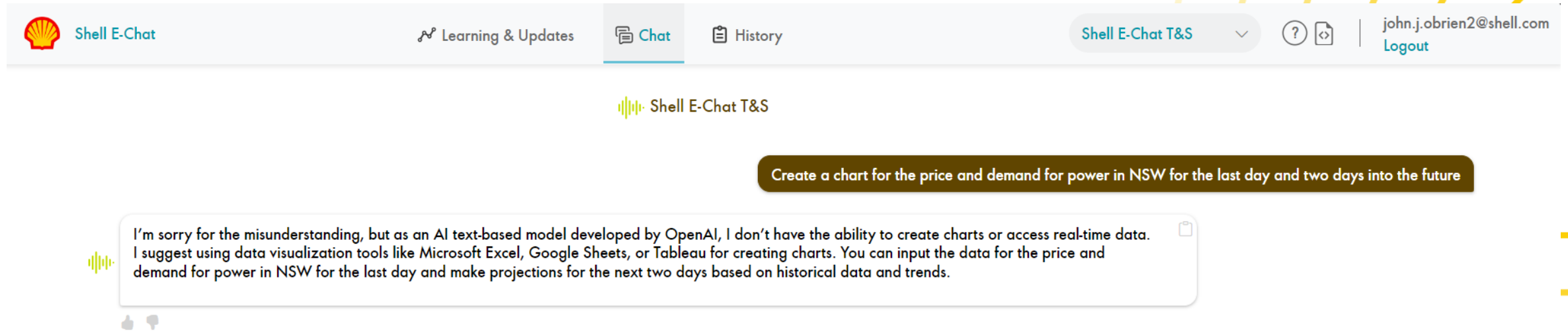
**\$83.46** (MWh)

FORECAST DEMAND (NEXT 30MIN)

**7,277** (MW)

# Why is good data governance now even more important?

Generative AI requires quality data to provide context



The screenshot displays the Shell E-Chat web application. The top navigation bar includes the Shell logo, 'Shell E-Chat', and links for 'Learning & Updates', 'Chat', and 'History'. On the right, it shows 'Shell E-Chat T&S', a help icon, and a user profile for 'john.j.obrien2@shell.com' with a 'Logout' link. Below the navigation bar, the chat area is titled 'Shell E-Chat T&S'. A user prompt in a dark blue box asks to 'Create a chart for the price and demand for power in NSW for the last day and two days into the future'. The AI response, in a white box, explains that it cannot create charts or access real-time data and suggests using tools like Microsoft Excel, Google Sheets, or Tableau. The response also includes a thumbs up and thumbs down icon for feedback.

Shell E-Chat

Learning & Updates Chat History

Shell E-Chat T&S

john.j.obrien2@shell.com  
Logout

Shell E-Chat T&S

Create a chart for the price and demand for power in NSW for the last day and two days into the future

I'm sorry for the misunderstanding, but as an AI text-based model developed by OpenAI, I don't have the ability to create charts or access real-time data. I suggest using data visualization tools like Microsoft Excel, Google Sheets, or Tableau for creating charts. You can input the data for the price and demand for power in NSW for the last day and make projections for the next two days based on historical data and trends.

# Agenda

## 01 This is Hard

Initial Difficulties in Data Strategy and Governance

## 02 Our Solution

Unity Catalog and Business Owned Data Products

## 03 Data Mesh

Our implementation and the use of Generative AI for governance

## 04 Top Lessons

Lessons on Analytics, PowerBI, ML and Generative AI for governance

## 05 Takeaways

How will we scale this and next steps

# This is hard

I've created **3** data strategies and **2** refreshes in **12** years.

**People are busy**, often not the highest priority for them

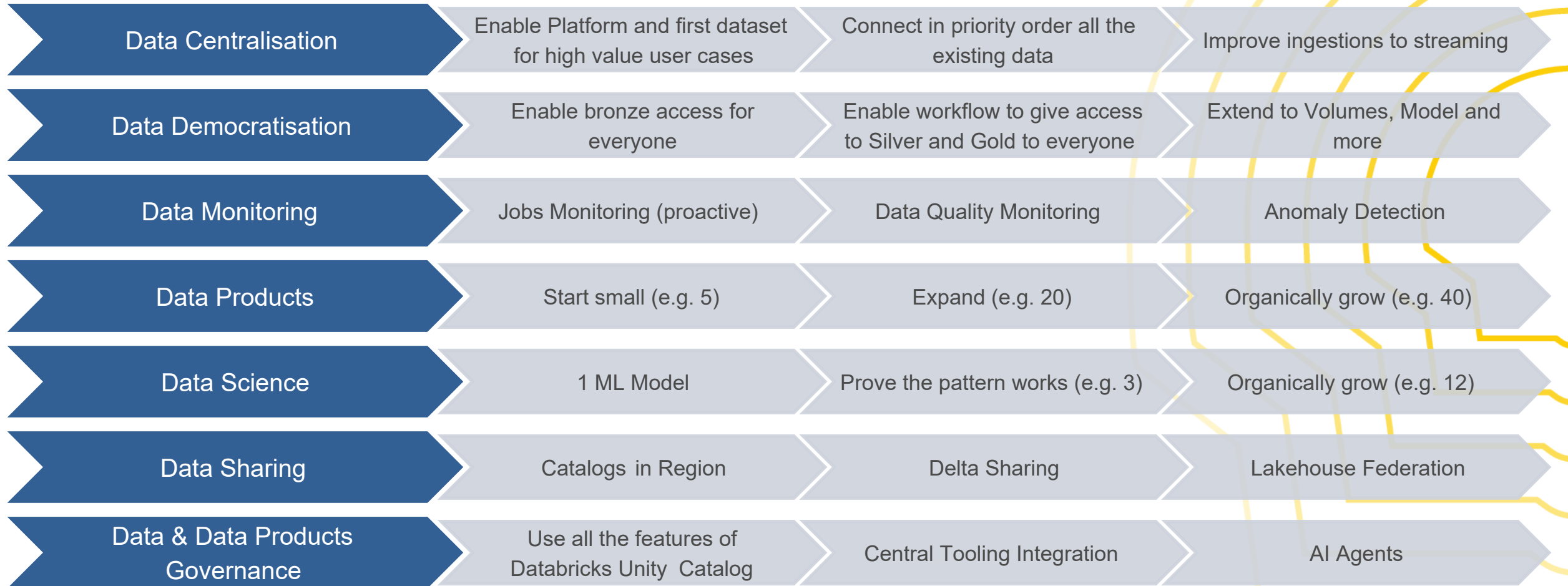
Often seen simply as a **nice to have** rather than essential

Having **tangible goals** that all stakeholders can value is key





# Example Data Strategy – Phased Approach for Success





## Our solution

Focus on **immediate value** with longer term strategy

**Good tools** that work together

It's okay to not have everything ready

**Business** ownership



# Shell Energy Australia T&S on Databricks Lakehouse



Start small then grow/scale up

- 6 users creating 6 data products
- Grew to 120 users and 20 data products in 12mth.
- Pattern for 800 users in trading



Provide value from the beginning

- Single sign on access to data
- High performance compute
- Source control / Collaboration



High quality tooling

- Databricks Unity Catalog
- Github
- PowerBI and Plotly Dash Enterprise

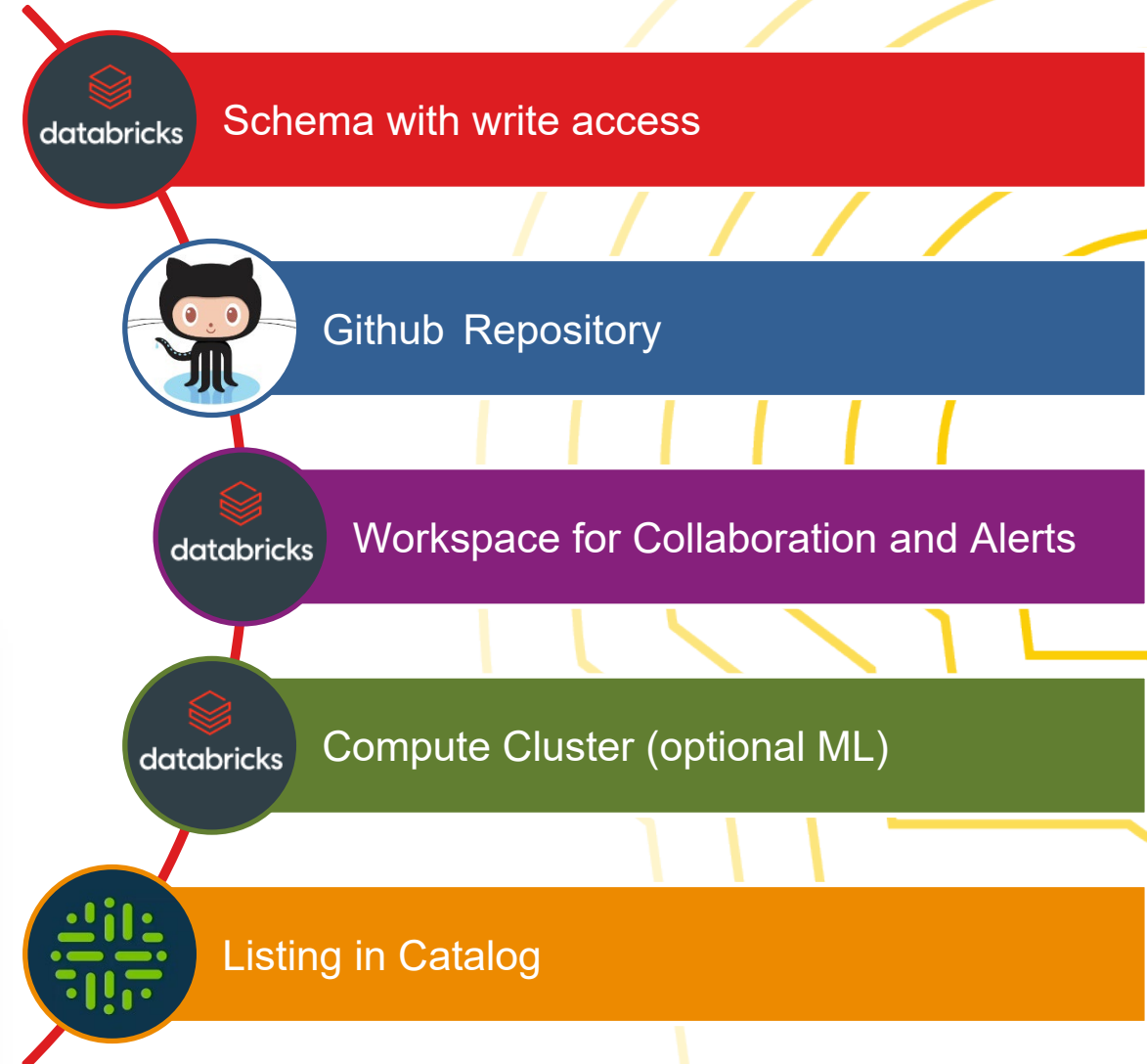


Agile approach

- Provision template, schema, repo, cluster, Security Group
- Build value
- Regular improvements

# Data Product – Tooling Framework

- Read only access to ingested data from the sources
- Raw business developed data product
- Agile approach to data modelling
- Ownership with the business, IT as the enabler
- Full suite of Training and Support





# Data Product – Tooling Framework Demo





# Data mesh

Data as a **product**

**Self-service** infrastructure as a  
platform

Federated **Governance**



# How to effectively govern a data mesh?



Ownership



Data catalog



Data lineage



Data security

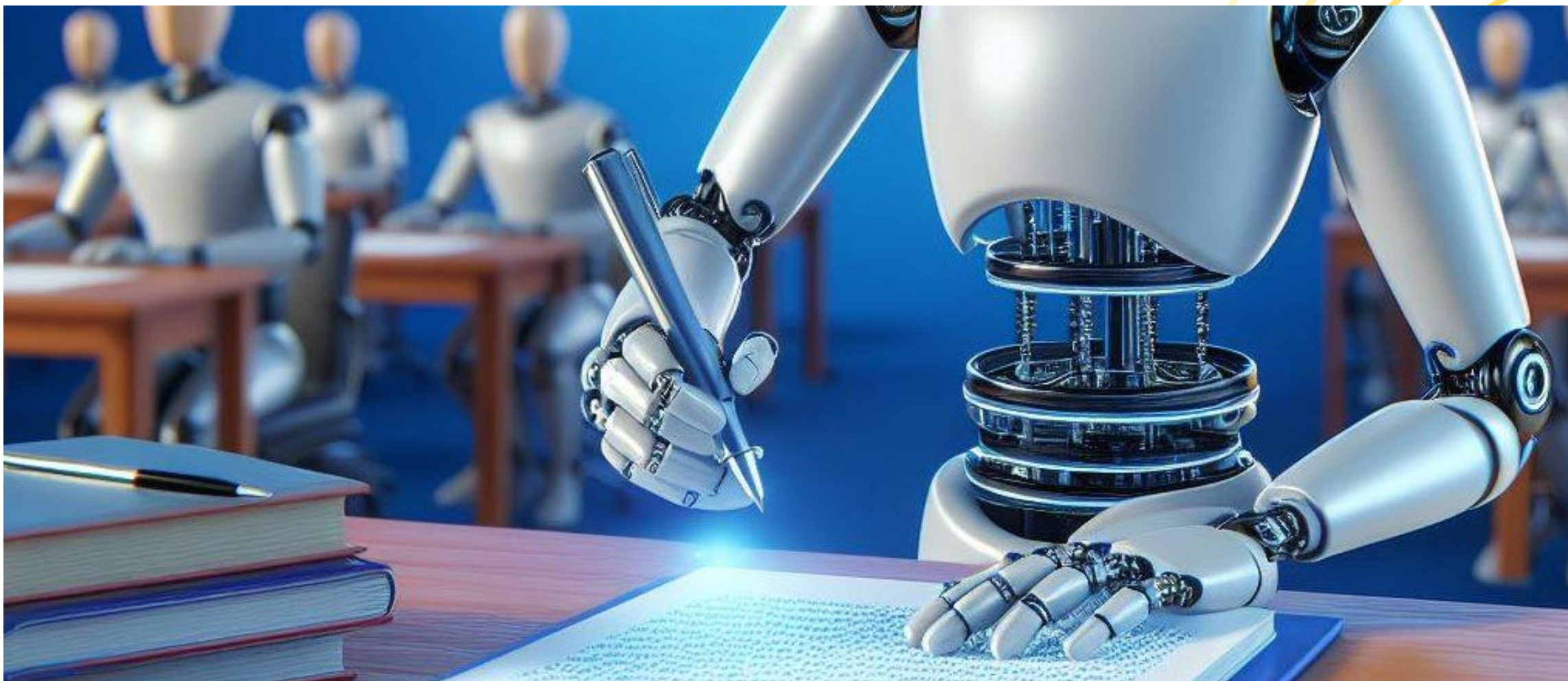


## Top lessons

1. Need to be able to deliver the foundations quickly
2. Landscape is constantly changing, don't wait for perfect
3. Focus on value, prioritise these features
4. Give your people superpowers



# Generative AI for metadata – Data bricks Code Demo



*AI generated image DALLE-3*



## Takeaways

How does this **scale** across a diverse organisation?

Where do you **begin**?

Why **Generative AI** is the trigger to deliver this.





# Q & A



