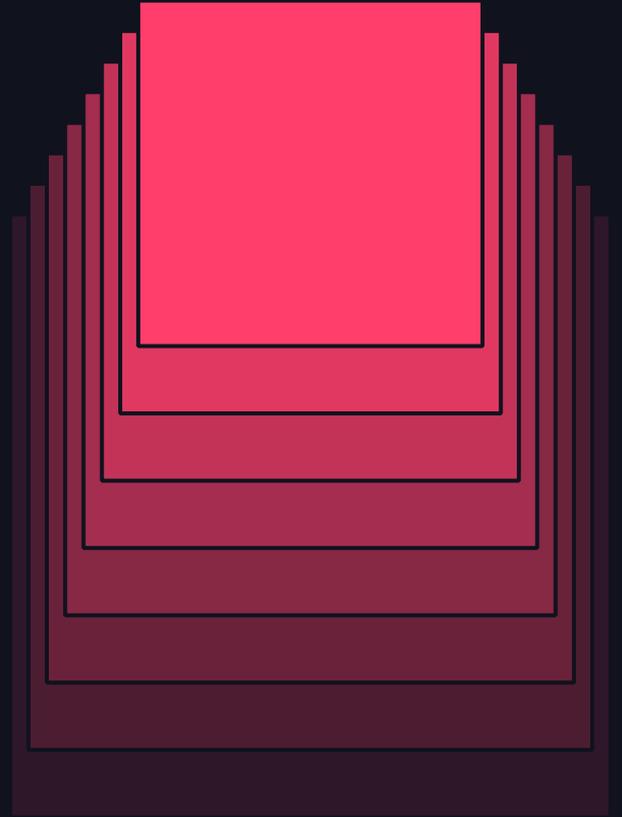


SCALING AI IN AUSTRALIA AND NEW ZEALAND WITH ML FOUNDATIONS AND DATABRICKS

Ronald Wu, Senior Data Scientist, Mantel Group
Josh Faure, Solution Architect, Databricks
13 June 2024



Introducing Today's Speakers



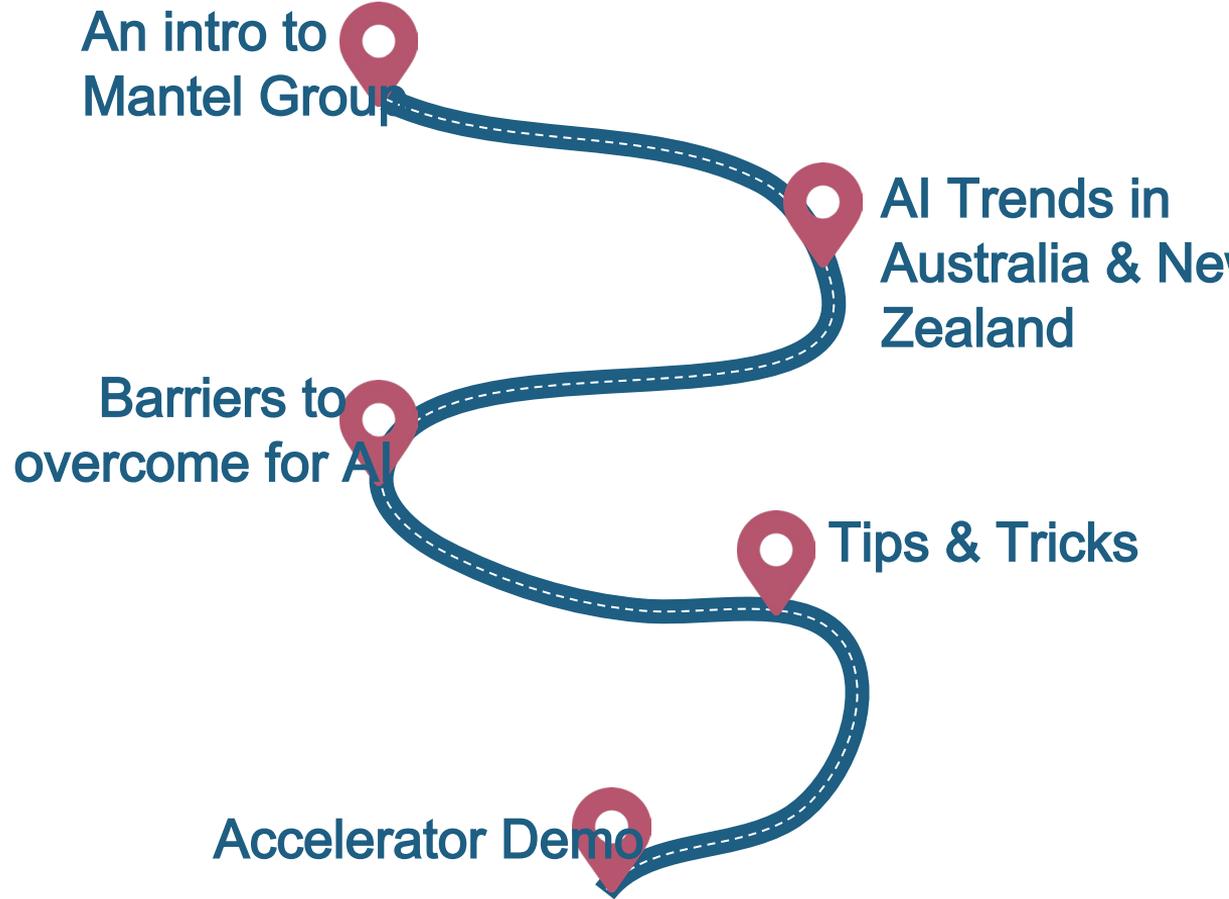
Ronald Wu
Data Scientist @
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The journey
we'll go on
together...



An Introduction to Mantel Group

Our capability & experience





Mantel Group is the leading independent team partnering with you to create solutions and deliver outcomes that make your business better.



Digital

- Digital strategy and roadmap advisory
- End-to-end digital project delivery
- Product, design and development



Cloud

- Deep capability across Azure, AWS and Google Cloud
- Cloud strategy, adoption, migration and implementation
- Cloud and application modernisation and optimisation



Data + AI / ML

- Machine Learning capability to design, build & enable AI
- Deep expertise across Databricks & Snowflake
- Data strategy & transformation design and implementation



Cybersecurity

- Cohesive, integrated cybersecurity capabilities
- Enable large-scale cyber security initiatives
- Improve the protection of IT environments

We know Databricks



Specifically, we are experts in deploying and building solutions on Databricks.

Mantel Group has demonstrated experience designing and building Databricks solutions

These are large, complex programs of work where our experience and expertise have enabled successful outcomes.



Only company in Australia with a dedicated Databricks practice, with **Elite level partner status**

There are 3 criteria: 1. Consumption (\$DBUs); 2. Enablement (Technical Consultants) and 3. Sourced Booking.



We have over 70 Databricks certified team members

Giving us deep specialisation, and a highly trained and certified workforce. Additionally, we're a **Delivery Partner for Databricks**. We're the company that Databricks trusts to deliver their own professional services work and enables us to leverage their partner services funding program (DCIF)



An **award winning** Databricks Regional System Integration Partner for 2023

AI Trends in Australia & New Zealand

Industry approach to AI is evolving!

Organisations are increasingly embracing the true business benefits of Machine Learning

Some of the key trends happening right now



More projects

The Gen AI revolution has sparked a **substantial amount of AI funding** across businesses, leading to **more projects than ever before**. These projects includes not only Proof of Concepts (PoCs) but increasingly **Scaling AI and enhancing MLOps**.



Unlocked use cases

Advancements in Natural Language Processing (NLP) and Gen AI have unlocked a **broad spectrum of new use cases** especially in the **domain of synthesis and logical reasoning**. The top-down executive attention is also benefiting 'Classic' ML as use cases get qualified.



Operational efficiency

Enterprises are investing more than ever into **internal productivity and efficiency improvements**, encompassing use cases like **workflow automation** (i.e. generative & synthesis) but also **next-best action and decision support engines** (i.e. logical reasoning)

The greatest potential for data, analytics and AI to enable businesses over the next 3 years

Improved productivity and efficiency

76%

Improved customer experience

71%

Better and faster strategic decision making

71%

Reduced costs

38%

Increased revenue

33%

Faster time to market

24%

Better security and risk management

24%

Improved sustainability

14%

Other

9%

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Democratisation

AI/ML is a requirement of all organisations & cross-discipline teams. This has been a big focus of enterprises in the last few years and we're seeing the current pace slow but wouldn't be surprised to see this shift as the **huge demand for AI surpasses** the capacity of internal DS/ML teams



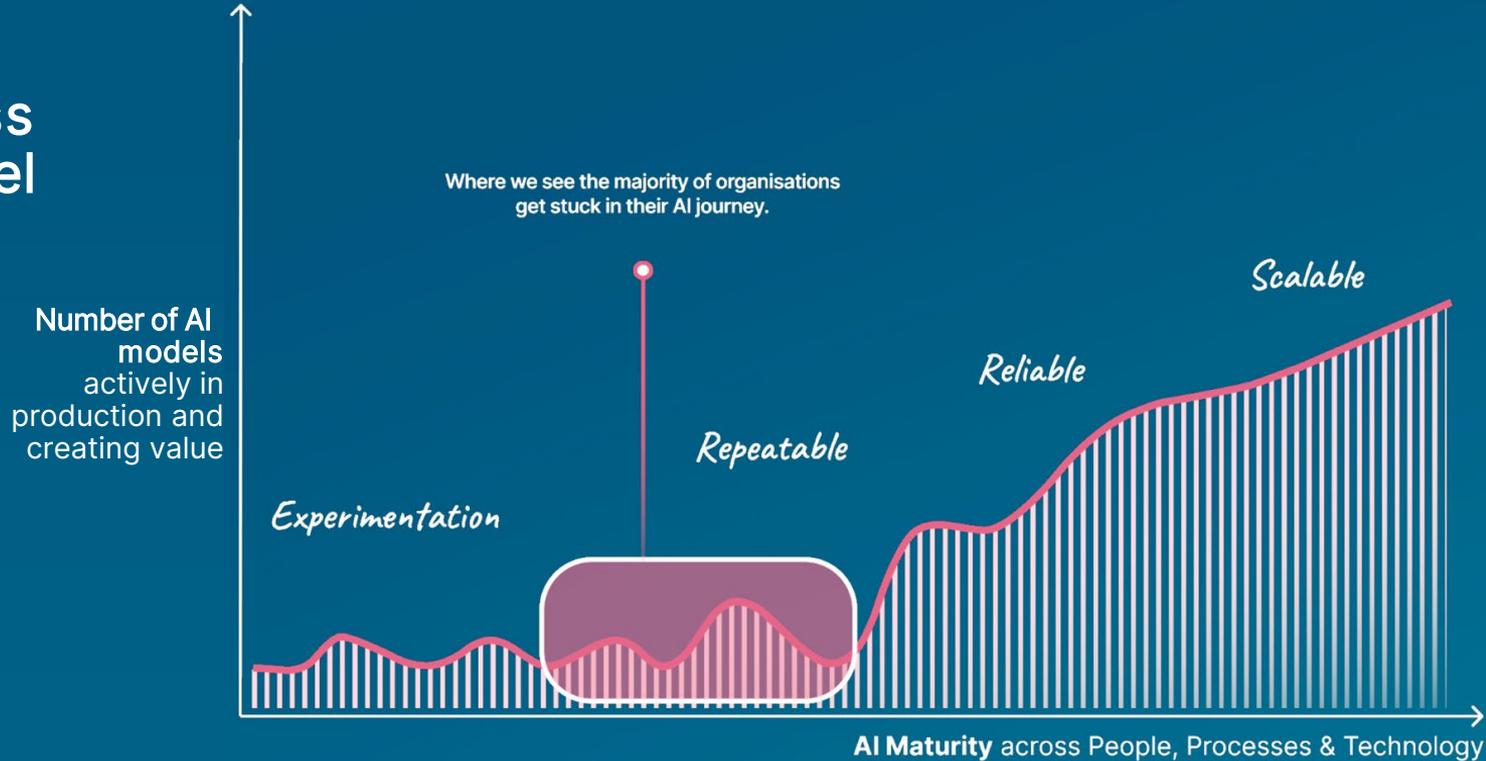
Data quality & engineering

Significant challenges exist with collecting, cleaning, and transforming the huge amount of data being generated within businesses. **AI/ML requires solid data foundations** within an organisation and the latest innovations require **more data than ever before**.

The majority of ANZ organisations are struggling to **scale AI**

Scaling AI takes a village

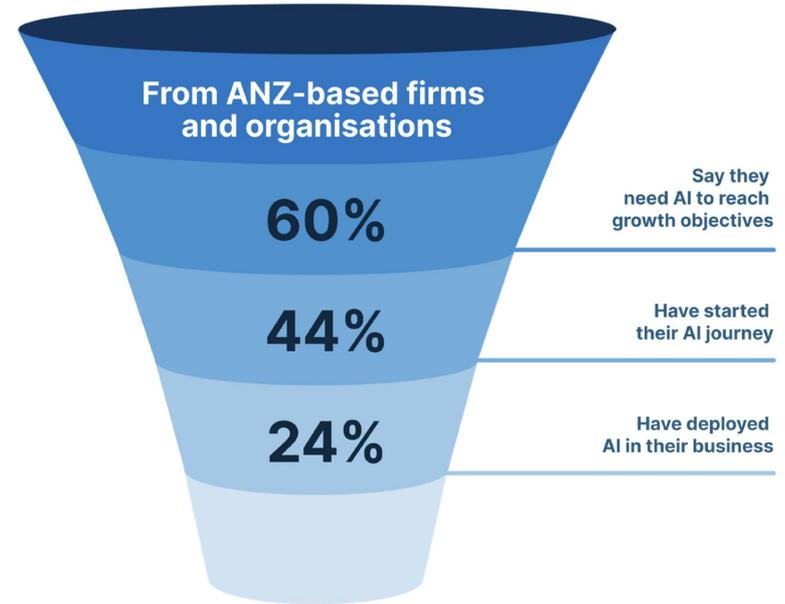
'AI' in Business Maturity Model



Creating an AI model is the **'easy'** part of scaling AI...

The true challenge lies in building an ecosystem for enabling AI across the business that is maintainable today and can meet the demands of tomorrow.

Some fundamental changes are already occurring, 27% of organisations have changed their operating model for AI.



What are the key
barriers to overcome?

Main barriers to gaining traction and realising value with AI in organisations

1

Lack of scalable infrastructure

Inadequate computing, storage, and orchestration foundations for scaling AI. Duplicated & manual overhead across use cases development & productionisation.

- Siloed AI PoC dev teams competing for shared resources, wait times...
- Central DS/ML teams getting overloaded by manual support requests to set things up.
- Lack of deployment patterns

2

Difficulty in integrating with processes & systems

Scattered data sources & disparate IT systems. Non-comprehensive understanding of underlying business requirements & processes.

- Lack of early communication and mutual understanding
- Data Scientists getting blocked by layers of data visibility and access permission hurdles
- Layers and layers of the same data. What is the correct source? How should this feature be derived.

3

Lack of widespread understanding of AI tech

Business stakeholders possess knowledge gaps & difficulty in perceiving its usage. Over-reliance on knowledgeable technical owners.

- Non-technical users under- or over-estimate AI capabilities, the development process, or the risks involved, resulting in misuse and loss of trust
- Model performance changes over time
- AI usage is limited to only high-technical people
- Lack of democratisation of AI innovations among technical teams

Main barriers to gaining traction and realising value with AI in organisations

4

Data & model perfection paralysis

Limitations of data, dealing with imperfect models, lacking tools, model transparency, and risk management.

- Data ingestion, cleansing, monitoring, and validation of minimal required data
- Choose the most suitable algorithms based on what you need your model to do and not their popularity
- Maintain and iterate on models

5

Governance getting introduced too late!

Stakeholder engagement & feedback loop lags, data management policies, explainability, and long term sustainability.

- Evaluate every aspect of the solution for potential ethical issues.
- Involve security / IT teams in design phase
- Consult data governance for their considerations

Tips to avoid the pitfalls

Battle-Tested Principles and Frameworks

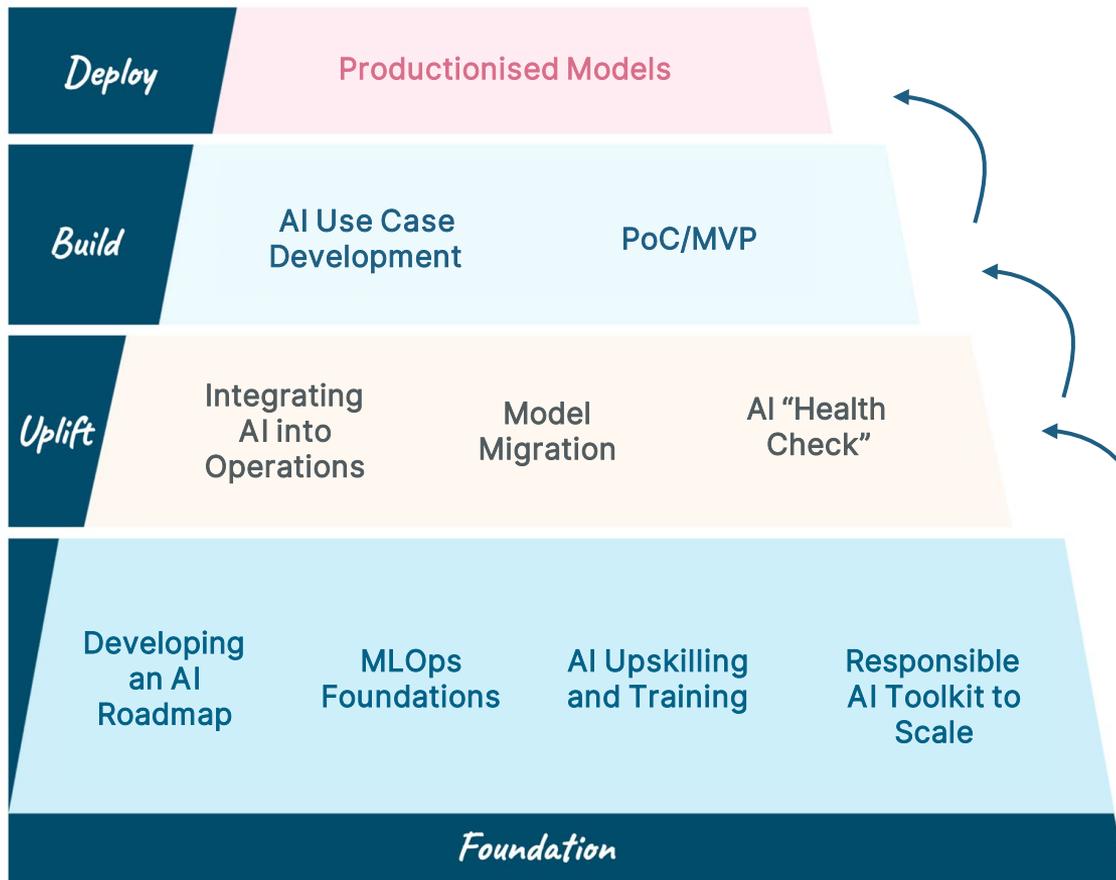
What are the core requirements for successful AI ?

These core pillars must exist for the continued success of your initiative.



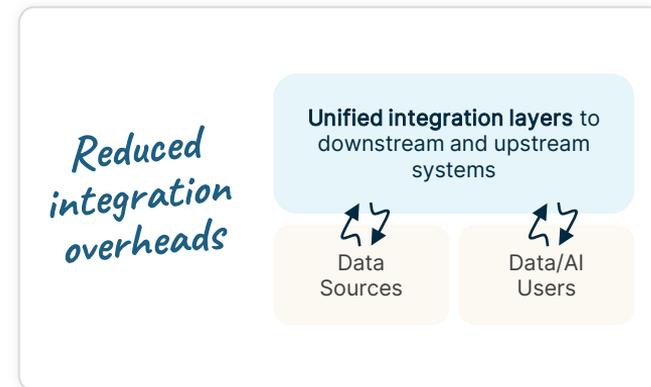
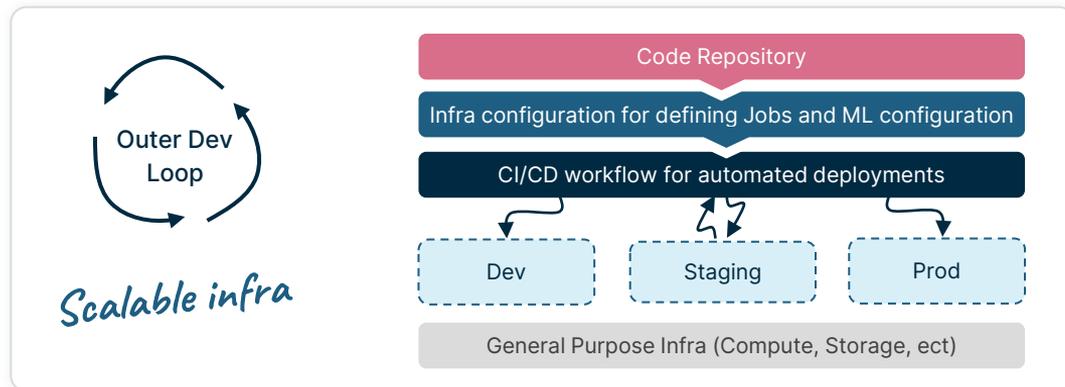
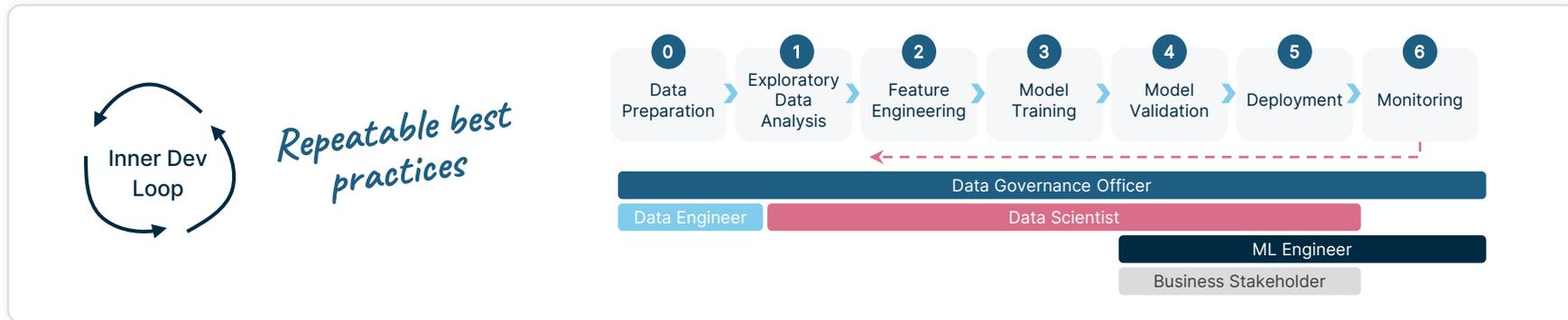
Starting with a solid **AI Foundation** is paramount

An organisation-wide uplift of AI capabilities and literacy across People, Processes, and Technology pillars



Standardise the AI development life cycle

To unify your end-to-end workflows and infrastructure



Technical Demo

MLOps Accelerator:
from Infrastructure to Production-Ready Models on Databricks

A Walkthrough MLOps Demonstration

Set up your first Databricks MLOps Platform on Day 1

The Ask

Company A has identified a few business problems that can be solved by AI/ML. They want to leverage reusable artefacts, without reinventing the wheel each time.

What Company A has gone through

Identify a ML use case to start with

→ a taxi fare prediction use case, as it is needed by many business teams.



Chosen an operating model

→ a Central Team will own and develop a core MLOps repo to serve multiple business teams.



Prepared basic infrastructure

→ got internal approval to create Azure Databricks Workspaces, User Groups, Azure DevOps pipelines (for CI/CD).

A Walkthrough MLOps Demonstration

Set up your first Databricks MLOps Platform on Day 1

The Solution

A production-ready MLOps platform accelerator that leverages Databricks and Unity Catalog



databricks

(1) Create DEV/UAT/PROD Workspaces,
Unity Catalogs & User Groups to
support key Personas

Admin, Data Engineer, Data Scientists &
ML Engineer, Deployer, Analysts



(2) Deploy end-to-end ML
pipeline with automated CICD

Feature engineering, Model training &
deployment, Inferences

= Enable production-ready ML use case development from Day 1 onwards

Live Demo

Kickstart future-proof MLOps

Start with a comprehensive blueprint. Then Iterate fast.



×



databricks

(1) Create DEV/UAT/PROD Workspaces,
Unity Catalogs & User Groups to
support key Personas

20-30 minutes

+

(2) Deploy end-to-end ML
pipeline with automated CICD

10-15 minutes

- Fast iteration for each of your ML use cases.
- Standardised DataOps & DevOps patterns.
- Infrastructure-as-code that is auditable, repeatable, and customisable.

Key Takeaways

Scaling AI in your organisation

Practical insights we observed in the field, with Databricks offerings as enablers



Bring every AI service and initiative into a modern MLOps platform

Apply the same governance & PoC-to-production workflows.

Eliminate duplicate efforts.

Leverage scalable, automated pipelines.

? How Databricks can help

- MLOps Stack templates, to set up Databricks Workflows and automatic CI/CD
- Central feature stores and model registry boosted by Unity Catalog



Integrate with existing processes and systems in a continuous, agile way

Start with minimal impact to end-user experiences.

Establish 'intermediary' tools to connect to legacy systems.

Iterate instead of waiting for big system migration.

? How Databricks can help

- Unity Catalog with external locations
- Federated querying and ML training
- Delta Sharing of data and models



Share AI knowledge and best practices to technical and non-technical teams

Upskill ML teams with training programs and integrated delivery.

Engage business stakeholders from roadmapping onwards.

Enable non-technical end users to use AI and to build understanding.

? How Databricks can help

- Databricks Academy & ILT customer training
- Databricks Lakehouse Center of Excellence
- Data Intelligence Platform

DATA+AI SUMMIT

QUESTIONS?



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