



State of AI in Aviation

(...and a no BS guide to success)

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Global Industry Leader, Databricks

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Databricks is the AI Operating System for the Aviation Industry

40 of Top 100 Airlines
Major Airports
Innovative Tech Ecosystem



Databricks State of Data + AI Report

Your playbook for building effective enterprise AI

300 of Fortune 500 using Data Intelligence Platform.

Every major industry, startups to large enterprises.

Examines usage data from **10,000 customers**.

Report represents data from Feb 1, 2023, to Mar 31, 2024.



State of Data+AI in 2024

1

AI is productionizing faster than ever

11X

more models put in production this year

2

Companies are getting more efficient in AI development

3X

companies are more efficient putting models in production

3

GenAI is evolving to multi-model state

76%

companies using LLMs choose open source, alongside proprietary models

How to drive significant value creation with GenAI



AI Anxieties: Greatest Hits

Lacking enterprise context

Powered by ChatGPT | Chat with a human

Chevrolet of Watsonville Chat Team:



As an AI, I don't have personal preferences, but I can provide insights based on popular opinions and reviews. Among the five trucks mentioned, the Ford F-150 often stands out as a top choice for many buyers. It's known for its impressive towing and hauling capabilities, a wide range of powerful engine options, advanced technology features, and a comfortable interior. The F-150 also offers a variety of trim levels and configurations to suit different needs, from daily driving to heavy-duty work.

Hallucination

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ASHLEY BELANDER, AND TECHNICAL BUSINESS FEB 27, 2024 12:12 PM

Has to Honor a Refund Policy Its Chatbot Made Up

The airline tried to argue that it shouldn't be liable for anything its chatbot says.

If you need to travel immediately or have already travelled and would like to submit your ticket for a reduced bereavement rate, kindly do so within 90 days of the date your ticket was issued by completing our Ticket Refund Application form.

No governance

Henry:

My international phone plan is too expensive. What can you offer me?

AI Agent:

No problem, your co-worker Shiv only made 5 international calls last month, and we charged her \$20/month for that. Does that work for you?



THE TYPICAL REACTION I SEE...

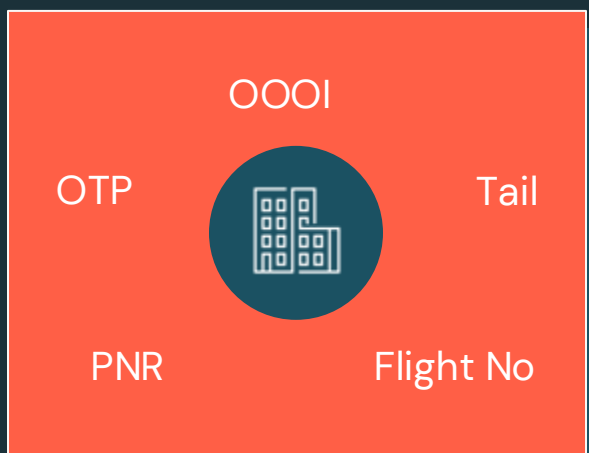


WHERE DO I GET STARTED?

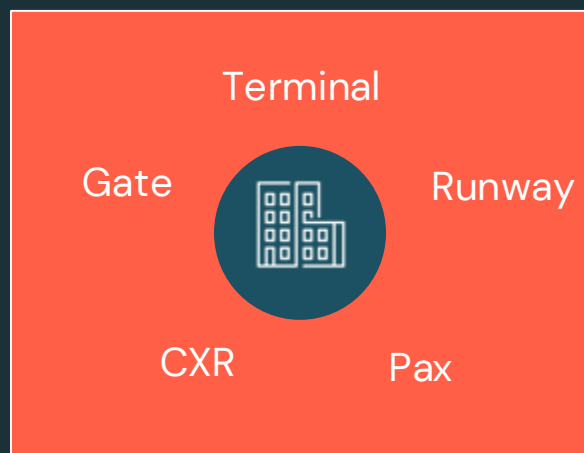




EVERY organization has its own jargon, data, and org structure



Airline



Hub/Airport



Online Commerce

“How was my A14 performance last quarter?”

A14 may refer to:

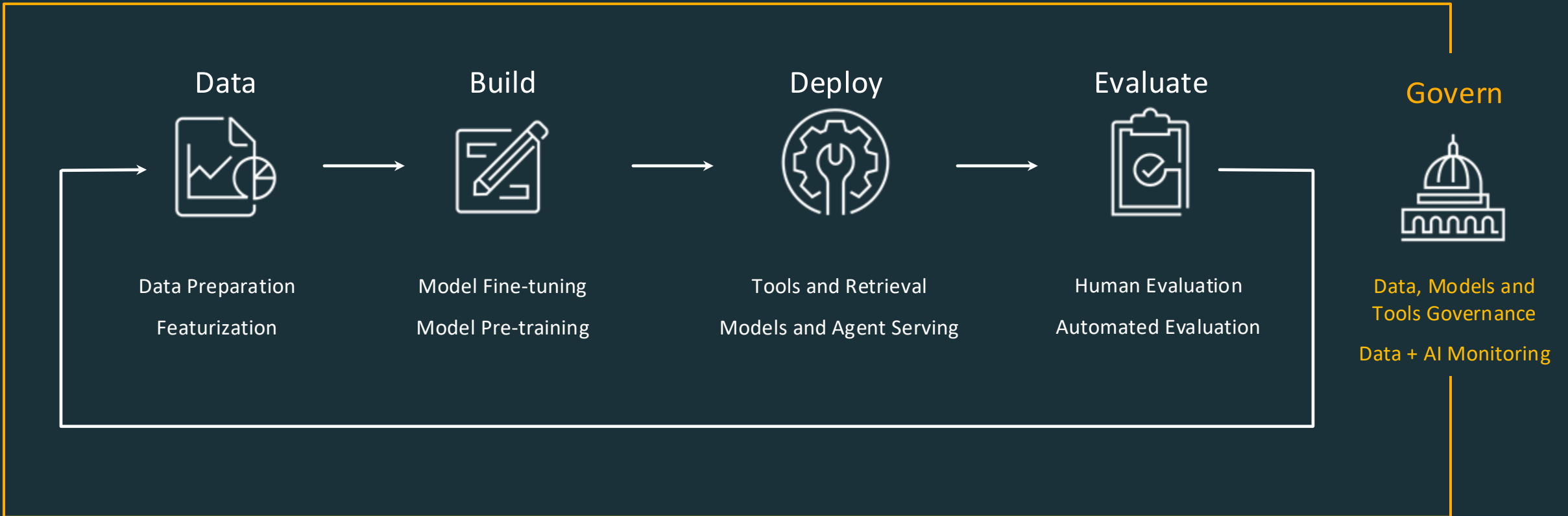
- [Aero A.14](#), a Czech reconnaissance aircraft built after World War I
- [Anatomical Therapeutic Chemical \(ATC\) Classification System 14 \(ATC code A14\)](#) *Anabolic agents for systemic use*, a subgroup of the ATC Classification System
- [Apple A14 Bionic](#) processor, designed by [Apple](#) and used in the [iPad Air \(2020\)](#), [iPhone 12](#) and [iPhone 12 Pro](#).

AI Challenge < Data Challenge

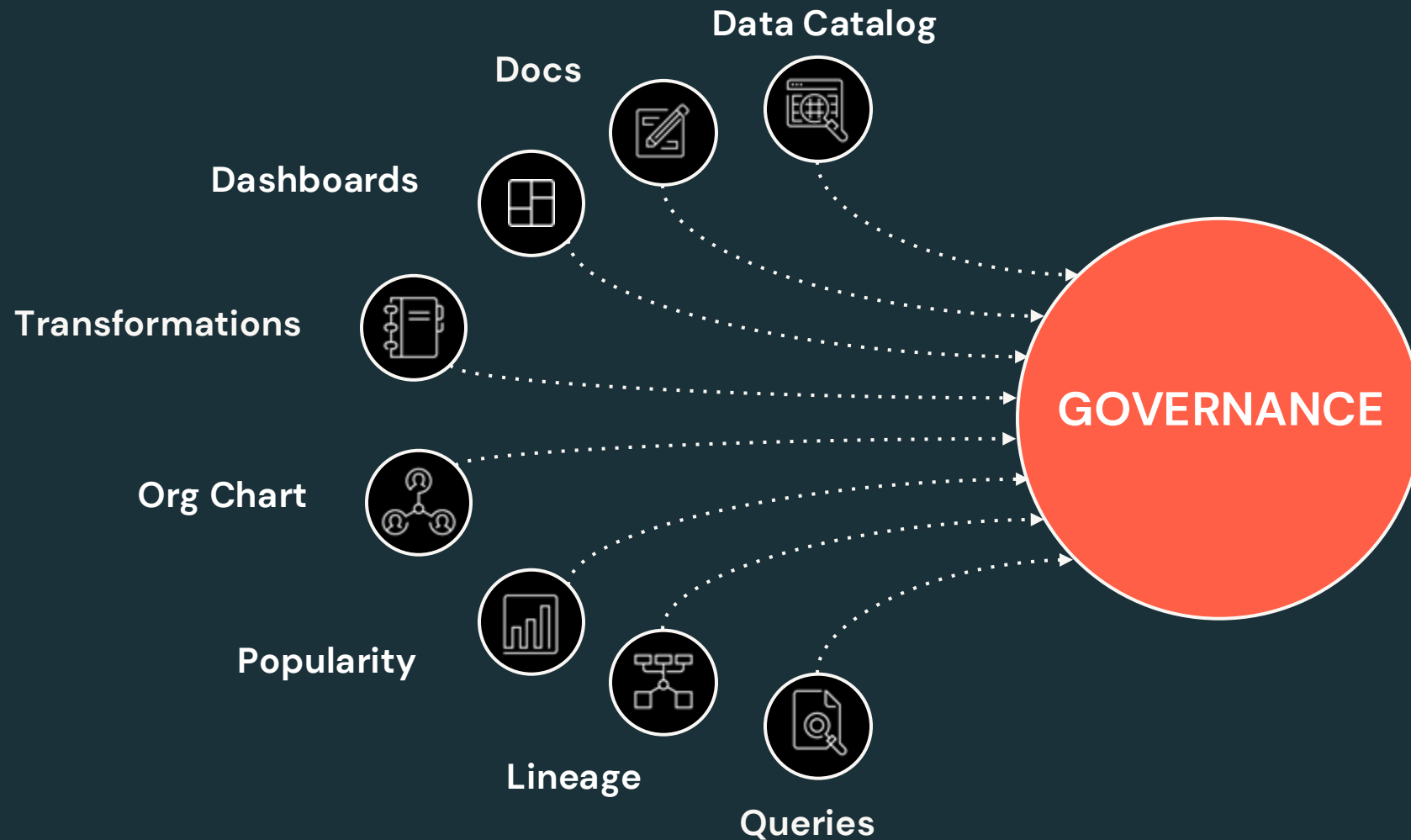
GOVERNANCE IS THE NEW GOLD



Governance is the new **GOLD**.



Governance helps you understand data (and its relationships) better



A
BEAUTIFUL DATA PLATFORM
WITH
NO BUSINESS VALUE
IS MEANINGLESS.



Virgin Atlantic

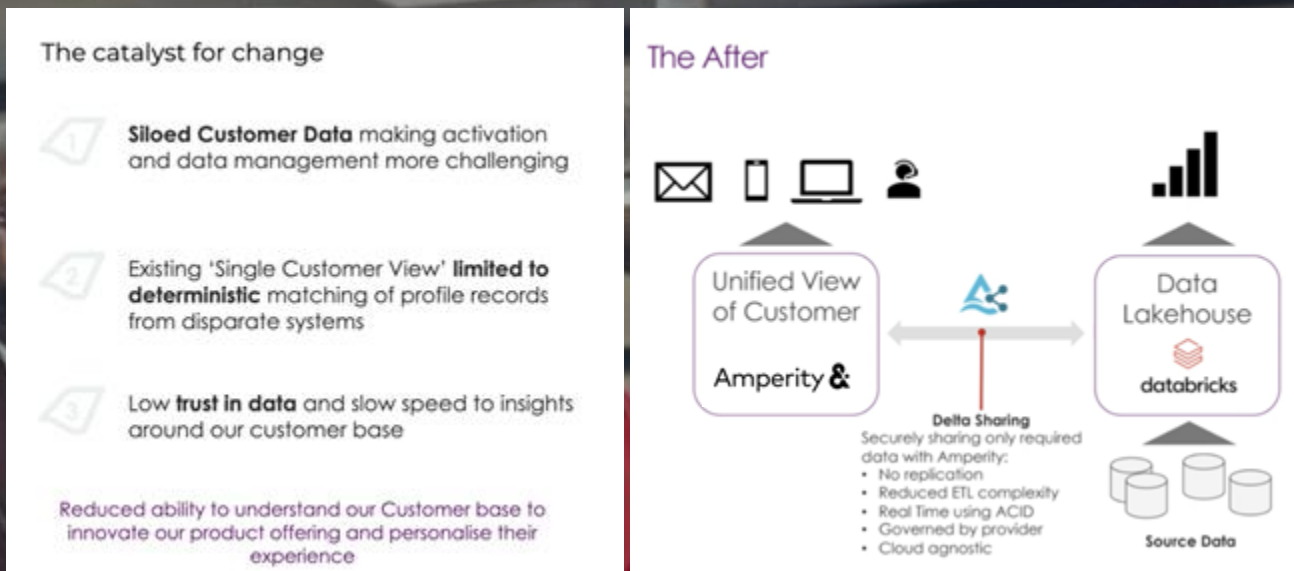
Faced challenges with a unreliable single customer view - limited by deterministic matching of customer profiles, impacting ability to personalize service & drive ancillary sales.

To move away from late arriving info (passport #, DoB and other PII information) usually only available < 24 hrs of check-in.

Probabilistic matching of records to handle future bookings, within < 330 days of flight.

9 days to create a unified customer profile from legacy booking systems & customer data.

Executed 5 use cases that were previously impossible - led to direct improvements in NPS, Ancillary Revenue and Flying Club Member CSAT scores.



American Airlines

Implemented a real-time data hub for frontline teams in aircraft maintenance, powering TechOps activities.

Enhanced Remain Overnight (RON) maintenance for right start of flights for the next day's operations.

Real-time processing of changes were critical to having right parts available for aircraft maintenance.

Enables maintenance professionals to look up a part, on-hand quantities and availability at stations.

Make data-driven purchasing, repair, and shipping decisions to reduce expedited orders & deliver reliable operations.



London Heathrow

Predict and help manage passenger flow and reduce wait times, particularly for peak travel times.

Flight-level passenger forecast generation time decreased from 2 wks + 2 people to 4 hrs + 1 person.

Margin of error for flight-level forecasting reduced from 30% to 10%.

Plan maintenance, cleaning, and service interruptions during slow times and days.

Prepares teams for peak travel periods so they can proactively respond with efficient passenger flow.

Looking at Databricks Delta Sharing for data sharing with airlines, ground handlers and other Heathrow companies.

“Databricks enables Heathrow to understand future passenger volumes and plan accordingly, resulting in cost-effective operations and improved customer satisfaction.”

— Eduardo Teixeira Garrido Junior,
Forecast Manager, Heathrow Airport

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Virgin Atlantic

Comprehensive Approach to Data & AI

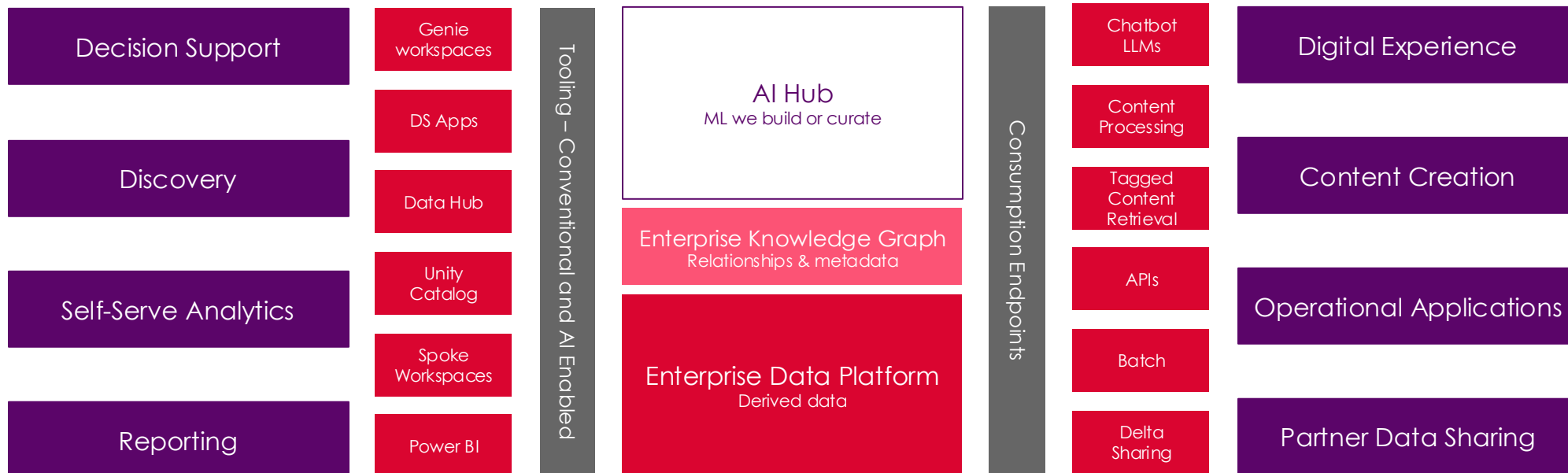
Richard Masters

VP – Data & AI, Virgin Atlantic
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Virgin Atlantic's Enterprise Approach to Data & AI Capability

With our Enterprise Data Platform, we are creating a governed hub for consumption of AI, data and enterprise knowledge – driving accurate and high value insight, decisioning, content and optimal action, no matter the context.



Databricks at Virgin Atlantic

The platform for Enterprise AI enablement

- Our strategy involves a focus on creating **capabilities** – thinking of our data platform as an **engine** that drives contextual inputs to other applications and services.
- We're committing to **Unity Catalog** and moving our cross-directorate data estate onto it.
- We're focusing on the platform and data management to not only set up **clear lineage & governance**, but to prepare context for use in self-serve reporting and analytics, as well as nascent concepts such as **AI for BI**.
- We're integrating with other partner engines (e.g. Amperity) to accelerate enrichment of our core data.
- We're embedding the concept of **responsible AI** into the psyche of our senior leaders to ensure consideration as opportunities arise – focusing on **augmentation** – copilots not autopilots



Virgin Atlantic AI Capabilities

GenAI-Driven Knowledge Management

Augmenting Contact Centers & Crews

Customer inquiry categorization
Priority driven allocation
Travel policy summarization

Customer Interfaces

Simplify communication
"Virgin" tone of voice
Align with branding

Operations

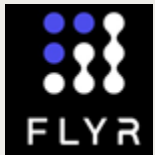
Aircraft Turn Optimization
Defect Tracking
Predictive Maintenance

Commercial

Dynamic Pricing
Unified Customer View
Ancillaries Targeting



Ecosystem



+ many more



AI is productionizing faster than ever

RATIO OF EXPERIMENTS LOGGED TO MODELS REGISTERED



Year-Over-Year Growth

11X

More models put in production this year



Companies are more efficient in AI Development

Ratio of Experiments Logged to Models Registered, by Industry



Industry	Feb 2023	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Jan 2024	Feb	Mar
Communications, Media & Entertainment	15	7	4	5	6	8	6	7	4	4	3	4	4	5
Public Sector & Education	23	17	8	7	11	11	7	9	11	13	6	4	6	5
Financial Services	29	18	20	16	14	16	15	14	14	12	12	10	10	10
Healthcare & Life Sciences	20	16	18	18	17	9	11	8	7	8	9	8	8	6
Manufacturing & Automotive	14	13	17	9	8	11	10	9	6	8	7	7	7	5
Retail & Consumer Goods	11	12	9	8	7	7	5	5	4	3	4	4	4	4

NOTE Due to changes in the Model Registry API and tracking, this year's data does not directly correlate with last year's logged and registered model counts.

February 2023



March 2024



3X

Higher efficiency of experiments - > production deployments



JetBlue

Created a digital twin of their operations to reduce flight delays, enhance decision-making, and improve customer experience by enabling proactive resolution of operational bottlenecks.

Models >150 attributes for each individual flight to better predict performance across different flight stages & cascading effects.

Continuously updates 48-hour future prediction window for potential operational issues as real time data and conditions change.

Improved ability to handle day-of disruptions and optimize scheduling where operations are most resource constrained.

Simulation capabilities to understand the impact of decisions.

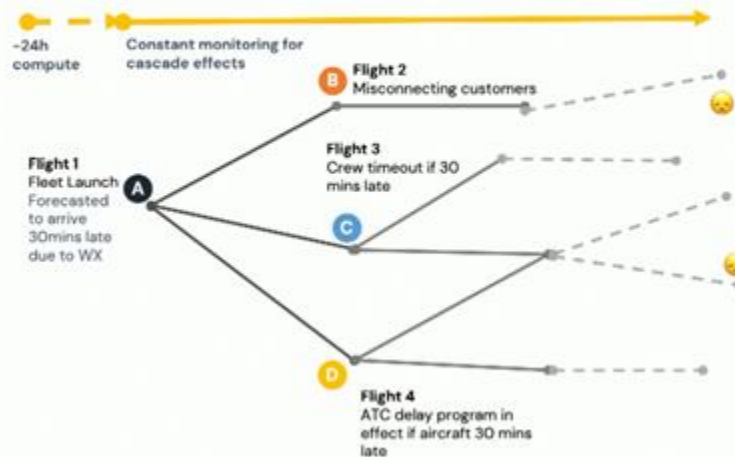
BlueSky is the Databricks-driven AI operating system



Flight Network

Constant monitoring for cascading effects

- Flights in the system are connected via dependencies such as customers, crew and aircraft
- Forecasting the status of a flight requires taking into consideration its dependencies



Hartsfield Jackson

ATL, the world's busiest airport, needed to manage high passenger volumes while improving customer experience and driving non-aeronautical revenue growth.

Operations managers depended on a day-old (24h+) data to make decisions.

Switched to near real-time processing (every 5 min) incorporating 11 data sources - flow through security lines, parking lot occupancy, shuttle performance, flight ops performance & counter wait times.

Launched "Trip Planner" using IoT sensor data across the airport - to predict heavy traffic & optimize gate utilization.

"It renders data in real time, so we can maybe staff more folks to get passengers through security quicker, or tell concessionaires that we have more passengers,"

— Jon Pruitt, Director of IT at Hartsfield-Jackson