SAP Databricks

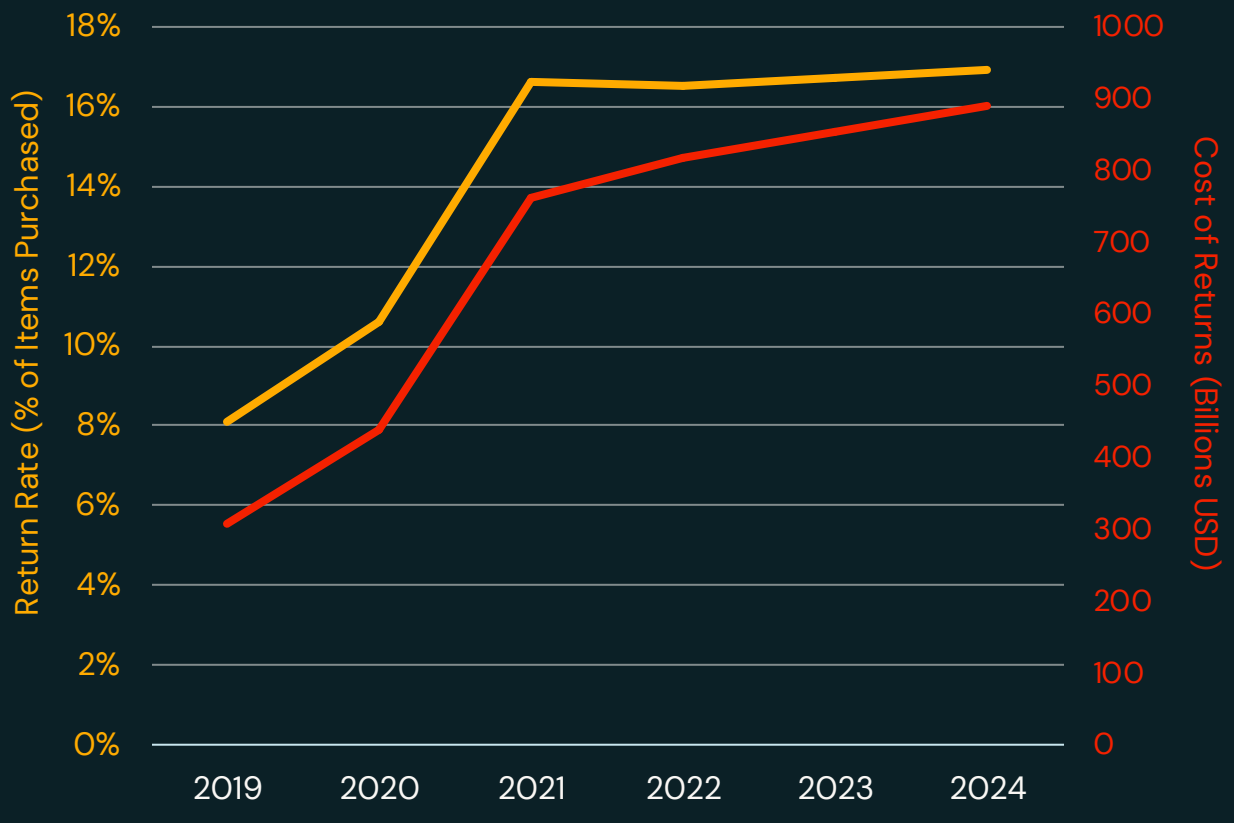
Returns Forecasting

Better returns management through data intelligence

Author Name

Date

Returns on the Rise



2024 Consumer Returns in the Retail industry
National Retail federation, December 2024

76% of consumers consider free returns a key factor in deciding where to shop

67% say a negative return experience would discourage them from shopping with a retailer again

68% of retailers prioritized upgrades to returns capabilities within first six months of 2025

Transitioning to Prediction

Retailers who want to beat the competition must get their returns management in order. By shifting gears from preventing returns to predicting them, brands can provide top-notch service, save money and avoid headaches.

From Prevention to Prediction: Revolutionizing Returns Management in Retail
Supply Chain Brain, August 2023

Staffing & Logistics Planning
Optimize staffing and partner capacity to meet demand while preserving margins

Revenue Reporting
Accurately report revenues and manage tax payments and manufacturer rebates

Inventory Management
Predict restocking and adjust forward supply chain processes

Fraud Detection
Minimize the risk of fraudulent returns while ensuring process expediency

Customer Satisfaction
Ensure timely processing and refunds to ensure quality experience

Demo

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B

New

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Query History

SQL Warehouses

Data Engineering

Job Runs

Data Ingestion

AI/ML

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Welcome to Databricks

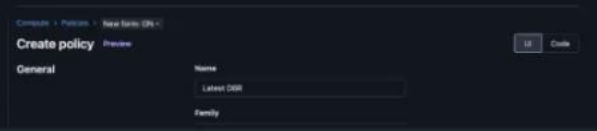
Search data, notebooks, recents, and more... CTRL + P

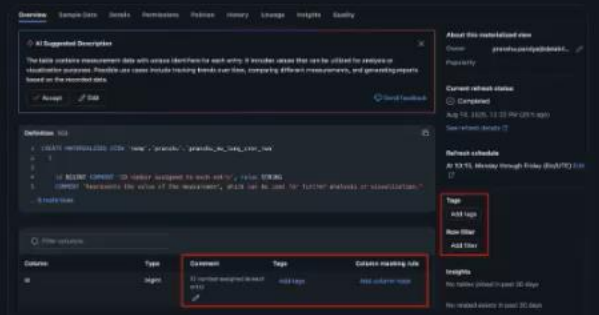
Recents | Favorites | Popular | Mosaic AI | What's new

SQL Stored Procedures are now in Public Preview

SQL Stored Procedures are now available across all compute types and SQL warehouses. Define your business logic once, run it on demand, and manage it securely under Unity Catalog.

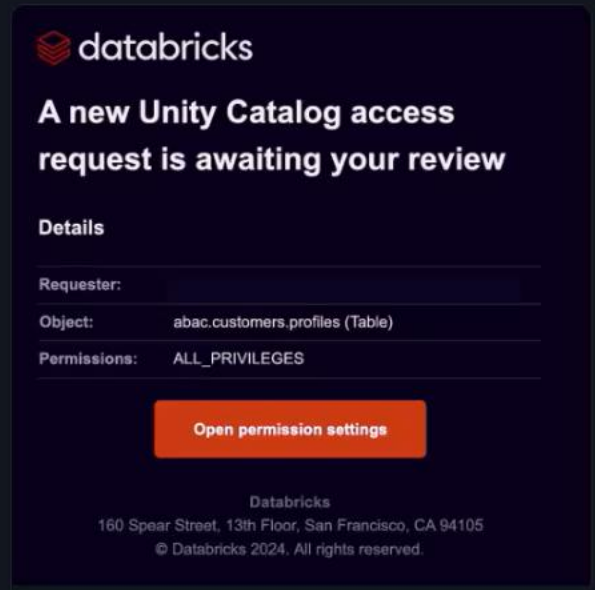
Learn more





Edit metadata for materialized views and streaming tables

In Catalog Explorer, you can now update description, comments, tags, row filters, and column masks for materialized views and streaming tables directly from the Overview page.



Request for Access in Unity Catalog is now available in Public Preview

Enable self-service data access requests in Unity Catalog by configuring access request destinations on securable objects. Users can request access to Unity Catalog objects that they discover. These requests are sent to configured destinations, such as emails, Slack or Microsoft Teams channels, or they can be

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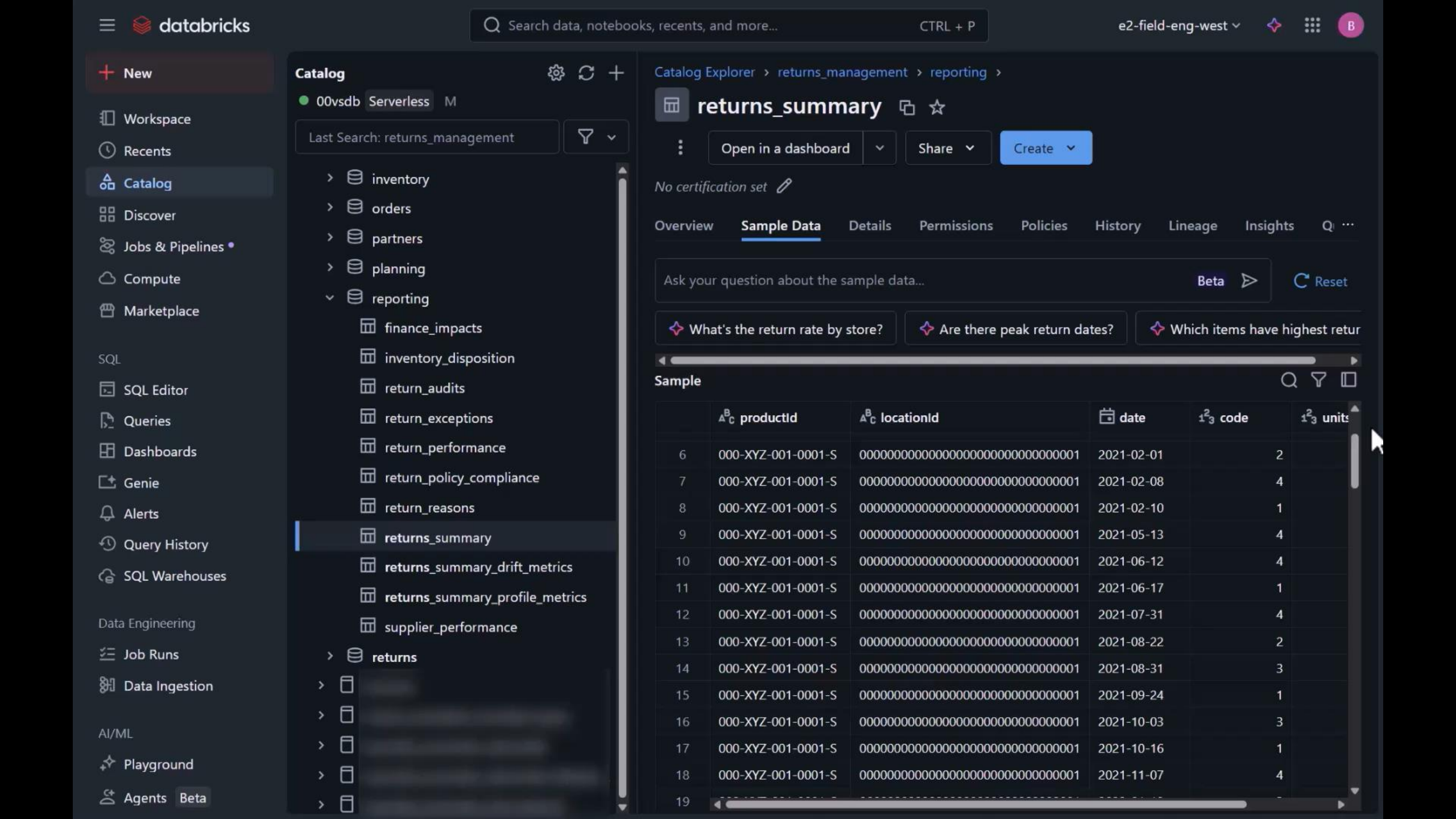
Agents Beta
Returns Performance
Edit Draft
18h ago
Schedule
Share
Return Rate by Item
13.4%
Return Rate by Revenue
14.2%
Refund Rate
81.6%
Days to Process
8.1
Units Returned vs Forecasted Returns
150K
100K
50K
0
2024 W39
2025 W3
2025 W19
2025 W35
Actuals
Forecast
Reasons for Returns
Damaged/Defect...
Fit/Size
Not as Expected
No Longer Needed
Better Price
Other/Unspecified
Wrong Item
Item Destination
Inventory
Disposal
Donation
Supplier
Days to Refund
9.2
Rejection Rate
2.3%
Customer Score
2.9



	productId	locationId	date	code	units
6	000-XYZ-001-0001-S	00000000000000000000000000000001	2021-02-01	2	
7	000-XYZ-001-0001-S	00000000000000000000000000000001	2021-02-08	4	
8	000-XYZ-001-0001-S	00000000000000000000000000000001	2021-02-10	1	
9	000-XYZ-001-0001-S	00000000000000000000000000000001	2021-05-13	4	
10	000-XYZ-001-0001-S	00000000000000000000000000000001	2021-06-12	4	
11	000-XYZ-001-0001-S	00000000000000000000000000000001	2021-06-17	1	
12	000-XYZ-001-0001-S	00000000000000000000000000000001	2021-07-31	4	
13	000-XYZ-001-0001-S	00000000000000000000000000000001	2021-08-22	2	
14	000-XYZ-001-0001-S	00000000000000000000000000000001	2021-08-31	3	
15	000-XYZ-001-0001-S	00000000000000000000000000000001	2021-09-24	1	
16	000-XYZ-001-0001-S	00000000000000000000000000000001	2021-10-03	3	
17	000-XYZ-001-0001-S	00000000000000000000000000000001	2021-10-16	1	
18	000-XYZ-001-0001-S	00000000000000000000000000000001	2021-11-07	4	
19					

Martech Ecosystem Thrives on Databricks Marketplace

Partners deliver solutions for accurate audience targeting and personalized campaigns

View Martech listings Learn more

Salesforce DeepSync

Epsilon Inscape

Amperity Uniphore

Search for products Product Category Free

Featured providers

View all providers ›

Epsilon

FactSet

Komodo Health

Moody's

S&P Global Market Intelligence

Staff picks

Rearc Free

Daily Weather Observations | NOAA

The Global Historical Climatology Network daily (GHCNd) is a global database o...

FactSet

FactSet Fundamentals

750+ fundamental items including financial statement data, derived ratios, and both...

IQVIA

IQVIA Data-as-a-Service (DaaS)

Access IQVIA data: IQVIA's DaaS is an innovative, modern, and centralized hosting and data...

S&P Global Commo...

AI Ready Data

S&P Commodity Insights' AI-Ready data includes diverse content from publications in a...

Komodo Health

Healthcare Map via Delta Sharing

Leading repository of de-identified longitudinal patient data to deliver data-driven,...

Models

View all ›

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Experiments

Features

Models

Serving

Prepare Forecast Inputs | Run_MMF_Forecast

File Edit View Run Help Python Tabs: ON Last edit was now

Run all | Field Eng Shared UC LT... | Schedule | Share

Prepare Input Data

Markdown

11:48 AM (<1s) 2

```
catalog = "sap_demo"
db = "returns_forecasting"
```

Get the historical demand from the `productconsumptionquantities` table. This will be used as a covariate to forecast returns. We will use the same `units_sold` for all `code` values, so we expand (explode) every `productId` and `locationId` combination with all four codes.

11:48 AM (10s) 4

```
from pyspark.sql.functions import concat_ws  product_consumption_quantities = sp ...
```

Get the future demand. This will be used to create a future dataset for the forecasting models to generate predictions. We expand each `productId` and `locationId` combination with four codes as described above.

11:48 AM (1s) 6

```
from pyspark.sql.functions import concat_ws, lit from pyspark.sql.types import I ...
```

Get the historical and future weather data. This dataset has missing entries in the `temperature_min`, `temperature_max`, and `precipitation_lwe_total` columns. We fill these missing entries with the values from the previous year. We convert the `store` column to the standardized `locationId` format so it can be joined with other tables later.

11:48 AM (2s) 8

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Returns Forecasting

Edit Draft

23h ago Schedule Share

Latest Run | Forecasts

Last Run

Aug 26, 2025

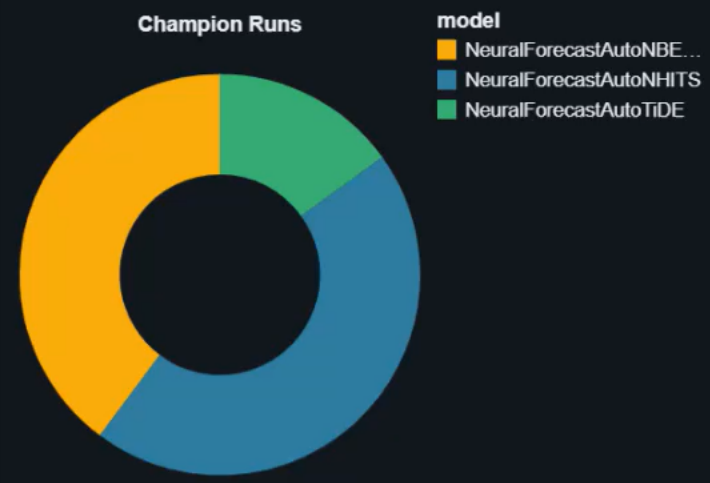
Avg SMAPE

24.34%

Champion Avg SMAPE

19.32%

Champions



Products	174	Models	3
Stores	10	Forecast Units	5017
Return Codes	4	Forecasts	15,051

Std SMAPE

9.39%

Champion Std SMAPE

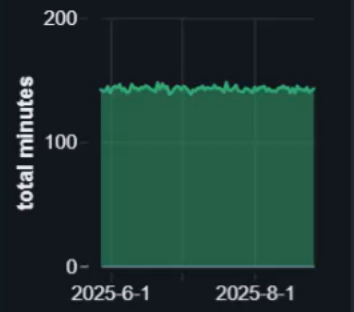
4.8%

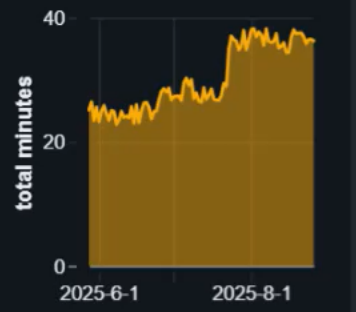
Avg Secs Per

142.85

Elapsed Minutes

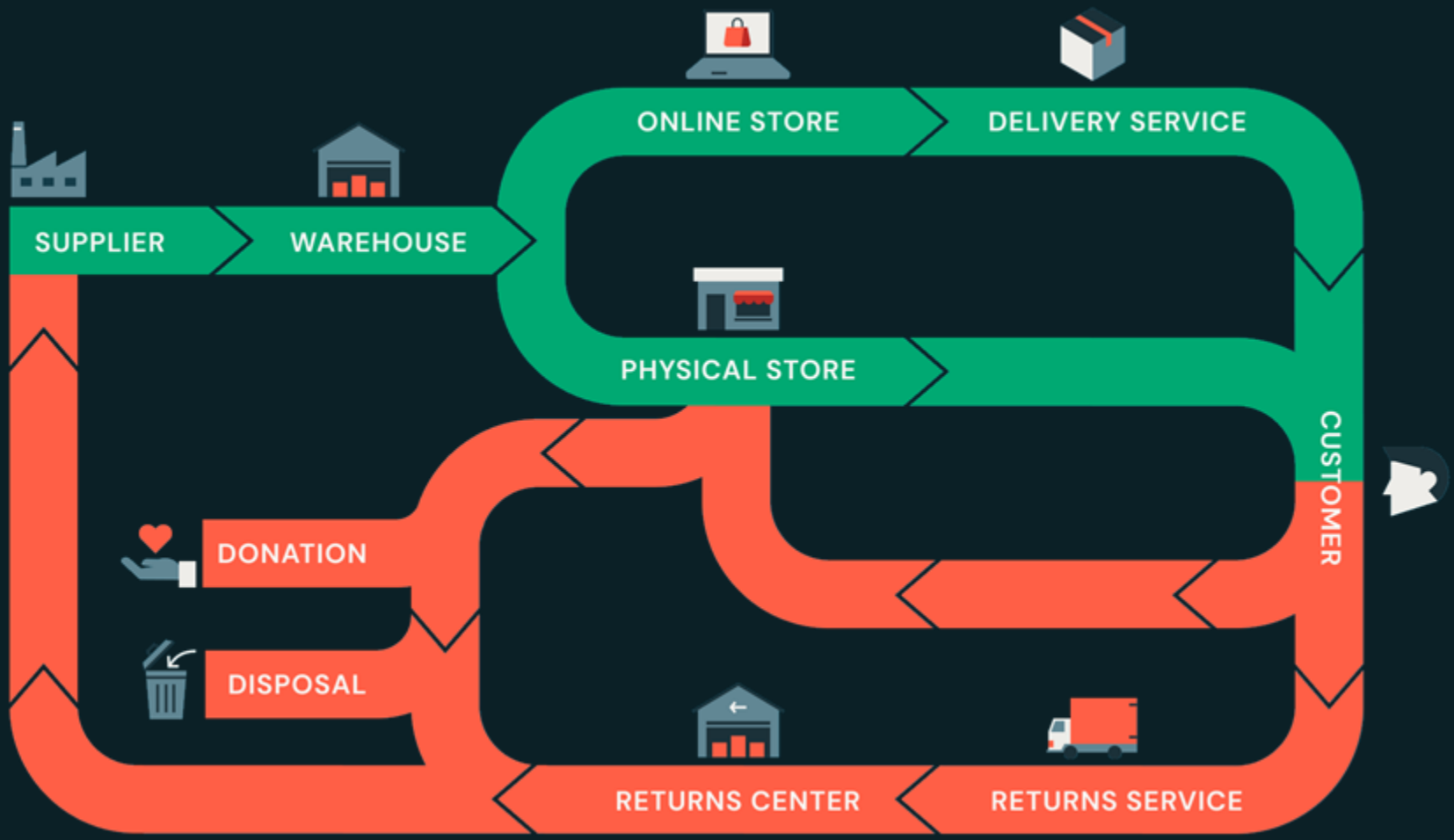
35.3





Demo

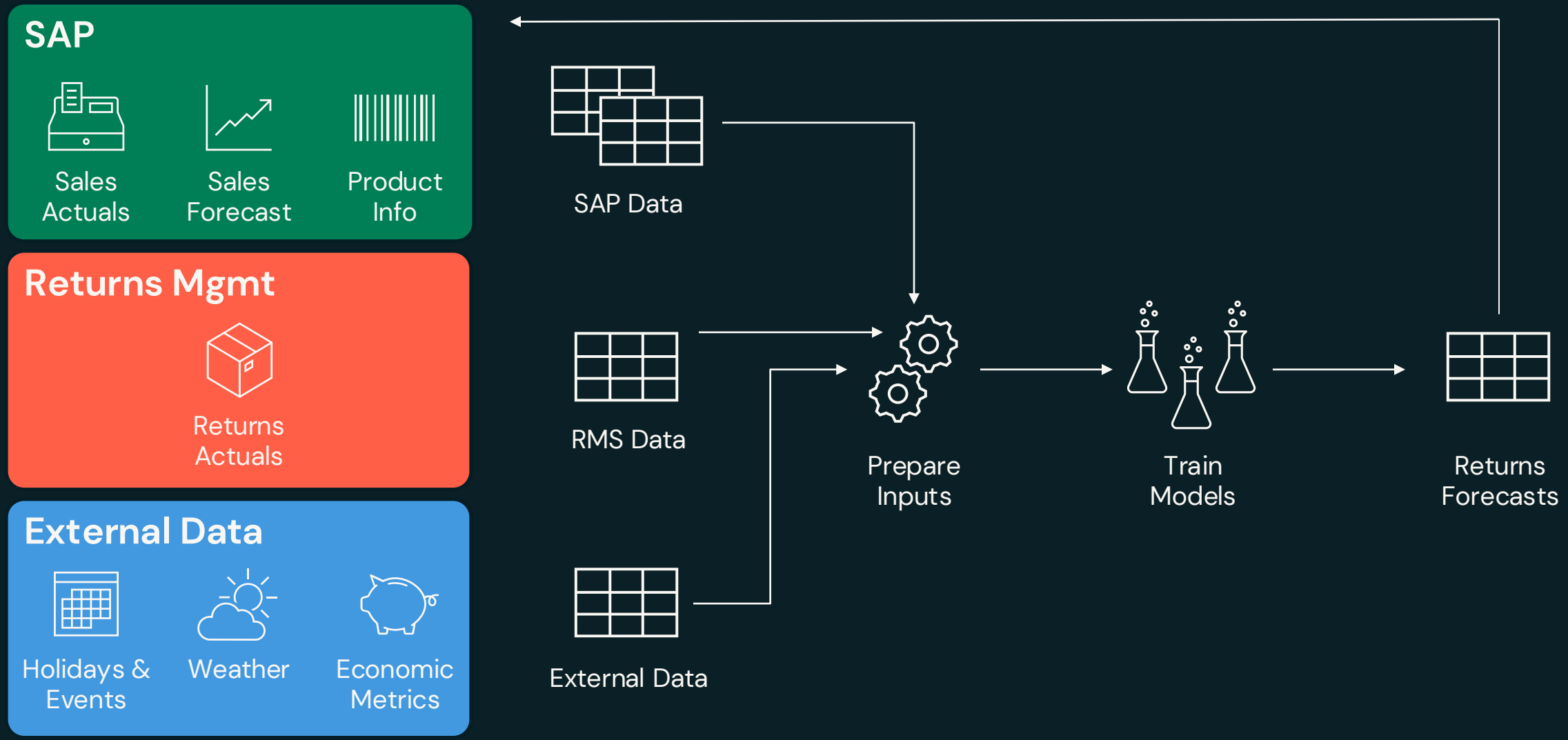
A Closely Coupled Ecosystem



Forward Supply Chain

Reverse Supply Chain

Returns Forecasting



Returns Forecasting

SAP

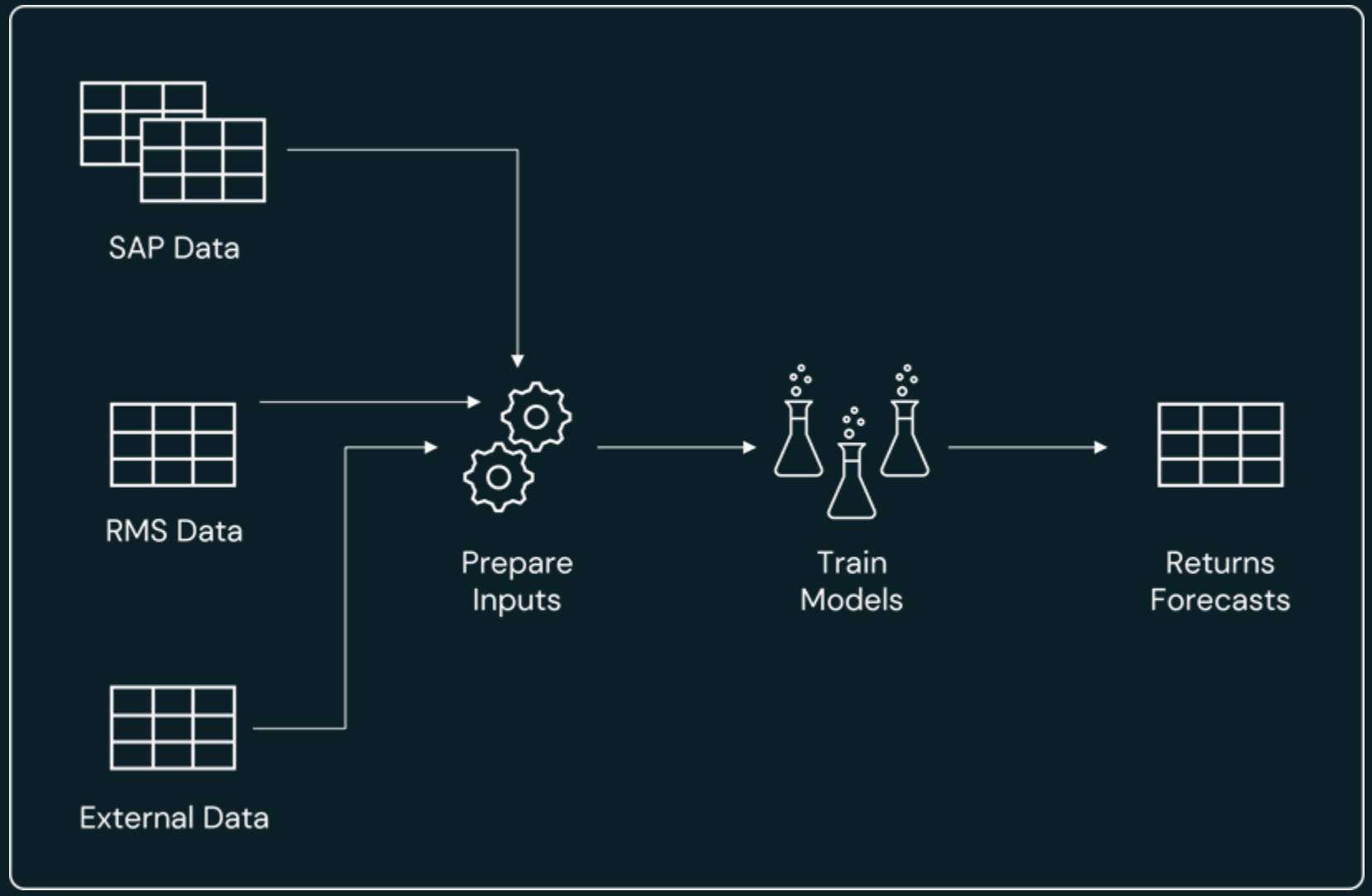
- Sales Actuals
- Sales Forecast
- Product Info

Returns Mgmt

- Returns Actuals

External Data

- Holidays & Events
- Weather
- Econ Metrics



Returns Forecasting

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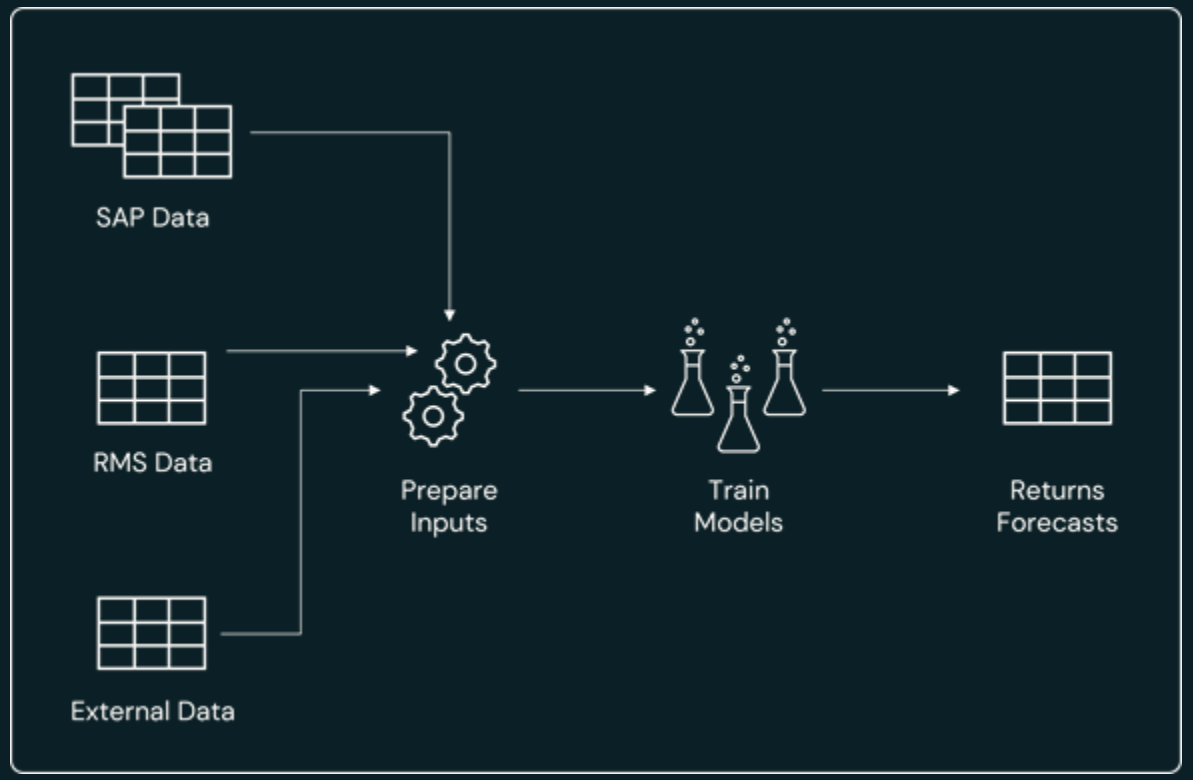


Simplified Data Access
Easy access to a wide range of data sources and an ecosystem of integrated data providers

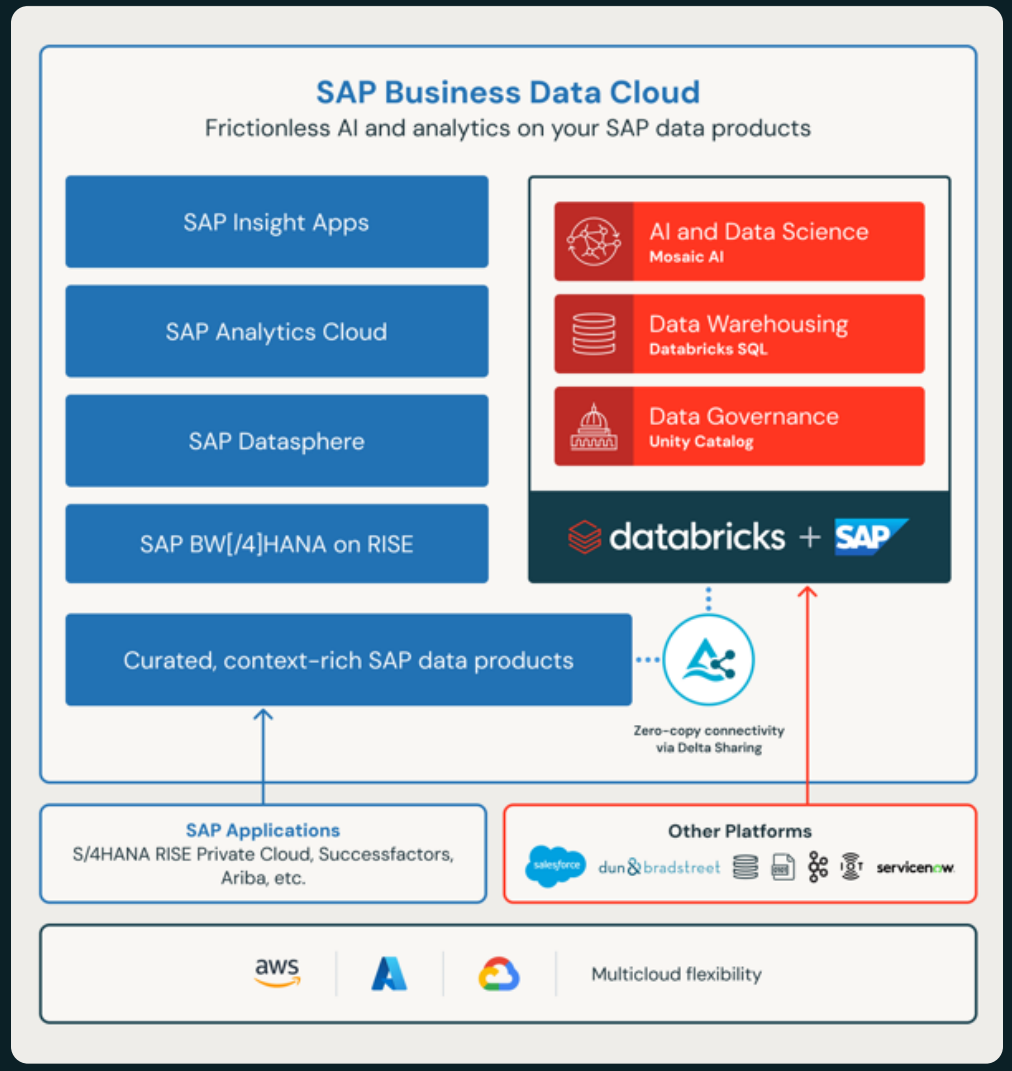
Complex Data Preparation
Combine and transform structured and unstructured data with Python, SQL & R

Large Scale Model Training
Elastically scale model training and evaluation to meet enterprise SLAs & budgetary constraints

Ongoing Process Management
Orchestrate forecast generation and downstream system integrations

zalando
Having SAP data available in the shared datalake helps drive sharper insights, not just for reporting, but for everyday operational and strategic choices.
Pavlo Rumiantsev, Director of ERP
SAP Sapphire 2025
Watch the session here

SAP & Databricks



Simplified Platform Integration

Databricks is available to every organization that uses SAP BDC with no additional licensing

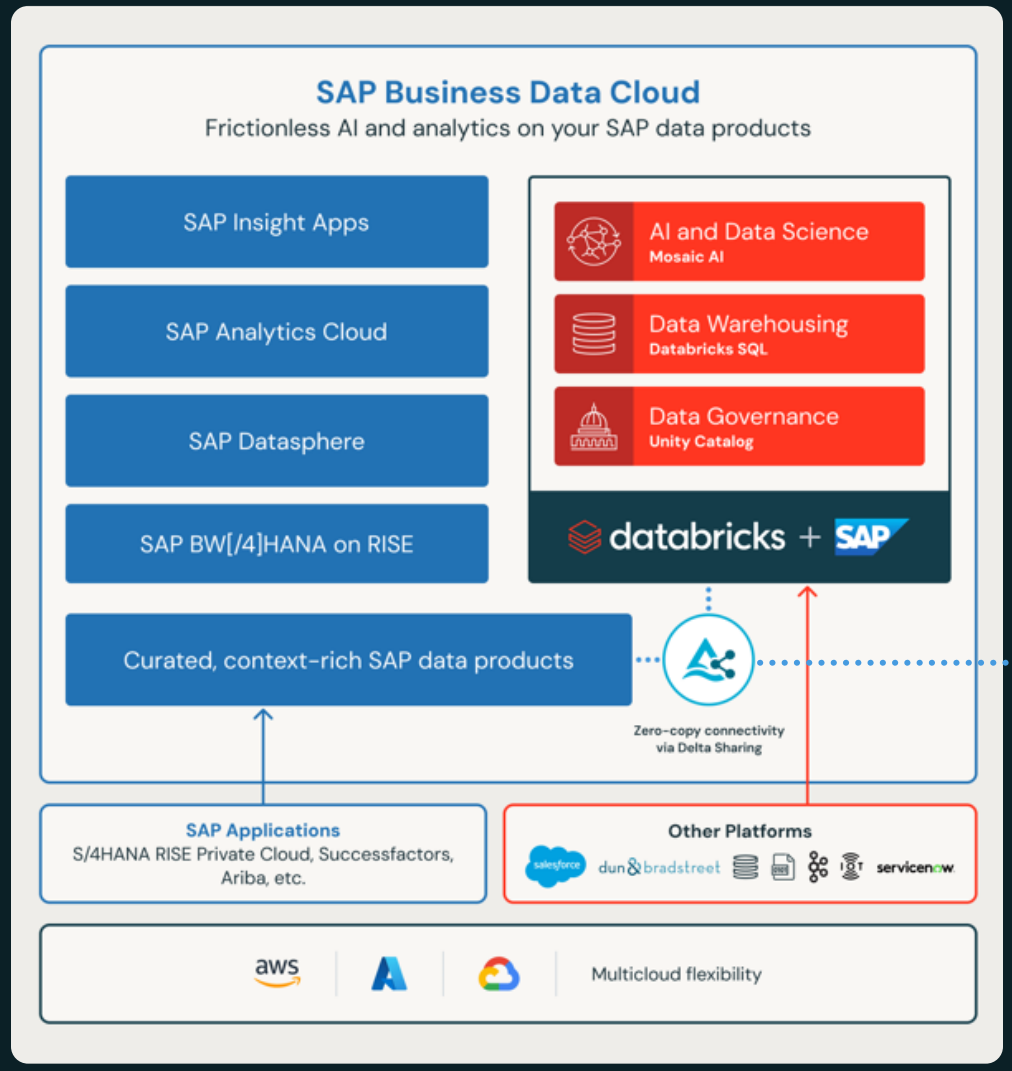
Bidirectional Data Access

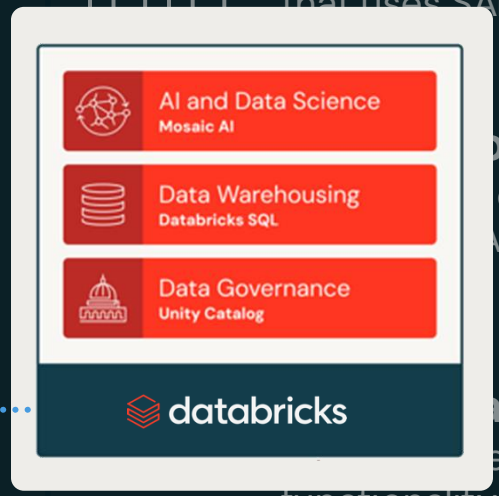
Ensure data consistency without replication with both SAP and Delta Sharing partners

Rich Data & AI Functionality

Leverage the data processing, ML and AI functionality you need to build enterprise solutions

SAP & Databricks





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consistency without replication
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& AI Functionality

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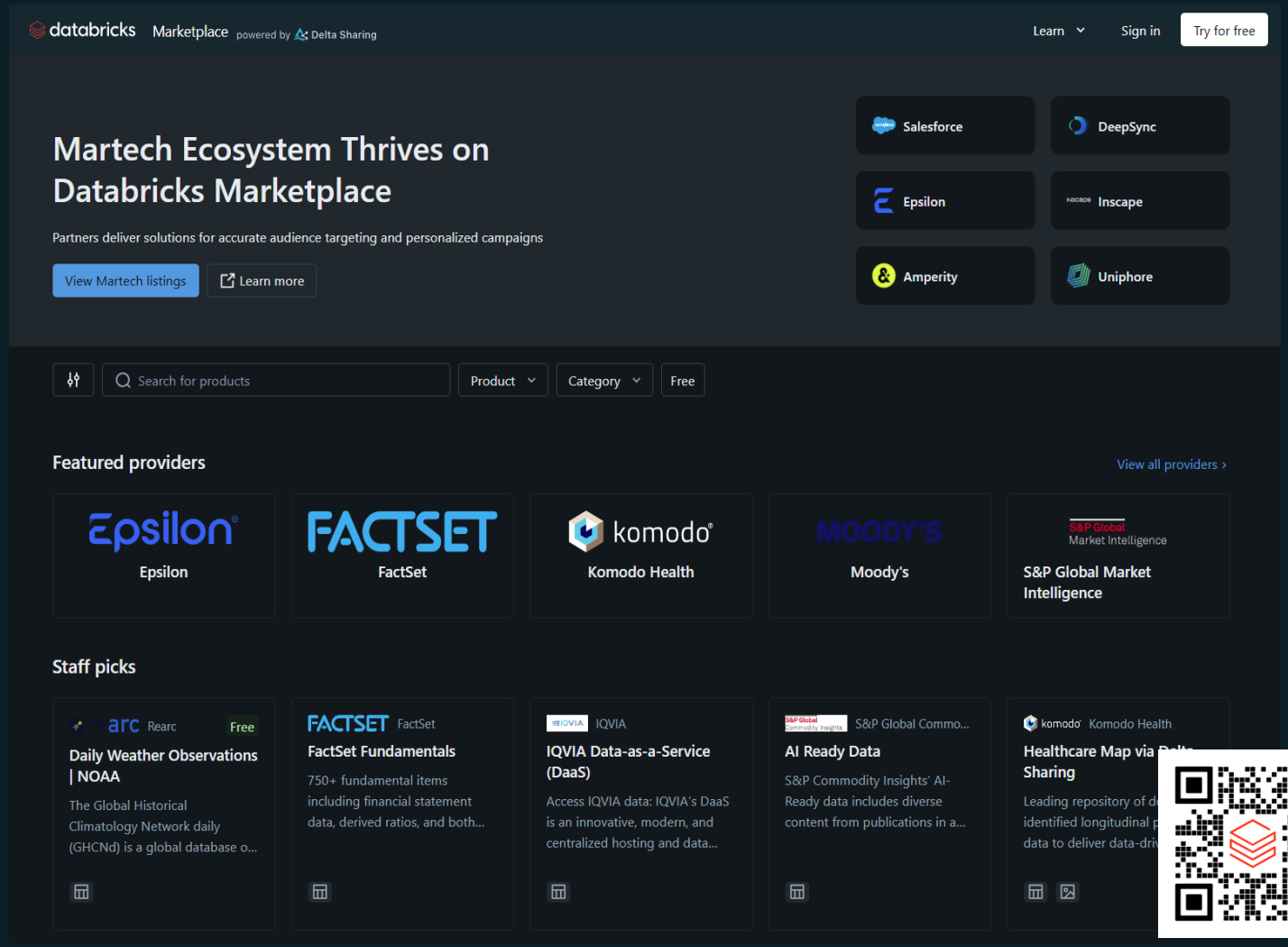
functionality you need to build enterprise solutions

Databricks Marketplace



AccuWeather

AccuWeather

Historical Weather Data

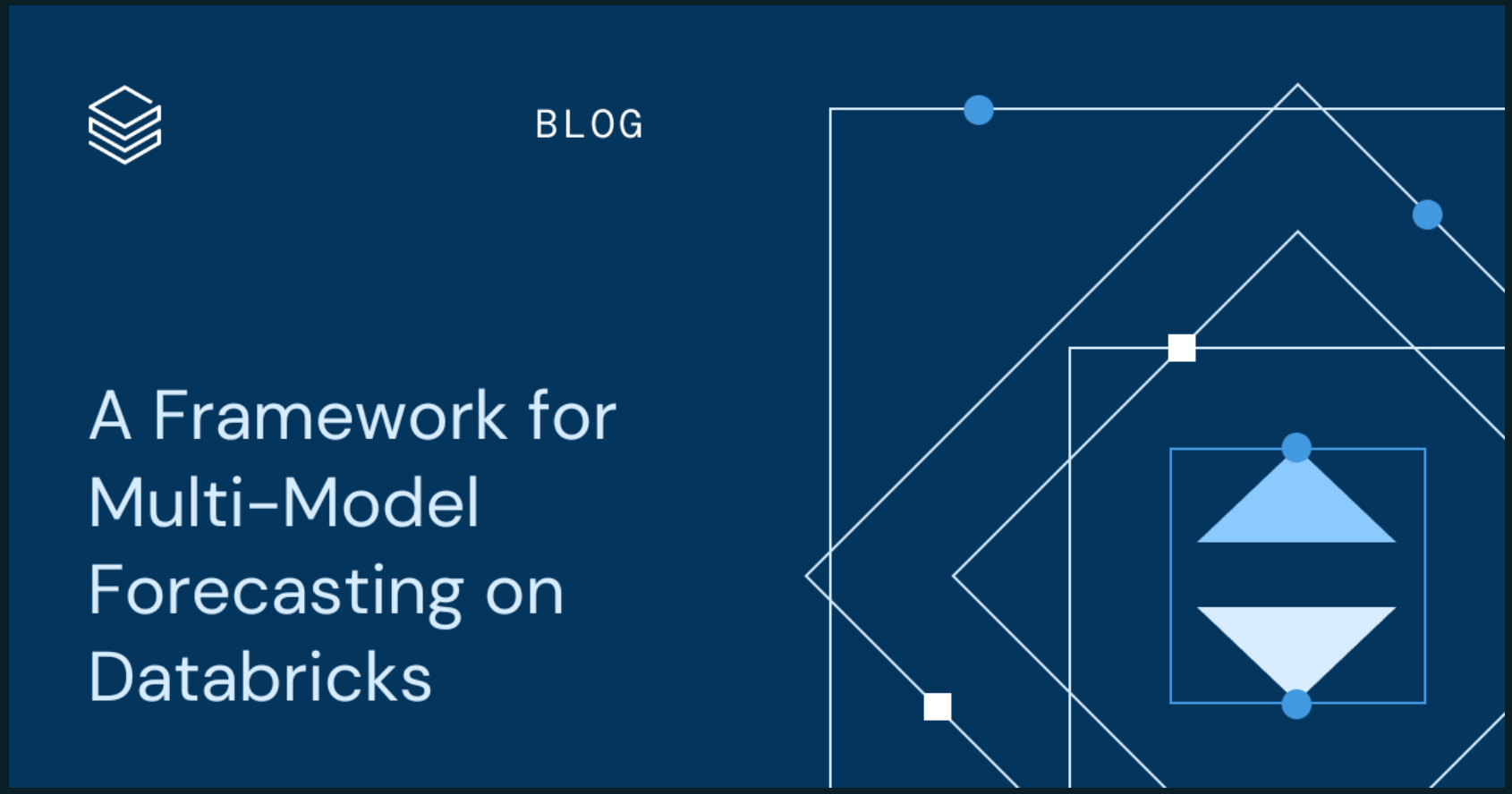
Historical Weather data with real-time feeds, incident and disaster data for advanced insights.

AccuWeather

Forecast Weather Data

Forecast Weather data with real-time feeds, incident and disaster data for advanced insights.

Multi-Model Framework



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