

US Agronomy Enterprise – Snowflake Data Science Platform for Global Market Intelligence

About the Client

A **US-based agronomy enterprise** specializing in agricultural analytics and trading intelligence operates across **16 global geographies**, tracking daily trade prices, demand patterns, and supply movements across multiple commodity categories.

The organization's goal was to strengthen its **market intelligence and forecasting capabilities** by seamlessly integrating **external market trading data, regional price feeds, and environmental factors** into a unified, AI-ready data platform.

To achieve this, the enterprise partnered with **TVS Next** to design and implement a **Snowflake-powered Data Science Platform** - enabling **real-time analytics, predictive modeling, and enterprise-wide collaboration** for its global operations.

The Challenge

- Market data was distributed across 16 regional systems with no unified data structure.
- External data from trading and pricing sources was ingested manually, causing latency and reliability issues.
- The absence of a centralized data science environment limited experimentation and predictive analytics.
- Inconsistent governance restricted collaboration and limited visibility across global teams.



Solution: Snowflake Data Science Platform for Market Intelligence

Unified Data Foundation

TVS Next collaborated with the client to build a Snowflake-based Data Science Platform that unifies external and internal market datasets across all global regions.

The engagement focused on data modernization, automation, and AI readiness, enabling the enterprise to derive predictive insights from a governed, scalable foundation.

Key Solution Components



Data Integration & External Feed Ingestion

- Designed a multi-geo ingestion framework using Snowflake's Data Cloud, bringing in external market trading and pricing feeds from sources such as Fastmarkets API and other global market data providers.
- Implemented Snowpipe, Streams, and Tasks to automate daily ingestion, transformation, and freshness validation.
- Established a unified ingestion process supporting structured, semi-structured, and API-based data pipelines.



Data Standardization & Governance

- Developed a global data schema to harmonize pricing, trading, logistics, and demand-supply data across 16 geographies.
- Implemented Snowflake's role-based access control (RBAC), object tagging, and data classification for secure, compliant governance and traceability.
- Established data quality metrics and validation frameworks directly within Snowflake for automated audit checks.



Analytical & Data Science Enablement

- Enabled Snowpark for Python to allow data scientists to build and deploy predictive and forecasting models directly within Snowflake - eliminating the need for data movement.
- Leveraged Snowflake Cortex for time-series modeling, price trend prediction, and anomaly detection based on historical and live market data.
- Created feature stores and ML pipelines for ongoing retraining and performance optimization.



Collaboration & Data Sharing

- Used Snowflake Secure Data Sharing to provide real-time data access across regional and central teams without replication or data transfer overhead.
- Established a semantic data layer to serve analytics dashboards, notebooks, and BI tools with consistent, governed data views.



Automation & Orchestration

- Designed automated workflows using Snowflake Tasks and Streams to manage daily ingestion, data transformations, and pipeline monitoring.
- Integrated with Apache Airflow for orchestration, dependency management, and pipeline scheduling across global data streams.

Solution Highlights



Global Market Data Hub

A unified Snowflake environment consolidates all internal and external trading data, enabling daily market tracking and cross-regional benchmarking across 16 geographies.



AI-Ready Analytics Workspace

Data scientists leverage Snowpark and Cortex within Snowflake to build predictive models and simulations - supporting strategic trading and procurement decisions.



Real-Time Market Intelligence

Continuous ingestion through Snowpipe delivers up-to-date insights on market shifts, volatility patterns, and demand fluctuations, ensuring timely analysis.



Collaborative Decision-Making

Using Secure Data Sharing, global teams access the same live datasets in real time, improving coordination, transparency, and analytical agility.

Powered by Snowflake

The solution fully harnesses Snowflake's AI Data Cloud, utilizing:

- Snowpipe for near real-time ingestion from APIs and regional data feeds
- Streams & Tasks for workflow automation and data freshness management
- Snowpark for Python for in-database ML experimentation and deployment
- Snowflake Cortex for predictive analytics and forecasting models
- Secure Data Sharing for governed, global collaboration

This architecture delivers a single source of truth for global market intelligence - highly governed, scalable, and designed for continuous analytical innovation.

Key Highlights

- **Unified Data Platform:** Single Snowflake Data Cloud managing data across 16 global regions.
- **End-to-End Automation:** Daily ingestion and transformation from external market APIs.
- **AI-Powered Insights:** Forecasting and anomaly detection using Snowpark and Cortex.
- **Global Collaboration:** Real-time access for analytics, trading, and strategy teams.



The Result

- **100% automation** of daily external market data ingestion across all 16 regions.
- **65% reduction** in manual data processing and validation time.
- **Improved forecasting accuracy** through unified, AI-driven models.
- **Real-time visibility** into market movements driving faster, data-backed decisions.

Outcome

The **US agronomy enterprise** now runs a **Snowflake-native Data Science Platform** that transforms global market data into actionable intelligence - enabling faster decisions, accurate forecasts, and improved trading strategy alignment.

By leveraging **Snowflake's AI Data Cloud** and **TVS Next's expertise in data architecture and AI strategy**, the organization has established a **future-ready market intelligence ecosystem** that supports innovation, transparency, and performance across its global footprint.