

# **REAL TIME INDUSTRY INSIGHT AND STRATEGIC INTELLIGENCE SYSTEM**

This presentation will introduce the project, highlighting its objectives, methodologies, and potential impact.

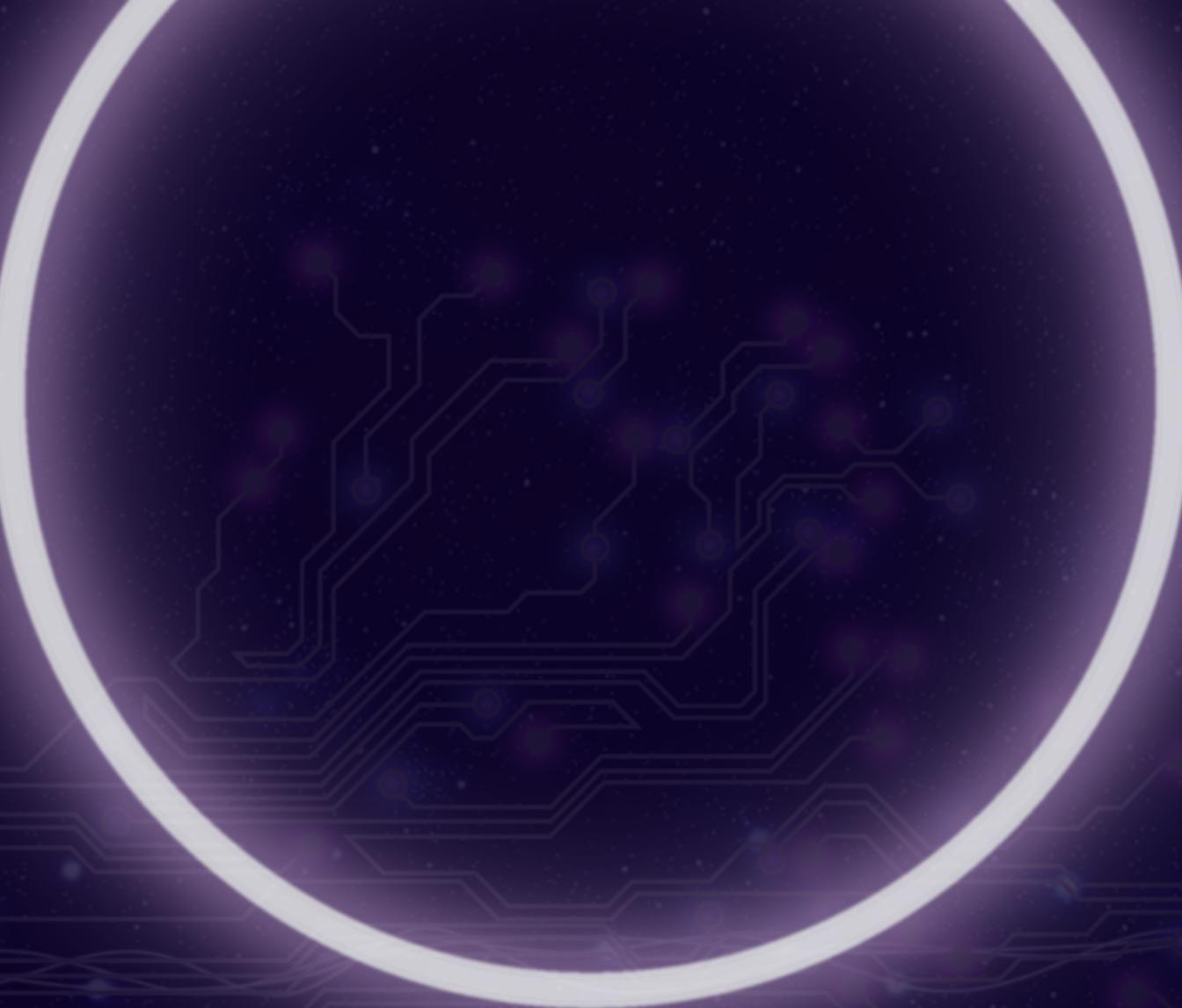
# Project Overview

## STRATEGIC INTELLIGENCE DASHBOARD

- Real-time market sentiment analysis system
- Multi-source data collection & ML-powered insights
- End-to-end data pipeline: Collection → Cleaning → Sentiment Analysis → Model Training → Visualization

# Problem Statement

- Businesses struggle to track real-time market sentiment manually
- Traditional methods miss emerging trends and competitor moves
- Need automated intelligence for data-driven strategic decisions



# Technical Stack

- Python with Full-Stack Data Science Libraries
- FinBERT (Transformers) from Hugging Face for Financial Sentiment Analysis
- Facebook Prophet for Time Series Forecasting
- Streamlit for Interactive Web Dashboard
- Slack Integration for Real-time Alerts

# Key Features

- Multi-source Data Collection (NewsAPI, Reddit, Google News)
- Financial Sentiment Analysis with FinBERT Model
- 5-day Sentiment Forecasting with Confidence Intervals
- Real-time Alert System for Market Shifts
- Interactive Competitor Intelligence Dashboard

# Data Pipeline

1. Data Collection → 4 APIs, 100+ articles daily
2. Preprocessing → Text cleaning & standardization
3. ML Analysis → FinBERT sentiment scoring
4. Forecasting → Prophet time series predictions
5. Visualization → Interactive Streamlit dashboard
6. Alerts → Slack notifications for significant events



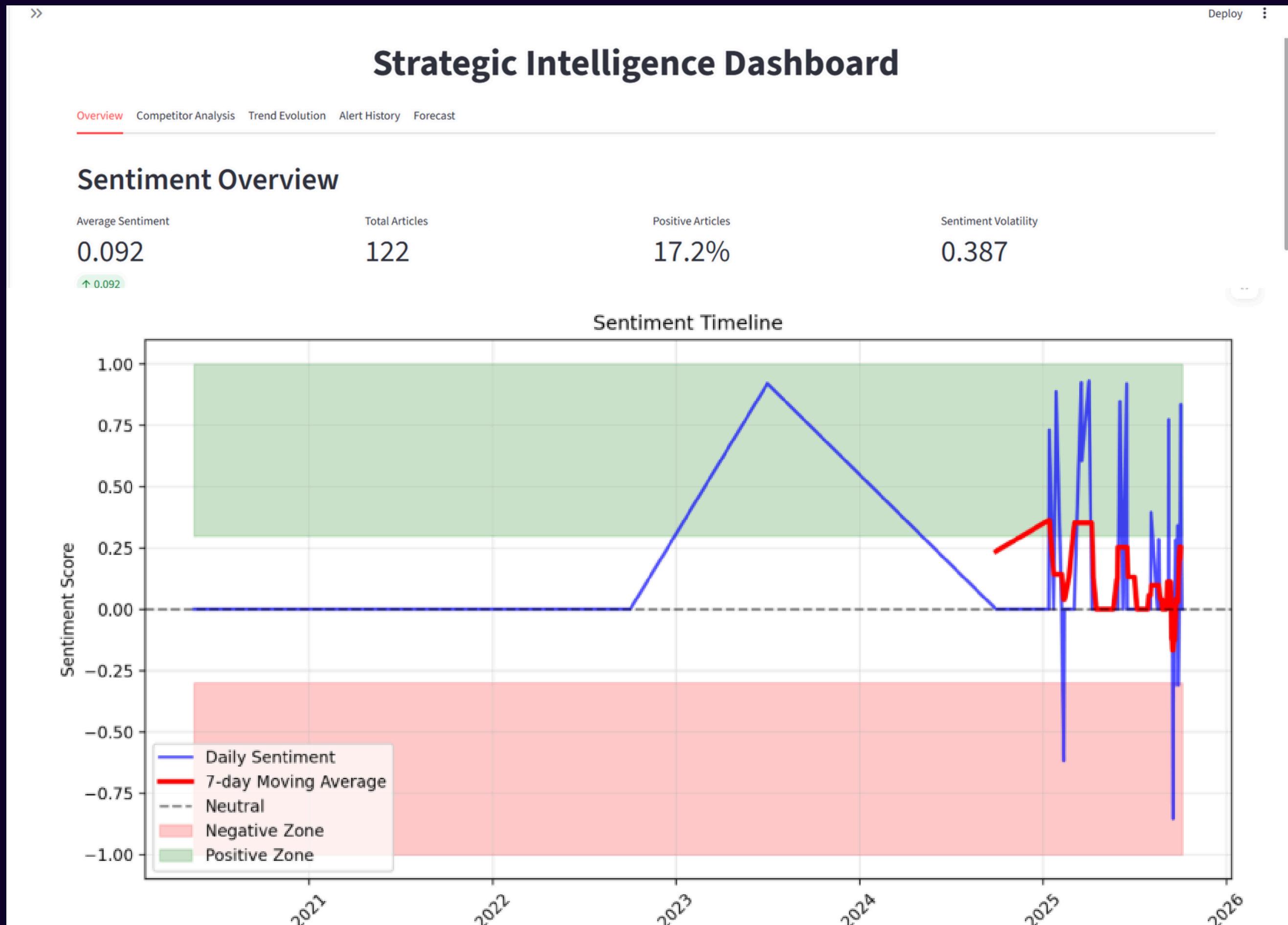
# Technical Challenges and Solutions

- Error Resilience → Handles API failures without crashing pipeline
- Data Standardization → Cleans HTML, URLs, and normalizes text across sources
- Financial Context → FinBERT model understands financial terminology
- Automated Workflow → Single command executes complete analysis pipeline

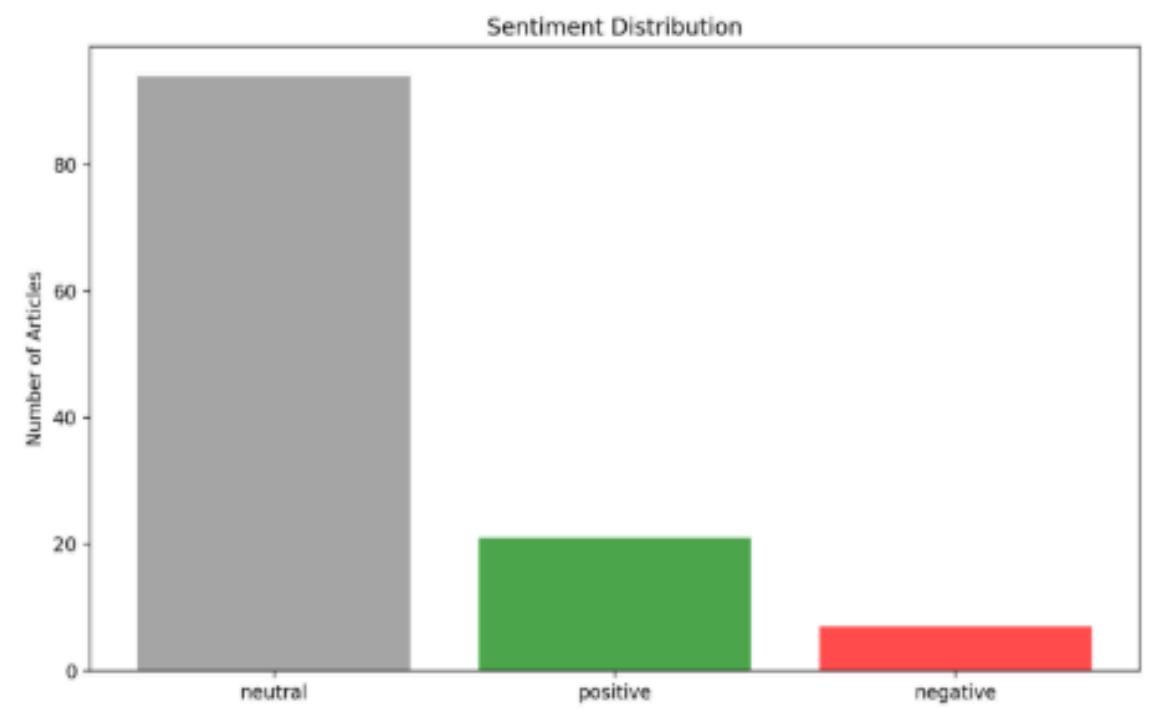
# Technical Highlights

- Built complete ML pipeline from scratch
- Integrated external APIs seamlessly
- Deployed production-ready web application
- Implemented real-time alerting system
- Created comprehensive visualization suite

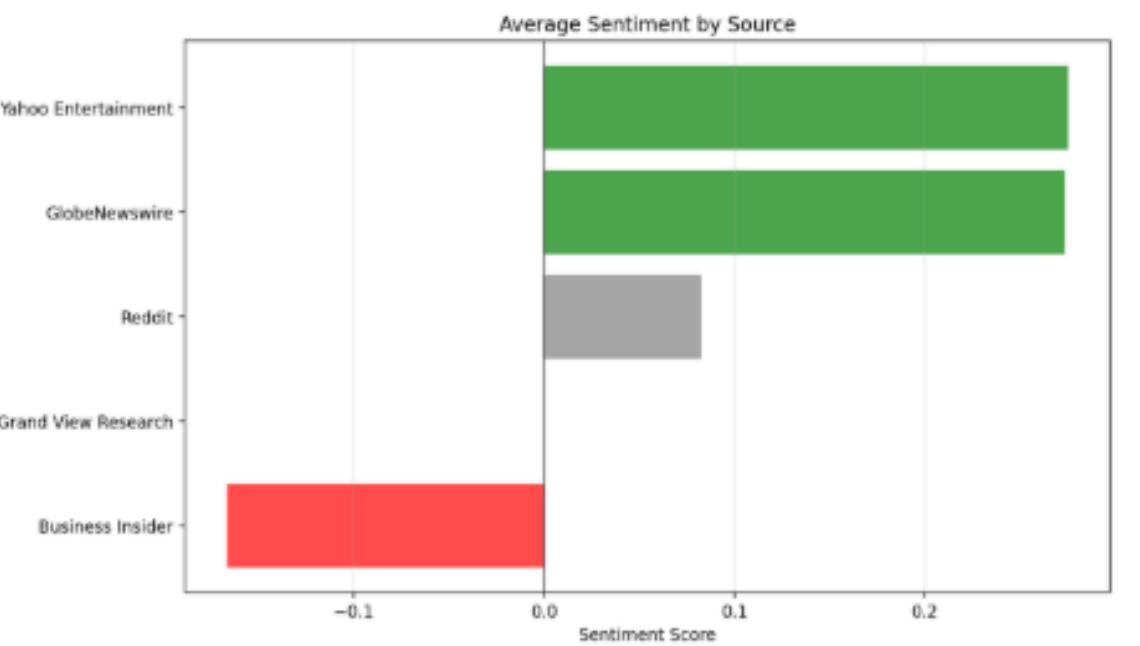
# Interactive Dashboard



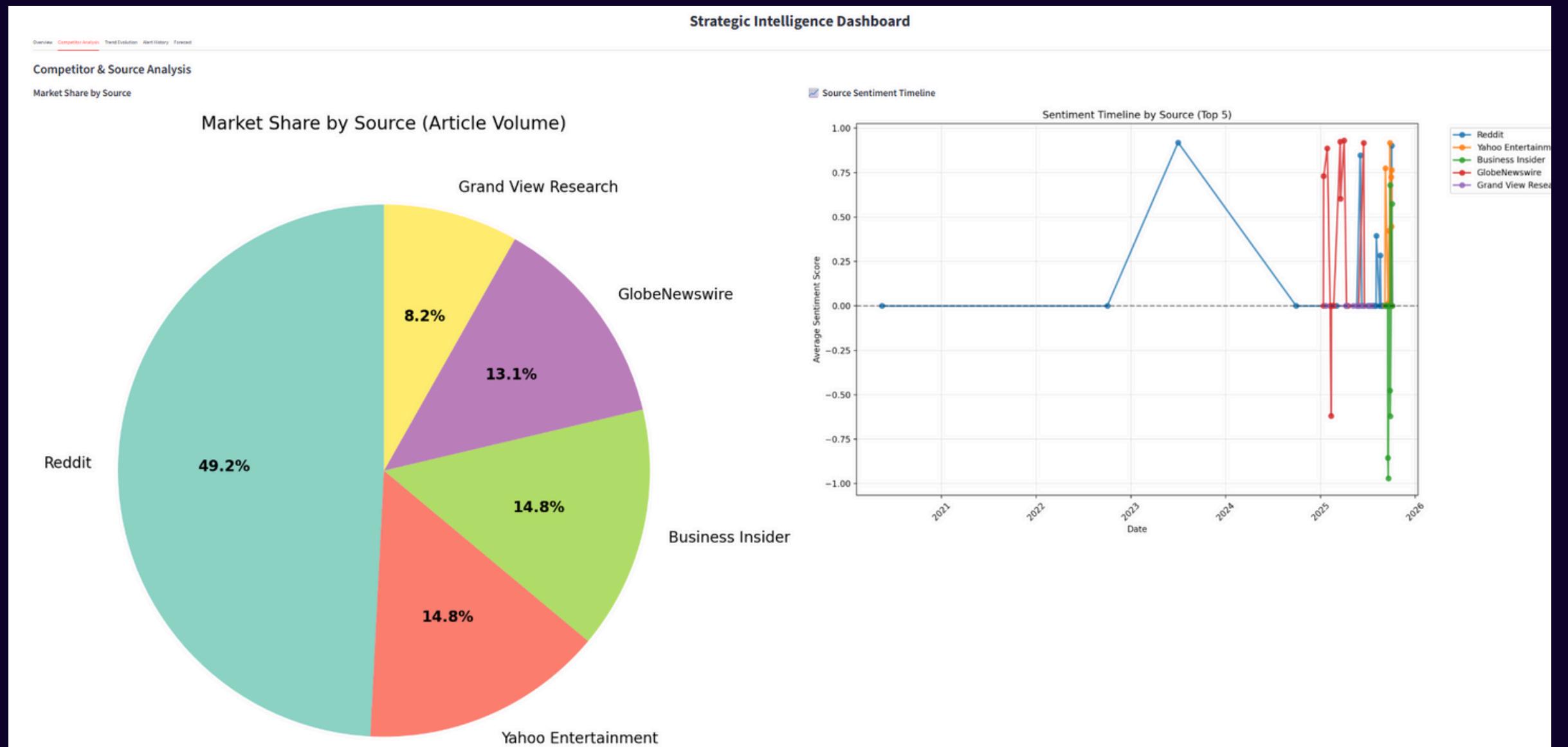
## Sentiment Distribution

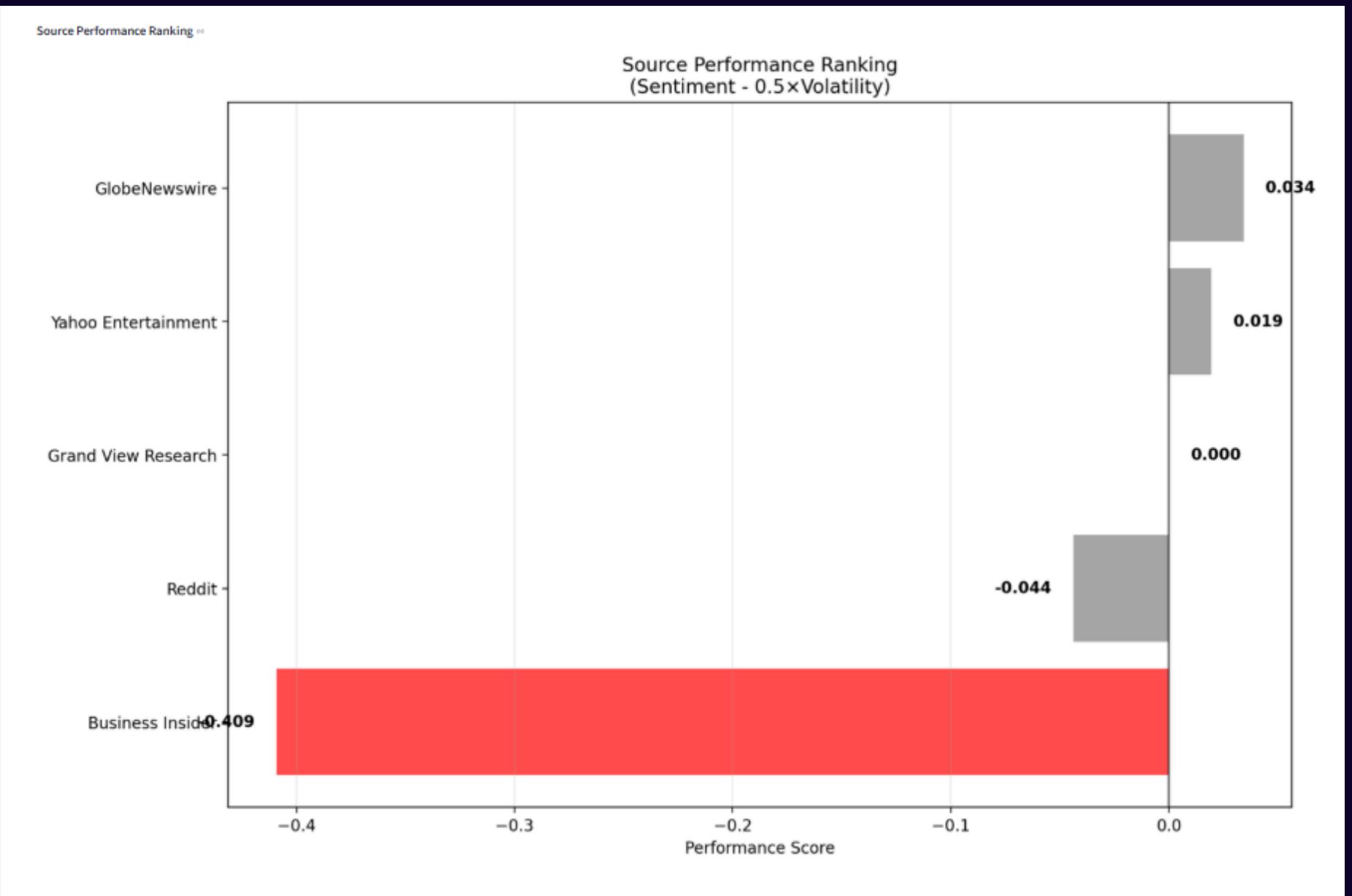


## Source Performance

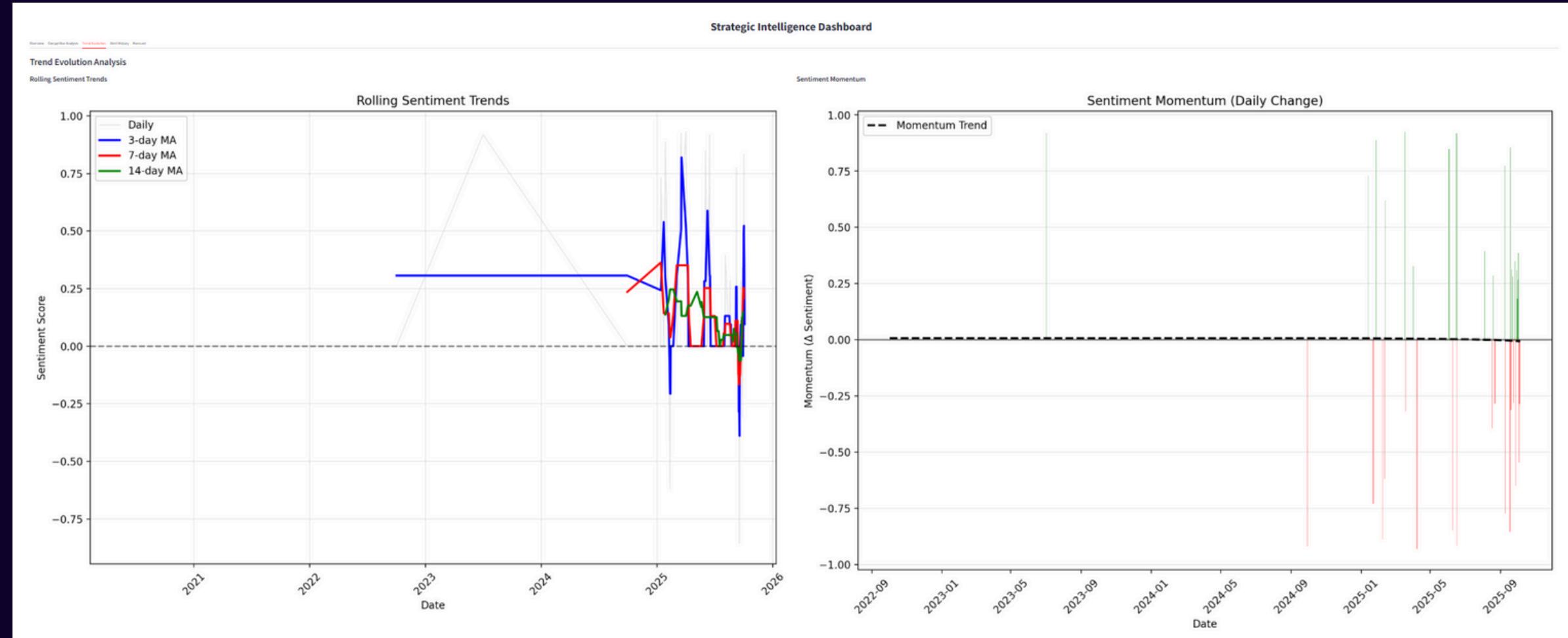


# Competitor Analysis





# Trend Evolution



# Alert History

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## Strategic Intelligence Dashboard

Deploy ⚙

Overview Competitor Analysis Trend Evolution **Alert History** Forecast

### Alert History & Key Events

Total Alerts: 11 | Negative Alerts: 2 | Positive Surges: 9

### Alert Events Timeline

Alert Events Timeline (11 events)

Legend: Negative Threshold (red dotted line), Positive Threshold (green dotted line), Neutral (blue line).

	date	type	sentiment	severity
10	2025-10-02 00:00:00	Positive Surge	0.8339	High
1	2025-09-17 00:00:00	Negative Sentiment	-0.8553	High
9	2025-09-08 00:00:00	Positive Surge	0.7742	Medium
8	2025-06-16 00:00:00	Positive Surge	0.9182	High
7	2025-06-03 00:00:00	Positive Surge	0.8475	High
6	2025-04-02 00:00:00	Positive Surge	0.9318	High
5	2025-03-18 00:00:00	Positive Surge	0.9237	High
0	2025-02-11 00:00:00	Negative Sentiment	-0.6191	Medium
4	2025-01-27 00:00:00	Positive Surge	0.8876	High
3	2025-01-13 00:00:00	Positive Surge	0.7305	Medium

Recent Alert Details

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# Forecasting

## Strategic Intelligence Dashboard

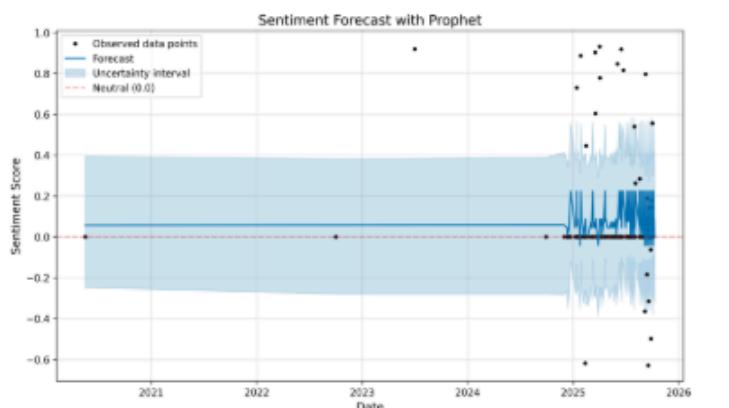
Overview Competitor Analysis Trend Evolution Alert History Forecast

### Sentiment Forecast

#### Forecast Overview



#### Forecast Components



#### Forecast Data

Average Forecast

0.088

Forecast Volatility

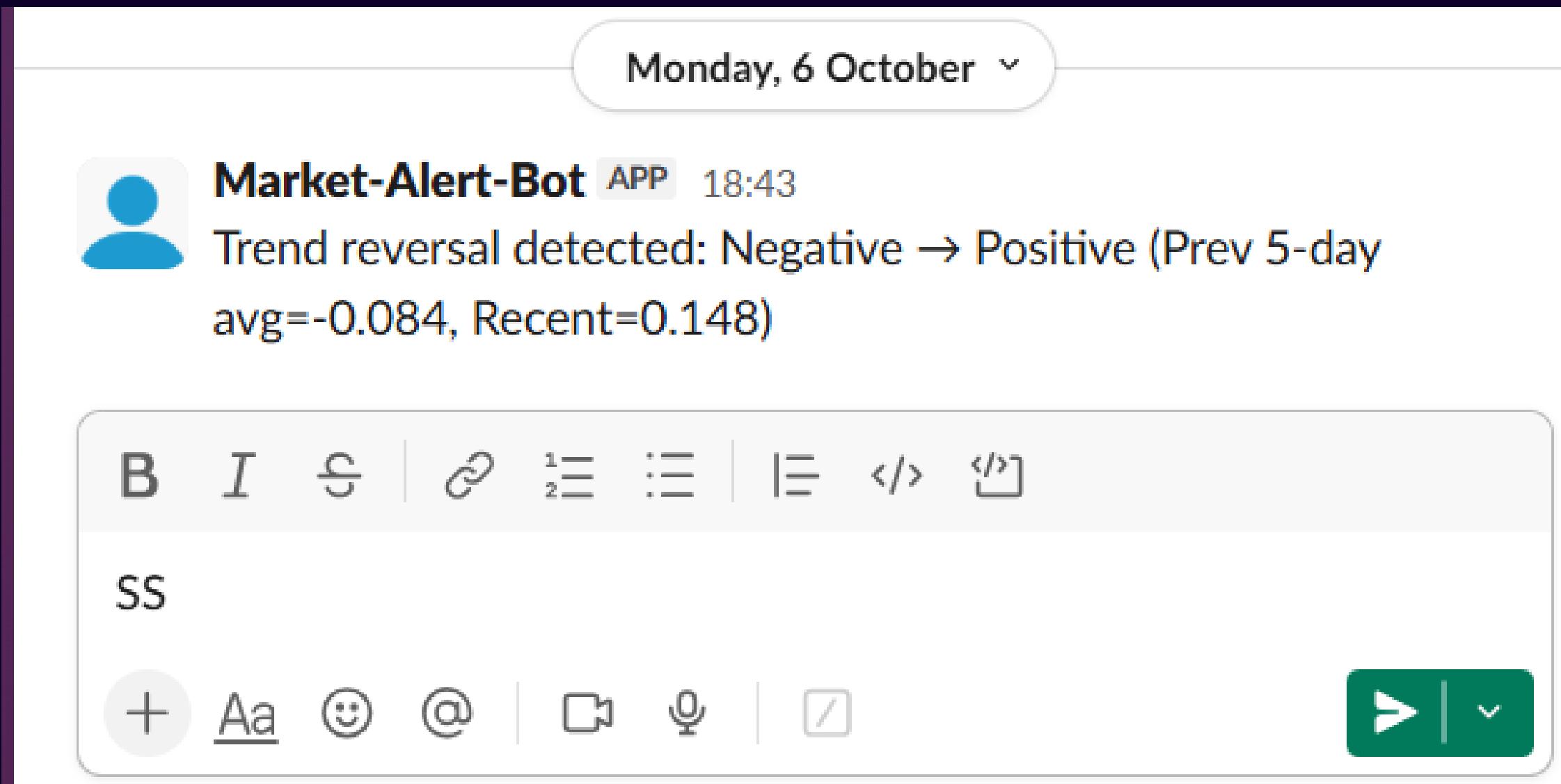
0.082

Avg Confidence Width

0.676

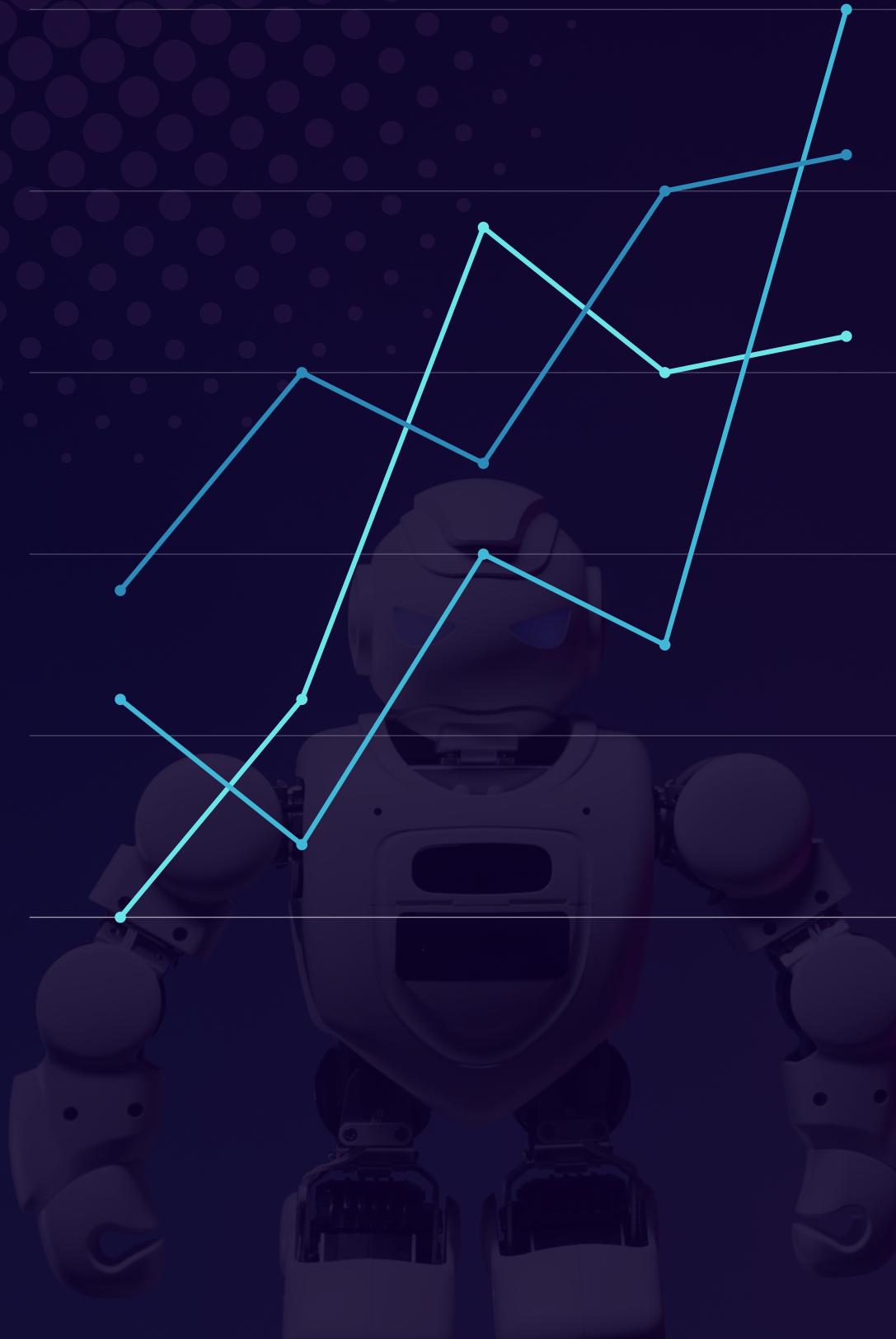
	date	sentiment	lower_bound	upper_bound
0	2025-10-06 00:00:00	0.2242	-0.1345	0.5456
1	2025-10-07 00:00:00	0.0732	-0.2593	0.4268
2	2025-10-08 00:00:00	0.0446	-0.3028	0.3551
3	2025-10-09 00:00:00	0.0876	-0.2648	0.4163
4	2025-10-10 00:00:00	0.008	-0.3254	0.3473

# Alert sent to slack



# Business Value

- Competitive Intelligence → Track market positioning
- Early Warning System → Detect sentiment shifts
- Predictive Insights → Forecast market trends
- Real-time Monitoring → Instant alerting
- Data-Driven Decisions → Quantifiable market intelligence



# Future Directions

1. Advanced ML Integration - ensemble models , anomaly detection
2. Expanded data sources like linked in company updates and industry news
3. Enhanced user experience
4. Automated investment insights and Causal impact analysis
5. Mobile app with push notifications
6. Industry specific models (Banking , Healthcare,Retail)