

## Case Study

# Implementing a Robust Model Monitoring for a Major Bank with Tredence



## Client Context

In a complex, fast-paced, and data-abundant industry like banking, making accurate predictions based on the latest, real-time data is crucial. A leading U.S. banking firm faced the issue of monitoring machine learning models and their unique features—an unprecedented feat that no standard market product could support.

## The Challenge

The banking firm found itself facing several significant issues:



### Complex model monitoring

The models' extensive and diverse nature, spanning binary classification, regression, and multiclass predictions, added complexity to monitoring efforts. Ensuring reliability across these different models proved to be a daunting challenge.



### Integration and compatibility needs

The client was not merely looking for a service to monitor models but wanted a solution that could integrate seamlessly with its existing workflows. The solution needed to be compatible with various programming languages and existing tools to ensure flexibility.



### Real-time insights

The client aimed to gather real-time, actionable insights from their machine learning models in production. A tool capable of identifying and alerting any drifts in features or targets, supporting big data in production, and automating the processes where possible was essential.

# Tredence Solution

Tredence deployed an AI/ML solution that addressed the bank's unique challenges. Our solution offered seamless integration of input, output, training, scoring, and ground truth data. We ensured pre-built, automated visualizations for input and output distribution and automated drift detection with alerts. The platform was centralized, secured, and capable of sharing metrics and dashboards with read-only restricted permissions and tracking changes across different periods.

## The Approach

Tredence created a robust AI/ML solution that addressed the bank's specific needs. We focused on providing a solution that minimized false negatives in drift alerts, allowed for granular machine-learning model management, and offered a high degree of customizability. We ensured explainability for various algorithms and platform-agnostic integration with the bank's model training and deployment tools. Our solution was scalable and could support metrics computation on temporally aggregated or segmented data.

## Unique Features Offered by Tredence



**Less alarming burnout:** Automated detection and alerts for drift, like in text data, with low levels of false negatives



**Transparency:** Explainability for various algorithms, including deep learning and NLP



**Granular ML model management:** Each scoring instance is monitored and data is aggregated from multiple instances



**Platform agnostic:** Integration with model training and deployment tools and existing platforms



**Modular & customizable:** Support for user-defined custom metrics



**Strategic visibility:** Support for metrics computation on temporally aggregated or segmented data

## Business Impact

By partnering with Tredence, the bank successfully transformed its approach to model monitoring, proving that even the most complex challenges can be overcome with the right expertise and dedication. The overall business impact included:



**Quick and effective implementation:** Tredence's solution was integrated in record time, providing the bank with an integrated, real-time monitoring system that surpassed their goals and expectations. The bank can now effectively monitor their vast array of features, promptly detect anomalies, automate processes, and conduct performance comparisons over time.



**Improved efficiency:** The solution reduced the time spent on model monitoring tasks from six days per month to just an hour.



**Enhanced MRM delivery:** Automated inputs into the monthly Model Risk Management (MRM) document led to an 80% increase in efficiency for data scientists to deliver on their MRM requirements.



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