

BNY + DTCC: TradeWatch

Predictive Modeling & Forecasting: Anomaly
Detection and Sanctions (Regulatory Compliance)

BNY Titans

February 2025



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BNY – Background

\$52.1T

Assets under Custody
and/or Administration*

\$12.5T

Average Daily
Clearance Value*

20%

of the world's investible
assets* are touched by us

\$2.0T

Assets under
Management

37

Countries we
are present in

BNY by the numbers

BNY is a **central orchestrator** of the **global financial ecosystem**



#1

Global Custodian

#1

Global Issuer Services

#1

Global Securities Lending Agent

240-year history built on **trust and innovation**

From being an early participant **of DTCC** and the originator
of **third-party repo** and **collateral management**

To build **cutting edge AI solutions** and **facilitate the
responsible and ethical use of AI**

Executive Summary

Challenge

Compliance processes today are **highly inefficient due to fragmented systems, manual interventions, and labor-intensive sanctions screening**

Idea

Leverage AI + ML to streamline post trade compliance by bringing different functions (anomaly detection, sanctions screening, fraud, AML, KYC) in one place which is **interoperable with the industry participants (scalability)**

\$17B - \$24B

Current industry spend on trade processing and related functions

\$342B

Cumulative fines paid by banks for non-compliance between 2009 - 2017

**364 hrs. (45 workdays)
17.5% time saving**

An analyst with the support of AI-enabled decision support systems has the potential to save

* Deloitte Study: AI in post-trade processing

With Our Solution



Provides insights where parties struggle to communicate with existing field construct



Leverage AI + ML to learn from historical data



Automate manual processes



Save time and allow for faster post trade compliance



Scalable to other industry participants

Problem Statement

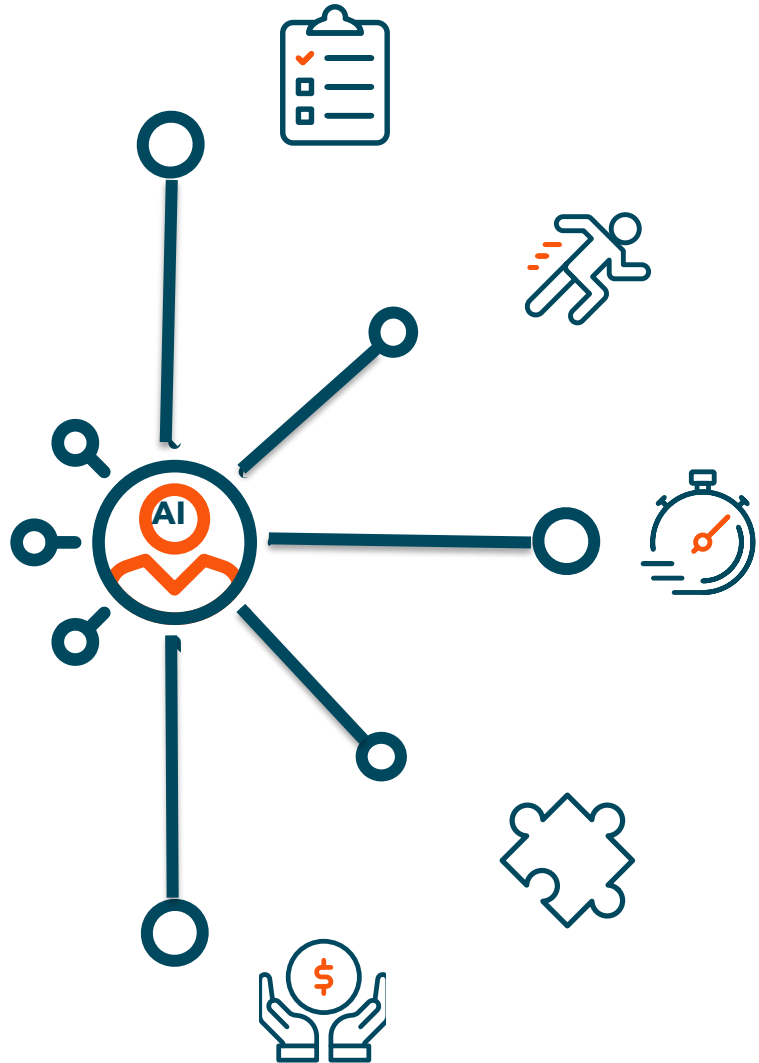
Fragmented Post Trade Compliance

- **Siloed Compliance Systems & Fragmented Workflows:**
Compliance teams work across multiple disconnected systems, leading to inefficiencies
- **Manual “Swiveling” Between Systems:**
Teams must constantly switch between platforms to complete tasks, slowing down operations
- **High Operational Risk & Compliance Costs:**
Fragmented processes increase regulatory risk, while inefficiencies drive up compliance costs
- **Sanctions Screening is Slow & Labor-Intensive:**
The current process is manual, time-consuming, and difficult to scale, limiting an organization’s ability to adapt to evolving regulations
- **Large Data Volumes:**
Analysis required for large volumes of historical data to manually identify patterns

Our goal is to enhance post trade compliance processes to increase efficiency and simplify workflows



Solution Overview – Key Features, Capabilities & Impact

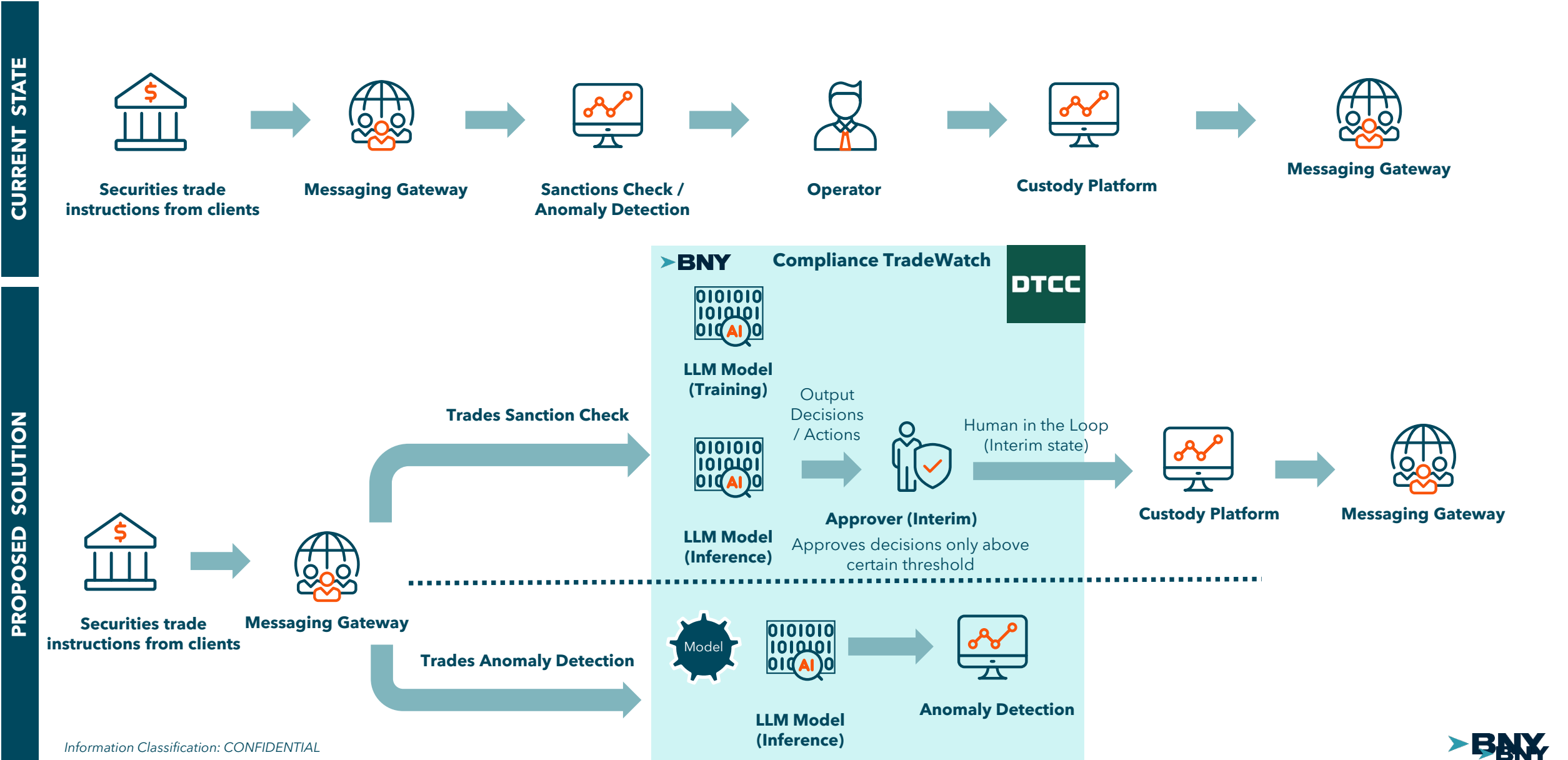


Transforming Compliance with AI-Powered Automation: **A Unified Compliance Operations Portal**

- ✓ **Centralized Compliance Hub**
Create a one-stop compliance operations portal that centralizes compliance-related workflows, eliminating process fragmentation.
- ✓ **Faster Compliance Processing with Minimal Manual Intervention**
Automates repetitive compliance tasks, ensuring faster and more reliable decision-making
- ✓ **Real-time Anomaly Detection**
Identifies suspicious transactions and patterns, enabling proactive regulatory risk management.
- ✓ **Seamless Integration**
Connects with DTCC and other existing compliance systems, regulatory databases, and third-party verification tools
- ✓ **Cost Savings**
Automating compliance workflows leads to significant cost and resource optimization
- ❑ Future Phase: Add KYC, AML and Fraud modules
- ❑ Future Phase: Integration with other market participants

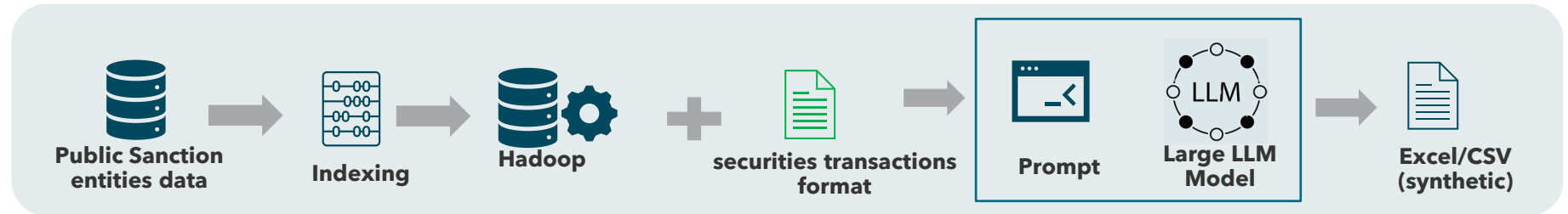
Compliance TradeWatch: Current vs Proposed Solution

AI powered compliance check automation portal supporting anomaly detection and sanction screening features

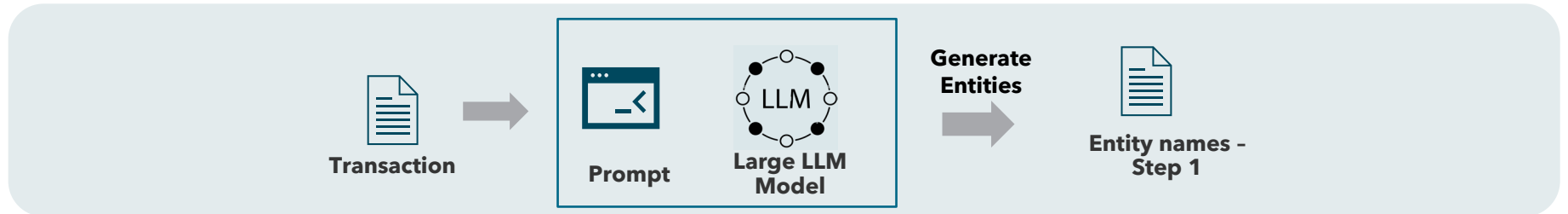


Technical Implementation - Sanctions Screening

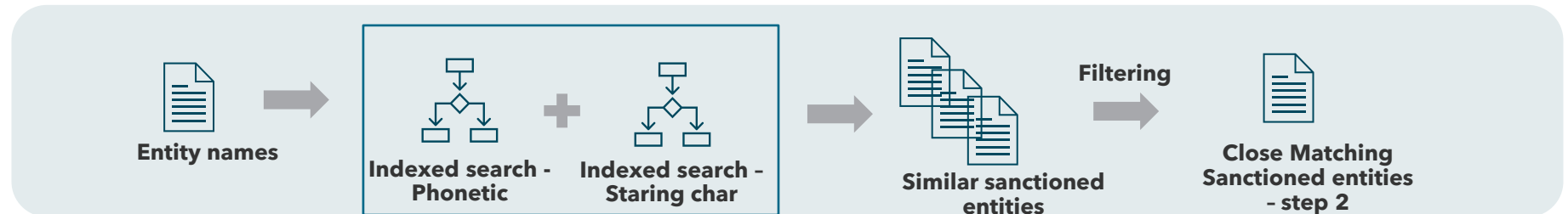
1 Collect and Curate Data



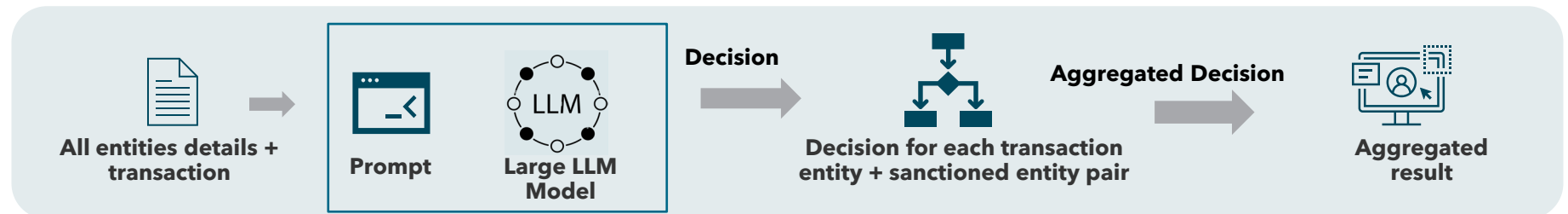
2 Generate entity names from Transaction



3 Close Sanctioned entity matches

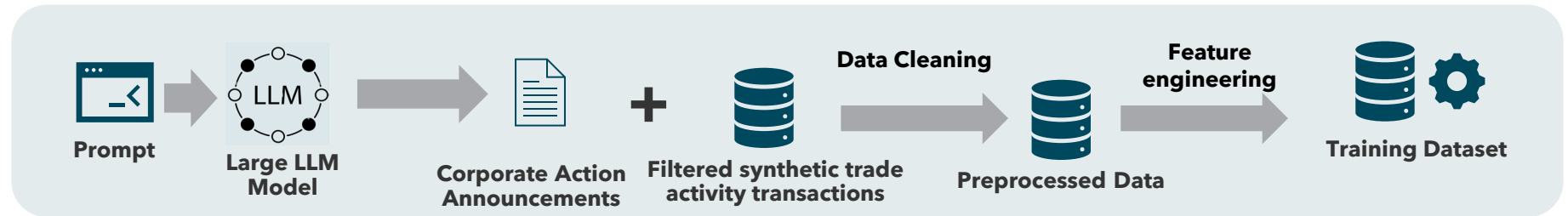


4 Generate decisions using LLM

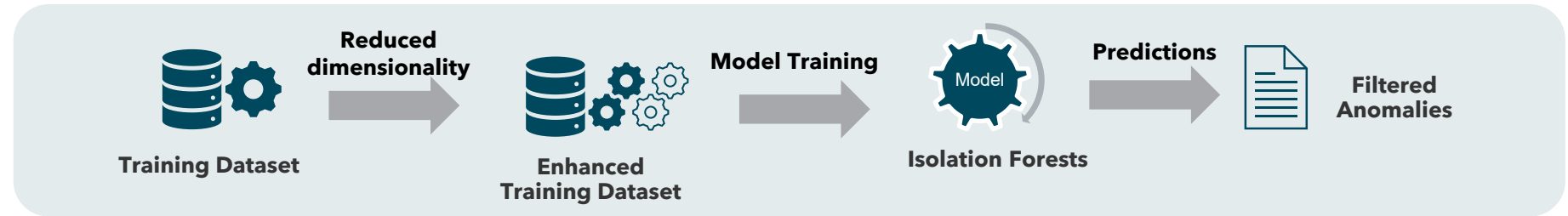


Technical Implementation - Anomaly Detection

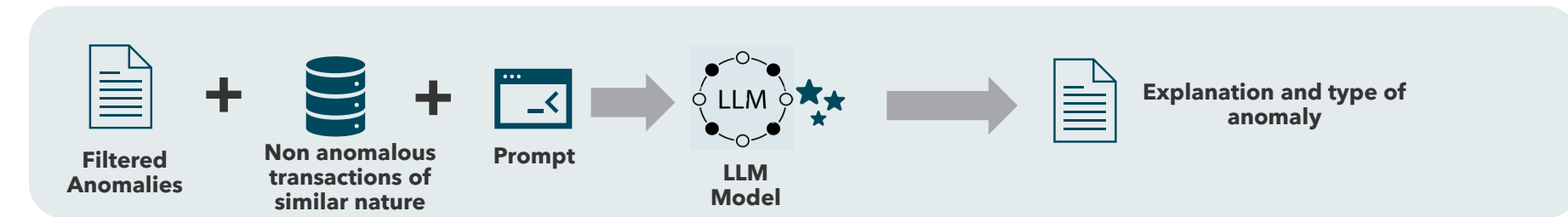
1 Collect and Curate Data



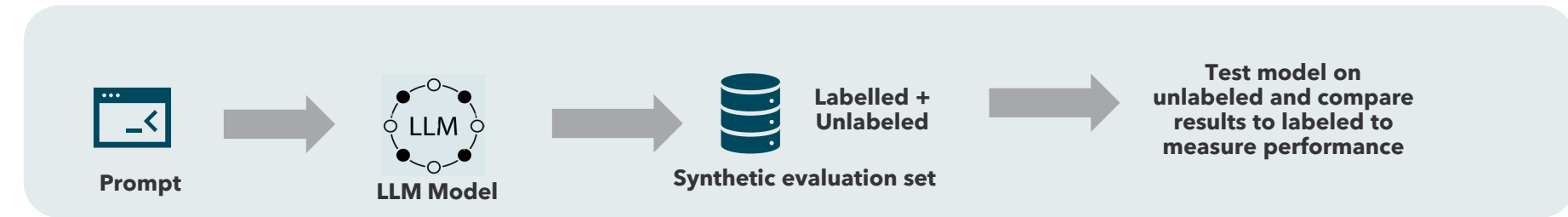
2 Data Modelling



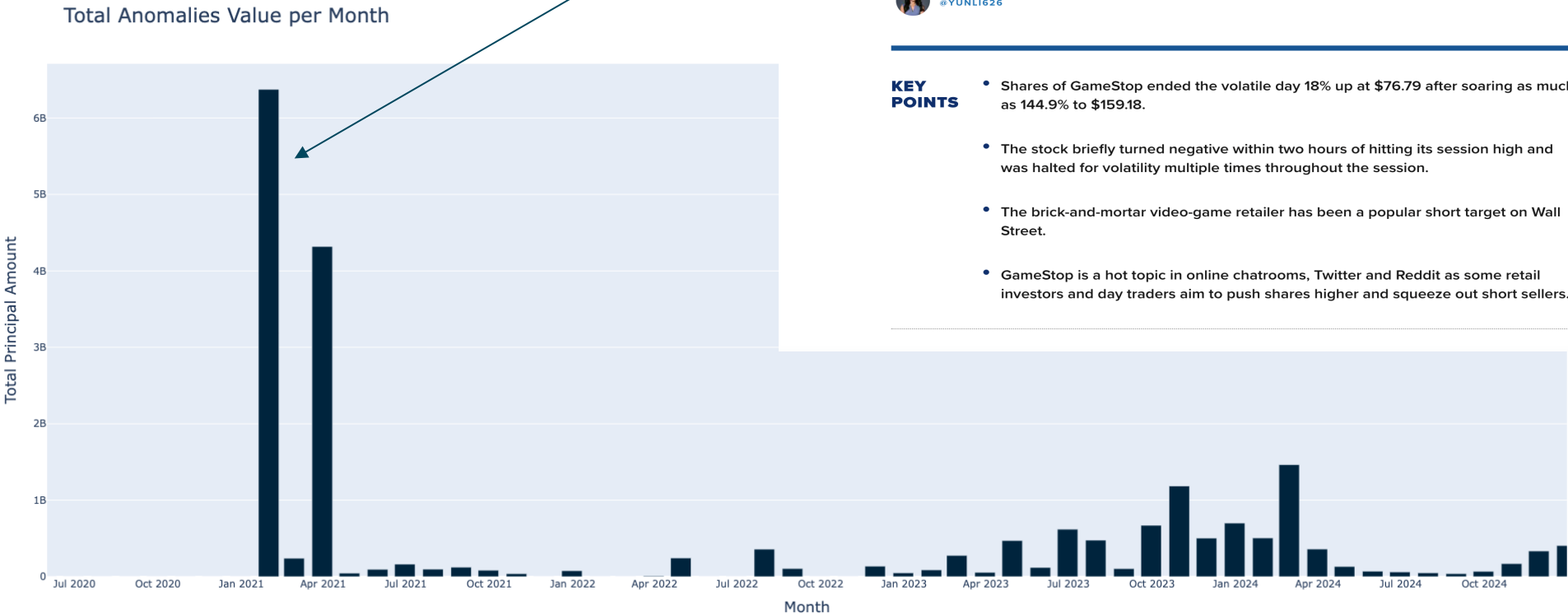
3 Model Explainability



4 Model Performance



Time Series of Anomalies



* <https://www.cnbc.com/2021/01/25/gamestop-shares-jump-another-40percent-shake-off-analyst-downgrade-as-epic-short-squeeze-continues.html>

CNBC

MARKETS BUSINESS INVESTING TECH POLITICS VIDEO INVESTING CLUB PRO LIVESTREAM

MARKETS

GameStop jumps amid retail frenzy, shares double at one point in wild trading

Yun Li

@YUNLI626

SHARE f X in

KEY POINTS

- Shares of GameStop ended the volatile day 18% up at \$76.79 after soaring as much as 144.9% to \$159.18.
- The stock briefly turned negative within two hours of hitting its session high and was halted for volatility multiple times throughout the session.
- The brick-and-mortar video-game retailer has been a popular short target on Wall Street.
- GameStop is a hot topic in online chatrooms, Twitter and Reddit as some retail investors and day traders aim to push shares higher and squeeze out short sellers.

WATCH LIVESTREAM

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NOW UP NEXT

Closing Bell: Overtime

Fast Money

HR and Finance aren't simple

10 Information Classification: CONFIDENTIAL

BNY

Industry Impact, Collaboration and Production Viability

▪ **Potential Path to Production**

- **Validate Business Case** – Assess costs, potential savings, and AI investment needs to procure business approval.
- **Select AI Model** – Choose an optimal **GenAI model** based on **GPU availability** (preferably on-prem).
- **Integrate Key Data Sources – Collaborate with internal teams, industry partners, and regulatory bodies** to connect relevant data sources:
 - **Internal (broker feeds)** for insider trading detection
 - **Public (OFAC lists)** for sanctions screening
 - **Commercial (news APIs)** for corporate actions
- **Ensure Compliance & Governance** – Obtain approvals from **Data Board review and Model Risk Review**
- **Enterprise Alignment** – Standardize code for security, compliance, and integration.
- **Testing & Deployment** – Follow gating processes (unit testing, QA, UAT), and risk monitoring for a smooth launch.

▪ **Scalability at an enterprise level**

- This solution can evolve into a unified Compliance Portal, integrating:
 - **AML** (Anti-Money Laundering) and **Fraud Detection**
 - **Enhanced Sanctions Screening** for 1LOD & 2LOD
 - **Persona-Based Access Control** for Segregation of Duties
 - **Industry-wide collaboration for regulatory alignment**

▪ **Potential challenges and limitations**

- **Generic API-Based AI Integration** – The current design supports API-based AI models, but not custom enterprise AI solutions.
- **Lack of Built-in Enterprise Monitoring** – Needs enterprise-grade monitoring tools.
- **Simple Yet Reusable Architecture** – Designed for flexibility, but resiliency enhancements can further reduce risks.
- **Ongoing AI Risk Monitoring** – Regular AI oversight is essential to mitigate compliance risks.

Demo

Path Forward

- ❑ This solution has the potential to grow into a full-fledged compliance management product which can utilize the latest gen-AI models for efficiency
- ❑ This solution can help improve operating leverage, leading to lower costs and better risk management
- ❑ Explore potential collaboration opportunities with DTCC and other industry participants

Our Team



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Q & A
Thank You!