Transforming AML STR Generation with GenAI

High Level Summary

As part of the inaugural cohort of the Generative Artificial Intelligence Sandbox (GenA.I. Sandbox), Dah Sing Bank has successfully completed the proof of concept (PoC) for the AI-powered Anti-Money Laundering (AML) Suspicious Transaction Reporting use case. This initiative addresses the significant manual effort traditionally required to manage transaction monitoring alerts and prepare suspicious transaction reports (STRs) and non-reportable case narratives, which has placed a heavy workload on the AML investigators.

Leveraging recent advancements in Generative AI (GenAI), the Bank implemented an AI-powered system to streamline and enhance the STR generation workflow. The system supports investigators by consolidating relevant data and generating structured draft narratives aligned with transaction review templates. These narratives—covering both reportable and non-reportable cases—offer detailed insights that facilitate follow-up investigations and improve consistency and efficiency across the review process.

While final decisions on reportability remain with human investigators, the GenAI system significantly enhances investigative support and narrative quality, reduces the time required for narrative preparation, and ultimately strengthens the Bank's AML operations and process of its reporting to the Joint Financial Intelligence Unit (JFIU).

Proposed Flows



1. Once an alert is triggered by the AML Transaction Monitoring (AML-TM) system, the GenAI system automatically initiates the case creation process by consolidating relevant data. It extracts customer, account, and transaction details from both the AML-TM system and the Bank's Data Warehouse, ensuring that investigators have immediate access to all necessary information for further analysis.
2. The GenAI system generates basic investigative narratives, such as customer background, triggering events and transaction patterns. It then analyzes the consolidated data to provide case insights, automatically highlighting key patterns and anomalies to guide investigators in their initial review and follow-up actions.
3. Investigators conduct further analysis based on the system-generated insights and anomalies, and information obtained from frontline and customer. They can document findings, add supplementary information, and determine whether the case is reportable to JFIU or non-reportable.

4A. After completing the investigation and documenting the conclusion, if the case is deemed reportable to JFIU, a Suspicious Transaction Report (STR) will be generated. The STR will include the supplementary information and the investigation conclusion added by the investigator, and it will remain pending until final approval for submission to JFIU.

4B. If deemed non-reportable, a narrative summarizing the conclusion and supporting details is generated. The case remains pending until approval for closure is obtained.

5A. Upon approval, the system generates the STR XML file in the format required by JFIU. Then, users submit the XML file via the JFIU portal.

5B. Upon approval, the case is formally closed. The non-reportable case narrative and related documentation are archived in the system.

Key Findings and Takeaways

From an operational efficiency perspective, the PoC demonstrated that the Bank may achieve a notable reduction in preparation time with GenAI-powered STRs and non-reportable case narratives, ranging from approximately 30% to over 80%, depending on case complexity. For simpler cases, such as non-reportable individual transactions, the GenAI system delivered around 30% time savings. In contrast, more complex reportable corporate cases saw reductions of up to 80%. These results underscore the model's effectiveness in streamlining workflows and highlight its strong potential for scalable deployment across AML operations.

A key insight from this initiative is the critical role of Supervised Fine-Tuning (SFT) when combined with domain expertise. This approach significantly outperformed models without SFT, enabling more accurate and context-aware STRs and non-reportable case narratives. The project's success was underpinned by secure and cost-effective infrastructure support from the GenA.I. Sandbox and Cyberport's AISC GPU resources, enabling the Bank to progress from concept to deployment without significant upfront investment. It aligns with the Hong Kong Monetary Authority's strategic direction on AI-driven financial crime monitoring and sets a strong precedent for future RegTech innovations that balance technical capability with regulatory rigor.

Next Steps

Following the successful PoC, the Bank will initiate the next phase of development to deepen the system's analytical and decision-support capabilities. A key focus will be the integration of external data sources—including company background checks and open-source intelligence on transaction counterparties—to enrich the contextual understanding of each case. These enhancements will enable the system to generate more comprehensive and substantiated narratives, complete with citations and reasoning, thereby supporting investigators in navigating complex and ambiguous scenarios with greater confidence.

To support this evolution, the Bank will establish a secure and scalable data integration pipeline underpinned by robust data governance and compliance frameworks. In parallel, a continuous monitoring and feedback mechanism will be implemented to track model performance, ensure regulatory alignment, and drive iterative improvements.