DataWalk

Graph Analytics:
The Key To Making
FRAML A Reality

Financial institutions today face significant challenges in detecting, preventing, and investigating financial crimes (e.g., fraud and money laundering). The growing complexity of financial transactions, the increasing sophistication of criminal activities, and the sheer volume of data can make it difficult to identify and mitigate these risks. This becomes more challenging considering the fact that the anti-crime processes for AML and fraud in banks have typically been established separately, resulting in unconnected data silos. On top of these basic issues, an increasing number of financial institutions want to combine anti-fraud and AML efforts.

This paper introduces the concept of FRAML, which combines fraud detection and anti-money laundering efforts to create a more comprehensive approach to fighting financial crime.

What Is FRAML?

FRAML (Fraud and Anti-Money Laundering) is a unified approach to detecting, preventing and investigating financial crimes that integrates fraud detection and anti-money laundering efforts. By combining these two areas, FRAML provides a more comprehensive view of financial activities, enabling banks to better detect and mitigate potential crime risks. FRAML is important because it enables financial institutions to identify and prevent financial crimes more effectively and efficiently, ultimately protecting both the company and its customers.

Challenges With Implementing FRAML

Implementing FRAML is not without its challenges. One of the most significant obstacles is the need to fuse together data from disparate sources. Financial institutions must deal with a variety of data structures and formats, as well as data inconsistencies and missing pieces, which can make it difficult to create a unified view of financial crime risk. Another challenge is the need to ensure data accuracy, completeness, and consistency. It is challenging to match entities stored in various systems where no one has considered common data naming and formatting when implementing the solutions. A third challenge is to create a holistic view of risk, which requires new analyses as well as the combination and synchronization of rules and scores, for both AML and fraud. Finally, there is often a lack of common data governance procedures, particularly with respect to determining who has access to specific data.

The Role Of Graph Analytics In FRAML

Graph analytics can help financial institutions overcome these challenges and enable you to make FRAML a reality. According to Gartner research, graph technology forms the foundation of modern data and analytics, with capabilities that can enhance and improve user

collaboration, machine learning models, and explainable[1] AI. Graph technologies are not new to data and analytics, but there has been a shift in thinking as organizations identify an increasing number of use cases in FRAML where "graph" delivers unique benefits

Graph analytics supports FRAML in several key ways:

- **Simplification Of Data Integration Via A Knowledge Graph:** Graph technology can help financial institutions integrate data from disparate sources by creating a unified view of a customer data. By using a knowledge graph – available with some graph analytics systems - banks can easily integrate data from multiple sources, in various formats, shapes and schedules to create a single, comprehensive view of their data. A knowledge graph can also enable you to understand and easily navigate complex relationships in your data. By using a knowledge graph, you can quickly identify patterns and relationships across any or all of your organization's data, enabling you to perform complex analytics to better detect potential risks related to potential crimes.

  For example, a bank may have separate databases for customer data, transaction data, AML alerts, and fraud alerts in separate systems. By using a knowledge graph, the bank can create a unified view, with a single source of customer profiles, transaction histories, and AML and fraud alerts, allowing analysts to quickly identify potential risks more accurately and comprehensively.
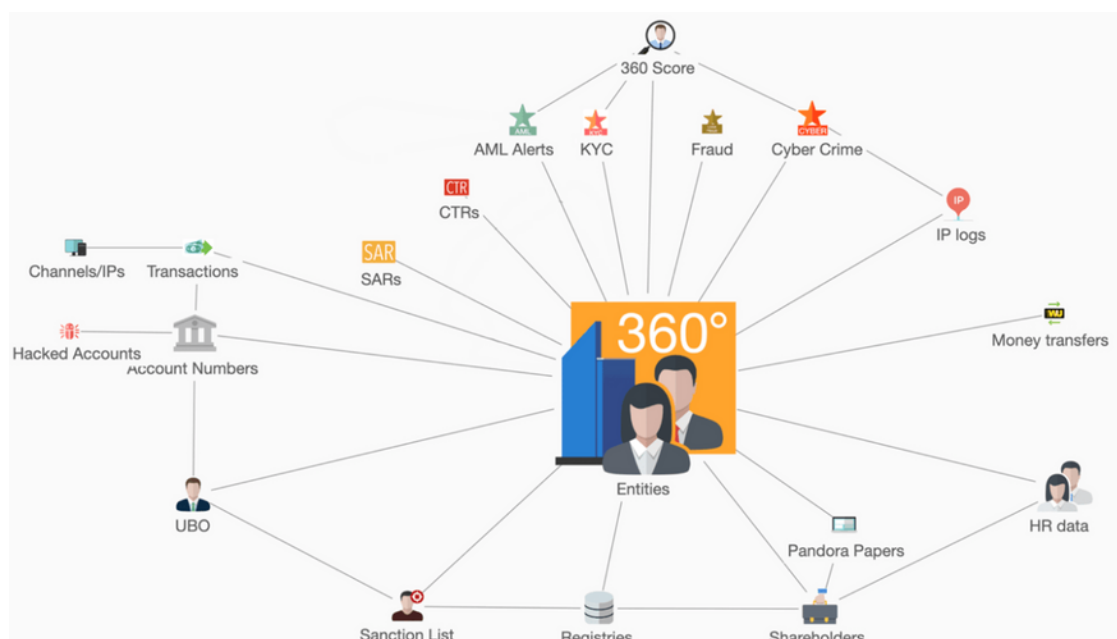

Figure 1. An example of a knowledge graph where all bank data is connected

[1] Source: https://www.gartner.com/smarterwithgartner/gartner-top-10-data-and-analytics-trends-for-2021

- **Entity Resolution – Fuzzy Matching:** Graph analytics can help you perform entity resolution and fuzzy matching, by identifying potential matches between different data sources. By using graph algorithms, you can quickly identify potential matches and reduce false positives.

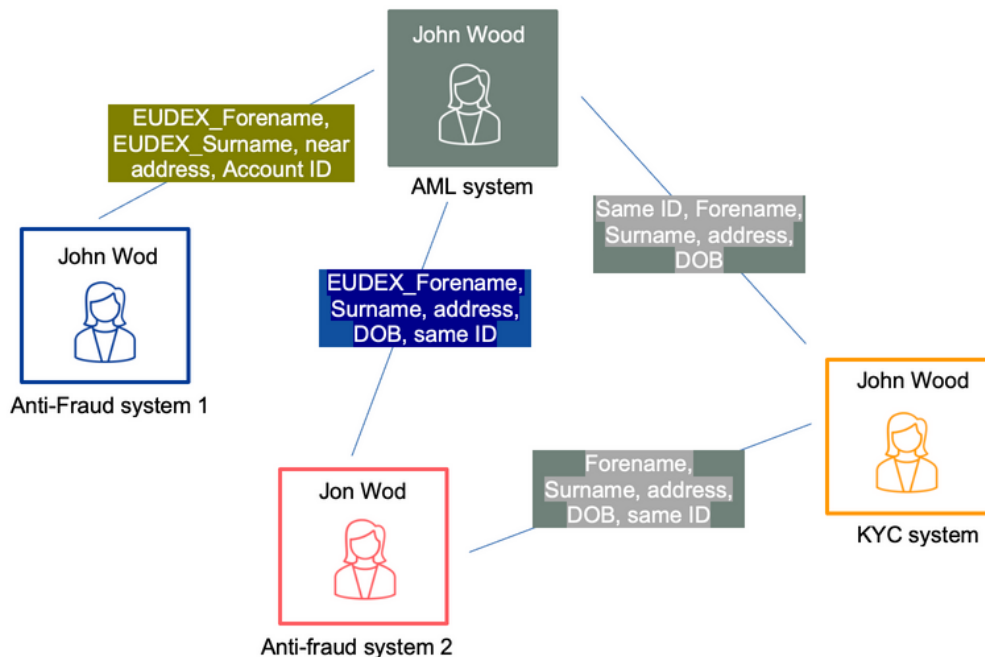 *For example, a bank may use graph algorithms to identify potential matches between entities.*

Figure 2. Entity resolution keys generated by various techniques

- **Data Exploration:** With many approaches, combining data from AML and anti-fraud systems can increase the complexity of analysis. However, some graph analytics systems simplify this by enabling you to explore complex data without requiring complex coding or programming skills. With the ability to easily perform traversal operations, you can switch between fraud and AML contexts, uncovering new patterns and insights from the combined data.

  Example of a query: customers that have been alerted multiple times for a structuring AML scenario, have a SAR filled, have been marked as suspicious for loan fraud, and both cases are pending.
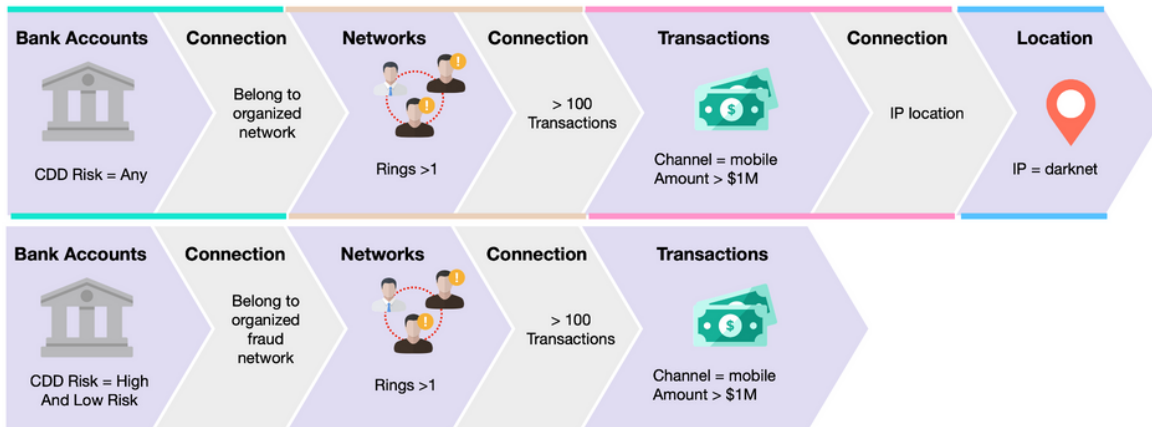
Figure 3. An example of a visual no-code query

- **Uncover Hidden Insights:** Graph analytics can enable you to uncover hidden insights using graph algorithms such as network detection and find paths. For example, network detection algorithms can help you identify clusters of potentially fraudulent entities hidden across your vast amounts of complex data. Find paths algorithms can help you identify the shortest path between entities, providing insights into how they are connected and potentially uncovering hidden relationships that could be indicative of fraudulent activity.
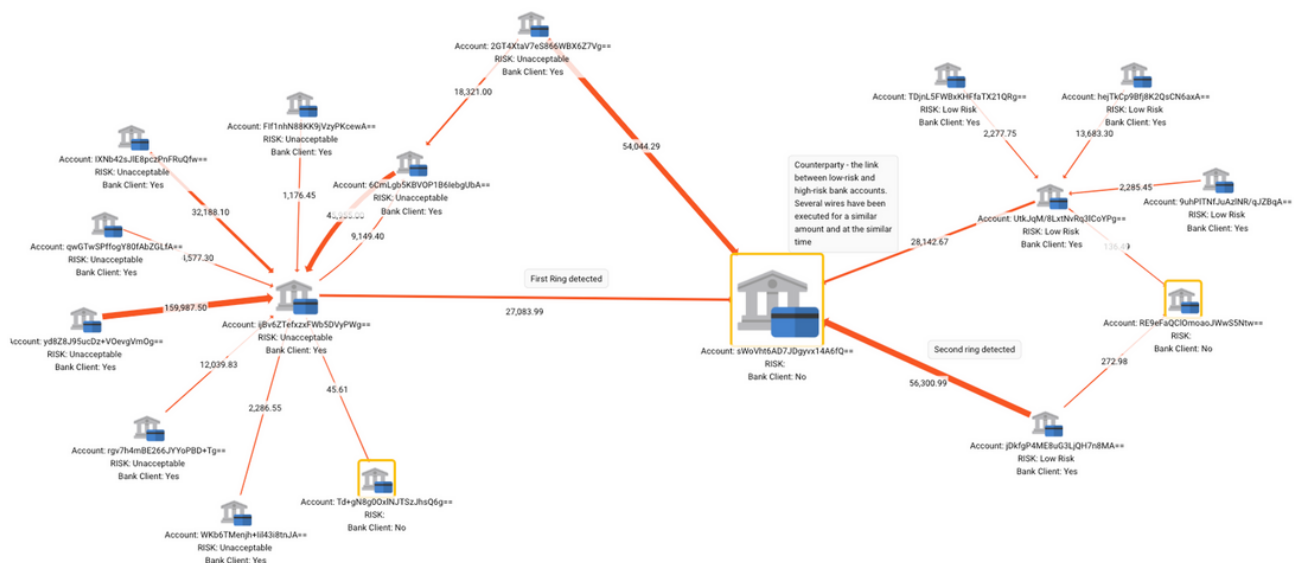

Figure 4. Example of suspicious AML and fraud cluster identified by the network detection algorithm, where originator high-risk accounts (left side) have the same beneficiary counterparty (in the middle) as originator low-risk accounts (right side) and where a similar amount has been transferred at a similar time.

- **A Comprehensive Scoring Facility For FRAML:** Graph analytics can help banks build a comprehensive scoring system for FRAML, by assigning risk scores to different financial transactions based on their likelihood of being fraudulent or involved in money laundering.

- **Presenting Profile 360 On Single Pane Of Glass For Users Of Any Kind:** Graph analytics is well-suited for generating a comprehensive customer profile, by displaying all desired and contextual financial information on a single pane of glass. This enables you to quickly triage cases and take appropriate action.
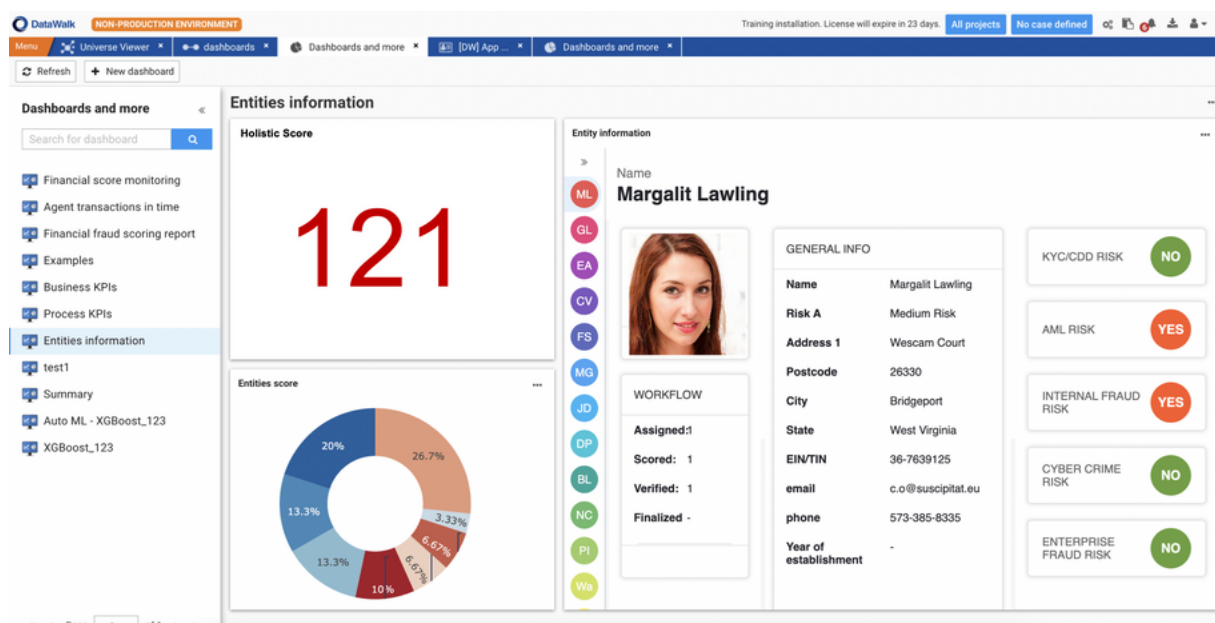

Figure 5. Example of integrated profile that combines information about fraud and money laundering

In summary, preventing financial crimes such as fraud and money laundering is a significant challenge for banks and requires a comprehensive approach. One such approach is FRAML. By applying graph analytics to FRAML, banks can gain a more comprehensive understanding of potential risks and fraudulent activities, enabling them to develop more effective prevention and detection strategies. Graph analytics represents a game-changer in the fight against financial crime and is an essential tool for banks to safeguard their businesses and customers from the damaging effects of fraud and money laundering.

About DataWalk

DataWalk is a scalable, no-code, graph analytics software platform. DataWalk's graph analysis foundation enables you to connect all your data, understand structures, and identify patterns in large, highly connected datasets through an intuitive knowledge graph. This includes data import, data prep and linking, data exploration, data analysis (including machine learning) and data lineage. DataWalk effectively supplements case management and monitoring systems weeding out false positives and improving the number of successful escalations.

To learn more visit https://datawalk.com/solutions/anti-money-laundering/