

The Invisible Threat: Why Legacy AML Fails to Catch Human Trafficking

How Global Tier-1 Institutions Use AI to Uncover Low-Value, High-Risk Financial Crime and Secure Central Bank Approval.

Executive summary

For global Tier-1 correspondent banks managing massive transaction flows, human trafficking presents one of the most complex operational and ethical challenges in AML compliance. Trafficking rings systematically evade traditional detection by burying their activities inside low-value, seemingly legitimate, everyday transactions.

Faced with failing legacy rules-based systems that missed nuanced financial crimes while generating unsustainable compliance costs, **Santander Banking Group** (~\$1.9 trillion in assets) partnered with ThetaRay. By layering rigid rules with behavior-based machine learning, the bank transformed its global risk framework, earning the award for 'Best Use of Data for Human Trafficking and Modern Slavery Detection' at the 2024 Digital Transformation Awards.

The Challenge: The Blind Spots of Rules-Based AML

Traditional transaction monitoring relies on binary thresholds (e.g., triggering an alert only if a transaction exceeds a specific dollar amount). Traffickers exploit this design by keeping their transactions small, dispersed, and operationally quiet.

A legacy system reviews transactions in isolation, completely missing the systemic risk of an account that shows:

- Small, frequent cash deposits across multiple disparate locations.
- Routine, low-value payments to individuals or entities linked to adult websites.
- Sudden, irregular domestic or international travel and accommodation patterns.

Individually, each transaction appears benign. Collectively, they form a clear, high-risk trafficking pattern. Under legacy frameworks, catching these required manual BI deep-dives, leaving compliance teams overwhelmed by an 89%+ false positive rate while failing to prevent severe crimes.

The solution: Multi-Dimensional Behavioral Profiling

ThetaRay's Transaction Monitoring AI platform shifted the focus from basic customer surface identifiers (names and account details) to understanding "**who they are**" through holistic ecosystem behavior.

›(Legacy AML Rules) › Looks at Static Thresholds › Misses Low-Value Patterns

(ThetaRay AI) › Analyzes 30+ Risk Factors › Uncovers Trafficking Networks

By processing billions of data points, the AI establishes a unique behavioral baseline for every entity. The system continuously monitors for subtle deviations—cross-referencing real-time activity with customer histories, entity relationships, and geographic data.

When a cluster of anomalous behaviors occurs (such as a sudden change in an unremarkable account sending funds to high-risk jurisdictions), ThetaRay flags the activity instantly. Every alert is delivered with an explainable, multi-dimensional profile, giving analysts the exact contextual rationale needed to fast-track comprehensive Suspicious Activity Reports (SARs) for law enforcement.

Ready to scale AML compliance the smart way?

Talk to an expert

And discover how ThetaRay's Cognitive AI can help your team reduce alert fatigue, improve compliance performance, and stay ahead of risk.

Visit thetaray.com or email info@thetaray.com



Value First: The Institutional Impact

Santander Transaction Monitoring Proof of Concept (POC)

95% Total Alert Reduction

- Eradicated massive backlogs of low-value, repetitive alert noise that previously exhausted compliance teams.

90% False Positive (FP) Reduction

- Allowed highly trained investigative units to shift their focus from false alarms to genuine, high-risk financial anomalies.

Global Rollout & Scalability Results

>500,000 Total Alert Reduction

- Drastically lowered overhead costs across key operating countries by wiping out systemic alert duplication.

Unmasking Previously Hidden Risk

- Successfully identified hidden, complex criminal networks—including modern slavery and human trafficking—that legacy systems completely missed.

Immediate Central Bank Approval

- Gained explicit approval from the bank's home Central Bank and global regulatory bodies, positioning the institution as a leader in financial crime detection.

Seamless Scaling Across Other Lines of Business

Designed for institutional agility, ThetaRay allowed Santander to establish a unified global compliance framework. The machine learning models seamlessly adapt to protect diverse operational divisions—from high-volume capital markets to retail banking and complex correspondent networks. Financial institutions can confidently launch new products, expand transaction volumes, and protect vulnerable populations without forcing a corresponding expansion of compliance headcount.