

AI in AML: Closing the Gap Between Detection and Regulatory Expectations

How financial institutions can improve detection accuracy, reduce investigative burden and meet rising regulatory expectations

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1. The Changing Nature of Financial Crime

Financial crime is not just increasing in volume, it is becoming harder to detect, explain, and defend under regulatory scrutiny.

The growth of real-time payments, cross-border transactions, **embedded finance, and digital financial services** has created new opportunities for innovation but also new challenges for financial institutions.

Criminal activity is no longer isolated or predictable. It is increasingly:



This evolution is not just increasing the volume of alerts, it is making it harder to identify which activity truly represents risk.

2. Why Traditional Detection Is Struggling to Keep Pace

Most transaction monitoring systems were designed for more predictable patterns of financial crime. They rely heavily on predefined rules and thresholds, designed to flag known patterns of suspicious activity. While these approaches still play an important role, they have inherent limitations:

- They depend on predefined scenarios
- They require ongoing manual updates
- They struggle to detect previously unseen patterns

As a result, institutions often face:

- Large volumes of alerts
- Limited visibility into complex risk
- Increasing pressure on investigation teams

This creates a lag between emerging threats and detection capabilities, meaning institutions are often reacting to financial crime rather than proactively identifying it.

This is no longer just a technical limitation, it is becoming a supervisory concern. This challenge is increasingly visible in regulatory findings. US regulators, including the **OCC, Federal Reserve, and FinCEN**, highlighted weaknesses not only in detection, but in how institutions investigate, document, and justify their decisions, particularly in **suspicious activity reporting (SAR)**. In several recent enforcement actions, issues such as inconsistent decision-making, insufficient documentation, and gaps in risk identification have led to significant remediation requirements and financial penalties.

The implication is clear. It is no longer sufficient to demonstrate that alerts are being generated, institutions must demonstrate that risk is being consistently identified, assessed, and resolved.

Industry research, including **McKinsey**, highlights that traditional rule-based approaches to financial crime detection often struggle to keep pace with evolving threats, remaining “a step behind” increasingly sophisticated criminal activity.

As a result, financial institutions continue to face high volumes of alerts, many of which require significant manual investigation effort despite representing limited risk. Investigators often spend the majority of their time gathering and reconciling data rather than assessing risk directly. This imbalance highlights the need for more intelligent, context-driven approaches to financial crime detection.

3. Why Better Detection Still Matters

As transaction environments evolve, detection systems are expected to identify increasingly nuanced and interconnected activity. But, when detection is not accurately identifying meaningful risk, it creates downstream pressure across the entire AML process.

This can result in:



Over time, this creates pressure not only on operational efficiency, but also on consistency and transparency. In today's environment, rule-based systems are increasingly stretched beyond their original design. As financial crime becomes more complex and less predictable, relying solely on predefined scenarios creates inherent blind spots particularly when dealing with novel or coordinated activity.

4. Regulatory Expectations Are Evolving

Regulators are placing increasing emphasis on:

- Clarity of decision-making**
- Strength of supporting evidence**
- Consistency across investigations**
- Quality of SAR reporting**

In addition to identifying suspicious activity, institutions are expected to demonstrate:

- How decisions are made**
- Why those decisions are appropriate**
- Whether they are applied consistently**

This shift reflects a broader change in regulatory focus.

Supervisors are increasingly assessing not just whether suspicious activity is detected, but whether institutions can clearly demonstrate how decisions were made, what evidence supports them, and whether those decisions are applied consistently across the organization. In this context, inconsistency is no longer viewed as an operational issue, it is increasingly treated as a control failure. This reinforces the need for detection approaches that can surface meaningful risk with greater accuracy and context reducing reliance on manual interpretation.

When Detection and Decisioning Don't Align

When detection systems fail to accurately identify meaningful risk, the impact extends beyond inefficiency.

In practice, weak or overly broad detection often leads to:

- **Missed or under-identified risk**
- **Inconsistent or unsupported decisions**
- **SARs that lack clarity or completeness**

These issues often only become visible during internal audit or regulatory review at which point remediation can be complex, costly, and time-consuming. For many institutions, the risk is not just operational, it is the possibility that gaps already exist within the program, but have not yet been fully surfaced.

5. How AI Is Transforming Financial Crime Detection

Artificial Intelligence is increasingly being adopted to address these challenges.

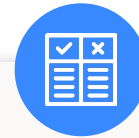
Unlike traditional systems, AI can:



Analyze large volumes of data in real time



Identify patterns and relationships across transactions



Detect anomalies without relying solely on predefined rules

Traditional rules-based systems are designed to detect known scenarios. AI, by contrast, identifies patterns of behavior, enabling institutions to detect previously unseen or evolving financial crime typologies without relying on predefined rules. This represents a fundamental shift from detecting what is already known, to identifying what would otherwise remain hidden.

This enables financial institutions to:

Surface more complex and subtle risk

Reduce reliance on manual rule updates

Improve the relevance of alerts

Beyond detection, AI can also support improvements across the broader AML process. By providing greater context and insight into alerts, AI can help:

Streamline investigations

Support more consistent decision-making

Improve the quality of documentation and reporting

AI enables both banks & fintechs to AI enables financial institutions to scale detection capabilities in line with transaction growth, without proportionally increasing operational burden. This creates a more connected approach to financial crime risk management from detection through to resolution.

As financial crime becomes more complex and regulatory expectations continue to rise, AI is increasingly seen not as an enhancement, but as a foundational capability. Traditional approaches alone are no longer sufficient to keep pace with the scale, speed, and sophistication of modern financial crime. AI enables institutions to move beyond reactive detection toward a more proactive, risk-relevant, and consistent approach to financial crime risk management.

Without this shift, institutions risk relying on detection approaches that are increasingly unable to keep pace with modern financial crime.

6. Modern Infrastructure for Modern AML

As financial services continue to evolve, infrastructure plays a critical role.

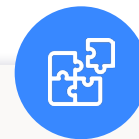
Cloud-based and scalable environments allow institutions to:



Process large transaction volumes efficiently



Support real-time monitoring



Integrate advanced analytics and AI capabilities

This enables greater flexibility and responsiveness in adapting to new risks and regulatory expectations.

7. What the Future of AML Looks Like

The future of AML is not defined by how many alerts are generated. For many institutions, the challenge is no longer just managing alert volumes, it is ensuring that meaningful risk is not missed within increasingly complex transaction environments. It is defined by how effectively institutions can identify meaningful risk and consistently demonstrate that it has been appropriately assessed, investigated, and resolved.

AI is rapidly becoming a foundational capability in modern AML programs. As financial crime continues to evolve, institutions that rely solely on traditional detection methods risk falling behind both in their ability to identify risk and to meet rising regulatory expectations. In this environment, the ability to combine advanced detection with consistent, explainable decision-making is becoming a defining characteristic of leading AML programs.

Conclusion:

As financial crime evolves, financial institutions must adopt more adaptive, scalable, and explainable approaches to detection. Those that fail to do so risk falling behind, not only in identifying risk, but in meeting growing regulatory and partner expectations.

Traditional, rules-based systems alone are no longer sufficient to keep pace with the scale and sophistication of modern financial crime. AI offers financial institutions a path forward, enabling more effective detection of complex risk, and supporting a more consistent and scalable approach to financial crime risk management.

Increasingly, the question is not whether to adopt AI, but how quickly institutions can do so to remain effective and compliant.

About ThetaRay

ThetaRay provides AI-powered solutions for financial crime detection, helping banks, fintechs, and payment providers identify complex risk, improve operational efficiency, and strengthen compliance to ThetaRay provides AI-powered solutions for financial crime detection, helping financial institutions and payment providers identify complex risk, improve operational efficiency.