THETARAY FINTRAIL

Transforming AML Compliance

Using AI to Move From a Rule-Based to Risk-Based Approach

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INTRODUCTION

In the ever-evolving landscape of financial crime, traditional rules-based transaction monitoring is coming under challenge. As financial institutions grapple with the imperative to remain both compliant and agile, there is a clear need for a paradigm shift. Firms increasingly want to move from rigid, one-size-fits-all rules to the adaptive and nuanced terrain of a risk-based approach. Regulators and international standard setters like the Financial Action Task Force (FATF) have been promoting a risk-based approach for nearly ten years[1], and yet in practice many programmes remain focused on tick-box compliance rather than ensuring a genuine understanding of threats and a targeted risk-driven approach.

The ability to make this change has now been transformed thanks to powerful new technologies in the form of AI. Compliance is no longer confined to rule sets, but rather draws on the intelligence, precision and dynamic adaptability of risk-based AI systems to achieve better results in identifying and preventing money laundering, terrorist financing, fraud, and other criminal activity.

This white paper examines the ways AI-powered transaction monitoring is helping financial institutions of every scale shift to a risk-based approach, presenting case studies and addressing some of the common reasons for hesitation, including lack of data and justifying return on investment. We examine the implications, benefits and transformative potential of utilising AI technology to foster efficiency and effectiveness, ensuring a secure and robust anti-financial crime programme.

[1] FATF Risk-Based Approach for the Banking Sector

Rules-based to Risk-based: How AI Transforms Transaction Monitoring

Rules-based transaction monitoring has two major problems - much suspicious behaviour goes undetected as it does not align with a predefined typology, and much of what is detected is not actually suspicious at all (an estimated 95% false positive rate, according to industry research).[2]

False negative Bad outcome No alert for suspicious activity	**True positive** Good outcome Alert for suspicious activity
True negative Good outcome No alert for non-suspicious activity	**False positive** Bad outcome Alert for non-suspicious activity

The four possible outcomes for transaction monitoring systems. Rules-based systems skew heavily towards false positives (needless alerts on unsuspcious activity, which pose a significant resource strain) and false negatives (actual risks going undetected).

AI-backed solutions generate very different results, enhancing both efficiency and effectiveness. They dramatically reduce the number of false positives by up to **95%**[3], creating a smaller volume of alerts for analysts to investigate. At the same time, because they are not constrained by binary rules, they are able to detect more anomalous behaviour and detect more risk patterns, leading to better coverage of real risks. This creates what seems like a paradox - better risk coverage and more detected instances of financial crime, through fewer alerts.

A major hindrance to a traditional rules-based approach is its inability to detect new typologies or threats. Criminals adapt quickly, circumventing standard rules and thresholds by devising new methods for laundering illicit funds. Harnessing technology, nefarious actors innovate to evade detection or outsource to technology-savvy professional criminals, who offer what is essentially money-laundering-as-a-service[4]. Because rules-based systems aren't agile enough to contend with the quickly evolving nature of criminality, firms become vulnerable to bad actors who learn to bypass and outsmart existing controls. Conversely, AI-backed tools that leverage unsupervised machine learning in particular can identify previously unidentified risk indicators – the 'unknown unknowns' - thus offering better protection from illicit activity.

[2] Global Investigations Review, 2020

[3] Per ThetaRay research

[4] Europol

Supervised vs unsupervised machine learning

An unsupervised approach is when a machine learning system learns the normal behaviour of your clients using historical unlabelled data and creates different segments using 'clustering' or 'association'. Once a baseline of normality is established, the system can detect patterns and anomalies without guidance or instruction. Conversely, supervised learning requires labelling input data and actively teaching the algorithm, which then informs all future predictions. Semi-supervised learning uses both labelled and unlabeled data.

The problem with supervised learning
Relying solely on a supervised learning approach presents several disadvantages, including the extensive time required for data labelling and model training, and the reinforcement of pre-existing biases and blind spots. Because the model is trained on labelled data, any trends in historical decisions or institutional norms will be replicated, creating a feedback loop. For instance, if analysts have historically made unfounded assumptions about certain customers based on their nationality or occupation, and disproportionately labelled their activities as suspicious, the system will learn from this and apply the same bias going forward. Equally if analysts over-report transactions in sectors they are unfamiliar with and do not understand, such as complex trade finance transactions, the system will learn this pattern of behaviour too. The problem with labelled data in financial crime is that programmers do not know if historic transactions represented financial crime or not - merely that they were deemed suspicious by human actors prone to error, working with a very limited set of information.

Similar to the drawbacks of rules-based systems, supervised learning may also struggle to detect novel or 'unknown' typologies. If certain patterns have not been identified as suspicious in the past, the system will not be taught to identify them.

Fundamentally, supervised learning approaches only optimise alerts but don't address the root problems with traditional transaction monitoring approaches. Similarly, a semi-supervised approach still draws on labelled datasets, which reinforces existing errors and biases.

AI tools using unsupervised machine learning have the potential to completely transform transaction monitoring. By analysing a staggering amount of information within datasets, they determine a baseline for normality without predetermined human-made rules, thresholds or assumptions. From there, the tools can detect irregularities and hidden patterns. This greatly improves the quality and accuracy of transaction monitoring alerts, deepening the level of detection to go beyond predefined factors. Additionally, unsupervised AI machine learning can reduce false positives to only 1% of alerts,[5] offering massive operational benefits for compliance teams.

[5] Per ThetaRay research

Features of an unsupervised AI system

Works independently of rules and models to analyse an enormous amount of data to determine a baseline of normality and spot patterns and anomalies.

Simple integration without the need to be programmed and re-programmed with rules, making it faster, easier, and cheaper to onboard.

Detects 'unknown-unknowns' by deriving conclusions from the data alone rather than rules programmed by developers.

Continuously improves and adapts to changing realities and improves in accuracy as it learns more from the datasets.

Increases detection worthiness and minimises false alerts, meaning firms will need fewer resources to monitor and manage outputs.

Good systems should offer **full auditable alert explainability** to allow for transparent reporting to regulators.

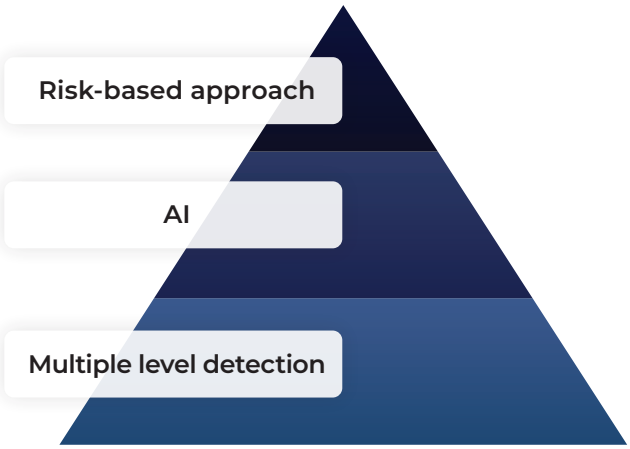
How Data Fuels Your Transaction Monitoring

Data is an integral part of effective transaction monitoring. If there aren't enough data points to enable intelligent and quality alert generation or to properly contextualise a transaction during an investigation, then your transaction monitoring suffers. Poor data analysis leads to slow processes and meaningless investigations. Sophisticated tools draw on multiple data points to identify patterns and connections, producing alerts with a deeper level of detection and accuracy. Network visualisation, which involves showcasing different data points in a clean and easily digestible manner, is an essential component of an effective AI tool. These data points include risk indicators such as high-risk jurisdictions, flagged counterparties, and historical activities of a client, which help analysts form links to find suspicious connections that are indicative of financial crime.

ThetaRay's visualization of AI model: helps explain the decision-making behind machine learning methodologies.

While different financial institutions have different datasets to work with, a good AI provider will be able to cater to all needs, including working with startups or early stage firms until they have enough data to deploy unsupervised machine learning. Conversely, for large financial institutions that might have different operational models spanning various countries, AI tools can segment localised data to draw out patterns in specific subsets. There are also a number of jurisdictional challenges or nuances that AI tools can help address. For example, firms operating in emerging

markets may be challenged by a lack of digitised databases or unavailable official data records, such as corporate or property records. Remittance firms often have sparse Know Your Customer data and infrequent transactions to draw on, making it difficult to determine the baseline normality for an individual client. Because AI tools enhance detection by looking at patterns across datasets, they can provide more sophisticated results in use cases such as these.



CASE STUDY

Travelex worldwide money

Travelex Bank is Brazil's largest foreign exchange provider, offering a range of international money transfer products including import/export, remittances and mass payments. The bank contends with stringent Brazilian regulation and as it operates in mass payments, generates huge volumes of transactions every day. Travelex Bank implemented ThetaRay's SONAR anti-money laundering solution for both domestic and international transaction monitoring, as well as real-time sanctions screening for its international payments.

The results of adopting the new AI-powered solution:

In the proof of concept, which was completed in only three days, **Travelex Bank could process 30,000 client transactions per minute.**

Full integration was completed in only two months.

Travelex Bank saw a **10x reduction in false positives.**

As a result of these efficiencies, using the AI tool allowed for a **30-40% predicted growth in business.**

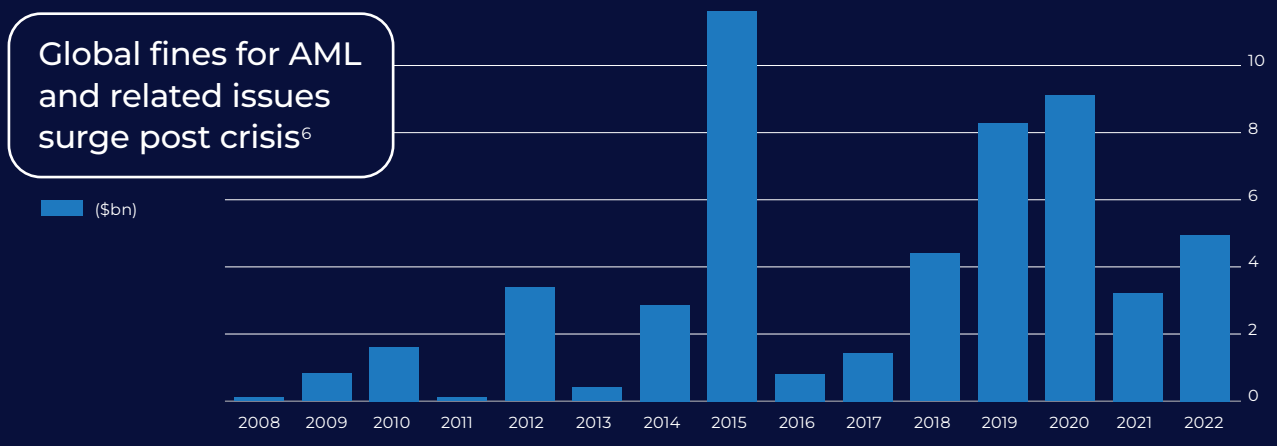
Using AI to Enable Growth

Purchasing or implementing a new tool can be a costly process, and justifying those costs is front and centre of decision-making for businesses. Compliance is typically viewed as a cost rather than a profit generator. However, AI compliance tools can help accelerate business growth in a number of ways.

Most obviously, financial institutions that leverage AI tools in their anti-financial crime programme benefit from enhanced risk detection, which helps them remain regulatorily compliant and avoid hefty fines. This is especially important in a context where global anti-money laundering penalties are on the rise, with fines surging more than 50% in 2022.[6]

On the positive side, AI transaction monitoring tools also empower growth through levering the power of a risk-based approach. Because they are inherently scalable, they allow firms to process more transactions without proportionally increasing compliance costs, thus enabling expansion and greater client acquisition. As AI is better at detecting real risk and provides a more secure and robust anti-financial crime programme, firms can expand their scope of business confidently without necessarily increasing their risk exposure. This may mean they become inclined to take on new clients or deals in jurisdictions or business areas that would previously have been deemed too risky. This has other important benefits, such as the ability to serve the traditionally underbanked and encourage financial inclusion.

AI tools also help create operational efficiencies by taking into account the specific risks associated with each customer and transaction, allowing financial institutions to focus resources on the highest-risk areas while reducing the burden on low-risk customers. They enable firms to minimise false positives and reduce the need for large teams of analysts trawling through unproductive alerts. By enhancing the ability to detect real instances of financial crime, AI tools also allow for a better use of staff's critical thinking capabilities, eliminating unnecessary menial work and thus providing long-term benefits such as increased staff retention. With 87% of organisations having no additional capacity due to staffing issues,[7] it's crucial that firms use their teams wisely.



[6] Financial Times
[7] Deloitte

CASE STUDY

NOW Money is a Dubai FinTech, and the Gulf Cooperation Council's first mobile banking solution focused on financial inclusion. It helps customers excluded from the traditional banking system send remittance payments abroad as quickly and cheaply as possible. NOW Money partnered with ThetaRay to monitor cross-border payments and support preventing financial crime.

> "Anything to do with cross-border requires the best technologies and the ability to use AI. From NOW Money's perspective, we want to be best in breed when it comes to compliance, audit and governance so we need to work with good parties like ThetaRay. "
>
> - Noel Connolly
> CEO at NOW Money

Adopting an AI monitoring tool has helped NOW Money process transactions efficiently so that their customers' families can receive payment without delay. **The number of false positives has dropped dramatically**, and the **centralised investigation dashboard** allows for the quick distribution of work so cases are dealt with faster. The tool also **instantly screens beneficiaries**, which enables teams to deal with flagged individuals and alerts immediately, speeding up the process and retaining customers by preventing frustrating customer experiences.

Another important benefit is the easy integration and ongoing use of AI tools. Traditional rules-based tools require the regular testing and reprogramming of scenarios and thresholds. Upon discovering a new financial crime typology, it can take 6-12 months to reprogram these systems to detect it. By then, criminals have likely devised new methods rendering the tool out of date again. Conversely, AI tools don't need constant reconfiguration and continuously learn and adapt based on ongoing data ingestion and analysis.

CONCLUSION

Rules-based transaction monitoring tools are failing. As criminals innovate and crimes become more complex, financial institutions must respond accordingly. Robust and effective transaction monitoring increasingly requires the use of AI-backed technology to better detect and prevent instances of financial crime. Rules-based systems are resource-hungry, provide only partial coverage, are prone to false positives, and unintentionally introduce bias. Their inefficiencies strain already thin resources and make firms vulnerable to bad actors and regulatory fines. Instead, firms can get on top of their risks and transform to a truly risk-based approach by using AI tools leveraging unsupervised machine learning. By eliminating operational inefficiencies and fortifying a firm's controls by detecting previously 'unknown unknowns', these tools provide an excellent ROI to help firms grow while staying compliant.

Ready to Transform Your AML Compliance?

Book Your ThetaRay Demo Today

Annex: Overview of FINTRAIL and ThetaRay

About FINTRAIL
FINTRAIL is a global financial crime consultancy. We've worked with over 100 leading global banks, FinTechs, other regulated financial institutions, RegTechs, venture capital firms and governments to implement industry-leading approaches to combatting money laundering and other financial crimes.

With significant hands-on experience, we can help you build, strengthen and assure your transaction monitoring programme to meet evolving regulatory requirements, use technology effectively, and stay competitive. Contact us here.

About ThetaRay
ThetaRay's AI-powered SONAR transaction monitoring solution, based on "artificial intelligence intuition," allows banks and fintechs to expand their business opportunities and grow revenues through trusted and reliable cross-border payments. The groundbreaking solution also contributes to customer satisfaction, reduces compliance costs, and increases risk coverage. Financial organizations that rely on highly heterogeneous and complex ecosystems benefit greatly from ThetaRay's unmatchable low false positive and high detection rates.