

Cutting Through The AI Hype Cycle: A Survey of the Current State, Industry Headwinds, and Next Steps in Transaction Monitoring



The Challenge Today

Notwithstanding all the buzz, as an industry, we have yet to fully adopt the next generation technologies. We continue to rely on legacy TM solutions that everyone knows are inefficient and largely ineffective.*

* Through no fault of the vendors providing these solutions.

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"Building an AI/ML model to reduce TM false positives is like building a model to find hay in a haystack."

- Anonymous





"Traditional AI systems are primarily used to analyze data and make predictions, while generative AI goes a step further by creating new data similar to its training data."

> Instead of explicit programming, machine learning uses algorithms to analyze large amounts of data, learn from the insights, and then make informed decisions, e.g., risk triaging and/or auto-closing TM alerts.

Gen Al

ML

Generative AI refers to deep-learning models that generates high-quality text, images, and other content based on the data the models were trained on, e.g., drafting TM investigation narratives.



Use Cases



ML-Based TM System

Traditional transaction monitoring scenarios are "features" that are passed to ML algorithms that combine it with other relevant data to produce fewer, high(er) value alerts.

- Scenarios Replaced by ML algorithms
- Pros: Reduced Alert Volumes, Increased Coverage*
- Cons: Explainability, "Unknown Unknowns"

ML-Based TM Overlay

ML algorithms risk rate alerts from rule-based TM systems. Low quality alerts are auto-closed based on their similarity to past alert investigation results.

- AI model auto closes alerts from rule-based TM system
- Pros: Reduced Investigation LOE; Alert Risk Triaging
- Cons: Alert Volumes; Explainability

 AI consolidates risk data and creates investigation narrative

Gen Al Copilot

Gen Al model consolidates relevant

information and create draft

investigation and SAR narratives

based on previous investigation

results.

- Pros: Reduced Investigation LOE, Consistency, Human-inthe-Loop
- Cons: Computational Bias

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ML TM & Gen Al Copilot

Utilize an ML-driven transaction monitoring system and then leverage a Gen AI copilot to consolidate information and generate alert & SAR narratives.

- Al consolidates risk data and creates investigation narrative
- Pros: Reduced alert volumes & investigation times, Increased Coverage*; Consistency
- Cons: Explainability, "Unknown Unknowns", Computational Bias



Al Solutions Offer Clear Benefits

Ability to scale core operations while reducing compliance costs. Increased accuracy, velocity, and quality of investigations and reports.



Enablement of cloud solutions and futureproofing compliance operations. Enabling compliance staff to focus on high-value activities.

	Legacy TM System	ML Overlay	Gen Al Copilot	ML TM System & Copilot
Total Number of TM Alerts	10000	10000	10000	7000
Auto-Closed Alerts	-	3000	-	-
Net Alerts	10000	7000	10000	7000
Level 1 Investigation Time	45min	45min	25min	25min
TM Adjudication Level of Effort (hrs)	7500	5250	4125	2925
Approx Resource Count	47	33	26	18
Level 1 Investigation Costs (\$30/hr)	\$225,000	\$157,500	\$123,750	\$87,750
Cost Savings	\$0	(\$67,500)	(\$101,250)	(\$137,250)
Net Savings		30%	43%	55%







The Regulatory Nudge...

UL AMLA stated purpose "to evaluate and responsibly implement *innovative approaches* to meet BSA/AML compliance obligations,."

January 2021

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April 2021 Interagency Statement on Model Risk Management for Bank Systems Supporting BSA/AML Compliance and RFI

June 2024

Proposed FINCEN rule permitting "consideration and evaluation of *innovative approaches*" to meet BSA compliance obligations."

03 December 2018 Joint Statement on Innovative Efforts to Combat Money

Laundering and Terrorist Financing

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Everyone's talking about Al solutions but few are jumping in yet...

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Sanctions & KYC Primary AI AML Use Cases Today

Large, Tier One Banks Leading the Way in TM Space



Hesitancy to auto close. Focus is on improving investigative efficiency



Believe Their Practical AI Use Cases Within AML Compliance Program

Would Consider Auto Alert Closure with QA/QC Controls

40%

But...

Use or Plan to Deploy Al Solutions Within Next Year

20%







Al Headwinds

Most Challenges are <u>Not</u> Technical in Nature



Legacy Systems



Lack of Data / Data Quality



Regulatory Constraints



Al Not a Priority (Including Board Buy In)



Model Risk Management

Chart 17: 47% of respondents said there are regulations that constrain ML deployment









The cost of the computational power required to train the most powerful AI systems has doubled every nine months

Cost of computational power required to train frontier AI systems



Cost includes amortized hardware acquisition and energy consumption. Red shaded area indicates 95% confidence prediction interval.

Chart: Will Henshall for TIME • Source: Epoch AI • Get the data • Created with Datawrapper

- Internally developed AI models most impacted by legacy infrastructure
- Moving to cloud big step in leveraging NextGen vendor solutions

The Data Silo Problem

"....many firms now understand that their <u>silos must be</u> <u>overcome to generate holistic views</u> across multiple systems...The bottom line: current conventional capabilities have become inadequate and outdated, leaving companies vulnerable to significant risk while also making the idea of next-generation AML compliance seem overwhelming."

- International Banker, Oct 2021

- Regulatory expectation to breakdown data siloes whether using AI or not
- Al models require feature rich data models to maximize effectiveness



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Al Models Require Holistic Views

Constant Features show similar/single values in all the observations in the dataset. These features <u>provide no information</u> that allows ML models to predict the target.

	Cust Type	Acct Type	Trans Type	Risk Rating	Jurisdiction	Volume	Value	SAR
Cust 1	Individual	Retail	Wire	High	US	100000	200000	Y
Cust 2	Individual	Business	Wire	High	UK	150000	300000	Ν
Cust 3	Individual	Business	Cash	High	CA	500000	1000000	Y
Cust 4	Individual	Crypto	Bitcoin	High	МХ	25000	50000	Ν
Cust 5	Individual	Crypto	Bitcoin	High	US	75000	150000	Ν
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Cust Type & Risk Rating are Constant Features in this Example



Feature Rich Models Reveal Hidden Relationships

Current Data Systems are Federated, Not Consolidated

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In 1950 Claude Shannon made Theseus, a maze-solving mouse that used a bank of relays for its brain. Comprised of telephone circuits, it's one of the first examples of machine learning. Theseus's rudimentary data model is akin to the most complex of modern-day, rule-based transaction monitoring systems:

Theseus at the MIT Museum



Courtesy MIT Museum



Number of Parameters





OurWorldinData.org/artificial-intelligence | CC BY

MORE FEATURES = MORE HIDDEN PATTERNS

Al Models Have a Voracious Appetite for Data

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More Data Equals Better Outcomes Fewer Data Siloes result in more Features

Data source: Epoch (2024)



Perceived Regulatory Constraints

IF YOU SHOW YOUR WORK AND UNDERSTAND YOUR MODELS YOU'LL BE FINE



Type 2 Errors

Everyone talks about their false positives. Few programs understand their false negatives.

Outcome Focus

Logic testing is less important. Al model outcomes should be tested relative to historical outcomes.



	Actually Positive (1)	Actually Negative (0)
Predicted Positive (1)	True Positives (TPs)	False Positives (FPs)
Predicted Negative (Q)	False Negatives (FNs)	True Negatives (TNs)



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MRM Teams Are Better Equipped to Evaluate AI Models than Legacy Rule-Based TM Systems...



Current TM Systems Are SME Driven Rules with no Statistical Underpinning



AI models are statistical in nature and conform to well established mathematical principles





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Thank You