

FAMARA - AML/CFT

The FAMARA AML/CFT tool is an **advanced solution for detecting and analysing anomalies in financial transactions**, intelligently combining expert business rules with artificial intelligence to **maximise detection accuracy while maintaining operational transparency.**

This hybrid approach offers the best of both worlds: **the reliability and explainability of business rules**, enhanced by AI's ability to learn and **detect complex patterns.**

STRATEGIC OBJECTIVES

- Maximise detection by combining expert rules and predictive AI
- Drastically reduce false positives through dual validation
- Automatically adapt detection to new market patterns
- Maintain explainability for regulatory compliance
- Continuously evolve through machine learning

OPERATIONAL OBJECTIVES

- Multi-layer detection: rules + AI + cross-validation
- Smart scoring combining both approaches
- Self-learning on validated historical data
- Full traceability of decisions made by each engine

DUAL-ENGINE ARCHITECTURE

Business Rules Engine (Deterministic Logic)

- Expert rules based on AML/CFT regulations
- Configurable thresholds by instrument type and client profile
- Transparent and auditable logic
- 100% explainable results

Artificial Intelligence Engine (Predictive Logic)

- ML algorithms: Isolation Forest, One-Class SVM, Autoencoders
- Detection of complex, non-linear patterns
- Continuous learning on new data
- Probabilistic anomaly scoring (Critical, High, Moderate, Low)

Sample scenarios

Detection of split transactions

Loan repayment from a new IBAN

Transactions inconsistent with historical activity

Credit transaction quickly followed by a debit transaction

AI-Powered Detection

- Atypical behaviours not covered by rules
- Emerging patterns of new money-laundering schemes
- Suspicious gradual behavioural shifts

Hybrid Cross-Validation

- **Strong consensus**: both engines detect the same anomaly
- **Analysed divergence**: one engine detects, the other does not – investigation
- **Mutual learning**: rules inform the AI and vice versa

Advanced Hybrid Dashboard

Summary View

- Risk heatmap combining both engines
- Predictive trends based on AI learning
- Multi-layer alerts with confidence level
- Performance metrics for each engine

Analytical View

- Score breakdown (rules vs AI)
- Enhanced explainability with SHAP values for AI
- Historical comparison of engine performance
- Parameter adjustment recommendations

ADVANCED FEATURES

Supervised Self-Learning

- Feedback loop: human validations improve the AI
- Automatic retraining on newly validated data
- Adaptation to market and regulatory changes
- Drift detection and automatic readjustment

Evolving Rules Engine

- New rule suggestions based on AI findings
- Automatic optimisation of existing thresholds
- Detection of obsolete or underperforming rules
- A/B testing of rule changes

Enriched Hybrid Reports

- Dual justification: rule logic + AI explanations
- Confidence level for each detection
- Tailored investigation recommendations
- Risk predictions for future transactions

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