

# USE OF AI AND ML TECHNOLOGIES IN AML COMPLIANCE

There has been a growing interest in the use of artificial intelligence (AI) and machine learning (ML) technologies for anti-money laundering (AML) compliance. These technologies improve the efficiency and effectiveness of AML compliance programs by automating the detection of suspicious activity and providing more accurate and timely alerts to investigators. This infographic explores the use of AI and ML technologies in AML compliance and some of the benefits and challenges of these technologies.

## Artificial Intelligence (AI)

Artificial intelligence enables machines or digital computers to operate tasks that normally require human intelligence to perform. These tasks include cognitive features such as learning from previous experiences and making estimations based on them. Most common applications of AI include but are not limited to natural language processing, speech and face recognition, and decision-making.

## Machine Learning (ML)

One of the subcategories of artificial intelligence (AI) that educates a computer system so that it can autonomously read, analyze and learn from data by imitating human learning. Machine learning systems use data and algorithms and then build on pattern recognition abilities and experiences to resolve a problem autonomously.

## Types of Data

### Features data

Data that enters an algorithm as an input.

### Labels data

Data that is processed as the proper output when the machine comes across specific patterns.

## Types of Learning

### Supervised Learning (SL)

Using algorithms to learn from the input and output data within a specific context.

### Unsupervised Learning (UL)

Using algorithms to learn only from input (features) data within a specific context to cluster or organize the given data set.

### Reinforcement Learning (RL)

Working on the basis of trial-and-error learning and then getting rewarded or punished depending on the action taken.

## Types of Approaches

### AI - Artificial Intelligence

All of the types of learnings mentioned above fall under AI.

### ML - Machine Learning

ML uses the algorithms, analyzes input and output values to learn and understand the connection between particular codes and cases.

### DL - Deep Learning

DL refers to one or more secret layers inside a neural network, therefore it contains all the neural network algorithms.



## Use of AI and ML in AML Compliance

### Sanction and Blacklist Screening

Sanction and Blacklist Screening is checking financial transactions and customer databases against sanctions lists, official blacklists, and private watchlists to comply with anti-money laundering (AML) and combat the financing of terrorism (CFT). It is essential for financial institutions to perform sanction and blacklist screening in the process of customer onboarding and in regular intervals for the existing customers.

The problem is the massive amount of false positive results occurring in the process of sanction and blacklist screening which creates extra burden for the financial institutions.

Systems using the machine learning technology are able to increase the detection rates and **reduce the false positives up to 95%**.

#### How ML works to reduce False Positives

ML systems can **analyze and structure** big and redundant data.

ML can execute statistical analysis on **previous transaction data to learn from** and create a false positive alert for a similar case. Also, it learns to prioritize specific information based on its relation to previous alerts.

ML uses historical data to observe the actions of the users and utilizes this behavioral data to **calculate probabilities** that may arise in the future.

ML allows for dynamic and customized rule creation based on **previous user decisions** which increase the accuracy of preventing false positives.

### Transaction Monitoring

One of the responsibilities of the financial institutions is to monitor, detect and report suspicious transactions that may be related to criminal activities like money laundering or terrorism financing. Since there is a massive global system of transactions that is very difficult to trace, AML regulations are among the most crucial and compelling ones that require the monitoring of suspicious financial transactions.

The conventional monitoring systems lacking the effective suspicious activity detection technology is the main problem in transaction monitoring.

AI technology provides the opportunity to **monitor the transactions in real-time** and to **identify the changes in patterns** in the financial transactions and activities of a customer.

#### How AI works to analyze anomalies in transactions

**Supervised anomaly detection** requires a complete **data** set with clear "usual" (normal) and "unusual" (abnormal) labels to be able to classify the suspicious activity.

**Semi-supervised anomaly** detection depends on building **models** of data that indicate normal behavior. This technique requires a regular labeled data set.

**Unsupervised anomaly detection** uses unlabeled data depending on the inherent features of that data. It is based on clustering unlabeled data and the anomaly detection algorithms detect the cases that look least similar to the data in the clusters.

### References

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