

INTELLIGENT MONITORING AND ALERTING SYSTEM FOR CENTRALIZED ANTI MONEY LAUNDERING

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Abstract: Money laundering is a criminal offence which is a persistent problem in many developing as well as developed nations. To tackle this issue many laws and procedures have been put into place however there are multiple loopholes through which criminals are able to continue this act. The following study proposes an intelligent system which will be able to monitor flag and alert suspicious transaction that maybe closely linked with money laundering. This would help the authorities to crack down on these criminal entities and enforce the law.

Index Terms – Money Laundering, criminal, smuggling, Monitoring, Alert, Payment System, Banks, Anti Money Laundering

I. INTRODUCTION

Laundering of Money is an extreme issue confronting numerous nations. It has been drawing serious attention globally due to the impact it has on the economy of a country. Various ways have been developed to tackle this problem globally. Many techniques have been employed by different agencies like Government, Law enforcement, Banks etc. however still lapses persist using which this problem is not successfully solved.^[6]

II. A GIST OF MONEY LAUNDERING

It is the handling of illegal or income of criminal origin by disguising their origin. Criminal organizations and entities can reap these profits without imperiling their source. They can conduct their activities without alerting any particular entity of the government. Various Methods have been used by criminals in order to successfully conduct this activity. Whenever an activity of a particular pattern is traced, the criminals are found to be creative and they tend to change the pattern again in order to keep the authorities searching.^[3]

III. MONEY LAUNDERING STAGES

The whole process is broadly distinguished into three phases^{[2][5]}:-

1. Placement Stage
In this stage the offender tries to bring the illegal income into the financial system somehow trying to create a distance between him and the illegal money. This maybe in the form of physical movement of small amounts of cash from one place to another avoiding the eyes of the law enforcement authorities and evading confiscation.
2. Layering stage
At this level the offenders move the amount into different forms i.e. cash to stocks, or invest it in assets and move it to different accounts to avoid traceability between the illicit source and the money. In this way they complicate the whole set of transactions.
3. Integration Stage
This is the final stage of the whole process where they whiten the capital. The objective here is to present a legal façade to the illegally obtained income. This maybe in the form of creation of a fake Non Profit Organizations or Trusts where these incomes can be obtained as donations in small amounts or creation of Shell companies or creating fake accounts of purchase of items etc.

IV. KNOWN MONEY LAUNDERING METHODS.

Some of the known money laundering methods include the following^{[7][8]}:-

1. Structuring Deposits:
This is called as smurfing^[1] and is a technique for placement whereby money is fragmented into smaller financial deposits, used to eradicate the notion of Money Laundering, Illegal Tax evasion or criminal proceeds and to avoid tax evasion or illegal income reporting requirements.
2. Shell companies^[4]:
They are phony and fake organizations that exist to launder criminal proceeds by creating fake financial records for supposed fake services and products. They take in these laundered criminal proceeds as "payment" for supposed goods or services but in reality, nothing is provided in return, this is rather used to create forged transactions that would appear to be legitimate through forged financial records like invoices and balance sheets.
3. Third-Party Cheques:
Third party payment instruments or bank instruments drawn on various organizations are used and cleared by means of different forged records. Third party payment instruments and traveler's cheques are obtained using criminal proceeds. Since these are open for debate in numerous nations the nexus with the source of income is hard to build up.
4. Bulk cash smuggling:

It includes physically smuggling money to another region and saving it in a monetary institution, for example, an International Bank, with greater bank confidentiality or less strict money laundering enforcement.

V. ANTI MONEY LAUNDERING-AN OVERVIEW

In general term, anti-money laundering^[9] involves techniques that are deployed to detect, track and to discourage money laundering activities. This can be done in active as well as passive modes. A formal definition would be “Anti money laundering (AML) refers to a set of procedures, laws and regulations designed to stop the practice of generating income through illegal actions.”. The Active tracking involves complete monitoring of the suspects transactions and financial activities in order to discover evidences and put the suspect on trial. The Passive tracking involves studying the financial history and transactions of an individual in order to build a charge sheet against the suspect of possible financial fraud. Different countries have come up with different laws in order to prevent money laundering in the form of anti-money laundering regulations.

VI. THE PROPOSED SYSTEM

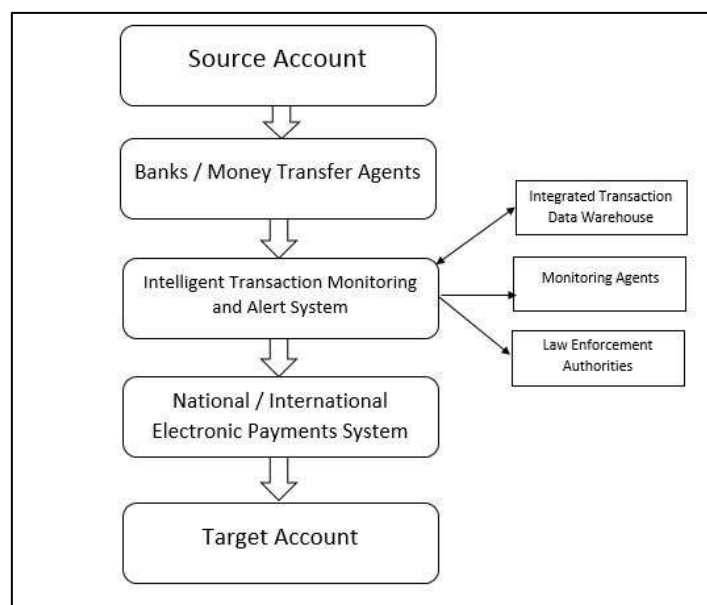


Figure 1: The Block Diagram of Proposed System

Above is a portrayal of the proposed system along with the flow.

The flowing are the components which are briefly emphasized as follows: -

1. **Source Account**
The bank account of the person initiating an electronic money transfer or payment.
2. **Banks/Money Transfer Agents**
There are the Banks or Money Transfer agents that receive the money from the source account and initiate a transfer to the target account through electronic mode.
3. **Intelligent Transaction Monitoring an Alert System.**
This is the system that has been proposed to monitor and flag suspicious transactions. This system would have a major component on which it would rely for input regarding any account activities, i.e. the Integrated Transaction Data Warehouse. This system would flag or alert the law enforcement authorities and Monitoring agents in case it detects any suspicious activity. The Integrated Transaction Data Warehouse is a Very Large-scale data warehouse where each and every transaction about each unique account holder is kept. This involve every transaction he has performed since the account holder was ever registered. The Intelligent Transaction Monitoring and Alert System would run mining algorithms on this warehouse and create its own database of unique details. This detail would involve multiple datasets created from time to time no limited to the following: -
 - a. Average Transactions per month performed by an individual/organization.
 - b. Total Asset estimate of an Individual
 - c. Minimum Transaction and Maximum transactions performed till date.
 - d. Average electronic payments received by the person including amount
 - e. Average payments/transfers made by the person including amount
 - f. Money transfer outside the country including frequency and amount
 - g. Money transfers received from sources outside the country including frequency and amount.
 At this stage every transaction would be assessed for the above and depending on the threshold flagging would be done. Over this, the Intelligent Transaction Monitoring an Alert System also makes an entry of any new transactions detected. Multiple use-cases along with threshold is set and escalation matrix is determined. On flagging any transactions depending on the use case, it checks for the escalation matrix and send mails to Monitoring and Law enforcement authorities.
4. **National/International Electronic Payment System.**
This is the Electronic payment system used nationally or by the bank for performing the Said Transfer of amount from Sender to the Receivers Account.
5. **Target Account**
The Target Account is the destination account where the money would be finally deposited.

VII. OVERALL WORKING OF THE SYSTEM

In order to demonstrate the overall working or process flow of the above proposed system, we will work out with the following scenario: -

1. Person A initiates transfer of amount X to the account of person B"
2. The Amount now is received by the bank, deducted from the source Account and queued for Transfer.
3. The Integrated Intelligent Transaction Monitoring an Alert System receives this transaction along with all the details w.r.t. the transaction.
4. Using the details of the unique customer ID info it queries for the details of transactions for the customer from the Integrated Transaction Data Warehouse.
5. It now makes a judgement from the details received regarding previous transactions and present use cases and decides whether to flag this event or no.
6. In case the event is going to be flagged, it will flag it in accordance with the escalation matrix and also decides whether to block the transaction or allow it.
7. In case the event is not going to be flagged it will allow the transaction to pass freely.

Some use cases that can be configured for Flagging anomalous and suspicious transactions^[10]

1. High number of small amount deposits observed over a short or long period of time from large number of sources.
2. High number of small amount deposits observed over a short or long period of time from small number of sources.
3. Very large amount received from suspicious source.
4. Very large amount transferred to some different source.
5. Large incoming amount observed from foreign source.
6. Large outgoing amount observed towards a foreign source.
7. Consistent small transaction towards a same account.

VIII. BENEFITS OF THIS SYSTEM

1. Most of the banks rely on physical and inbuilt technology that has been made in accordance to the local Anti-money laundering regulations. Since the alerts generated are delivered to the bank sources itself, there is a high possibility that the bank may try to influence the case in order to achieve its customer satisfaction objectives.
2. It may also be possible that the authorities may be compromised due to which they may least react to any such triggered alerts.
3. The proposed system grants a huge advantage here, as it's a completely centralized system and it is directly reporting to important law enforcement authorities.
4. This gives an independent authority to the investigators who maybe probing the incident.
5. Being centralized system, this would be a common system and would act as a filter as well as monitoring software for all the transactions.
6. This system would be only screening and flagging anomalous transactions with system to block and ground highly anomalous or suspicious transactions.

IX. BENEFITS OF THIS SYSTEM

1. This system combines the system of Artificial intelligence and Data mining both which are buzzwords of the 21st century.
2. On proper configuration this can prove to be a very efficient system which can avoid any errors that humans may possibly commit at the same position.
3. As a centralized system, this can be implemented either at a national level, regional level or per bank level to achieve its purpose.
4. Many transactions can be flagged and recorded in order to catch and nab repeat offenders with huge evidences
5. With rise of artificial intelligence and Machine learning capabilities along with more modern high capacity hardware and software development, we can achieve a very high-profile system to prevent money laundering anywhere.

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