Chapter 112
Data Mining in the Investigation of Money Laundering and Terrorist Financing

Ibrahim George
Macquarie University, Australia

Manolya Kavakli
Macquarie University, Australia

ABSTRACT

In this chapter, the authors explore the operational data related to transactions in a financial organisation to find out the suitable techniques to assess the origin and purpose of these transactions and to detect if they are relevant to money laundering. The authors' purpose is to provide an AML/CTF compliance report that provides AUSTRAC with information about reporting entities' compliance with the Anti-Money Laundering and Counter-Terrorism Financing Act 2006. Their aim is to look into the Money Laundering activities and try to identify the most critical classifiers that can be used in building a decision tree. The tree has been tested using a sample of the data and passing it through the relevant paths/scenarios on the tree. The success rate is 92%, however, the tree needs to be enhanced so that it can be used solely to identify the suspicious transactions. The authors propose that a decision tree using the classifiers identified in this chapter can be incorporated into financial applications to enable organizations to identify the High Risk transactions and monitor or report them accordingly.

INTRODUCTION

The Australian Transaction Reports and Analysis Centre (AUSTRAC) is Australia's anti-money laundering and counter-terrorism financing (AML/CTF) regulator and specialist financial intelligence unit (FIU). An AML/CTF compliance report provides AUSTRAC with information about reporting entities' compliance with the *Anti-Money Laundering and Counter-Terrorism Financing Act 2006* (AML/CTF Act), the regulations and the AML/CTF Rules. It is required under the AML/CTF Act in Part 3 Division 5, which came into effect on 12 June 2007. A reporting entity is a person who provides a 'designated service' as defined in the

DOI: 10.4018/978-1-4666-2455-9.ch112

AML/CTF Act. Examples of reporting entities include banks and other financial institutions, remittance service providers, foreign exchange dealers, debit and stored value card providers, bullion dealers and casinos and other gambling service providers.

Data mining (also called data or knowledge discovery) is the process of analysing data from different perspectives and summarizing it into useful information (Luo, 2008). It is an analytic process designed to explore data in search of consistent patterns and/or systematic relationships between variables, and then to validate the findings by applying the detected patterns to new subsets of data. The ultimate goal of data mining is prediction. The process of data mining consists of three stages: (1) the initial exploration, (2) validation/verification that involves model building or pattern identification, and (3) deployment that involves the application of the model to new data in order to generate predictions.

Data mining allows users to analyse data from many different dimensions or angles, categorize it, and summarize the relationships identified. In this paper our aim is to explore the operational data, which are related to transactions done in a financial organisation and find out the suitable techniques to assess the origin and purpose of these transactions and if they are relevant to money laundering to be able to provide an AML/CTF compliance report. Research studies in this area are mainly on the technologies used to implement Data Mining and Artificial intelligence solutions such as using agent based systems (Wu, 2004) and there are no examples of such reporting systems in the current academic literature.

BACKGROUND

Money Laundering

Money laundering involves moving illicit funds, which may be linked to drug trafficking or organized crime, through a series of transactions or accounts to disguise origin or ownership. There are many countries suffering from the consequences of money laundering. China, for example, is facing severe challenge on money laundering with an estimated 200 billion RMB laundered annually (Wang & Yang, 2007) Money laundering is the process undertaken to conceal the true origin and ownership of the profits of criminal activities. These profits can be the proceeds from crimes such as:

- Drug trafficking;
- Fraud;
- Tax evasion;
- Illegally trading in weapons;
- Enforced prostitution;
- Slavery; and
- People smuggling.

Who Launders Money?

Money launderers can be people who committed some or all of the profitable crimes, or criminals who provide specialized services in money laundering to other criminals.

Do Financial Organisations have to Deliberately Set Out to Launder Money to be a Money Launderer?

Under Australian Law, financial organizations can also be a money launderer if they engage in a transaction, and a reasonable person would know that the money or assets involved are the proceeds of criminal activities. This applies regardless of whether the proceeds of criminal activities are on the organisation's side of the transaction or not.

Why do People Want to Launder Money?

People launder money so they can keep and spend the profits of crime. Some crimes are very