

# STRENGTHENING FINANCIAL FRAUD PREVENTION THROUGH BUSINESS INTELLIGENCE (BI)

By Anurag Sanghai, Principal Solutions Architect, Intellicus Technologies.

With more than 14 years of experience, Anurag is an Expert of Report designing, Data Analytics, Data Modelling, Dashboard designing, and real time business analysis. His areas of expertise are Business Intelligence, core java, web services and more.

**T**raditional approaches to fraud detection and prevention are increasingly no match and it is ineffective against constantly developing and sophisticated methods of financial fraud. To combat the loss due to frauds that are progressively becoming more complex and difficult to detect, organizations must employ fraud prevention measures of equivalent strength and sophistication.

Intelligent data analysis methods are becoming one such powerful and valuable measure against financial fraud detection. Business Intelligence (BI) has emerged as a powerful tool for fraud prevention, as it immediately helps organizations and effectively identifies potential fraud and takes preventive action. BI refers to the process of gathering, analyzing and presenting data to help organizations make better business decisions. Advanced BI tools and analytical techniques process large volumes of financial data from multiple sources in real-time to detect unusual patterns or outliers that may be indicative of fraud. BI tools can also be used to

visualize and explore financial data in various ways via dashboards, charts and graphs. This can help analysts and investigators to quickly identify trends and patterns that may require further investigation.

Some BI techniques that have proven to be useful in financial fraud detection are:

**Large Data-Set Processing:** Financial fraud detection involves sifting through a huge amount of data, akin to finding a needle in a haystack. Analyzing it manually can be both time-consuming and error prone. BI tools and data analytics systems can leverage machine learning algorithms to quickly process large amounts of data, finding designs that identify potentially fraudulent activities. This increases the accuracy and reliability of fraud detection.

**Real-Time, Continuous Monitoring:** The capability to offer real-time scrutiny and analysis of financial data is one of the most crucial advantages of utilizing BI in fraud detection. Monitoring financial data in real-time is vital since it allows organizations to act quickly and take necessary measures to



Anurag Sanghai  
Principal Solutions Architect

prevent significant losses. For example, BI tools can detect unusual transactions, such as those taking place outside of normal business hours, or those involving unusual amounts or vendors. These may be flagged as potential fraud and relevant personnel can be alerted promptly. BI enables them to make informed decisions and mitigate the impact of fraud, thus it helps in safeguarding the reputation of the organization.

**Identifying Patterns & Anomalies:** BI tools are used to analyze transaction data from various sources like bank accounts, credit cards and invoices to identify normal





**“**  
**Business Intelligence (BI) has emerged as a powerful tool for fraud prevention, as it immediately helps organizations and effectively identifies potential fraud and takes preventive action**

patterns and anomalies that may indicate fraudulent activity. It may include unusual transaction amounts, times, locations and frequencies. When outliers are detected, the transactions falling outside of normal spending patterns or purchases that are inconsistent with typical behavior, hence a potential fraud alert is raised enabling proactive measures to prevent one.

**Data Integration:** Data silos can create opportunities for financial fraudsters to exploit loopholes in data management systems. To prevent this, businesses must ensure that all relevant financial data is integrated into a single source of truth that enables effective analysis and detection of fraudulent behavior. Since data integration is a necessary pre-requisite for an effective BI implementation, it proves to be well suited in analysis of the combined data, resulting in a single data view and detecting hidden patterns and abnormalities. This also ensures that everyone is looking at the same set of information, further reducing the risk of data manipulation by fraudsters.

**Network Analysis:** Network analysis involves the mapping of relationships and connections between different individuals or entities with the aim of uncovering suspicious activity. In financial fraud, individuals or entities involved in fraudulent activity often work together in networks or groups. These networks can be complex, involving multiple layers of relationships, transactions and interactions. Network

analysis involves the mapping of relationships and connections between different individuals or entities with the aim of uncovering suspicious activity. By analyzing the relationships and connections between different individuals or entities using BI tools, it is possible to find patterns of behavior that may indicate fraudulent activity, while also uncovering hidden relationships. It can help identify potential accomplices, co-conspirators and enablers of fraud, which is especially useful in uncovering large-scale fraud schemes that involve multiple individuals or entities.

### **Conclusion**

Historically, forensic accountants primarily focused on examining financial statements on a case-by-case basis when investigating fraud, instead of engaging in early detection of fraudulent activities through proactive auditing. This was due to limitations of time and non-availability of proficient fraud detection tools that could work on large data sets. Today, conventional methods and manual checks have outlived their application against the complicated and advanced frauds. With state-of-the-art BI tools, organizations now have the capability to continuously monitor financial data, enabling them to promptly detect any potentially fraudulent activity and defer them from occurring. With these advantages, BI is becoming an indispensable tool in prevention of financial fraud. 