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A Research on Fraudulent Activities Monitoring and Analysis Using Data Analytic Tools

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***Abstract*: -** *The fraud is our old problem, the current financial crisis has been enlightened that fraud occurs mainly during a recession, as compared with the regular periods of industrial growth. Fraud involves inclusively significant financial risks which may intimidate profit, and the image of an industrial entity. The evolution of the Information Technology systems plays a main role for creation of competitive companies, the bulk of processing information has been growth. The internal teams will take a look at very transaction that takes place, but, regrettably this problem can no longer be manuals done, required the use of information analysis tools and programs. The companies whenever operating with data volumes of information, it's necessary to apply such processes of continuously monitoring, For detecting inconsistency in the information stream or behavioral flows, potentially fraud. The new information will be used in directing investigations, and also to make recommendations to improve the control activities.*

Keywords*: - *Anti-fraud analytics, Big Data, Information Analyticing Tools, Information Analytics, Preventing Fraud.

I. INTRODUCTION

Now a day's business information is been managed and stored by Information Technology systems in an organization. That's why more on IT systems to support business processes rely. Because of IT systems the level of people interaction has been reduced to a great extension which becomes the main reason for fraud to take place in an organization. For detecting, monitoring and preventing such a frauds again with the organizations go in for automated controls.

Accessing of business information from internal and external sources have become easier. Which makes the organizations to use and analysis in their fraud detection and monitoring programs. The fraud data analytics play a very important role in the early detection and monitoring of fraud. These information analytic techniques will help the organization to detect the possible ways of fraud and implement an effective fraud monitoring program to protect the organization.

Industrial and financial crisis which starts in 2008 with the bank corrupt of Lehman Brothers in the USA, The previous crises, has been a very rapid national and international spread that why in 2009 it's established the systemic nature, most of the countries are affected directly or indirectly by a strong recessionary phenomena, imbalances and turbulence in the real and nominal economy.

This was affecting to the industrialized world in lack of credit and fall in property prices. Slowing industrial growth of developing countries produced effects on emerging economies, major trading partners, with negative effects on exports. No other doubt, the industrial down turning will be felt by modern society for years to come. As we can easily find, these manifested different from states depending on the features related to their debt exposure. The ability for innovating and competing the resistance to fraud.

II. IMPLEMENTATION OF DATA ANALYSIS TOOLS FOR PREVENTING & DETECTING FRAUD

We have been witness a large amount of increase in the quantity of information like text data, pictures data, audio data, video data etc.), both at global and industrial level entities. This process is develop by the entry of any other entries mentioned in the virtual environment. Info comes from everywhere, from many abundant and different sources like call centers, contracts, customer interactions, emails, faxes, phones, social media, and others. This method is to use to collect information for the

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interested of the entity (For Examples preventing, conceiving strategies, detecting fraud, opportunities identification, goodwill evolution, and monitoring etc.).

The use of data analyzing processes and the software committed to these operations provided the expanded and in depth analysis of the experience and processes of the informal financial fraud and crime as the info communication technology becomes a non instrument of formal economy. The analytical market is a wide hue cycle of specialized tools capable to support and enhance the anti-fraud activity, the survey results indicates that the managers are not taking the good advantage of them. Forensic data analytics tools are currently in use in all the organizations, but there is much lower adoption of more FDA tools as depicted, the 68% of participants survey report the use of MS Excel spreadsheet tools and 45% report says the use of MS Access or MS SQL Server database tools. These tools are very likely important for every program and all most used everywhere in every field, they are often focus on the ordering, grouping, joining or filtering, matching of info that is primarily descriptive in nature.

TABLE 1
DATA ANALYTICS TOOLS USED IN ORGANIZATIONS

FORENSIC INFO	PERCENT
Spreadsheet tools as Microsoft Excel	65%
Database tools as Microsoft Access or Microsoft SQL Server	42%
Continued monitoring tools, Including governance risk and compliance tools (System Application Product, Oracle)	39%
Text based analytics tools and keyword searching tools	28%
Forensic analytics software	26%
Social media tools and web monitoring tools	22%
Visualization and reporting tools like Qliksence, QlikView, and Tableau.	16%
Statistical analysis and data-mining packages like Statistical Analysis System, R programming.	12%
Big data technologies like Hadoop, Map Reduce.	3%
Voice searching and analysis like Nexidia, NICE.	4%

According to the conclusion of the 2014 report, it should be noted that the authors identify the proactive info monitoring and analysis as one of the most effective tool for anti-fraud control, in helping to reduce the fraud losses and the fraud scheme duration. Therefore, 35.6% of organizations which are affected by fraud using proactive info monitoring and analysis as a controlling tools organizations using proactive data monitoring and analysis face with a near 58.6% reduction in median loss compared to those that didn't organizations using proactive data monitoring and analysis experienced a 60% reduction in median duration of fraud scheme compared to those that didn't.

III. THE AVAILABLE SOLUTIONS TO IMPROVING DATA ANALYSIS, MONITORING PROCESSES FOR FRAUD PREVENTING AND DETECTING

The Data analysis can be describes as a depth examination of the meaning with required functionality of available information in order to identify the proper and significant information using specific methods and techniques. It's an inter discipline domain which can be includes branches like science computers (computer science), mathematical sciences, statistical, industrial, psychology, law and other cognitive sciences.

The careful examination of information identifies data gaps, weaknesses, dysfunction, strengths, vulnerabilities and risk factors that may comprise threats and finally suggests guidelines. Though on the field there are several concepts of data analysis such as intelligence analysis, business analysis etc., they all have common components. The differences depend on the scope of nature from information, analytical products, practical utility and applicability.

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According to specialized data analysis related to system for prevention monitoring and detecting of fraud. It can be identified over 26 types of analysis from which some of them are extremely complex but all of them are identify by two classical types of analysis like strategic data analysis and operational data analysis.

Operational analysis can be successfully done on short term, by exploiting information and current information for the purposes to compile with the current activities for detection of fraud with maximum efficiency. Data analysis operational methods are becomes a tool for improving working criteria most of the manual activities are avoided decreased mental effort, especially for analysis and monitoring involving the processing of a significant bulk of info. In regular activities the main role of data operation analysis is to help anti-fraud managing persons to detect, monitoring and combat illegal activities by examining data.

a) Links between different suspects.
b) The characteristics like direct and indirect ordination relations.
c) Key positions that impact decision-making etc.
d) The movement of every goods, money or other valuables thing.
e) Way of communication like email, social networking.
f) Sequence of certain events data.
g) The success of such approach lies in the quality and variety of info sources.

One of the most reason of using processes analysis of the info in the context of the operational analysis, is to complete to the information gaps or to remove uncertainties and contradictions. The analytical data must be submitted in a clear and concise format which contains at least one mode of illegal operation or a worthy assumption of fraud like operational data analysis, the strategic data analysis involves a micro-level approach of avoiding and detecting fraud issues. Consider that analytical tools are much more used in the case of strategic data analysis was extend of the activities is inflame. In this content will be studied vulnerabilities, threats, and risks, trends of evolution. The fraud time evolution of the market analytical aspects of policy, industrial evolution or decline of the entities. It will scan internal structure with vulnerabilities and institutional capabilities and the external data content with opportunities and potential threats. The data analyst will work with large amount of information which will use statistics techniques and describe developments and will formulate explanations and predictions in order to confirm decisions for the highest level management.

While speaking with research data analyst take a look at the relevant data object like “a hawk from the sky” able to distinguish rather color spots than the details. The strategic analysis offers a macro overview related to fraud information. Analytic data tools represents a piece of software data which can improve techniques or multiply their effects. If utilizing digital statistical tools, whether or not you have training in statistics, you can identify the issue, for example, unusual variation by looking to the shape of a object curve.

The actual statistical data tools which have a highly innovative user interface and a powerful statistical processing engine. From the long time data analysis techniques like as statistics and exploration expanding of information were developing independently of the visualization techniques. With the new generation for data visualization and data analysis software it can be divided into massive information sets and visually find new trends patterns and threats that would take hours or days using conventional data mining.

a) Defining the intention for preventing detecting and monitoring fraud.
b) Create a special and unique entity for this purpose.
c) Create an infrastructure able to transport the internal data and external data information into the virtual domain.
d) Ensuring a flow of creating and storage of information in electronic format.

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e) Implementation of a monitoring system data to allows where possible real-time detection of irregularities so to avoid damage. The systems should contains a numbers of template models which built for detecting fraud schemes. An architecture is recommended to be partially predefined so as some of the modules can be able to change for the customer's needs.
f) Creating a recovery systems.
g) Developing an integrated data analysis techniques like a nucleus together with the most detection methods like statistical, relational operations etc.
h) Create a system able to generate intermediate and final reports, depending on the requirements of the recipient.

Frauds will also get increase as the transaction volume of your business increases. Technology advancement is a plus point as well as a minus point to our business as it will opens up new avenues for fraudsters. Analytics to detect Fraud can play a very important role in identifying and monitoring fraud in the early stages and protecting your business from heavy loss. It does not require a lot of time and resources to get fraud analytics running for our business

IV. BENEFITS OF FRAUD ANALYTICS AND MONITORING

4.1 Identify Hidden Patterns

The Fraud data analytics identify new techniques trends and new conditions under which frauds take place. Whenever traditional approaches miss such things.

4.2 Data Integration

Fraud data analytics plays a very important role in integrating information. It combines info from various sources and public records that can be integrated into a model.

4.3 Enhance existing efforts

Fraud analytics technique does not replace the traditional rules based methods but it just adds up with new to your existing technique methods to bring more improved results.

4.4 Harnessing unstructured data

Fraud data analytics helps in deriving the proper and best value from unstructured information. Most of the structured information are stored in data warehouse of the organization when unstructured information is the place where more fraudulent activities take place. This is place where text data analytics plays an important role to review the unstructured data and avoiding fraud from taking place.

4.5 Improve the performance

From fraud analytics you can easily identify what is working well for your organization and what is not working for your organization.

V. METHODS OF FRAUD ANALYTICS AND MONITORING

There are five important fraud detection and monitoring methods.

5.1 Sampling

Sampling is very much technique for certain processes of fraud detection. It will be more effective where there a lots of information population involved. But still it has been its own disadvantages samples may not be able to fully control the fraud

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data detection as it takes only few amount of data into consideration. Fraud transactions doesn't occur randomly that's why an organization need to test all the transactions for the effectively detection on fraud.

5.2 Ad-Hoc

This technique is nothing but finding out fraud by means of a hypothesis. It makes you to expand you to test the transactions and find out if there are any possibilities for fraud to take place. You can have the test and find out if there is any fraudulent activity occurring and then you can investigate on the same.

5.3 Continuous Analysis

Competitive Analysis means creating and executing the scripts to run against large amount of information to deduct the frauds as they occur over a period of time. They executes the script every day to day go through all the transactions and get periodic notification regarding the frauds. This techniques can help in every way to improving the overall effectiveness and consistency of your fraud detection processes.

5.4 Analytics Techniques

Analytic techniques helps us to find out frauds which are risky parameters to find out values that exceed averages of standard deviation. Look at high and low values and find out the inconsistency there. Such inconsistency are often the indicators of fraud classify the information group your info and transactions based on specific factors like geographical area.

5.5 Benford's Law

The Law often be used as an identify for fraudulent information. Its distribution is non-uniform with smaller data more likely than the larger data. Using the law you can test many points and numbers and identify those which appear frequently than they are supposed to and therefore they are the suspect.

The other fraud detection and data mining tools to detect fraud activities

Data Matching: - This method will find out if there is any information which exactly matches with another information.

Sounds Matching: - This is another powerful method where it identifies variations of valid company employee details.

Finding Duplicates: - This is another method which is most commonly used by a lot of organizations which can identify fraud as well as any other error occurring within all the business transactions.

Gaps: - In this method you can find out the missing sequential info. For example if you have purchase orders which is problem by the company in sequential order and if anything is missing you can easily find out. This is an easy method and it will work out great if it was used correctly and properly.

VI. CONCLUSION

Our aim is to encourage anti-fraud managements to use proactive information detection techniques in order to improve fraud prevention and detection. It's not a toolbox from which can start a business of fraud detection and monitoring is not recommended to spend too much of time for selecting the proper option. It was just like to get start fighting with fraud data tools software with a combination of data mining and filtering, statistical and visualization tools. Although the software are not so cheap as we have discusses, there is the conditions to maximize the benefits and functionalities offered by the Office package (Excel, Access) or Active Information for Excel/Office. Creating a the system or web services which will detect and prevent

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fraud involves with in certain steps which can be done gradually depending on the priorities and the complexity of the system as further presented related to hardware components.

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