Big risks require big data thinking: EY Forensic Data Analytics (FDA), powered by IBM

Executives across multiple business functions, industries and geographies, have made significant advancements to solve business problems more effectively and efficiently using technology-based data analysis. For those charged with preventing, detecting and investigating fraud, corruption and other non-compliant behavior, data analysis can be a particularly powerful technique in compliance and anti-fraud risk management. With companies seeking growth in higher-risk markets, coupled with regulators and law enforcement bodies intensifying their enforcement activities, integrating a robust anti-fraud and compliance monitoring program that includes data analytics can be an important mitigating strategy as part of an effective anti-fraud risk control framework.¹

EY and IBM have formed an alliance to help our clients better connect technology with fraud domain knowledge to improve business performance, reduce risk and enhance compliance monitoring. To combat fraud risks, this alliance combines EY professionals, with extensive forensic accounting and data mining experience, with IBM’s robust suite of data analysis software capabilities.

An end-to-end platform, beyond traditional rules-based anti-fraud tests

EY FDA, powered by IBM, incorporates leading rules-based anti-fraud tests developed over years of investigative experience. These tests seek to identify anomalies and fraud risk areas using relational database or spreadsheet techniques such as matching, sorting, filtering and query design, which require the investigator to ask questions of the data based on pre-defined rules. However, as many anti-fraud professionals have experienced, relying solely on rules-based, relational database techniques can often result in a high number of false positives or missed fraud detection opportunities. This is why EY’s enhanced FDA analytics are designed to integrate with today’s leading enterprise resource planning, financial accounting and business information repositories and, when appropriate, to incorporate data visualization, predictive text and a host of other advanced anti-fraud techniques that seek to let the data define itself – outside the typical constraints of a database or spreadsheet analysis. EY also integrates IBM’s case management, decision support and content management tools to assist the investigator with workflow and documentation.

¹ See COSO 2013 Internal Controls Framework, Principal #8 on Fraud Risk Assessment. www.coso.org/IC.htm
There are numerous specified fraud techniques that are utilized by EY’s delivery team. These techniques are enhanced by IBM’s technology tools that include the following:

► **Knowledge of compliance and fraud schemes** incorporates years of EY’s investigative experience from a diverse set of professionals who have experience preventing, detecting and investigating fraud and corruption in a variety of industries. This body of knowledge also includes keyword phrases and industry specific tests that may be indicative of fraud – taking industry and geographical norms or regulations into consideration.

► **Statistical and predictive modeling** which is used to assist in the identification of suspicious and anomalous activity. EY’s experiences in fraud and compliance schemes and advanced predictive analytics are combined to look for transactions indicative of fraudulent behavior or activities, based on past high-risk activities or transactions. Integrating this capability in operational processes through predictive modeling and other analytical techniques helps strengthen the prevention and detection of unwanted transactions and routes high-risk events to the investigation team through automated alerts or triage procedures.

► **Identity resolution (entity analytics)** helps identify and connect the same person or organization contained in multiple data sources to a single entity or proper noun – even when the entity does not share the same key value, name spelling or unique ID number. For example, by combining entity resolution algorithms across multiple customer or third-party master databases, one can identify hidden relationships, addresses, or aliases that could indicate conflicts of interest, fake identities or sanctioned or debarred entities.

► **Content analytics or text mining:** Text-based, unstructured data sources form the vast majority of enterprise content in today’s organizations. Text mining uses natural language processing and heuristic rules and statistical techniques to reveal conceptual meaning and sentiments in large amounts of text data. This type of data can also be a valuable source for fraud investigations or compliance monitoring. Unstructured data sources might include the free text fields of a journal entry, payment description or employee travel and expense detail. It can also include email, social media, documents and presentations contained on the corporate network, backup tapes or an individual’s hard drive.
Pattern and social network analysis provides insights, hidden patterns and relationships from vast, seemingly unrelated data sources. Data, both structured and unstructured, is provided in a variety of visual and link formats that can be used to connect one data source to another, exposing hidden relationships, rogue bank accounts, bogus vendors and other third parties.

Case management supports the review team with workflow, task delegation and issue coding. Case management is also built in to allow document uploads to support conclusions and deliver operational dashboards in support of the investigation or compliance monitoring process.

Data visualization and interactive dashboards provide an enterprise view of business or transaction activities through federated search, navigation and data interaction. As compared to simple spreadsheet or static charts and graphs, data visualization and dashboarding enables a broad-range view of internal and external data sources to be analyzed in one, easy-to-understand, interface. The EY FDA platform integrates with several leading data visualization applications and data sources.

Big data capabilities. EY FDA platform also brings the power of Apache Hadoop into the service delivery to support the administrative, discovery, development, scalability and security requirements needed to support the high volumes, velocities and varieties of data often required for analysis.

Deployment models
EY's FDA service is designed to be flexible with respect to our clients' different needs and budgets. We offer three deployment models to provide our clients with the flexibility, scalability and analytics specifications aligned to meet their fraud risk objectives:

1. **Hosted Software as a Service (SaaS) model**: Here, the client securely logs into EY’s big data, online environment and conducts the analysis with support from experienced EY investigative professionals. Often, this model is preferred when the company does not wish to dedicate its own internal IT resources, hardware and software, and would rather leverage EY’s capital investment in such infrastructure and personnel.

2. **On-site mobile kit deployment model**: This is the same service as the SaaS model described above; however, instead of a hosted, online platform, EY utilizes a high-powered mobile unit to deliver the analytics at the client’s facility.

3. **In-house client systems integration and enablement model**: In this model, EY assists with understanding the client’s fraud detection and/or investigative objectives, identifying the requirements, recommending a diagnostic structure to vet the fraud or compliance risks, defining the requirements and specifications for the system, and assisting the client with the configuration, workflow and deployment of the IBM technology and user acceptance testing.  

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2. For in-house client systems integration and enablement, the client purchases the necessary hardware and software from the vendor at its negotiated price. EY does not resell hardware or software.
Industry and Global reach

EY’s FDA platform, powered by IBM, brings the anti-fraud knowledge of over 3,500 global Fraud Investigation and Dispute Services (FIDS) professionals in over 60 countries to design and continually innovate leading fraud tests and investigative approaches for our clients. Our global approach incorporates local anti-fraud and regulatory knowledge, industry experience and proprietary analytics to address a wide range of fraud risks such as corruption, financial misstatement, asset misappropriation and cyber fraud.

For more information, please contact your local EY FIDS professional.