

## Financial Crime Analytics

### For the best prevention, detection and response

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*To survive in a hyper-connected world dominated by complex IT systems, leading organizations must proactively manage exposure to financial crime. An intelligent approach towards financial crime will have data and analytics at its heart. A better ability to detect financial crime facilitates prevention and a much better response.*

#### The financial crime problem

Advancements in IT enhance the way organizations and people work together, exchange information and execute transactions. However, with machines replacing the role of humans in many regards, the old way of controlling business processes no longer holds. This increases the opportunity for financial crime.

Significant financial crime cases became apparent globally in the past years, and large fraud scandals dominate the news on a frequent basis. The ACFE estimated in 2014 that organizations together lose 5% of their revenue to financial crime, which projects to \$3.7 trillion worldwide. The pressure to beat financial crime has never been greater.

#### Challenges

Knowledge on the known financial crime is most likely present within your organization. However, many organizations do not fully succeed in converting this knowledge into an adequate operational framework. Initiatives, knowledge and data often remain fragmented, which implies that the full potential of analytical methods cannot be reached.

This relates to questions like:

1. How can we document known and unknown financial crime patterns efficiently and make sure that it will not occur again?
2. How do we assign accurate risk classifications to all clients, events and transactions?
3. How do reach optimal hit rates and minimize false positives, such that the workflow can operate efficiently, without impacting the business and clients?

Combining expertise, data and advanced analytics into a financial crime analytics framework is the key to master financial crime challenges. Such a financial crime analytics framework covers good data management, the right analytics tooling, intelligent application of advanced analytics techniques, tight case management and reliable reporting.



## A financial crime analytics framework

### Data management

Advanced analytics requires data from multiple sources and of sufficient quality. Data is the fuel in the financial crime analytics engine. This means that recording and disclosure of data needs to be managed in such a way, that the data can be used to its full potential. Data quality can be monitored quite easily, and data cleansing methods will enhance quality. Combining different data sources in a central and structured rather than an isolated and ad hoc way will significantly enhance the meaning and potential impact of data.

#### Client Case #1

A governmental organization greatly improved both fraud recovery (> €100 mln gain) and their operational effectiveness by adding predictive analytics to their existing financial crime framework and enhancing their case management process in parallel. We guided them in this process, using both our technical knowledge and our business experience.

### Analytics tooling

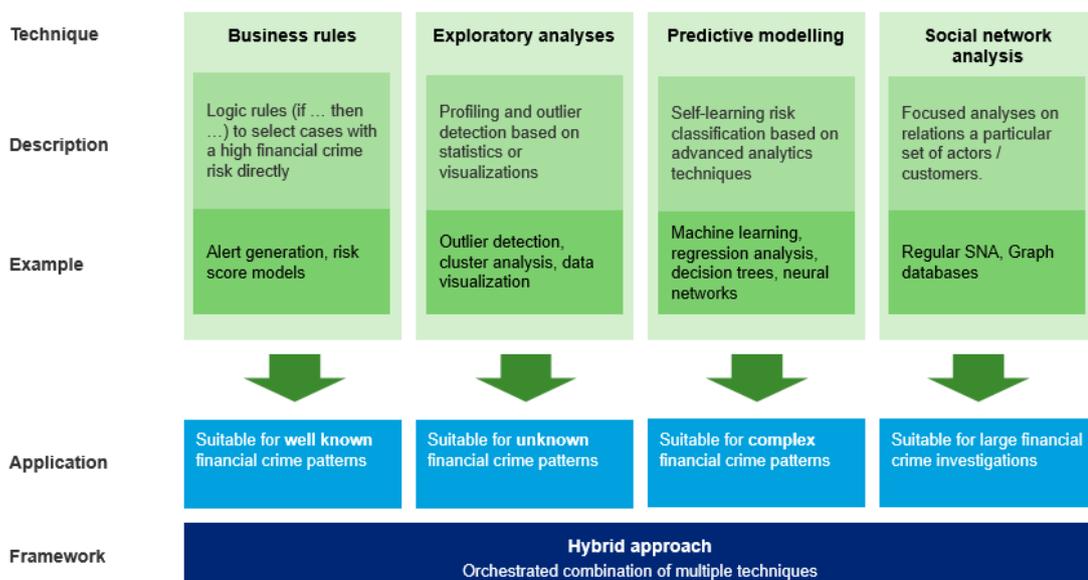
Software used to build analytical models should be fit to purpose and applied in the right way to reach its full potential.

### Data analytics tooling and techniques

Enabled by data analytics software packages, computers can beat human expertise in detection of financial crime. Multiple analytical techniques can be applied to detect financial crime:

**Business rules:** operationalization of existing knowledge into detailed ‘business rules’ or ‘risk indicators’ is for many organizations the starting point of their financial crime analytics methodology. This could lead to generation of alerts, or in combining the rules into comprehensive risk scoring models.

**Exploratory analyses:** exploratory data analytics techniques can be applied to discover suspicious cases that carry a higher financial crime risk. Examples of these techniques are ranking, outlier and anomaly detection, cluster analyses or data visualization. Exploratory analytics techniques are very fruitful in gaining knowledge about financial crime patterns that are not yet known.



**Predictive modelling:** using predictive analytics techniques (like regression models, decision trees or neural networks), self-learning risk classification models can be created. Based on the data of historical cases, statistical models can be 'trained' to identify high risk cases automatically. With this technique, financial crime detection is made completely data driven. Being the most advanced, it has proven to also be the most powerful technique to detect financial crime, especially for large populations of clients or transactions.

**Social network analysis:** financial crime cases are often not isolated, but rather part of a network of actors. Social network analysis helps to investigate if a detected financial crime case is

part of a much larger network. Both social network visualizations (which relations are present among certain actors?) and social network statistics (what is the nature of these relations?) are very valuable in disentangling financial crime networks.

Well considered combinations of these techniques in a hybrid approach will optimize hit rates and minimize false positives. This will facilitate timely detection as well as prevention of financial crime.

#### Case management

Beating financial crime is not only about acquiring the best software or applying the best algorithms. Follow-up on suspected financial crime cases should be embedded in business processes. Data analytics enables continuous detection of financial crime, and will provide the right information required to make an accurate response. Case management tooling facilitates and documents the work and decisions required to actually make this accurate response.

#### Reporting

Process owners and management will request up to date figures about financial crime being investigated and the impact being realized. But also the data analytics professionals maintaining the analytical models will require detailed information about their models, in order to improve the models applied on a continuous basis. Therefore, informative and reliable reports are a not to be missed element of any financial crime analytics framework.

#### Client case #2

A health insurance company successfully dismantled multiple networks of fraudulent health care providers by making a social network analysis. Helped by our technical assistance, this resulted in significant savings and better protection of their key business model.

#### Client case #3

For a Dutch bank, we assessed their new algorithms to screen their clients on financial crime. Multiple shortcomings were detected and detailed recommendations for improvement were provided. This enabled the organization to improve and prevent significant reputation damage and financial losses in future.

#### Client case #4

For a global manufacturing company, we guided a financial crime investigation by disclosing the required data, applying the right analysis and determining the full reach of the case. This enabled the organization to take the required measures, and isolate and close the case in a short period.

## Why Deloitte?

### Making it happen

The purpose of Deloitte is to make an impact that matters. We feel the responsibility to leverage our knowledge and expertise to reduce financial crime. Deloitte is at the genesis in multiple innovative initiatives to achieve this. Consequently we know that beating financial crime with analytics is a journey for many professionals in the field. We are working on the forefront of this journey and act as a guide for our clients.

Our financial crime analytics experts can assist in:

- determining a vision and strategy on financial crime analytics;
- creating a (master) data management methodology;
- selecting, implementing and testing of data analytics software;
- creating advanced analytics applications to detect and prevent financial crime;
- assessing, testing or validating existing financial crime analytics frameworks;
- providing emergency response whenever and wherever needed.

While doing this, we make sure that our knowledge and expertise is transferred to your organization. This results in a structured and maintainable financial crime analytics framework.

Deloitte Risk Services has a dedicated team of analytics professionals working on financial crime solutions across multiple industries. Together with our Forensics, Compliance and Risk management colleagues, we form multidisciplinary teams that hold the technical, business and domain knowledge that is required to beat financial crime.

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