Insurance Claims Fraud Case Study

The Need

An automotive insurance company needed to identify potentially fraudulent personal injury claims early in the claims process to avoid costly payouts.

The Solution

The client chose a claims fraud solution built with IBM SPSS Modeler, IBM SPSS Collaboration & Deployment Services and IBM SPSS Decision Management that incorporated business rules and predictive models to identify high and low risk claims.

The Results

The client was able identify high risk claims within the existing claims base. Examiner verification of the presence of fraud on the high risk claims showed a very high hit rate (>90%) of fraudulent claims. The estimated cost savings within the first year was in excess of $25M.

Unfortunately, insurance claims are a prime target for both opportunistic and organized fraud. The costs of fraudulent claims to insurance companies can be substantial. **Shutting down fraudulent claims early** in the claims life cycle is paramount to managing overall claims costs.

Manually examining every claim for potential fraud is impractical for most insurance companies given the high volume of claims and the extensive time/resources a manual review requires. The key to an effective insurance fraud solution is to identify both high and very-low risk claims early in the claims process. High risk claims should be referred for manual review. Low risk claims should be fast tracked (saving valuable examiner resources). The QueBIT Advanced Analytics Insurance Claims Fraud solution is a fully-automated solution that quickly identifies the fraud risk for all claims early in the claims process.

Advanced Analytics Approach to Fraud Detection

The QueBIT Advanced Analytics Insurance Claims Fraud solution used a combination of existing and new business rules in conjunction with predictive models to identify both high and low-risk claims.

The business rules were a combination of National Insurance Crime Bureau (NICB) and client internal rules. NICB fraud rules represent an industry driven, best-practice indicators of likely fraud. The internal rules were home-grown fraud rules tailored the client's locale, clients and business practices.

Predictive models were also trained to identify the propensity for each claim to be fraudulent. The models were trained on historical claims and evaluated with a hold-out (control) sample of claims. Dozens of potential fraud indicators were evaluated (including data initially captured as free-form text):

- Police report findings
- Examiner notes
- Medical costs
- Policy data
- Number of prior claims
- Links (through claims) to suspect providers
- Links (through phone numbers) to suspect providers, etc.

The predictive models were shown to be highly accurate (>85%) in predicting both high and low-risk claims.

The final solution generated claim by claim recommendations based on model risk and internal business rules. These recommendations were used to streamline claims processing.

Entity Analytics and Organized Fraud

In addition, to looking a claims fraud the QueBIT solution also accurately identified cases of organized fraud by building a different set of predictive models based on:

- Providers linked to known suspect providers through claims, phone numbers and addresses
- Providers linked to many suspect claims (using the results of the claims scoring process above)
- Providers billing from multiple addresses, etc.

The predictive models were trained to identify fraudulent providers using known fraudulent providers. The advanced pattern detection algorithms within IBM SPSS Modeler were able to quickly identify providers that fit known organized fraud patterns and allowed the fraud team to focus on those providers with the highest risk score.

Central to the organized fraud solution was IBM SPSS Entity Analytics (EA). EA allows the QueBIT solution to quickly resolve multiple identities (many fraudulent) into a single identify. The common practice (of fraudulent entities) of using multiple addresses or modifying contact information to hide identities was overcome by the resolving process within EA as part of a fully automated, ongoing process.

Contacting QueBIT

p: 1-800-QUEBIT1

w: http://www.quebit.com

Results

The QueBIT Advanced Analytics Insurance Fraud solution has greatly streamlined the claims examination process for this client. Low risk claims are fast-tracked and high-risk claims are referred for deeper examination within the first 30 days of the claim. The high degree of accuracy of the combined business rule and predictive model solution has allowed examiners to be highly targeted on where they spend their time. The cost savings to the client have been substantial. With a high hit rate (>90%) on identifying fraud, the client has been able to save millions of dollars in payouts to fraudulent claims and achieve a positive ROI within a few months. The projected savings are more than $25M in the first year of implementation.