Welcome to the new issue of Seeing Beyond Risk, the quarterly electronic publication from the Canadian Institute of Actuaries (CIA). Each issue presents the latest actuarial thinking from experts; below, François Boulanger looks at the multi-million dollar cost of insurance fraud, and how data analysis can protect law-abiding motorists’ premiums. We are sure you will find this article informative and thought-provoking, and we encourage you to distribute it among your friends and colleagues.

INTRODUCTION

Fraud is a significant factor in many insurance products and jurisdictions. Developments in risk management technology and increased governmental and regulatory emphasis have combined to highlight the problem of insurance fraud and bring more rigorous analysis to the issue. Fraud costs insurers many hundreds of millions of dollars annually in Canada, pushing up premiums for law-abiding policyholders across the country and reducing profit, investment, and coverage availability.

Actuarial professionals have helped in the fight against fraud, utilizing more rigorous analysis and increasing the attention paid to this very costly issue. However, more must be done to reduce the risk of upwardly spiralling insurance bills.

DEFINITION OF FRAUD RISK

Fraud risk is the risk of intentional or opportunistic acts designed to defraud, misappropriate property, or misrepresent information, or other unauthorized activities to obtain benefits, financial or otherwise. Fraud can be internal committed by employees, or external committed by clients, third-party service providers, or others with no direct relation to the insurer. It can have a financial impact on the enterprise and its clients, as well as having a negative effect on a firm’s reputation.

The Ontario Automobile Insurance Anti-Fraud Task Force report proposes a three-category classification that describes how the fraud is committed in automobile insurance:

- “Organized fraud: several participants with different roles within Ontario’s auto insurance
system create an organized scheme designed to generate cash flow through a pattern of fraudulent activity;

- **“Premeditated fraud:** a participant within Ontario’s auto insurance system, alone or with others, consistently charges insurers for goods or services not provided, or provides and charges for goods and services that are not necessary; the participant is involved in a pattern of fraudulent activity, possibly at the expense of motor vehicle collision victims or possibly with their complicity; and

- **“Opportunistic fraud:** an individual pads the value of his or her auto insurance claims by claiming for benefits or other goods and services that are unnecessary or unrelated to the collision that caused the claim.”

### LIMITED DATA

Fraud management is evolving in most insurance entities in Canada. Fraud prevention, detection, investigation, responses (including stopping payments, denying claims, asset recovery, and prosecution), and statistical tracking are still in their infancy or absent in many companies. Underwriters usually focus on insurance risk whereas claims experts focus on their clients’ experience. Consequently, there is little ability to detect fraud and scant visibility for efforts to fight it or do any cost/benefit analysis. As a result, it is difficult to make a business case for future investment with few to no hard facts.

In the absence of solid data, there are rules of thumb to estimate the impact of fraud on insured claims: for home and automobile insurance, it is estimated that fraud payments represent 5% to 15% of total claims paid.

### THE NEW EMPHASIS ON FRAUD RISK

The emphasis on fraud prevention has changed due to a number of factors.

The prudential regulator, the Office of the Superintendent of Financial Institutions (OSFI), has imposed a rigorous discipline of risk management on regulated entities. Contrary to banking, fraud is unlikely to result in a single risk event that would lead to insolvency or near insolvency. However, the Ontario automobile insurance situation from 2007–2010 demonstrates that fraud can have a serious and lasting impact on the profitability and overall risk of insurers: the costs of first-party benefits were $2.4 billion higher in 2010 than in 2006, despite a reduction in the number of collisions and the severity of injuries.

There is an **ongoing business imperative to reduce costs and improve profitability**, or gain a price advantage or improve the customer experience. The mitigation of fraud losses is a reduction of claim leakage experienced by insurers. Streamlined processing for non-suspicious claims will result in improved client experience at a lower operational cost, as a proportion of these claims can be handled administratively rather than fully adjudicated.

The most important driver in raising the awareness of fraud has been political and regulatory: the Ontario anti-fraud task force’s final report helped measure the likely impact of fraud, describe automobile insurance fraud, and offer wide-ranging recommendations to fight it.

### HOW TO FIGHT INSURANCE FRAUD

The report said the “unexplained” amount of accident benefits in 2010 amounted to $2 billion ($300 per registered passenger vehicle) in Ontario and $1.7 billion ($700 per registered passenger vehicle) in the Greater Toronto Area alone. Accounting firm KPMG was asked to produce estimates.
of the amount of fraud, and concluded it would have “amounted to between $768 million and $1.56 billion.” This would have translated to between 9% and 18% of the $8.7 billion of claims in 2010.

The task force also estimated the cost of organized and premeditated fraud in 2010 at between $300 million and about $500 million. Opportunistic fraud, the balance of the fraud estimate, therefore represented roughly $450 million to $1.1 billion. Opportunistic fraud events are the most common type and tend to have a smaller cost than organized fraud. Given its prevalence, opportunistic fraud needs to be addressed effectively.

To combat such fraudsters, the report included recommendations concerning:

• Prevention;
• Detection;
• Investigation; and
• Enforcement.

The first three of these are the objectives of a fraud management framework.

Detection

Regarding detection, it listed potential industry initiatives to identify suspicious claims, setting the stage for a significant and innovative approach:

1. “Insurers should move aggressively to establish an organization that would pool and analyze claims data in order to identify potential cases of organized or premeditated fraud.

2. “The Government of Ontario should urge the Government of Canada to move quickly to secure passage of amendments to the Personal Information Protection and Electronic Documents Act that are now before the House of Commons in Bill C-12. The goal should be to remove any undue limitations on the ability of insurers to pool claims information to combat fraud.

3. “The Financial Services Commission of Ontario [FSCO] should amend the forms consumers use to apply for auto insurance and accident benefits to make it clear to them that insurers may pool and analyze such information to detect fraudulent activity.”

This set of recommendations supports the creation of an industry-run, independent fraud detection entity. It suggests that technology is available and that with it some types of fraud, organized and premeditated, are best detected when industry data is pooled and links between insurance entities are analyzed. Furthermore, the benefits accruing to society from this initiative outweigh the lost individual competitive advantages that some insurers might hold against others.

In the wake of the report, a fraud detection entity was established: the not-for-profit Canadian National Insurance Crime Services (Canatics). It aims to target organized and premeditated fraud in the auto insurance industry by using state-of-the-art analytical tools on industry pooled data to identify potentially suspicious claims and facilitate further investigation by individual insurers. Its members manage approximately 75% of automobile insurance in Ontario, and it is planning to start operations in April. Since organized and premeditated fraud represent less than half of all fraud, insurers will still need to build the internal capacity to detect opportunistic fraud.

A similar data pooling and fraud detection approach has been operating in the UK since 2006. The Insurance Fraud Bureau (IFB) has broad reach and scope as its members manage over 95% of personal insurance claims in the UK and its fraud prevention services cover home as well as automobile insurance. IFB staff centrally investigate fraud alerts, whereas under the Canatics design individual insurers will investigate their own fraud alerts. The insurance consortium model is also used in the U.S and is hosted by the National Insurance Crime Bureau.
In recent years, government legislation and regulations have made increasing reference to the work and responsibilities of the actuary. In most of these documents, the term “actuary” is defined as a Fellow of the Canadian Institute of Actuaries.

Privacy and Technology

Recommendations 2 and 3 address the importance of privacy legislation and principles in an environment where data is pooled across independent entities.

Recommendation 3 has already been put in place by FSCO prior to Canatics starting operations. The Application for Insurance, the Application for Accident Benefits, and the Treatment Confirmation Form have all been modified to clarify the policyholders’ and claimants’ consent that insurers may pool and analyse information to detect fraudulent activity.

The main hurdles are the privacy and security issues as well as the technology.

- Canatics keeps privacy at the forefront of all planning, development, and operational activities.
- Insurance companies are now required by FSCO to track fraud, report on their counter-fraud measures, and annually certify that their fraud and abuse controls are in place and effective.
- Technology has reached a point where cost-effective detection is possible—data collection and data availability in near real time, and analytical methods including social network analysis (SNA). The technology can now deliver real-time alerts on newly reported, suspicious claims to be analyzed and possibly investigated. The technology can detect suspicious claims with some accuracy and early enough in the life of the claims to gather information on the accident or insured event and to take appropriate action if fraud is detected.
  - The fraud detection tools available to actuarial professionals and analysts have evolved significantly in recent years. Until recently, companies relied on simple rules, or red flags, that claim adjusters were trained to recognize without the help of automation.
  - Increasingly effective methods include anomaly detection, predictive modelling, and SNA. The consortium approach, as with Canatics, eases the detection of cross-insurer (organized and premeditated) fraud.
  - SNA is often confused with social media. SNA “works by rapidly analysing vast quantities of transactional and customer information to uncover hidden footprints within the data. Social network analysis can link these footprints together to give a more complete view of customers, their interactions and networks of relationships across an organisation’s products and brands.”

For insurers, the footprints are within their policy, claim, and intelligence systems, just waiting for SNA to reveal the relationships.
CONCLUSION

Insuring property and people across Canada involves billions of dollars and millions of pieces of data, the kind of information that is routinely analyzed by actuarial professionals and other experts using models, data mining, and similar techniques. To protect law-abiding customers from the impact of criminals filing bogus claims, insurers and regulators must adapt to changing technology and legislation, and the imminent launch of Canatics may represent a key achievement.

However, to further combat fraud, the insurance industry can:

• Expand data pooling and fraud analytics\(^1\) to other insurance such as disability insurance, and group medical and dental; and

• Share best practices and explore data pooling from government entities such as the Workplace Safety and Insurance Board and Ontario Health Insurance Plan.

These new analytical tools available to insurance companies have a broad application, and are also being used to detect other types of fraud. For example, they are used to detect tax and benefits fraud in Europe. Their widespread use in Canada could limit fraudsters’ impact here.

A combination of analytical expertise, hi-tech solutions, co-operation, and creative thinking could ensure that criminals lose the war for Canadians’ dollars. 🚧

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\(^1\) For a PowerPoint presentation involving analysis of fraud in a social network, click [here](#).

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