Capitalizing on Claims Data

After initially focusing on underwriting and pricing, many insurance companies have expanded their view of data analytics to loss management. The claims handling process represents a rich area for data modeling tools that can provide better insight into everything from adjuster assignment and operational efficiency to fraud detection and subrogation. How does data analytics fit into the claims management process for insurers - and adjusters?

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If "data is the new oil," as some contend, then analytics represents the internal combustion engine of business intelligence. Insurance companies are using various types of data analysis and predictive modeling techniques in areas such as underwriting, pricing and, increasingly, claims management.

Deloitte Canada recently surveyed Canadian insurance companies across underwriting, risk management and claims departments to ask how important data analytics was to their operations.

"Thirty per cent said it was important and 70 per cent said it was absolutely critical," comments Keith Walter, senior advisor, insurance consulting practice, Deloitte Canada. "The top 20 property and casualty (p&c) insurance companies in Canada are either in development or in testing phase with data analytic models and concentrating on certain areas. Number one is loss cost management, through fraud and subrogation; and number two is operational efficiency, or how to manage resources against claims in an efficient way."

The jockeying for position in data analytics has led to an arms race for insurers seeking to harness the power of structured and unstructured (or big) data for business insights into the claims handling process.

"If we measure the data, we have an opportunity to manage the data," says Patti Kernaghan, president of Kernaghan Adjusters Ltd. "If we spend the time creatively accessing the data, and the possible decision making opportunities coming out of the data collected at the claims front line, we'll be better equipped to see patterns that are otherwise hard to pinpoint."

Scientific Evidence

Kernaghan adds that "in the past decisions were often made on gut instinct. Data analytics provides the scientific evidence that will help us make better decisions for claims management and ultimately better underwriting and better insurance products that suit the needs of the insuring public."

A 2014 Towers Watson survey of U.S. and Canadian insurers found that company priorities in data analytics primarily involved underwriting/risk selection (57 per cent use or plan to use), but claims functions figured predominantly in the list. Specifically, loss control (49 per cent), claims triage (37 per cent) and evaluation of fraud potential (36 per cent) emerged as key areas of focus for insurers - particularly as "plan to use" in the near future.

To get there, insurers will have to make sense of the dizzying array of information available in today's digital society: the so-called three "Vs" of big data - volume, velocity and variety. According to an IBM white paper, each day more than 2.5 quintillion bytes of data are created. Velocity often refers to "real-time" or streaming data and the need to incorporate that information into business processes and decision-making. And then there is the variety of data: structured, semi-structured and unstructured information. This could involve text, sensor data, audio, video, radio-frequency identification (RFID), click streams, log files, twitter, Facebook posts - essentially, any type of measurable data.

"I see more emphasis on leveraging outside data sources and unstructured data sources to increase efficiencies and cost containment in the claims management process, and provide more robust and inclusive risk management analytics," notes Patrick Bossey, manager business intelligence unit, Crawford & Company (Canada) Inc.

Unstructured Data

"We have already seen this trend starting to take off with respect to the infrastructure for some of the fraud detection solutions out in the market, and this will only continue as the underlying technologies and abilities to manage and mine big data mature," he adds.

In a recently released Canadian study, Property and Casualty Insurance Reimagined: 2025, Deloitte notes that insurers will face a learning curve on "how to collect, store and take action on structured - and especially unstructured - data. While much of the data insurers will need will be highly organized, consistent and structured, far more data will be 'unstructured' - an anarchic collection of social posts, tweets, claims photos and more. Carriers will need to determine how they'll monitor and make sense of it all."

Indeed, a recent research report spearheaded by the UK Chartered Institute of Loss Adjusters, in conjunction with Ordnance Survey, found that 82 per cent of those questioned believed that insurers that do not capture the potential of big data will become uncompetitive. Another recent study from IBM found that 74 per cent of insurance companies surveyed report that the use of information (including big data) and analytics is creating a competitive advantage for their organizations.

Those insurers with the capability to turn raw data into useful information and then business-driven insights will gain strong footholds in various facets of the claims lifecycle - from FNOL to resolution.

More insurance companies are using, or contemplating, data analytics and predictive modeling to better identify claim patterns. Insurers have invested in software and tools such as link analysis, text mining, social media analytics, location intelligence and network visualization Predictive analytics, which involves the use of regression models and advanced techniques such as neural networks, helps to quickly and more accurately determine the complexity of the claim and whether it needs further investigation.

These techniques can apply to various types of data or information. A good example is the use of text mining to search for specific words or "tags" in adjusters' notes.

"Text mining can help carriers identify, understand, and measure the root causes behind losses to enable smarter underwriting. 'Water damage' is a great example, because often a claim possesses that descriptor and has no further detail in a claims system," states Karthik Balakrishnan, an analytics specialist formerly with Verisk/ISO. "Using appropriate text mining on claim adjuster notes can reveal whether the claim was the result of a 'burst pipe' or a 'weather-related event.' Applying that granular insight to identify and quantify trends can lead to development of smarter underwriting criteria and establishment of stronger loss control and prevention mechanisms."

Driving Insight

So, how is data analytics driving insight into key parts of the claims management process? There are several areas cited by sources. One is the identification of loss patterns and the opportunity for reductions in claims. Bossey explains that Crawford & Company (Canada) uses geocoding, time lapsing and benchmarking to analyze loss data and identify trends for its clients.

"We work with our clients to establish and monitor action plans, minimize loss exposures, and provide them with the 'full picture' of their loss activities," Bossey notes. "For example, in one such case we identified specific neighbourhoods in major cities, which, over multiple years, had concentrations of break and enter claims. This information was synthesized into clear and concise formats, and was shared with key stakeholders to prompt appropriate action."

Kernaghan agrees that data analytics can drive major changes in risk exposures and opportunities. "A primary way of using data analytics is for cost saving purposes," she states. "The claim results help inform the underwriters when coverages need to be reviewed, deductibles increased or even new products developed such as flood insurance, that is just now being offered in Canada by two companies."

It is not just insurance companies that want this information - but risk managers as well. "Our risk management clients tend to use high-level analytics - they are looking for trends and benchmarks," Bossey says. "They want to know how to reduce claims, but also want to gauge themselves against prior years and similar types of risks. Mostly commonly, they are looking for cost trending and comparisons, financial ratios, litigation ratios and the frequencies of certain types of losses. "

Kernaghan notes that "front-line claims data collection is particularly important to risk managers, especially in large corporations that have long understood and applied data analytics to their specific operations. Today with the increased availability of tracking data inexpensively, scientific evidenced based decisions are becoming even more available and important to risk managers when making business decisions," she says.

Fraud detection is another critical area for data analytics and claims, particularly for insurance companies exposed to various forms of organized, premeditated and opportunistic fraud. Insurers are using various methods, including link analysis, location intelligence/analytics and network visualization, to more quickly identify suspicious claims.

Fraud Detection

"A key question is how claims organizations are better equipping themselves to identify both hard and soft fraud," says Alex Watson a manager in the insurance consulting practice for Deloitte Canada. "And then how do they use that information to better allocate investigation resources, whether that is through a dedicated fraud investigation team that is going out into the field or using social media tools."

Data analytics can represent a better technique to catch fraudsters than traditional fraud detection measures, such as red-flag indicators, random file reviews or automated business rules.

"Most fraud solutions on the market today are rules-based," notes Stuart Rose, a global marketing principal at SAS in a report, Six Ways Big Data Analytic Can Improve Insurance Claims Processing. "Unfortunately, it is too easy for fraudsters to manipulate and get around the rules. Predictive analysis, on the other hand, uses a combination of rules, modeling, text mining, database searches and exception reporting to identify fraud sooner and more effectively at each stage of the claims cycle."

Bossey observes that there are interesting developments with data in identifying opportunistic fraud and claims leakage. "An exciting area of opportunity is applying analytics to contain leakage," he says. "Similar to building a fraud detection solution that identifies red flags, if we can develop algorithms to flag potential leakage and refine these algorithms with audits and real-life use, we can work towards building more robust models."

Subrogation represents a prime area for increased efficiencies in data analytics, according to sources.

"Many insurers are asking: 'how do we pinpoint subrogation opportunities earlier in the claims lifecycle? What are the key triggers in data analytics or the adjuster's ability to identify subrogation potential?'" Watson notes. "This can then be passed to a more specialized unit who can investigate and recover money sooner rather than later. There are a lot of subrogation dollars left on the table, either because they are recognized too late in the claims lifecycle or not recognized at all."

One of the key drivers for data analytics in the claims management process is enhanced operational efficiency - or making the claim hand-off process as smooth and quick as possible. There's room for improvement, for example, in the adjuster assignment process, according to sources.

Operational Efficiency

"Adjuster assignment segmentation is a heavily manualized process that is probably documented on some sort of Excel spreadsheet by a claims supervisor," Watson observes. "For insurers, however, once they are able to capture the right amount of personal and loss information, they are better able to segment those claims to the right people. The real opportunity for data is really its use as a workforce management tool - to get more sophisticated in assignment and segmentation."

The allocation of resource capacity in large catastrophic events is another important claims consideration for insurers and adjusters, according to Watson.

"We have seen a lot of insurers still struggling with how they prepare for CAT events, even though we are getting to the point of anticipating and even knowing the risks beforehand within a generally defined range," he says.

"For example, with hurricane season, we know that in the south Atlantic, the season is between July and December, but the peak months tend to be October-November. So how do insurers use data analytics to build up capacity in the affected areas? Or how do they alleviate capacity restraints in those areas? Can they offload some of the claims onto areas that may have less capacity?" Watson notes.

For independent adjusters themselves, many of the features of data analytics have revolved around key performance indicators (KPIs) set out by insurance companies.

"One of the primary ways data analytics are used today is . . . tracking various KPIs to include a series of firsts: 1) Contact with the insured; 2) Claim site visit; 3) Report to the principal; 4) Reserves; and 5) Cycle time," Kernaghan comments. "These basic data elements provide an overview of the performance on an individual claim and once rolled up to the entire portfolio level, they can provide management with tools to assess the adjuster's performance and the progress of the entire claims portfolio."

Bossey notes that most of these performance measurements are aligned with cost containment. "In terms of cost containment, our focus has been on measuring key performance indicators and targets set forth by our clients and by Crawford standards, and establishing secondary metrics to proactively strive towards set KPIs and targets," he says.

"One way we monitor costs is by monitoring claim shelf life. We have worked in conjunction with our claims team to understand key milestones during the life of a file and have established measures to track our progress against the established KPIs and targets. This allows for the early identification of files that require additional attention and allows us to direct our resources accordingly to shorten the life cycle of the claim," Bossey adds.

However, an overly narrow focus on metrics and performance targets may take away from the real value of data analytics, according to some sources.

Performance Targets

"Adjusters are using analytics at a claims level; however, there is a lot of untapped potential," Bossey notes. "I feel the main reason for this is that in a world of KPIs, target and benchmarks, most of the claims level analytics thus far have been tailored to the examiner, vendor manager and/or risk manager audience, and are usually performance management based. This means we have been primarily using analytics to track and measure the claims process, rather than augment and support it."

To truly reap the rewards of data analytics, Bossey says "the next steps are to work closely with adjusters and operations to intimately understand processes and workflows, with the ultimate goal of automating more functions, and tailoring information to support their specific needs and facilitate their workflow."

The technology investment in data analytics has to be accompanied by an equal emphasis on people and process in claims management functions, according to Watson. "It is critical for the claims organization to get the people and process part right," he says. "Traditionally, insurance companies' systems haven't allowed them to capture the richness of data that they require in a structured format. So we are seeing the need for insurers to implement the right processes, and measure the right KPIs to incent the appropriate behaviours."

Watson adds "that is a move away from, 'let's just capture the entire claim in an unstructured notes section.' Instead, it's 'let's better use the technology we have and capture all of the information we are going to require.' Insurers know this will eventually drive lower loss adjustment expenses, allow them to predict losses or be better able to assign and select claims to the right adjuster the first time. And ultimately, it will provide better customer service."

There are many challenges to the full adoption of data analytics and several reasons why some insurers have yet to pursue "end-to-end implementations," according to Deloitte's Walter.

"The two biggest challenges in data analytics are people and costs," says Walter. "There is a relatively small pool of people who are knowledgeable and capable of dealing with advanced data analytics. The second issue is the total cost of what we would call end-to-end implementation. It is one thing to build a model in a lab somewhere; it is another thing to actually implement it into a live system so it is delivering value when needed."

For adjusters, one of the main obstacles to data analytics is the quality of the data itself. "The main challenges we see are inconsistent or incomplete data," says Bossey. "Insurance Bureau of Canada (IBC) has provided excellent guidance and frameworks for statistical models and coding. For the analytics side of the industry on the whole, there is great opportunity to establish consistency in terminology and measurements - particularly for common terms, such as shelf-life and claim."

Quality of Data

Bossey adds that "data sharing is problematic because each organization structures their data to match their unique operational needs, and calculates measures based on their own evidence of activities. If we can get to a place where some of the key terminology and pieces of data can be locked down across the board, the whole industry could benefit."

Kernaghan says that one of the most obvious obstacles to data analytics is data integrity. "Can you rely on the source? Is it timely? Is it accurate? Have your naming conventions been clearly articulated and agreed upon?" she asks. "If you are confident in all areas, your evidence based results will help provide a sound analysis for making business decisions."

While cumbersome, these challenges will not likely stop the progress of data analytics in the p&c insurance marketplace, according to sources.

For claims, Bossey believes the future will see "an ongoing validation and refinement of fraud detection models. In addition, there will be a continued focus on identifying further efficiencies in the claims handling process through predictive modeling, and a move to using analytics to reinvent the claimant experience after a loss."

Kernaghan observes that "we are operating in a world of evidence based information. The issue is effectively reading the data collected to ensure we make the right decisions. The future of data analytics in the p&c industry for claims and risk managers is a stronger and stronger reliance on the increasingly cheaper ways to gather scientific evidence based data," she adds.

"We are very quickly getting to the point where it is not a shortage of data, but rather whether insurance companies can take full advantage of the data they have," Watson concludes. "It is a race to turn that data into real value, and unlock the value that is already there."