Analytics and Big Data

A great deal is being written today about ‘big data’ and the ‘power of analytics’, whether it’s in the movie “Moneyball” or talked about as part of the added sophistication in this year’s political campaigns.

There are numerous market dynamics that are driving the need for companies to use data and business analytics to drive decision making. For starters, there is a growing pool of evidence that suggests that companies that use data and business analytics to drive their business are more productive and profitable than competitors that do not. This is why analytics was identified by Gartner and other analyst firms as one of the four key technologies central to disruptive innovation this year.

Additionally, the consumer is now playing a changing – and expanding role in new product development, pricing, and marketing strategies. Today’s consumer is more diverse in terms of age, ethnicity, and geography than ever before. Consumers use mobile devices and smart phones in all aspects of their daily life to either access information or to add their own content to the growing universe of digital data. Technology has given consumers additional channels to research products and to share their thoughts about those products with any interested party. And, the role of social networking for the sharing of information, attitudes and opinions on a variety of topics, including your products and service, cannot be understated.

The insurance industry has long been a leader in the use of data to price product, underwrite, and manage claims. Much of the data has been within silos of individual business units, and not utilized as effectively as it might be were data to be shared across the enterprise. This paper will discuss how insurance claims departments can better harness the power of analytics.

ANALYTICS GROW UP

Big data and predictive analytics build on the basic business intelligence framework that has been in use by companies over the last twenty years and includes the collecting, cleansing, and storing of data in a variety of databases - many of which feed reports that provide perspective on past performance and results. With advances in technology, companies are now moving from basic business intelligence such as management and exception reporting to more robust analytics such as advanced forecasting, simulation and modeling, quantitative analysis, and predictive analytics. The image below illustrates the analytics spectrum.

![Analytics Spectrum Diagram]

Source: “Analytics driven: Using analytics to help gain a competitive edge in manufacturing.” 2012 Deloitte Development, LLC.

Predictive analytics at its most basic is the use of analysis and modeling techniques to discover patterns and relationships in existing data, then using that insight to make accurate predictions.

This shift, as noted previously, is driven largely by advancements in technology, which have allowed for greater information sharing and the ability to extract data from all kinds of places including sensors used to gather climate information;
posts to social media sites; digital pictures and videos posted online; transaction records of online purchases; and from cell phone GPS signals. According to International Data Corporation (IDC), the total size of the ‘digital universe’ (all the digital information created or replicated) grew by a factor of nine over the past 10 years reaching nearly two zettabytes in 2011 (a zettabyte is a trillion gigabytes). The term often used to describe these data phenomena is ‘Big Data.’ Organizing and storing the vast amounts of data that was largely unstructured was a challenge for many, but the growing use of new programming languages enables companies to more quickly and affordably manage the large volumes of unstructured data pouring out of the web, making it easy for companies to harness these diverse data sets to improve their operations, interaction with customers, and development of products.

Examples of Big Data at work are everywhere. Comcast for example looks for outbursts of anger to detect and respond to service outages; Derwent Capital, a hedge-fund in London makes trades based on social media financial comments, and even China has attempted to rein in citizen protests through measured responses to specific online complaints about issues such as pollution and police corruption. One social-media analytics company, BlueFin Labs, has focused on identifying what people are talking about in social media during the three-hours before and after a television show to “…tease out nuances in the way context affects the extent to which an ad generates buzz”. 10 million of the nearly 300 million public comments made online worldwide everyday are related to television, changing what has historically been a one-way dialogue.

HOW IS THE INSURANCE INDUSTRY USING BIG DATA AND ANALYTICS?
The insurance industry has always made use of data to make better decisions. The underwriting department of an insurance company has been at the forefront of data use for many years – using historical claims data as well as factors such as driver age, gender, and credit score, to project potential for loss, and make risk determinations. A recent article in McKinsey Quarterly titled “Are you ready for the era of ‘big data’?” included an analysis of the different industry sectors’ ability to both capture and benefit from big data. According to McKinsey, finance and insurance companies are well positioned to do both, largely because many of these companies have invested deeply in IT and have large data pools to work with.

Many insurers have made significant investments in predictive analytics in the last year, and are expected to continue to fund the use of data and predictive solutions. According to the IVANS 2011 Carrier Automation Trends study released September 2011, 37 percent of carriers are currently using or plan to integrate predictive modeling and business intelligence into their organizations in the next 12 months, with the goal of greater consistency and accuracy in business decisions in less time. A survey conducted by Towers Watson in October-November 2011 specifically asked insurance carriers about the bottom- and top-line benefits of incorporating predictive models into rating, pricing, underwriting, and risk selection processes. 75 percent of those surveyed identified bottom-line benefits of rate accuracy, loss ratio improvement, and improved profitability. Over one-third of those surveyed also identified top-line benefits of ‘expansion of underwriting appetite,’ ‘improved renewal retention’, and increased market share. 5

Among the applications of predictive models is the identification of the right mix of products to bring to market to new or existing customers, which customers may be on the brink of switching to a different carrier, or identifying potential fraud.

HOW CAN ANALYTICS HELP IN CLAIMS?
Customer Satisfaction is King
The average consumer today has an auto accident once every seven to 10 years, well behind the average vehicle trade-in cycle of every five years. Due to the nature of the product being sold, auto insurers typically have very limited interaction with consumers outside of policy issue, bill time, and sometimes through other services such as banking. However, the real moment of truth for the insurer is at the time of an accident. A claim is one of the most significant opportunities for an insurer to retain or lose a customer.

The ability for insurance carriers to advance their use of analytics to improve the customer experience is becoming a must, particularly as consumers demand that a claims experience be as satisfactory as any other interaction they have with any type of business today.

To date, insurance claims departments have made good use of analytics - electronic appraisal reviews and shared guidelines have helped to ensure business partners have the information needed to fulfill work in a transparent, compliant, and complete
manner. Management dashboards facilitate claims performance review in a concise, targeted manner, enabling managers to address specific areas of performance, adjust levers, and evaluate the impact in real time. And while these tools are necessary and valuable, there are some limitations. The data provided in these formats is often more informational than actionable, and is reliant on human interpretation. This has often led to under-utilization or over-management of business partners, and can diminish the value of technology investments. And perhaps most importantly, the customer experience has often been negatively impacted due to slow and often disjointed communication regarding the status of their claim.

In order to meet the demands of today’s consumers and today’s business environment, insurance claims departments must expand their use of analytics to become more proactive. By combining innovative technologies that improve business processes with the ability to fine-tune the messages delivered to customers at the right time and on the right device, insurers can place themselves in a position to meet the expectations of today’s consumer.

Get a Handle on Claims Costs and Improve your Business Partnerships
Effective use of technology not only enables insurers to meet the minimum set of expectations of their customers, but can also streamline the overall claim and repair processes. Predictive models build on the work that started over two decades ago to create electronic processes for insurance claims professionals and their business partners to collect and synchronize data from multiple resources, use that data to monitor processes, drive efficiencies, and where needed, redesign processes. By using basic business intelligence capabilities to drive decisions, insurance claims professionals have implemented shared compliance management, centralized processes and guidelines, and today pro-actively manage via reports with trending and benchmarking capabilities.

As carriers begin to implement more advanced analytics, predictive models are helping them achieve greater process compliance and prediction of outcomes, particularly when they coexist with real-time transaction processing.6

Insurance carriers have historically used a series of questions, or a ‘decision-tree’ method to identify whether a vehicle is repairable or a total loss at first notice of loss (FNOL). Claims not identified at FNOL as total losses are advanced through the claims process – inspections are conducted and estimates written – before a vehicle valuation is requested. These extra steps can increase claims-related expenses, including salvage, tow and rental; increase cycle time, and negatively impact customer satisfaction.

Predictive analytics generate a scenario on how a set of variables interact – this is different and superior to static business rules that evaluate single variables serially. With predictive analytics, variables such as vehicle information, geography, and historic claims data can interact to identify a loss vehicle at FNOL based on the insurance carriers’ guidelines. Once this important decision has been made, total loss vehicles can be routed for salvage, and repairable vehicles can be routed to the most cost-effective appraisal source. The ability to use data to predict the outcome for an insured or claimant’s vehicle at FNOL helps reduce overall cycle time, driving up both customer satisfaction and reducing loss adjustment expenses. When pre-fill and predictive analytics are incorporated into the overall process, unnecessary steps can be avoided at FNOL and at other points in the claims process so that the proper resources are not only assigned, but are equipped with information for a fast and satisfactory claim settlement. The image below illustrates the process used in the CCC ONE™ Predictive Solution.
According to Craig Weber of Celent, a research consulting firm, “The promise of CRM was to help companies get a better view into how their customers behaved, and to generate a unified customer view across lines of business and systems. Insurers that have thought these issues through over the past decade probably have in place many of the tools they need. But recent behavioral shifts, such as the exploding popularity of social media and mobility tools, have put more useful data in play. So re-evaluating the tools and data sources, and taking a fresh look at behaviors, makes sense.”

**Fighting Fraud**

As predictive capabilities expand, insurers can combine the data that they have been collecting, cleansing, and storing in a variety of databases with new data sources that have sprung from the explosion from mobile devices and social media. Predictive analytics can also be used by carriers at the time a policy is underwritten and when claims are made. Through the use of alerts and additional questions at policy application or first notice of loss, critical information can be gathered that can dissuade the fraudster from proceeding with the policy application, or can route the claim immediately to SIU.

**SUMMARY**

Companies must understand the changing consumer base, and create new and innovative products that can meet their unique needs and desires. Rampant growth of online content helps consumers’ access product recommendations, and conversely provides companies consumer behavior data to tap into. With advanced statistical tools and predictive analytics, companies can harness these growing and diverse data sets to improve operations, interaction with customers, and development of products.

Within the insurance claims arena, predictive models are a natural extension of the analysis of data captured through process automation. As insurance carriers begin to implement more advanced analytics, predictive models can help them achieve greater process compliance and prediction of outcomes, which can help them turn the otherwise negative experience of a claim into a positive experience about which consumers want to tell their friends and family.

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1 Ibid., p. 47.
3 Ibid., p. 47.