

Unleashing the Value of Predictive Analytics in Insurance

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1.0 Introduction

Predictive analytics can transform how insurance companies do business, but realizing its potential requires thoughtful leadership and organizational transformation changes.

Fortunately the roots of actuarial businesses have always appreciated the value of advanced statistics to solve business problems. In many respects, Insurance companies' rigorous appreciation of statistically relevant facts to make informed business decisions will ease their evolution into leveraging advanced sciences and mathematics, where predictive analytical tools will be the norm.

2.0 Predictive Analytics - Defined

Predictive analytics encompasses a variety of statistical techniques from modeling, machine learning, and data mining that analyze current and historical facts to make predictions about future, or otherwise unknown, events.

In business, predictive models exploit patterns found in historical and transactional data to identify risks and opportunities. Models capture relationships among many factors to allow assessment of risk or potential associated with a particular set of conditions, guiding decision making for candidate transactions.

Predictive analytics is used in actuarial science and other fields. One of the most well known applications is credit scoring, which is used throughout financial services. Scoring models process a customer's credit history, loan application, customer data, etc., in order to rank-order individuals by their likelihood of making future credit payments on time.

Actuaries use advanced math and financial theory to analyze and understand the costs of risks have been major hallmarks of the insurance industry. Indeed, the analytics performed by actuaries are critically important to an insurer's continued existence and profitability. However, over the last twenty years, computing technology innovation married with diverse digital sources have rapidly expanded and reinvented the core disciplines of actuaries.

Predictive analytics approaches now leap well beyond traditional actuarial science approaches.

3.0

Insurance Industry Dynamics

Many life insurance executives say that their business needs to fundamentally change in order to be relevant in today's market. It is true that the life insurance industry faces formidable challenges.

In 1950, there were approximately 23 million life policies in the US, covering a population of 156 million. In 2010, there were approximately 29 million policies covering a population of 311 million. More recently, the percentage of families owning life insurance assets has decreased from over a third in 1992 to below a quarter in 2007.

The stagnation or decline of life insurance contrasts with the rise of mutual funds; less than a quarter of the population owned such investments in 1990 but over two-fifths (or 51 million households and 88 million investors) did by 2009.

A number of socio-demographic, behavioral economic, competitive, and technological changes explain why this has happened:



1. Increasingly unfavorable Distribution Economics

Insurance agents are paid high, front-loaded commissions, some of which can be as high as the entire first-year premiums and a small recurring percentage of the premium thereafter.

Moreover, each layer adds a percentage commission to the premiums. All of this increases costs for both insurers and consumers. In contrast, mutual fund management fees are only 0.25% for passive funds and 1-2% for actively managed funds. In addition, while it is difficult to do so with insurance agency fees, it is relatively easy to compare mutual fund management fees.



2. Generational Preference Shifts

New and changing customer preferences and expectations: Unlike their more patient forebears, Gens X and Y – who have increasing economic clout – demand simple products, transparent pricing and relationships, quick delivery, and the convenience of dealing with insurers when and where they want. Insurers have been slower than other financial service providers in recognizing and reacting to this need.



3. Holistic Customer Mind Set

One of the best ways to create a holistic customer experience is via actionable consumer segmentation that incorporates multiple data sources to create a detailed understanding of consumers' demographic profiles and their psychographics (i.e., attitudes and behaviors).

Armed with this information, insurers can address any significant gaps that consumers and advisors may face during their respective decision-making lifecycles. The end result will be value to the customer, including greater satisfaction and loyalty, as well as greater profitability for the insurer.

That said, optimal returns will occur only with a careful balance of customer and insurer goals. In order to achieve this, the carrier must break down product and channel silos to shift from a product to a customer focus. The goal is to align consumer segments with their desired channels, and thereby enable carriers to reach new segments and optimize their distribution channel strategy and investments.



4. Implications

The preceding factors have resulted in a vicious cycle for insurers. Insurers claim that, in large part because of product complexity, life insurance is “sold and not bought,” which justifies expensive, intermediated distribution.

For many customers, product complexity, the need to deal with an agent, the lack of perceived need for death benefits, and the cost of living benefits make life products unappealing. In contrast, the mutual fund industry has grown tremendously by exploiting a more virtuous cycle: it offers many fairly simple products that often are available for direct purchase at a nominal fee.

Consumer demographics, behaviors and expectations are very different than they used to be. In order to differentiate themselves and grow, insurers need to have a deeper understanding of them than in the past, and adopt strategies and tactics that meet consumers' long-term, holistic needs.

The use of more advanced analytics techniques for data analysis, interpretation and application will help make this a reality. In particular, the continued focus on predictive analytics will have a major impact on modernizing insurance practices. Distribution channels need to better incorporate current technology to provide a more tailored and customized experience for the different segments that carriers target. Doing so can facilitate unique and differentiated interaction with customers, as well as streamline and simplify research and purchases. In turn, this can significantly increase producer effectiveness and optimize channel economics.

Let's look deeper at the core focus of this white paper – predictive analytics.

4.0 Changing Tides

Let's look at a simple example on how the impact of advanced analytics has affected underwriting of personal automotive insurance. In the past, the primary data sources were loss histories. Then we started to see an evolution where credit scores integrated demographic and behavioral context. Credit scores from credit bureaus were integrated into analytic databases to predict behavior outcomes or risks. For example, people who pay their bills on time are more likely to be safer drivers. Although there has been discontentment amongst consumer groups arguing that behavioral scoring creates a credit bias to consumer rights.

The reality is that histories are far too limiting. Now with additional data sources from: demographic, behavior, physical evidence, and third party sources, the opportunity to derive predictive patterns can be derived more accurately.

Now a new wave of innovation and advanced analytics applications are emerging in diverse product lines and business functions.

Traditionally, life insurers and property and casualty insurers have lagged behind other financial services sectors. But with the Insurance Industry's analytics

appreciation history, they are catching up rapidly in their adoption of predictive and real-time optimization models integrated into business processes such as: finance and risk management, sales, marketing, and service operations. The overall effect of these process viral penetration developments will be greater depth and breadth of analytics talent throughout organizations, significant improvements in management processes, and earlier indicators of new product innovations that can deliver greater value to customers and to society.

While the impetus to invest in analytics has never been greater for insurance companies, the challenges of capturing business value should not be underestimated. Technology, as everyone knows, changes much faster than people. The key for insurers is to motivate their highly skilled experts to adopt the newest tools and use them with creativity, confidence, and consistency.

5.0

The Next Wave of Innovation

Historically, competitors achieved significant performance differentiation mainly by combining scale of exposures and underwriting expertise. We are now entering a period when this picture is rapidly changing.

In the future, the creative sourcing of data and the distinctiveness of analytical methods will be much greater sources of competitive advantage in insurance. New sources of external data, new tools for underwriting risk, and behavior-influencing data monitoring are the key developments that are shaping up as game changers.

“Data Exhaust” - External Data Sources Explode Everywhere

The proliferation of third-party data sources is reducing insurers' dependence on internal data. Digital “data exhaust” is exploding from multiple technology and content media generated sources, ranging from: social media, smartphones, smart tablets, computers, and now even smart watches, given Apple's recent smart watch announcement in September, 2014. With Google's acquisition of NEST in 2013, the world of smart sensors everywhere is also now rapidly unfolding.

Also with advanced automotive telematics, driving speeds, speeding tickets, will further fuel behavioral insights to predict credit risks.

With increasingly diverse data sources transferring more bits and bytes of information on customers/ consumer's daily living or working habits, incredibly rich sources of knowledge and predictive risk profiling of consumer's behavioral habits is accelerating.

Many organizations collect this often confidential information and augment credit scoring and behavioral profiling databases to provide richer sources of behavioral insights for insurance companies. In addition, virtually all businesses will increasingly consume consumer intelligence sources to get an edge on customer purchasing patterns. Recently, the release of previously unavailable or inaccessible public-sector data has greatly expanded potential sources of third-party data.

The US and UK governments and the European Union have recently launched "open data" websites to make available massive amounts of government statistics, including health, education, worker-safety, and energy data, among others. With much better access to third-party data from a wide variety of sources, insurers can pose new questions and better understand many different types of risks. For example, which combination of demographic factors and treatment options will have the biggest impact on the life expectancies of people with specific disease types?

Consumers that purchase groceries online will be asked if they want to share their purchasing and eating patterns to secure loyalty points to reduce their food bills to share this information, with their consent, to third party data aggregation companies who will, in turn, correlate your dietary patterns to health risk profiles. They will then sell this consumer credit scoring augmented intelligence to insurers, and hence, predictive analytics will alert employers to employee hiring profile risks.

With augmented statistical pattern intelligence, driven from a combination of corporate behaviors in health and safety, management will be able to predict reliably lower or higher worker compensation claims. Furthermore, questions like: what is the probability that, within a given geographic radius, a person will die from a car accident or lose his or her house in a flood, and further correlate this to matching insurance applications or claim applications. Connecting the dots to form new insights driven from diverse data sources will increasingly be the norm for Insurance companies world-wide.

1.

New Analytical Prediction Tools will augment Insurance Processes

The number one investment area in 2014, where millions of venture capital investment dollars have been deployed is in Big Data and innovative analytics vendors specializing in insurance applications are spawning the development of new and more sophisticated predicting “sensing outcome” tools.

For instance, one vendor has developed a new health-risk model by blending best-in-class actuarial data with medical science, demographic trends, and government data. This forward- and backward-looking tool for modeling longevity risk captures data from traditional mortality tables and adds data on medical advances and emerging lifestyle trends such as less smoking, more exercise, and healthier diets. Innovations in analytics modeling will also enable carriers to underwrite many other emerging risks that are underinsured, including those related to cyber security and industry-wide business interruption stemming from natural disasters.

2. Real-time data monitoring that influences behavior

Real-time monitoring and visualization is fundamentally changing the relationship of insurers and the insured. By agreeing to let insurance companies monitor their behavior, customers can learn more about themselves, and insurance companies can leverage the data to influence behaviors. In auto insurance, for example, telematics are being used to monitor in real time the driving habits of the insured and then send data back to the insurer. There is already evidence that this is influencing drivers and changing their driving habits for the better. One UK insurance company using telematics reported that better driving habits resulted in a 30 percent reduction in the number of claims; another UK insurer similarly used telematics to help a large client reduce accident-causing risky driving maneuvers by 53 percent.

3. Optimizing Sales Profitability with Prediction Intelligence

Some of the challenges that have plagued sales leaders for decades have been securing accurate sales forecasts or achieving quota win rates beyond 50% levels. The top issues frequently we see reported by Insurance sales professionals are:

- Easy to use, more simplified, and modernized CRM tools to help them perform more effectively, that have integrated data sources for more customer insight;

- Less is more, access to trending and risk information that enables insight(s) to target specific individual or group needs;
- Concerns over commissions being optimized given the diverse product mix streams;
- Focusing on the right opportunities that may have the highest yield; and
- Ensuring accurate sales forecasts, given risk, compliance and realities, in particular, for publicly traded companies.

The landscape is set to change rapidly now with advanced predictive analytics that can reliably analyze large global data sets of interactions from: customer, insurer, agent and sales professional experiences in real-time.

6.0

Sales Choice's – Sales Predictions- Insight Engine™

One of the major innovations that SalesChoice accelerates in is analyzing all the data that an insurance company's sales organizations collect in the CRM market leader, Salesforce.com to predict a sales professional's or sales agent's odds of a win or a loss on a sales opportunity.

Our experiences to date have proven we can analyze large global Salesforce.com data sets and with our advanced prediction engine, we produce a unique predictive algorithm (predictor) that provides an insurance company more accurate insight at every stage of its sales cycle, in terms of the company's odds of winning or losing. SalesChoice's Predictive Analytic – Insight Engine™ analyzes insurance company client's sales winning patterns and identifies the indicators (patterns) of what is a positive (high probability of winning or a healthy sales cycle) versus a negative (low probability of winning a sales cycle).

Our SalesChoice's Chief Data Scientists have learned from our global deployments that we don't need to have 100% data quality to provide a very accurate win prediction indicator to guide sales professionals in their day-to-day sales activities. Having data quality that is accurate globally in the range of 40-60% is sufficient on large global data sets to determine an accurate prediction of value to our clients.

We understand that the larger the data set, the more accurate our sales predictions can be. Of course, the more accurate the data quality overall is good to have; however, this extra accurate data set does not necessarily improve or alter our prediction algorithm's outcome.

This is because SalesChoice trains on winning patterns to create our unique prediction model baseline for our clients, and as new data is entered into Salesforce.com, our prediction engine will continue to learn as our customer's business grows and evolves, leveraging advanced machine learning techniques.

Benefits of Sales Predictive Analytics

The value proposition for insurance companies is they can reliably:

- ✓ Plan more effectively our client's business goals,
- ✓ Enable more accurate sales forecasts
- ✓ Help to focus sales representatives earlier on the optimal sales cycles to pursue "chase the winners versus the duds,"
- ✓ Help management early insights to guide or coach their sales force(s),
- ✓ Flag resourcing impacts earlier, if business is meeting operational goals or not, to make earlier decisions to meet top line revenue growth goals; and
- ✓ Reduce risks and improve sales profitability and performance outcomes.

To date, SalesChoice clients have given unique challenges to us as Data Scientists. They have blindfolded /hidden from us their historical win outcomes and asked us to advise them if those sales cycles were won or lost. In 100% of the test research cases, our unique prediction analytics engine answered successfully 85 % or more of the answers accurately, without knowing the actual sales win or loss outcomes.

In each case, our clients have taken the next step with SalesChoice, as our brand promise is:

"To deliver to our customers a unique predictive indicator using the most advanced mathematical and scientific approaches to improve their sales performance and profitability goals – hence giving them a competitive edge."

7.0 Mobilizing for Success

While more data, better tools, and new applications are creating new opportunity units in the insurance industry, to adapt and thrive in this emerging world of advanced predictive analytics, insurers need to also manage complex and large-scale organizational change.

Early investments in analytics were largely managed as IT projects. Now more companies are shifting their attention to people and management processes. Involved are the work habits and processes of thousands of highly skilled managers, many of who have been working for decades without analytics-driven decision tools. Any habit is hard to change, and such habits are a factor whenever automated systems are introduced to support human judgment.

Whether an insurer begins a process transformation with small-scale experiments or dives in on a larger scale, the deployment of advanced analytics in a decision process is a complex undertaking demanding a thoughtful approach in several dimensions. We believe that a viable approach for supporting these types of changes requires a focus on key attributes.

1. Business Value

Every predictive analytics project should start by identifying the business value that can lead to revenue growth and increased profitability (for example, selecting customers, controlling operating expenses, lowering risk, or improving pricing).

To make the selection, business-unit managers and the frontline functional managers who will be using the tools need to define the business problem and the value of the predictive analytics approach to be used. Analytics teams often begin building models before users in sales, underwriting, claims, and customer service provide their input.

There is also the new approach which is let the science intelligently develop the prediction outcome in real-time creating the predictive intelligence insights that an organization needs. This latter approach is what SalesChoice provides for companies striving to improve their sales performance and profitability goals.

2. The Data Ecosystem

It is not enough for analytics teams to be “builders” of models. These advanced-analytics experts also need to be “architects” and “general contractors” who can quickly assess what resources are available inside and outside the company.

What is the most important is to “think” about what is the business problem that your organization is striving to solve. Unlocking the business potential of advanced predictive analytics often requires the integration of numerous internal and external data assets.

For instance, risk pricing and selection often can be improved significantly by mapping the data from internal customer-management systems with traditional third-party data providers such as credit bureaus and data exhaust from new digital sources. Given the diversity of data sources and vendors, carriers must continually scan the ecosystem for technologies and partners to take full advantage of new analytical opportunities.

One also needs to put in perspective, securing some rapid wins in key pain point areas, to drive confidence in the usage of predictive analytics is often wiser, versus trying to wrap the problem set around all data source possibilities.

Selecting a vendor however, that can start narrowly also has an important architecture so you can use different predictive analytic outcomes to create other scenario models is what we are recommending to our clients.

Let’s not forget the issues we had in the early 1980’s when Business Process Re-engineering was the rage. Companies invested hundreds of millions looking at business processes from end to end against Michael Porter’s Value Chain Model. More often than not, companies failed to implement these monolithic process intensive programs, while consulting firms reaped in the profits by successfully convincing companies to try and eat what was an elephant sandwich.

With the buzz around Big Data and predictive analytics being so high in the industry, we always like to caution our clients to ensure they keep their “eye” on realistic program approaches, and take bite sized programs to highly successful outcomes rapidly, using agile business innovation practices. Big lesson on less is more – let’s ensure we don’t forget this one.

3. Workflow Simplicity and Integration Ease

The goal is always to design the integration of new decision-support tools to be as simple and user friendly as possible. The way analytics are deployed depends on how the work is done. A key issue is to determine the appropriate level of automation.

A high-volume, low-value decision process lends itself to automation. A centralized underwriting group, for example, which had manually reviewed thousands of insurance-policy applications, needed only to review 1 percent of them after they adopted a rules engine.

At the other end of the spectrum, SalesChoice's – Sales Prediction Insight Engine™ will analyze millions of historical sales records, and patterns in Salesforce.com to find the “win patterns” that can increase a sales professional's success. Combined with the Art of relationship management with Advanced Sciences we are continuing to improve the productivity and profitability of CRM to augment sales professionals business requirements.

Integrating a new decision-support tool into a workflow can pose significant behavioral challenges. One insurer in commercial- and specialty insurance lines tested three different ways to display information—a numerical score, a letter grade, and colored flags—to see which one led to the highest adoption and most accurate results. This kind of detail might seem minor, but such choices determine whether a decision maker uses a model or ignores it.

Claims adjusters, underwriters, sales professionals, and call-center representatives will only incorporate analytics into their decisions if the tools address the issues in ways that make sense to them and if it is easy to integrate the tools into their workflow.

This is one of the key reasons that SalesChoice invested significant effort in simplicity in our user interface design and integrated our predictive intelligence tightly integrated into the day to day workflow practices of sales professionals using Salesforce.com.

4. Transformation: Adoption

Successful adoption requires employees to accept and trust the tools, understand how they work, and use them consistently. That is why managing the adoption phase well is critical to achieving optimal analytics impact. All the right steps can be made to this point, but if frontline decision makers do not use the analytics the way they are intended to be used, the value to the business evaporates.

Successful adoption requires collaboration up front, follow-up communication as to the model's value, and investment in training people to use it.

Equally important, the heads of sales, underwriting, and claims need to be engaged so that their visions of success and expected results are built into their business plans. Business leadership is needed to ensure that all players are asking the right questions:

- What is the real problem we are trying to solve?
- What does successful adoption look like?
- Where will predictive analytics tools have the most impact?
- What is the use case and the value intended?

8.0

Summary

Companies often are surprised by the arduous management effort involved in mobilizing human and capital resources across many functions and businesses to create new decision-support tools and help frontline managers exploit advanced analytics models.

Fortunately, newer and more modernized insurance predictive analytic solutions from SalesChoice are agile, and highly streamlined to ingest data from historical data, and with a simplified user interface experience sales professionals can focus their precious time on opportunities that have the winning attributes to achieve their sales goals.

An empowered senior leader is vital to breaking down the institutional barriers that frequently hamper efforts to supercharge decisions through data analytics. Success requires getting a diverse group of managers to coalesce around change—encouraging alignment across diverse lines of business: IT, business-lines, analytics, and training experts.

The possibility of failure is high when companies don't commit leadership and stay focused on the adoption and change management needs. With years of embracing statistics and applying credit lead scoring, predictive analytics used in sales practices is another way to modernize insurance business practices.

Join Us - "Bringing smarter sciences to sales."

Author Bios



Dr. Cindy Gordon is the CEO & Founder of SalesChoice Inc. a Canadian company, focused on Sales Enablement Solution(s), leveraging Big Data: Predictive and Prescriptive Analytics. Dr. Cindy Gordon, CEO, is well recognized as an innovator in Canada, and she is a recipient of the Governor's General Award for Innovation. She has also held senior executive roles at Accenture, XDCI, a venture capital firm, Xerox, Citicorp, Nortel Networks and is active in commercializing early stage software companies. She has been an angel in commercializing companies like Eloqua, sold for \$1.2B to Oracle in 2013. Other early stage software companies she is involved in are: AcceleratorU, Corent Technology, CoursePeer, GetKula, Medworxx and TouchTown TV, to name a few. She is also the Founder of Helix Commerce International Inc., a company that specializes in Innovation based on leveraging new growth acceleration methods. Cindy is equally active in the Not for Profit sector. A former Founder and National Chair for CATA for Women in Technology, Cindy has been active in advancing women in technology careers. She has served as a mentor at the Rotman Business School for Women and was a former President of Xerox's Women in Business. Cindy is also the author of 14 books in: Big Data, SaaS, Collaboration, CRM, eCommerce, Innovation, Knowledge Management, Portals, and Social Media. She is active in the theater and arts community, and is a Board Director of the Nightwood Theater.

Cindy's passion is unlocking innovation to solve complex business challenges to improve business growth.



Dr. Yannick Lallement, is the Director of Analytics & Predictive Intelligence for SalesChoice Inc. Yannick is responsible as a Data Scientist to solve complex sales intelligence challenges. He holds a Ph.D. in computer science from the French INRIA (National Institute of Research in Computer Science), with a specialization in artificial intelligence and parallel computing. Prior roles include research associate at the Human-Computer Interaction Institute, at Carnegie Mellon University, for a few years, honing his data-mining & predictive analytic expertise. He then went on to design enterprise customer-service and e-commerce software and intelligent agents at a leading Canadian web-development company. Additionally, Yannick was a member of the Google Human Evaluation Team, and has been consulting on SEO and website analytics for companies like American Express. Yannick's passion is uncovering and making sense of the evidence hidden in all sorts of complex data patterns to improve business intelligence.

About SalesChoice

SalesChoice Insight Engine™ is an Artificial Intelligence (AI) driven sales forecasting platform that predicts sales outcomes reliably at up to 95% accuracy.

Benefits

- ✓ In an age where 40%-60% of sales professionals are wrong in predicting accurate sales forecasts, driving huge negative impacts on a company's financial performance, our software reduces your forecasts risks by predicting sales much more accurately.
- ✓ Insight Engine™, SalesChoice's Artificial Intelligence (AI) forecasting solution for your CRM, tells sales leaders whether they are at risk of not meeting the numbers in any chosen time period while allowing them to run a What-If analysis to explore how the prediction changes with change in target quota.
- ✓ The software forecasts which opportunities are most likely to be won or lost with up to 95% accuracy, while guiding account executives on accurate close date estimates and on controllable and uncontrollable factors determining sales outcomes, to help them take corrective action and ensure more efficient forecasting.

Targeted Users

The solution is geared towards sales leaders and account executives in both mid-market B2B organizations and large B2B enterprises using Salesforce or NetSuite. SalesChoice has an open API and can work on other CRMs too.



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