Insurity Valen Analytics

2020 Outlook

Market Dynamics Impacting Property & Casualty Insurance
The table stakes are now well understood as property and casualty insurers are highly focused on reducing expenses, improving profitability, and becoming more analytically sophisticated. The common quest for profitable growth has been elusive over the past two decades for many P/C companies. It is not for lack of data about the risks they want to underwrite. Insurers are awash in information, from internal as well as external sources. What they need is insight in the right places, from risk assessment, to underwriting, to claims.

It’s easier said than done. Diamond mining provides a useful analogy to what it takes to glean valuable insights from volumes of data. According to gemologist Soha Javaherian, it takes more than 7 tons of diamond ore to produce a single carat of gem quality. The diamond industry has developed highly sophisticated techniques to identify gem deposits, but extracting valuable stones still requires sorting through a lot of material. Translated into an insurance context, analytics are the process that extracts “diamonds” of advanced insights such as, “What will our loss ratio be if we write 25% more of a specific class of business in a certain location this year?” As insurance analytics continue to mature, we believe strongly that such answers will be available in the near future.

Although insurance remains largely rooted in traditional processes for pricing risks and placing coverage, insurance organizations’ evolving approach to analytics has advanced to the point that additional leaps forward are possible. In 2019, we discussed how technology-based economies are changing not only consumer behaviors but also creating a battleground over data. In 2020 and beyond, we foresee the insurance industry making strides toward more effective use of analytics and granular data, becoming smarter about risks, and getting real-time answers to questions that can guide everyday business decisions. That’s the tomorrow we’re working to make real today.
Maturity of Insurance Analytics

In the past several years, the number of property/casualty insurers implementing analytics has steadily increased. We foresee this trend continuing to evolve, with insurers ultimately aligning analytics with their business strategy. Two trends indicate the current maturity of insurance analytics:

- **The rise of chief data officers at insurance industry organizations.** Before the global financial crisis in 2008, relatively few organizations outside of financial institutions employed chief data officers. Now, the CDO role is more common in various industries that handle or rely on volumes of data—particularly global banks and large property and casualty insurance companies. A report by Deloitte indicates that “most of the largest P&C companies have a defined CDO or data leadership position in place, together with some form of a supporting data governance organization.”

According to Deloitte, more than 25% of the Fortune 500 have chief data officers. The CDO’s role is distinct from chief information officers, chief digital officers, and chief analytics officers. Typically, a chief data officer’s responsibilities include: leading the data and analytics agenda of his or her organization, establishing tools and approaches to create value in enterprise assets, managing data as a strategic asset, and fostering innovation with big data and analytics.

One way to think of a CDO in insurance is an ambassador for data, who helps the entire organization derive value from its data assets. As a result, insurers with CDOs are better equipped to align data and analytics with their business strategy, and to adopt technologies and innovations that increase efficiency in underwriting, claims, product development, and policyholder service.
The capabilities of analytics companies serving the industry. In addition to insurers’ greater emphasis on improving the governance and value of their data, third-party companies providing analytics have become more numerous and sophisticated. For example, insurtech companies are increasingly focused on – and attracting funding for – property/casualty business-to-business services, which include artificial intelligence, data, and analytics providers. A year from now, we expect that analytics services will mature further and add even more value by delivering a wider array of actionable insights in real time.

Willis Towers Watson, in its third-quarter 2019 quarterly insurtech briefing, found that B2B deals accounted for 50% of the total insurtech transactions, compared with 48% for distribution, and 2% for carriers. This is a shift away from distribution-focused insurtechs. Since 2012, insurtechs of ering small-commercial distribution solutions – for example, CoverWallet, Embroker, and NextInsurance – accounted for 54% of the investment deals. B2B-focused insurtechs, such as Carpe Data and CyberCube, have comprised 41%, and the remaining 5% of insurtech deals have been carriers, according to WTW.

The appetite for insurtech investments, from venture capital firms as well as insurance industry incumbents, continues to grow. WTW data shows insurtech investment during the first three quarters of 2019 reached $4.36 billion, more than in all of 2018, and Q3 2019 saw the third-highest level of such investments ever, at more than $1.5 billion.

Maturity in analytics will fuel the success of insurtechs and incumbent insurance organizations, according to Martha Notaras, managing partner at Brewer Lane Ventures. She predicts that insurers and well-capitalized insurtechs themselves will seek full-stack technology acquisitions in 2020 and future years. A full-stack technology solution is one that combines back-end processes, system architecture, and a front-end user interface to deliver a finished product, independently. It’s a bit like a factory producing fully built automobiles that are complete, end-to-end solutions that combine all elements to deliver a finished product.
ready to drive, vs. manufacturing the individual components (e.g. chassis, body, engine, transmission, wheels) that must be assembled and connected to work together.

Another sign of the growing maturity of analytics in insurance can be found in how insurers are allocating their budgets. Research and advisory firm Novarica, in its 2020 study of insurers’ IT budgets and projects, found that more than 50% of insurers are planning for new systems or major enhancements in business intelligence and predictive analytics. Interestingly, the largest increases are among midsize property and casualty insurers, with 48% indicating they plan to increase IT budgets in 2020. By comparison, only 8% of large P/C insurers plan to expand their IT budgets.5

We see the same trend happening in data analytics, as insurers are seeking to build comprehensive capabilities to leverage new data sources, build and deploy analytics, and measure performance. Over the past 12 months, we’ve observed a shift from building capabilities mostly inhouse to a hybrid approach working with partners to round out the data analytics infrastructure. There are three main drivers of this shift. First, many insurers readily admit they are in the early stages of developing their strategy, operational approach, and execution approach for data analytics. Second, insurers are quickly realizing how fragmented and disparate third-party data providers are. It makes it particularly challenging to build and maintain connections to multiple data providers, and to have ongoing flexibility to quickly test and scale new data sources. Finally, with the heavy load of backlogged IT projects plaguing insurers, it will be years before they can prioritize developing the software required to effectively deploy, monitor, and measure models in production.
AI and the Future of Insurance

Predictions about the impact of artificial intelligence on the global economy are made daily. Artificial intelligence is widely considered to introduce fundamental changes in business, society, and customer relationships. For the insurance industry, an intriguing element of AI is that it not only introduces new risks, but it also can improve many areas of the business, from customer service to risk assessment, pricing, and claims. While a majority of industries are focusing on AI as a way to improve efficiency and derive insights from their data, insurance has been slow to adopt AI in its core processes.

The maturation of analytics overall led us to ask a new question in our 2019 Underwriting Analytics Survey: whether insurers are implementing any form of AI into their underwriting. The survey found that slightly more than 1 in 3 insurers – 37.3% – are using AI in underwriting, but 62.7% are not.

Insurers Implementing AI in Underwriting

![Chart showing 37.3% of insurers using AI in underwriting, 62.7% not using AI]

Source: 2019 Insurity Valen Analytics Underwriting Survey

In *The Fourth Age*, technology historian Byron Reese writes, “Things have only really changed three times in human history. Each time was due to technology. Not just a single technology, but groups of interrelated technologies that changed us in fundamental and permanent, even biological, ways.”

He explains that the first age occurred about 100,000 years ago, when humans learned to control fire, which led us to develop language. The second age began...
about 10,000 years ago, with agriculture and the formation of cities. In the third age, 5,000 years ago, Reese writes that humans began to write, enabling ideas to exist outside of a person’s mind for the first time, and two of those ideas were the invention of the wheel, and much later, the computer.

The fourth age, which is occurring now, is the age of robots and artificial intelligence. As Reese explains simply, AI is a method of teaching computers to operate autonomously and, with the help of robotics, interact with the world. Continuous advances in computing power and the mind-boggling proliferation of data mean that the possibilities for AI applications are nearly unlimited.

Ages that Transformed Life as We Know It

The fourth age (AI and robotics) is occurring now

How will AI and robotics fundamentally change human history? The Fourth Age of eras indicates the direction in which these technologies are heading, not predictions. Those who offer predictions tend to have divergent interpretations. For example, some people believe AI and robotics will cause mass unemployment by taking over enormous numbers of jobs now performed by humans. Other people envision AI and robotics not as a threat to employment, but instead augmenting and enhancing the value of human work. Looking at AI and robotics in another way, Reese suggests, the fourth age will empower unprecedented progress and human productivity, as long as technology and civilization evolve together.

Applied to the context of insurance, AI and robotics are changing the way policyholders live, work, and react to companies and brands. This introduces new risks, as well as new ways of interacting with and engaging policyholders. AI in insurance can enable additional leaps forward in the innovation economy, particularly in the domain of risk analytics. The maturity level of analytics and supporting technologies therefore are a major determinant in how AI will impact the business of insurance. As insurers continue toward integration of data and analytics, we think more insurers will benefit from AI and become smarter about the risks they underwrite.
Trends in Underwriting Analytics

A significant majority of insurers are using predictive analytics in their underwriting, but most of them have only been using such tools in the past four years, our 2019 survey found. It highlights that incorporating data analytics into the overall corporate strategy is still relatively new.

Use of Predictive Analytics / Time in Use

The top four reasons respondents already use or would consider using analytics in their underwriting are unchanged from the survey results last year. Insurers continue to value underwriting analytics most for:

- Better risk assessment, cited by 84%
- More accurate pricing, 74%
- Protecting against adverse selection, 61%
- Staying ahead of the competition, 59%

Write-in responses to the 2019 survey signaled the importance of analytics for underwriting smaller accounts. For example, some respondents said they use analytics for: “cost-effectiveness in small-commercial business,” “straight-through processing of small risks to help free up underwriters to focus on the larger accounts,” and “enhancing straight-through processing from underwriting to policy issuance.”

Despite insurers’ recognition that analytics can deliver significant benefits, concerns remain about underwriters’ adoption of analytics. In our 2018 survey, 73.1% of respondents said they had “moderate,” “significant,” or “high” concern about underwriters’ adoption of analytics. In the 2019 survey, 72.4% did. Although
the level of high concern decreased, respondents expressed increased moderate and significant concern.

In addition, respondents said actuaries and underwriters are returning to being at odds over pricing. In the 2019 survey, 44.7% of respondents said actuaries and underwriters are at odds, compared with 38.8% in the 2018 survey, and 77% in the 2017 edition. Reasons for pricing disagreements between actuaries and underwriters were split in the 2019 survey between actuarial rates perceived as too high and underwriters dismissing data in place of their professional judgment. The volatility in this response year-to-year illustrates that the active evolution to becoming an analytically driven organization is a work in progress. In our experience working with senior executives, the cultural change management to incorporate expertise and analytics in decision-making remains one of the top challenges for CEOs.

Insurers are becoming more mature in leveraging third-party data in underwriting, but that remains a developing area for most, according to research from Novarica. In a 2019 study of insurance company CIOs, Novarica found insurers are using third-party data for:

- **Predictive scoring in underwriting.** The study found 22% of insurer CIOs rated their companies’ use of third-party data in predictive scoring as mature, while 53% rated their companies as using some, and 15% said their companies were only at the pilot stage.

- **Integrated data and analytics in underwriting.** Only 18% of CIOs rated their companies as mature in this area, while 60% said they used some, and 9% were piloting such initiatives.

## Market Share Consolidation in Commercial Lines

The insurance industry is facing a huge opportunity to increase market share in small-commercial lines. Currently, the United States has more than 30 million registered small businesses, representing more than 99% of all U.S. businesses, according to the Small Business Administration, yet no single insurance company writes more than 6% of the commercial lines marketplace.

The small-commercial segment therefore is an area ripe for market share consolidation. A McKinsey & Company study suggests that changing consumer behaviors, such as greater interest in direct channels and self-service, present a growth opportunity for insurance companies that invest in easy-to-use digital platforms. Interestingly, while 70% of small businesses begin their shopping journey using direct channels, 81% of them actually purchase their insurance through an agent, according to McKinsey.

The chart below showing insurers with the largest shares of the U.S. commercial lines market highlights the difficulty insurers face in growing their market shares. The two companies with the largest market share percentages have publicly reported significant growth in small-commercial accounts in 2018, through
## U.S. Commercial Lines Market Share Trends

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company</th>
<th>2018 DWP (000s)</th>
<th>2018 market share</th>
<th>2017</th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Travelers Companies Inc.</td>
<td>$17,580,086</td>
<td>5.5%</td>
<td>5.5%</td>
<td>5.6%</td>
<td>5.6%</td>
</tr>
<tr>
<td>2</td>
<td>Chubb Ltd.</td>
<td>$17,533,247</td>
<td>5.5%</td>
<td>5.5%</td>
<td>5.6%</td>
<td>5.7%</td>
</tr>
<tr>
<td>3</td>
<td>Liberty Mutual</td>
<td>$15,910,049</td>
<td>5.0%</td>
<td>5.1%</td>
<td>5.1%</td>
<td>4.7%</td>
</tr>
<tr>
<td>4</td>
<td>American International Group</td>
<td>$12,715,146</td>
<td>4.0%</td>
<td>4.2%</td>
<td>4.4%</td>
<td>5.8%</td>
</tr>
<tr>
<td>5</td>
<td>Zurich Insurance Group</td>
<td>$12,171,979</td>
<td>3.8%</td>
<td>4.2%</td>
<td>4.2%</td>
<td>4.6%</td>
</tr>
<tr>
<td>6</td>
<td>Berkshire Hathaway Inc.</td>
<td>$10,341,805</td>
<td>3.2%</td>
<td>2.8%</td>
<td>2.6%</td>
<td>2.4%</td>
</tr>
<tr>
<td>7</td>
<td>CNA Financial Corp.</td>
<td>$10,216,730</td>
<td>3.2%</td>
<td>3.3%</td>
<td>3.3%</td>
<td>3.2%</td>
</tr>
<tr>
<td>8</td>
<td>Hartford Financial Services</td>
<td>$9,071,385</td>
<td>2.8%</td>
<td>2.6%</td>
<td>2.6%</td>
<td>2.6%</td>
</tr>
<tr>
<td>9</td>
<td>Nationwide Mutual Group</td>
<td>$7,951,827</td>
<td>2.5%</td>
<td>2.7%</td>
<td>2.8%</td>
<td>2.9%</td>
</tr>
<tr>
<td>10</td>
<td>Tokio Marine Group</td>
<td>$6,959,032</td>
<td>2.2%</td>
<td>2.1%</td>
<td>2.1%</td>
<td>2.0%</td>
</tr>
</tbody>
</table>

Sources: NAIC, S&P Global Market Intelligence, Insurance Information Institute

Investments in digital platforms, data analytics, and straight-through processing, making it easy for agents to access, quote, and bind products. Their experience offers a lesson for other insurers that want to make similar gains: simplify the underwriting process and make the agent’s job easier, and they will book more and better business.

A good illustration of how embracing analytics can drive market share consolidation is personal auto insurance writers. Analytics-focused companies and direct writers such as Progressive and GEICO reshaped that line of business. As a result, today the 10 largest personal auto insurers write more than 70% of that market. In commercial lines, a similar example is workers’ compensation.

According to S&P Global Market Intelligence, the 20 largest work comp insurers in 2018 accounted for more than 52% of the entire U.S. work comp market. Market share below the top 20 drops off sharply. One indicator of the impact of greater reliance on granular data and analytics: work comp insurers’ adjusted loss ratios have improved significantly even though premium volume has contracted slightly. S&P Global data show that the average loss ratio for workers’ compensation insurers was 55.93% in 2016, 51.50% in 2017, and 46.77% in 2018.

A 2018 study of claim-closure rates concluded that predictive analytics are a best practice in work comp, as high-performing claims organizations utilize predictive analytics eight times more frequently than lower-performing ones.  

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New Research on the Impact of Integrated Data Analytics on Growth

As data analytics continue to mature, we believe property/casualty companies’ future growth and profitability will be increasingly linked to how effectively they deploy this technology in their businesses. In addition, third-party data and straight-through processing will be critical tools in the race to win market share in the small-commercial segment.

The value of third-party data in predictive analytics is clear. Access to relevant data can fill in gaps and enable insurers to build underwriting models that improve profitability. This philosophy inspired our June 2019 release of an Unavailable Loss History (ULH) model for work comp business, with the help of the Valen Data Consortium. The current ULH model was built with data from more than 650,000 policies and premium volume of nearly $7 billion.

Loss history is a critically important predictor of future claims. It gives insurers a way to measure the frequency and severity attributable to the particular policy. Even though insurers customarily seek three years of loss history, such data is not available for every account. A couple reasons for this include: the agent declines to provide loss history with the coverage submission, or the account itself has little or no loss history because it is a new entity.

As the graph below illustrates, carriers of all sizes – small, midsize, and large – face a persistent challenge: a material volume of policies without available loss history. For both predictive modeling and underwriting alike, this presents a problem for pricing.

How then can an insurer reliably price accounts that have no loss history? This is where the ULH model fills a need. A significant advantage the ULH model gives to insurers is the ability to profitably underwrite and price accounts where they otherwise lack the data to do so.
The ULH model currently enables insurers to assign risk scores at the individual policy level. As the Valen Data Consortium grows, the model will too, with updates to reflect additional data. This continuous development creates a foundation on which the ULH and other data models can eventually enable risk scoring at the account level.

In the above graph, policies without loss history that employ the Valen Data Consortium ULH model outperform those policies priced simply without available loss history. This underscores the point that available loss history plays a key role in underwriting and pricing, especially for smaller and newer accounts that lack loss history. This segment of policies without available loss history exists for all carriers.

The results above also illustrate how data sharing can unlock insights that are otherwise out of reach for insurers. Data sharing supports the health of insurers’ overall underwriting portfolios and provides underwriting and pricing support needed in small-commercial growth initiatives.

Our fourth annual ROI study offers additional evidence that insurers applying analytics in their businesses are ahead of their peers. In 2018, Insurity clients using Valen models in workers’ compensation achieved a loss ratio that was 3% below the work comp industry average, equating to $50 million in additional profit.

The study also reviews how performance adds improved profitability over the lifetime of models in production. This is an important note, as the long-term value of predictive models comes from the ongoing risk selection and pricing guidance that improves profitability each year. The study found that these clients with Valen models in production had even better results over the past six years, posting a loss ratio 7% below the industry average, equating to an additional profit of $467 million. That additional profit is incremental to what they would have realized at industry average performance.
Further, the study showed that the cumulative premium growth for these Insurity clients over the past six years was 47%, compared with the industry's growth of 27%. That translates into more than $630 million in premium compared to $260 million, had the Insurity clients grown at the industry rate.

Source: 2019 Insurity Valen Analytics ROI Study
Top Considerations

P/C insurers are becoming more analytically driven, and in the near future more companies will rely on predictive analytics and AI to deliver actionable insights. In the meantime, competition for small-commercial market share will continue to be fierce. That raises the stakes for companies to accelerate their evolution to incorporate data and analytics in their decision-making. The following tips can help companies move forward in the year ahead.

- **Finalize a strategy.** Insurers need to incorporate data analytics into their overall corporate strategy. Companies can no longer afford to keep data analytics in a silo. Integrating analytics with strategy will separate the winners from the also-rans.

- **Determine market share targets and growth plans.** In commercial lines, market share consolidation is a reality, and it's being led by companies that are investing in analytics. Insurers that want to remain competitive in the race for market share need to keep up or they risk missing out.

- **Don't go it alone.** Partnerships, collaboratives, and consortiums are gaining traction because they allow insurers to make quantum leaps in capabilities and gain speed-to-market. Working with the right partners enables insurers to tap into volumes of additional data and derive even more insights to fuel growth and profitability.

Sources


Predictive-analytics-emerges-as-workers-compensation-best-practice