

Insurance Practice

How data and analytics are redefining excellence in P&C underwriting

Most P&C insurers in Europe and North America are investing in data and analytics to improve underwriting; those with the most advanced capabilities enjoy better operating results and performance.

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The property and casualty (P&C) insurance sector has long struggled with challenging fundamentals. Intense price competition erodes value across the board, and globally, only a small number of sector leaders turn a profit.¹ Commoditization of both personal and commercial lines products, particularly in the small commercial segment, continues unabated.

Compounding the industry's struggles, 2020 set a new annual record for catastrophic events—defined as those with at least \$1 billion in damages—with 22 such events in the United States, shattering the previous record of 16 that occurred in 2017.² And insurance was among the industries hardest hit by the massive economic contraction wrought by the pandemic.³

In this constrained environment, improving underwriting performance is one proven way to boost competitiveness. Indeed, McKinsey analysis has revealed that underwriting excellence is one of two key traits (along with pricing sophistication) that industry leaders have in common.

Meanwhile, data and analytics capabilities are becoming table stakes in the P&C sector in Europe and North America. Best-in-class performers are putting distance between themselves and competitors by building advanced data and analytics underwriting capabilities that can deliver substantial value. For example, even the leading insurers can see loss ratios improve three to five points, new business premiums increase 10 to 15 percent, and retention in profitable segments jump 5 to 10 percent, thanks to digitized underwriting. We anticipate that carriers will increasingly use the power of data and analytics to proactively assess their outlooks—similar to what hedge funds do in predicting capital markets—and identify market opportunities ahead of competition.

In this article, we review best practices for applying advanced data and analytics capabilities to

underwriting in each of three segments—personal lines, small commercial lines, and midmarket and large commercial lines. We also share tips on organizing for success with data and analytics initiatives, including setting up agile, cross-functional teams; developing needed skills and capabilities; providing training to encourage adoption; and sharing feedback to continually improve performance.

Excellence varies by segment

Leading insurance carriers use data and advanced analytics to reimagine risk evaluation, improve the customer experience, and enhance efficiency and decision making throughout the underwriting process. The same insights can often be used in loss prevention. Leading carriers regularly tap once-unimaginable volumes of third-party data from diverse domains, including environmental data, industry-specific data, location data, government data, and more (exhibit). They have built agile capabilities to obtain, test, maintain, use, and reuse the data in their models.

They also have developed sophisticated tech stacks that enable efficient model development and continual revisions. Analytics teams are deploying descriptive, predictive, and prescriptive models that employ the latest techniques and workbenches.

Of course, the hallmarks of underwriting excellence differ by segment, so insurers also rely on segment-specific data and their knowledge of underlying risks to inform the highest-impact use cases.

Personal lines

Most personal lines insurers employ basic risk-segmentation models and underwriting criteria based on rules accumulated over time. Few use advanced techniques,⁴ such as a pure machine learning (ML) model or a generalized linear model (GLM) bolstered by ML insights.

¹ Alex D'Amico, Mei Dong, Kurt Strovink, and Zane Williams, "How to win in insurance: Climbing the power curve," June 18, 2019, McKinsey.com.

² "Billion-dollar weather and climate disasters: Overview," National Centers for Environmental Information, 2021, ncdc.noaa.gov.

³ Chris Bradley and Peter Stumpner, "The impact of COVID-19 on capital markets, one year in," March 10, 2021, McKinsey.com.

⁴ Gregor Becker, Udo Klotzki, Doug McElhaney, and Ashish Srivastava, "The post-COVID-19 pricing imperative for P&C insurers," July 14, 2020, McKinsey.com.

Exhibit

External data are the ‘fuel’ that is unlocking the value of artificial intelligence.

External data domains

| | | | | |
|---|--|---|---|--|
| Industry data Agriculture Automotive Construction Court and legal Energy Financial services Healthcare Mining Newsfeed Oil and gas Patent and intellectual property Property rental Travel Trends and statistics | Internet data Pricing Semantic web SEO and web advertising | Individual data Brand affinity and loyalty Consumer credit Consumer ID verification Consumer lifestyle Consumer survey Consumer transaction Cross-device identity Demographic Mobile app usage Product review Residential real estate Social media and sentiment | Business data B2B contact B2B intent Business credit rating Business hierarchy rating Business registry Business review Commercial real estate Environmental, social, and governance Firmographic Public business Stock and market Technographic | Location data Cell tower Event calendar GPS IoT sensor Map Marine and shipping Points of interest Satellite and drone images Traffic and routing Visits |
| | Environmental data Climate Sustainability Weather | | | |
| | Public data Government Open Training | | | |

By comparison, leading insurers conduct granular segmentations of risk that incorporate external data, and they apply advanced modeling techniques that take the regulatory landscape into account. These models identify the risk characteristics that help to improve pricing and reduce losses. They also deliver a distinctive customer experience—for example, with minimal application questions and quick quotes for low-risk customers.

Abandoning the traditional, reactive approach to evaluating risk and ML-based pricing models enables leading insurance carriers to develop high-value use cases in areas such as pre-underwriting and prospect loss modeling—that is, the level of risk posed by a potential customer. These fit-for-purpose analytics models inform key decisions throughout the risk-evaluation process and limit the underwriter’s involvement to a small portion of the insurer’s book. In our experience, up to 95 percent of policies may undergo straight-through processing (STP) with no underwriter involvement.

One large US P&C insurer was binding personal lines policies at rates well below best-in-class

benchmarks. In response, it tapped external data sources to transform the quote-to-issue process. In effect, the insurer created an external “data machine” to rapidly ingest external data with the help of a newly developed, repeatable data-evaluation framework. It is now running hundreds of variables through models to reveal rating variables to inform underwriting decisions. The company continually assesses the value of various external data sources with respect to predictiveness, accuracy, and the like, and it drops those that provide unsatisfactory ROIs. As a result of these efforts, the insurer can now provide customers with initial quotes in less than two minutes and the standard time for issuance and binding has been cut by 50 percent. These efforts have also dramatically improved risk discrimination at the top of the acquisition funnel, thus enabling large increases in STP.

Small commercial lines

At leading insurers, the customer decision journey in small commercial lines—generally those serving businesses with up to 100 employees and \$50,000 in annual premiums (though these numbers vary by insurer)—is starting to mimic that of leading

personal lines insurers, as customers and brokers increasingly demand a convenient, digitally enabled experience. Best-in-class insurance carriers have built digital platforms hosting analytics-based underwriting models that deliver a distinctive broker–agent experience.

As with personal lines, use of advanced analytics and external data enables a disproportionately high share of STP, with only complex risks routed to underwriters for review. Even for these risks, surgical flags target an additional review by an underwriter, thereby increasing the efficiency of the underwriting process and reducing turnaround times for decisions.

A midsize P&C insurer serving the small commercial segment sought to unlock growth and improve its loss ratio. Insuring small commercial businesses is typically a long and cumbersome process for agents and requires manual underwriting. The insurer developed a new digital platform—with an intuitive front-end user interface—that uses advanced analytics and third-party data to deliver a quote and bind a policy in minutes rather than days. Although the new approach still relies on input from human agents, a new STP risk-assessment engine minimizes manual effort.

Armed with the new platform, the insurer expects to increase new business premiums by 50 percent. By diverting low-risk accounts to STP, it expects to more than double STP rates while maintaining its loss ratio within one to two years. By decreasing manual inputs

by up to 90 percent, the insurer aims to dramatically simplify and improve the agent experience.

Midmarket and large commercial lines

Historically, the complexity and heterogeneity of risks in this segment have made it challenging to use data and analytics to propel automation. The process of evaluating risks continues to depend heavily on underwriter experience and judgment. The most common use cases in this segment bring additional insights to underwriters and identify simpler and more stable risks for “light touch” renewal underwriting, or prequalify and triage new business submissions based on likelihood to bind.

One notable advancement, however, is the increased use by insurers of application program interfaces to embed the insights they derive from their analytics efforts into dynamic digital workflows that focus underwriters’ attention on what matters most—for example, key exposures for a given risk class. These interfaces also provide managers with real-time access to active underwriting files to perform quality checks, rather than relying on audits conducted months after the work is completed. Managers can readily assess the extent to which underwriters are following the guidance and recommendations codified in the system.

One midmarket commercial insurer is working to sustain performance and to restore the profitability of its lower-middle-market book using this sort of dynamic digital workflow. It has set a goal to improve its target loss ratio by 5 to 7 percent over three

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years. Among its challenges, a significant portion of brokers' submissions for quote requests fail to generate new business. Additionally, underwriters often don't clearly understand the insurer's risk appetite—especially because it changes over time—and therefore may pursue unprofitable risks. Their overreliance on outdated pricing models and a fragmented analytics strategy further compounds the challenge. Meanwhile, frontline performance varies widely, and the insurer has limited infrastructure in place to assess the quality of decision making.

The insurer completed an underwriting capability diagnostic test to assess its performance relative to best-in-class underwriters and then pursued a set of near-term interventions to improve underwriting execution. It developed a “house view” to codify critical underwriting considerations by industry segment and validated them through file reviews and historical analyses.

It then designed and piloted mechanisms to reinforce adherence to the house view as part of a broader quality program, and it set up a program management office to track execution of the remediation plan and assess its impact. It also created a comprehensive road map for the transformation that included activities such as establishing a more granular risk appetite, building new pricing models, investing in modern infrastructure, strengthening its distribution strategy, and providing new tools to frontline workers.

Organizing for success with data and analytics in underwriting

Diverse external data sources may serve as fuel for a new underwriting engine, and artificial intelligence-based models may unlock valuable new insights, but no underwriting transformation is complete without a targeted plan for the people involved.⁵ Best-in-class performers invest in four activities aimed at setting up the organization for success with data and analytics initiatives.

Establish agile, cross-functional teams that own the end-to-end, quote-to-bind journey

Most insurance carriers limit their data and analytics efforts in underwriting to building specific use-case models and then revisiting these models every two or three years. Best-in-class insurers establish dedicated, cross-functional teams comprising representatives from the business team (product managers, marketers, agents, and underwriters), the analytics team (data scientists and engineers), and IT (solutions architects and user-experience and user-interface designers).

These teams apply an agile approach to build more valuable underwriting models with short, iterative working cycles that support rapid decision making, testing, learning, and improvement. Adopting this more dynamic approach takes some work, starting with a shift in leadership mindset but also including rewiring core processes, developing new capabilities, and increasing employee engagement.

Emphasize adoption and scale from day one

Even insurers that succeed in developing and piloting minimally viable underwriting models that incorporate advanced data and analytics often struggle to scale them. Many organizations underestimate the effort required to ensure full-scale adoption and also lack the necessary skills for such adoption. Only when the solution is fully embedded in business as usual is the mission complete.

Incorporating end users from the outset—using design-thinking activities such as user-process interviews, ideation workshops, and usability testing—not only improves model designs but also facilitates their adoption by generating demand for them.

Securing adoption also requires tracking key performance indicators (KPIs) for underwriting and actively managing performance more broadly. Leading insurers set performance targets (financial, productivity, quality, and customer satisfaction) for those working at each level within the underwriting

⁵ For further reading, see Johannes-Tobias Lorenz, Deepak Mahadevan, Batu Oncul, and Mehmet Yenigun, “Scaling agility: A new operating model for insurers,” September 14, 2020, McKinsey.com.

function, from individual underwriters up to vice presidents, with clear owners assigned and progress reviews conducted regularly.

Build skills and capabilities

Achieving underwriting excellence ultimately hinges on having highly trained and motivated staff. Yet insurance executives often cite human capital—not financial capital or any other asset—as their scarcest resource in the current business environment. Among leading insurers, talent acquisition, development, and retention top the list of priorities for the underwriting function, demanding the same level of executive time and attention as core business strategy.⁶ Upskilling and reskilling underwriters is at least as important as attracting new talent.

Leading insurers develop focused programs and adjust their staffing models to recruit and train analytics talent—developers, architects, data scientists, agile experts, designers, translators, and analysts. These employees are familiar with state-of-the-art advanced analytics techniques and know how to deploy them; they know how to run performance diagnostics of new algorithms; and they are capable of driving true analytics innovation and engaging as peers with users to translate business requirements into solutions.

In the process, leaders create a digital organization and pave the way for underwriting excellence. They have implemented a state-of-the-art analytics workbench with an extensive set of advanced tools for data management and structuring, modeling, and data visualization and simulation.

Leading insurers also recognize the need to make fundamental changes to frontline roles, such as underwriting and underwriting support, and to redesign frontline processes to take full advantage

of new analytics tools. Because employees often struggle to change their work behaviors on their own, leading insurers make investments aimed at building both their capabilities and their confidence.

Create a real-time feedback loop to ensure continuous improvement

Leading insurance carriers have replaced periodic broad monitoring of market shifts in underwriting with real-time monitoring of market microsegments. They have supplemented their monitoring of internal indicators with monitoring of external competitor data to help them determine when and where to make underwriting adjustments. And they conduct claims-trend analyses to identify product features that are proving more or less profitable than expected and that may warrant adjustments. The key to success is detecting the impact of model, market, and rate actions in weeks—not months.

How to get started

We believe underwriters in the future will be “portfolio managers”—empowered by artificial intelligence (AI) and digital, and operating like hedge fund managers with increased leverage, scale, and insight. Underwriters will:

- have significant leverage through interactive tools and data-driven insights, allowing them to handle substantially larger books of business with more precision and control
- monitor a mix of leading and lagging indicators to provide portfolio transparency and enable proactive intervention—for example, by using quality as a leading, not lagging, KPI
- use data throughout the underwriting process to inform underwriter decisions in prioritization of prospects, validation of exposures, policy structuring, and pricing

⁶ For more, see Ari Chester, Susanne Ebert, Steven Kauderer, and Christie McNeill, “From art to science: The future of underwriting in commercial P&C insurance,” February 12, 2019, McKinsey.com.

- rely on continuously evolving risk models that incorporate ever-expanding views of risk characteristics, tailored by line, segment, and emerging-loss trends

Best-in-class underwriting requires a combination of distinctive analytics, tools, frontline and management routines, and investments in talent and capability building. The ideal mix of these elements will vary by line of business. Based on our experience with similar efforts, getting a few things right often determines whether companies achieve their full potential:

- Start small to learn and build conviction—for example, by picking two lines of business, one with strong performance and one that is less well performing, to prove impact. “Big bang” efforts often fail to drive change without examples of what the potential outcome could be.
- Keep the effort anchored in the C-suite; delegating down can dilute long-term aspirations.
- Focus on pace of execution. In other words, speed is a strategy, especially in the next 18 to 24 months, given evolving market conditions.
- Engage the front line throughout the effort to make the change stick. Adoption by underwriters is the foundation for success.
- Link capital-allocation decisions to the latest market intelligence and insights (at a high enough frequency to ensure you can react to market shifts).

P&C insurance carriers can't prevent damaging storms, avert global pandemics, or readily turn the tide on product commoditization. But they can take advantage of advances in data and analytics to transform their underwriting and pricing operations. Success demands a commitment to building new infrastructure, investing in and managing external data, developing and continually refining new models, and organizing and developing the necessary talent.

But as leading insurers are already demonstrating, the potential benefits—in the form of increased premiums, reduced loss ratios, shortened quote-to-bind times, improved risk discrimination, and increased STPs, among others—are substantial and can give insurers an edge in this challenging sector.

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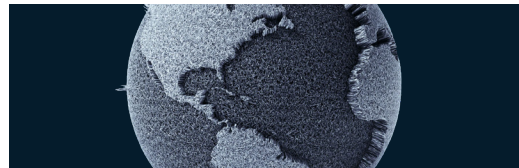
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