Innovation in insurance: Will reserving remain an ugly duckling?

By Joseph A. Milicia and Alejandra Nolibos

The insurance industry is (rightly) making huge investments in innovation – from those related to the changing nature of risk itself and the way insurers do business and interact with customers to the adoption of completely new sources of capital and risk transfer options. Indeed some argue that insurance will soon become unrecognizable.

But as suggested by the 54 actuaries responding to our survey who are responsible for reserving, innovation currently takes a forced back seat to compliance. So is reserving being left behind – the ugly duckling in a pool of swans? And more to the point, what are the potential implications?

First of all, why bother with innovation in reserving?

A cautionary tale of how reserving can be impacted by broader innovation is the poor U.S. commercial auto insurance experience since 2011. While the causes of the adverse results are many (including some that have nothing to do with innovation), there is no dispute that technology has brought with it fundamental changes in the nature of motor risk. Crash-avoidance features, auto-part sophistication and driver behavior all contribute to changes in claim characteristics (e.g., coverages triggered, severity by claim). Did common aggregate reserving methods interpret the experience and adjust projections quickly enough? Published runoff statistics suggest they did not.

There are plenty of other ways in which innovation can trip the reserving actuary. Fundamental assumptions of traditional reserving, such as a priori loss ratios, depend on the difficult quantification of the potentially substantial effects of innovation in product development, marketing, underwriting and pricing. Strong investments in claim processes (e.g., automation, triage, technology-enhanced loss evaluation and settlement) can also throw off basic assumptions of traditional methods – and common adjustment tools can be too blunt to provide the necessary confidence. Assumptions also need to be developed for new products, features and channels, with very little experience to rely on.

More sophisticated and responsive techniques customized to perform well in a dynamic environment – featuring transparent assumptions or that allow rigorous quantification of parameter and model risk – are needed to better understand and mitigate the new sources of reserving risk.

Finally, audiences from chief executives to regulators are demanding more from the reserving function: The immense value in business insights from the reserving function in the form of data and robust, experience-based insights needs to be unlocked. This requires practical, efficient and timely reserving processes that leverage technology, and effective and tailored communication.

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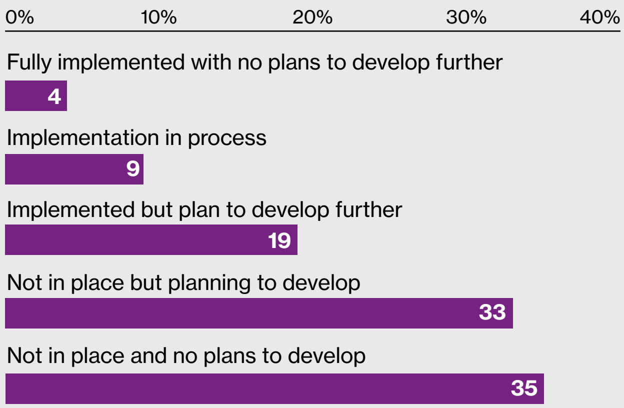
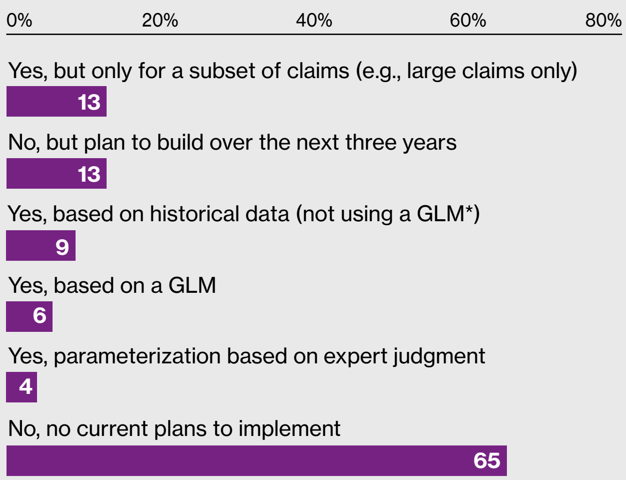
Figure 1. **How far along are you in implementing stochastic reserving?**



Source: Willis Towers Watson 2016 P&C Reserving Survey Report

Figure 2. **Do you utilize individual claims reserving methodologies?**



Source: Willis Towers Watson 2016 P&C Reserving Survey Report
*Generalized Linear Model

The actuaries' take

An encouraging finding is that 65% of survey respondents have implemented, are implementing or plan to implement stochastic reserving into their process – further evidence of the perceived value of insights into the confidence of estimates for decision making *(Figure 1).*

On the other hand, relatively few have begun to exploit advanced reserving approaches such as individual claims modeling – and 65% have no plans to do so – even though it has the potential for improved accuracy and enhanced transparency *(Figure 2).* Given how technology will change insurance and insurance company operations, this may be shortsighted. Approaches that leverage individual claim characteristics can be responsive to changes in company practices and processes, and the external environment. They allow for more transparency in (and constructive debate on) assumptions – just what is needed. So what might be holding reserving actuaries from adoption?

Practical hurdles and considerations

Three main hurdles are preventing or slowing down the adoption of more advanced techniques: time, data and challenges associated with explaining results to non-actuarial audiences.

Reserving departments are typically fairly lean and face tight time frames in order to meet closing deadlines. In the typical reserving department, the vast majority of available time is spent working to meet these deadlines, and there is limited time available to develop and test new techniques. Our survey shows that over half of companies have fewer than four employees in the reserving department, and most don't expect to see growth in staffing: Finding efficiencies in the reserving process is key.

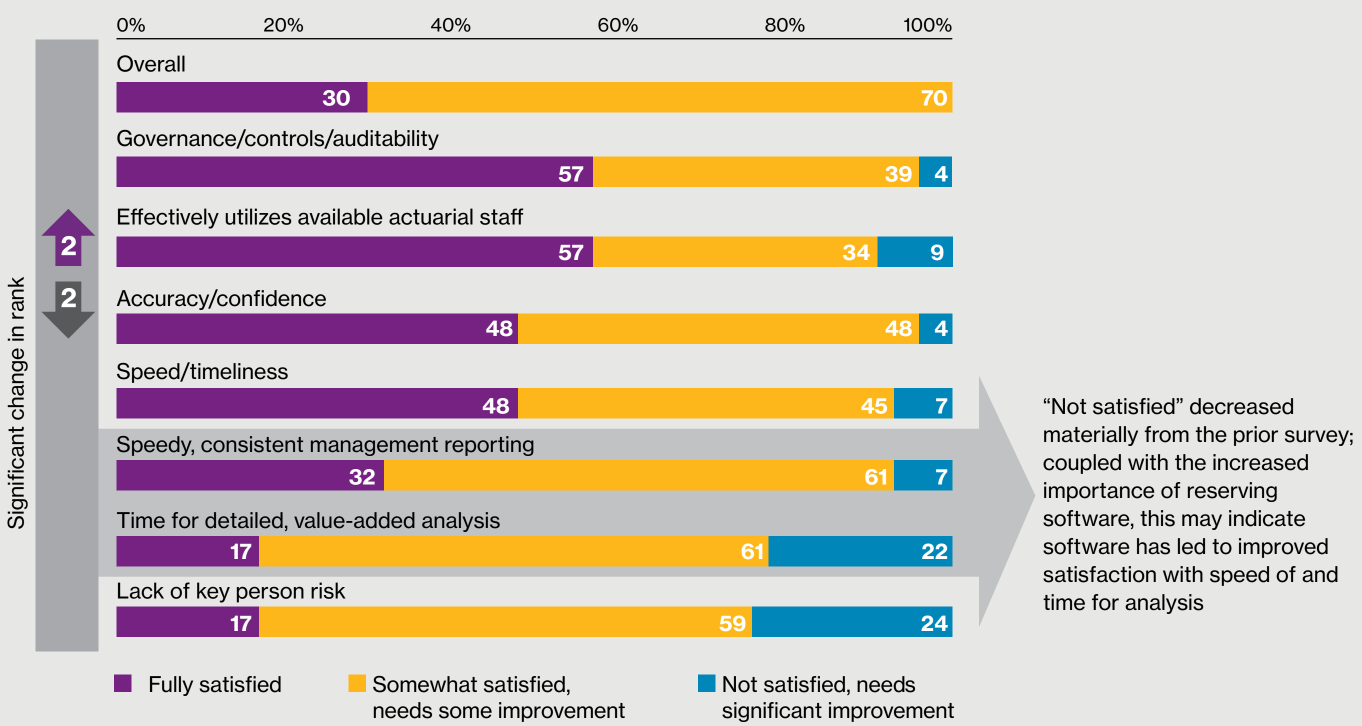
While significant progress is still needed, companies have reported greater satisfaction with time available for value-added analyses. This, coupled with the increased importance afforded to investments in reserving software expected over the next two years, signals that companies are looking to generate efficiencies by utilizing technology to automate portions of the reserving process *(Figure 3).* The trend toward a decrease in the use of ad hoc spreadsheets further supports that conclusion.

The second hurdle relates to insurers' ability to harness their existing data assets. Inconsistent coding over time and across channels, outdated systems or numerous unconnected legacy systems from past merger and acquisition activity, and uneven data quality from various third-party administrator feeds can present a serious challenge to realizing the value in many insurers' historical data. Often this is surmountable but can be expensive in terms of systems and resources. It also requires compromises and agreement across different areas and levels of the organization that can be hard to accomplish in practice.

The third hurdle comes from the techniques themselves. As an example, many actuaries see the benefits of predictive models in a variety of applications but show some hesitance to incorporate predictive analytics into the reserving process, according to the survey. This may be partially driven by the fact that the results of reserve studies are indirect inputs to the financial statements of the company. Many actuaries believe that they have refined the art of reserving and know how to adjust methodologies when new information is uncovered, and may be concerned that introducing predictive modeling into the reserving process can create more noise in the quarterly indications. (However, a properly built predictive model can be more responsive to changes in the mix of claims, bring additional insights to management and provide another data point to inform decisions on their own best estimates.)

Hesitancy may also arise from the fact that reserve projections and changes in those projections from quarter to quarter and year to year must often be explained to senior management, auditors and the board of directors. To the extent that more sophisticated modeling approaches drive those changes, it creates additional challenges to the effective communication of the "story" behind the movements.

Figure 3. **How satisfied are you with your current reserving process?**



Source: Willis Towers Watson 2016 P&C Reserving Survey Report

While the roadblocks above exist, it is important to note that more advanced techniques are there to supplement and not replace current reserving techniques. These methods may help to explain why traditional techniques are diverging and help the actuary and management make better use of the range of indications actuaries generate.

This in turn underscores the need for reserving departments to continue to improve management reporting, which has been the top priority for investment for reserving departments in this and prior reserving surveys.

In times of evolving products and operations, the reserving department is one of the essential feedback loops inside insurance companies that enable management, claims and underwriters to know to what degree new initiatives are successful and to ensure that existing products remain competitive.

Conclusion: Evolution, not revolution

While the actuaries surveyed would likely agree that the actionable business intelligence that reserving can provide to management is paramount to the success of the insurance industry and a significant competitive advantage, business-as-usual demands on the reserving function have so far restricted innovation in this area. Marginal evolution of reserving to take advantage of new technologies seems more likely than radical revolution for the foreseeable future, potentially driving a growing disconnect between market and reserving. The industry will be missing out by treating reserving as an ugly duckling in a pond full of showy swans.

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