

# The automated actuarial

## Trust and transformation in actuarial sciences

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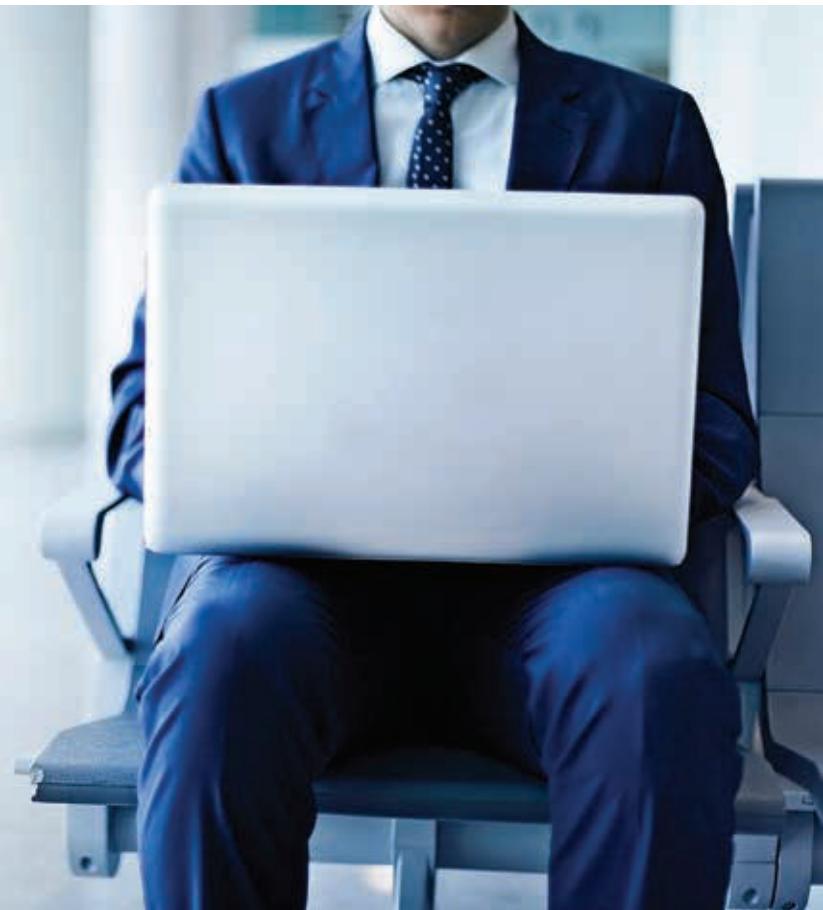
New analytics technologies are continuing to transform the actuarial function. Led by advances in automated loss reserve analysis, many insurers are now thinking carefully about the value of integrating cognitive computing capabilities into their actuarial processes. Massive value is on offer. But first, insurers will need to overcome their (somewhat understandable) fear of the analytics 'black box'.

Let's face it: not much has changed in the field of traditional actuarial science over the past century. Pencils and paper have given way to calculators and computers. In the 1980s, basic reserving software was introduced, helping to drive incremental improvements. But, with few exceptions, the function remained largely untouched by the technological advances of the past decade.

More recently, however, the status quo has started to shift. New analytics technologies are beginning to permeate the actuarial function. And initial prototypes and projects are already showing great promise, particularly in the field of actuarial loss reserve analysis. Indeed, data scientists are now using established algorithms to produce estimates that out-perform traditional approaches while also standing up to rigorous 'back testing'.



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## Automating for advantage

The automation of loss reserving could solve a number of key challenges currently facing most Property and Casualty (P&C) insurers. For one, automation can improve business flexibility, decision-making and capital management. Reports can be developed in hours rather than weeks; decision-makers can spot trends and respond in real-time; business performance and efficiency can be tracked to uncover improvement opportunities; and, as a result, the pace of business can be dramatically improved.

Automation may also remove many of the traditional challenges inherent in the actuarial discipline. Many actuaries tend to support their reports with insights based on their view of the data in comparison to prior conclusions. But this creates a risk of a bias towards stability rather than a focus on change — a form of ‘anchoring’ where prior information is given greater weight than newer information. But, when

automated, the same weight is given to each piece of data, thereby helping to remove this natural bias.

Similarly, many actuaries suffer from a lack of current, in-depth analysis, preferring to perform a more detailed analysis of their liabilities only annually. But these long intervals (particularly given today’s pace of business) raise the risk that underperforming businesses could be hidden for several years. Automation, on the other hand, allows actuaries to view current, in-depth analysis in near-real-time, helping them to better manage their risks and respond to emerging trends.

Reserve automation can help actuaries focus on creating real value for the insurance organization by, for example, examining trends, patterns and unexpected results in the analysis; by providing higher level-analysis of data; and by applying their deep actuarial judgement to the insights being generated.

## Facing fears

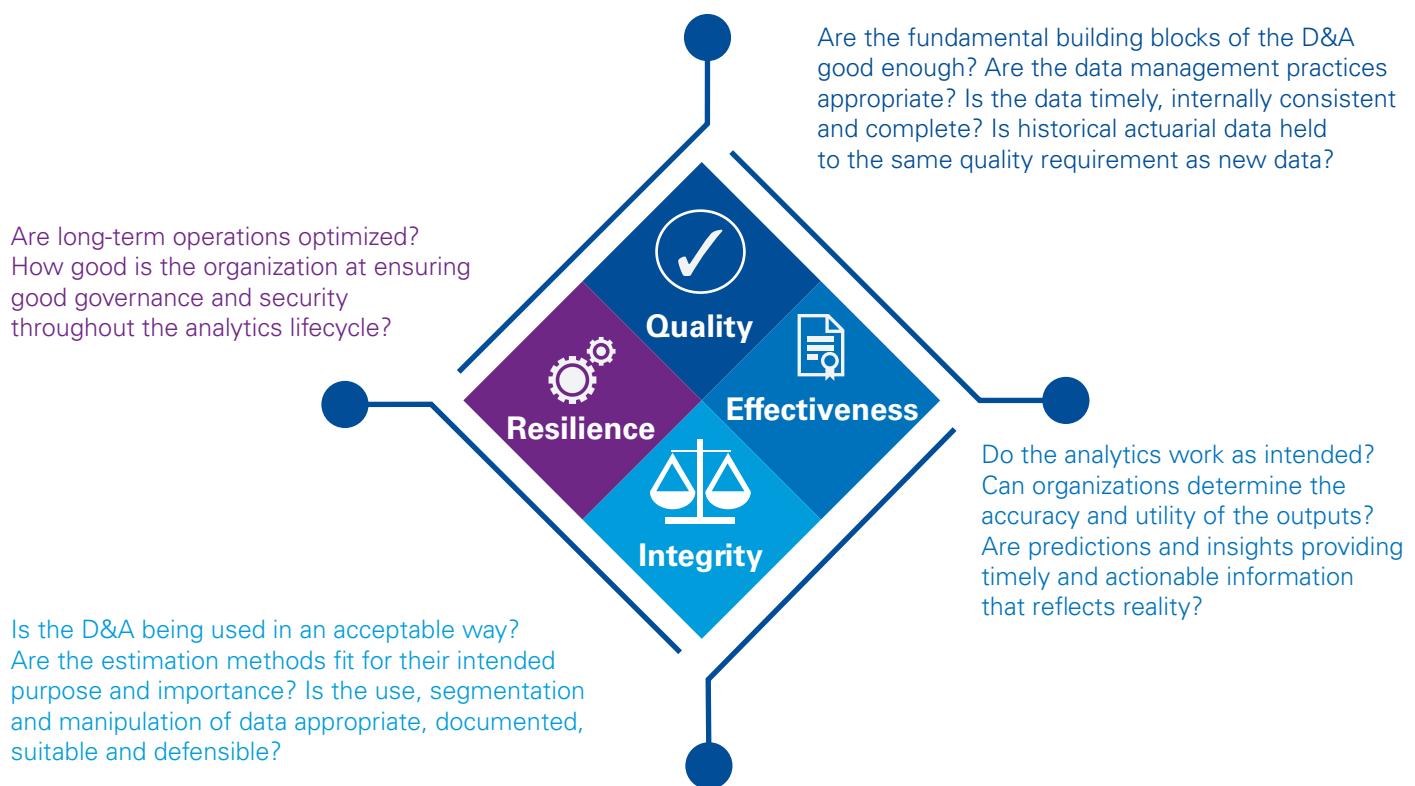
Automated loss reserving clearly offers P&C insurers a new way of thinking and working. But to achieve its full benefits, executives will first need to overcome lingering concerns about the transparency of the so-called ‘black box’ of analytics.

The reality is that most management teams and their boards rely heavily on the insights and analysis offered by their actuarial teams. And their trust in those insights is largely based on their historical human interaction. Few are willing to place the same level of trust in a machine they don’t understand and can’t relate to.

At the same time, the actuarial function also needs to build trust in the tools at their disposal. More sophisticated analytics capabilities will almost certainly be required. But the bigger barrier will be cultural: actuaries need to understand that automation is there to help them become more productive, not to

## The Four Pillars of Trust

While trust may currently be low, we believe that P&C insurers can help raise the level of trust by applying key concepts that we often refer to as the Four Pillars of Trusted Analytics.



replace them. A computer may process information more rapidly than a human, but a human using a computer can be more powerful still.

However, most efforts to improve trust in technology are usually underpinned by proof. Much like model validation approaches, the path to improved trust in reserve model automation is an ongoing process. It will require continuous end-to-end consideration of the data, the assumptions, the calculations and the resulting value. And, as value is generated and results are validated, the level of trust will improve.

By leveraging trusted analytics to capitalize on new methods and technology, analysts have an unprecedented opportunity to improve actuarial analysis of loss reserves — similar to the wave of value that was unlocked 25 years ago through the adoption of predictive modeling in pricing. Indeed, reserve

automation offers similar potential advantages of reduced costs, improved business flexibility and market share gains.

### Practice makes perfect

As actuaries, we recognize the dramatic efficiency and efficacy gains that could be achieved by taking full advantage of today's computing power, automation tools and algorithms. But to realize the benefits of automation, management will first need to learn to trust increasingly complex systems.

However, over the coming year, we expect this perceived loss of transparency to be replaced by the confidence that can be gained through the rapid feedback created by automated systems. And, with continuous feedback of actual results, we believe that acceptance and adoption of automation will quickly start to rise.

We firmly believe that the P&C sector is on the cusp of an exciting new

wave of actuarial innovation. Those that recognize and respond to the opportunity will likely see significant competitive advantage.

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