

Viewpoints

Insurance big data – float like a butterfly, sting like a bee

Nimbleness and agility will unlock potential

By Elinor Friedman, Andrew Harley and Klayton Southwood

Recent Willis Towers Watson surveys in the U.S. have shown that P&C and life insurers in developed markets are taking seriously the potential of big data and predictive analytics to improve their businesses. Nimbleness and agility, rather than brute force, are likely to be key to realizing that potential.

Among the many things for which the late, great Muhammad Ali will be remembered is his famous catchphrase: “Float like a butterfly, sting like a bee,” referring to his strategy of using quick feet and ring craft to overcome sometimes more powerful opponents.

Faced with the current excitement (and, let’s be honest, degree of hype) about how big data and advanced analytics are set to transform the insurance industry, insurers would do well to take a leaf out of the inimitable Ali’s book.

Big data and advanced analytics will have a significant impact on the industry – of that there is little doubt. But it’s anyone’s guess how the industry will look in 10 to 20 years as a result. The dilemma for insurers is which direction to take and how fast and decisively to move, combined with the worry that competitors may beat them to the punch in key areas.

Strong intent

In recent months, Willis Towers Watson has surveyed both the U.S. P&C and life insurance industries to see how companies plan to use big data and predictive analytics to keep pace and improve competitiveness. The findings reflect what we’re hearing from insurers in other developed markets and show a strong intent to make use of the opportunities that big data and analytics might provide.



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P&C insurers typically already use predictive analytics extensively in their pricing. In the next two years, carriers expect to significantly ramp up model use in other important areas such as fraud prevention, claim triage, evaluation of litigation potential, and sales and marketing (Figure 1).

Complementing these approaches, P&C insurers expect big data use in many key business areas (such as claim management, understanding customer needs and product development) will more than double in the next two years.

Figure 1. **Top areas where U.S. P&C insurers expect to use predictive modeling beyond risk selection**



	Now*	Two years
Pricing, underwriting, risk selection	42%	77%
Better management decisions	19%	60%
Loss control and claim management	17%	58%
Understanding customer needs	17%	50%
Product development	19%	48%
Marketing/Distribution/Sales	15%	48%

*Survey fielded September 9 – November 2, 2015

Source: Willis Towers Watson 2015 Predictive Modeling and Big Data Survey

Expected sources of these data are both internal and external, including telematics, web clickstreams, customer-agent interactions, smart home data and social media, accompanied by a shift toward greater use of machine-learning techniques (see “The new era of insurance analytics: Driven by technology, toolkits and talent”).

By comparison, many life insurers are just getting started. Only 8% say they actively use big data and predictive analytics to inform decision making, and over half of life chief financial officers admit they know a little or just understand the basics about big data. Nonetheless, like their P&C counterparts, life survey respondents expect their applications of big data and predictive analytics to soar in the next two years; over 60% say they anticipate using them to support decision making across multiple business functions in that time frame.

More than half of life insurers are targeting increased market penetration, and other planned uses involve transforming business models, expanding customer relationships, enhancing the customer value proposition and improving internal performance management (Figure 2). Life executives also expect to augment current sources of data, such as administration systems, medical records and credit scores, with email, clickstream and social media-based information.

Who, what, why, when and how

The findings from the surveys tell us what kinds of things insurers are contemplating for big data and analytics and, to some extent, why. Just as important, of course, are the how, who and when.

Figure 2. **Top future uses for big data and predictive analytics among U.S. life insurers**

53% want to increase market penetration with data and analytics. 

Other planned uses	Now*	Two years
Expand customer relationships	41%	61%
Enhance customer value proposition	18%	52%
Transform business model	12%	48%
Improve internal performance management	29%	44%

*Survey fielded September 15 – October 13, 2015

Source: Willis Towers Watson 2015 Predictive Modeling and Big Data Survey

All three questions present insurers with a number of common obstacles to tackle head-on.

A hefty 71% of life insurers in our survey said they don't have the IT infrastructure necessary to execute plans for big data and advanced analytics (Figure 3). Today, the cloud and other on-demand sources of processing capacity may ease that pressure. However, a large proportion of respondents recognize the problems associated with the need to access and process potentially huge volumes of data, often sourced from legacy systems. Therefore, insurers need to find ways of making the transition to wider use of big data and predictive analytics relatively painless and cost-efficient.

Moving forward effectively also depends on having the right people and the right culture to make the most of investment in this area. Advancing the understanding and use of big data and predictive analytics will require commitment that starts with attracting and retaining the right talent – data scientists and digital marketers, for example, with the knowledge and experience to inform and execute company strategy.

Figure 3. **Perceived barriers and challenges to use of big data**

	P&C insurers	Life insurers
People – resource availability, training, skills and capabilities	50%	50%
Data capture and availability (legacy systems)	44%	54%
Conflicting priorities	33%	54%
Cost considerations and funding	33%	54%
Aged infrastructure	25%	71%
Executive buy-in	23%	13%
Lack of knowledge and clarity on structure	23%	38%

Source: Willis Towers Watson 2015 Predictive Modeling and Big Data Survey

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Data challenges

Key challenges for all companies entering the big data universe are what data to collect and what sources to use. Even more critical: What do insurers do with the information, especially given the concerns that some lawyers and regulators are raising about the use of big data, particularly in relation to identifiable personal information?

A logical starting point is to identify the data and analytics required to achieve the main business objectives. And rather than scouring the data universe from the outset, untapped sources of internal data can often make a significant difference.

Data enrichment has been central to P&C pricing in particular for many years, and we expect enrichment practices to continue to grow not just in pricing, but in marketing, claim management and underwriting. In our experience, clickstream data (tracking a customer's journey through an insurer's website) and the growing range of free, open-source online databases frequently promoted by governments on sites such as <https://www.data.gov> and <https://data.gov.uk> have proven very beneficial in improving the predictability of analysis results and in applications such as developing additional factors for commercial insurance underwriting. Moreover, more insurers are creating their own new, valuable sources of customer behavior data through the development of smartphone apps.

Charting a course

As companies continue to chart a course through these potential obstacles, we'd like to share three important lessons that we have learned about big data and predictive analytics.

Use cases, not technology, should lead the way. Quick wins are vital in proving the value of investment in big data and analytics, particularly where there may be internal skepticism and reluctance concerning the likely benefits. Starting with a few high-impact use cases, such as refining the underwriting approach in a specific line of business, will allow you to get people involved across the business and create internal advocates. And at the same time, it allows you to test out technology requirements while minimizing up-front investment. Given the speed of technology upgrades these days, it's less important to get the best technology than it is to have a technology strategy that allows you to build and scale up along the way.

P&C insurers expect to significantly ramp up model use in important areas such as fraud prevention and claim triage.

If you can select use cases that demonstrate a quantifiable benefit for the business, the chances of achieving longer-term buy-in will increase. Your decisions, particularly in the early stages of developing a big data and analytics plan, should be driven by finding value for the business, not what technology you're going to need down the road.

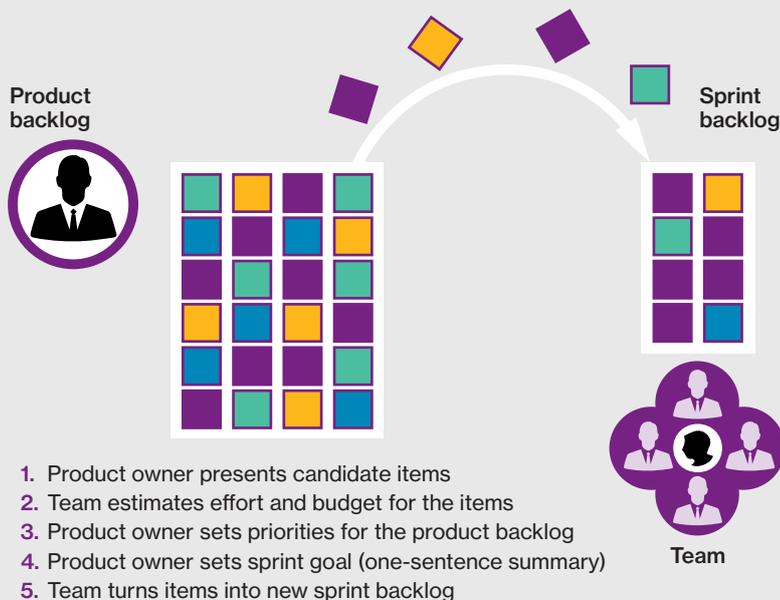
If you're going to fail, fail fast. Given that our recent surveys have shown that most insurers are struggling with big data resourcing issues, you'll want to focus limited analytics resources on projects that have a future. Furthermore, they should ideally be ones that can deliver pockets of value to the business. This avoids spending weeks or months developing a capability that tests both internal and external stakeholders' patience and that may not work out as intended.

We like the agile approach for managing advanced analytics projects. This process uses a series of fortnightly "sprint" meeting sessions to keep business owners involved in the key decisions and the reprioritization of use cases. It also helps participants determine whether to pursue a particular objective very early on in a debate.

Involve subject matter experts. Even the best and cleverest team of analysts can't and shouldn't determine what is of value to the business on its own. Appropriate leadership of specific use cases is essential to ensure that the right questions are asked. That means that a claim use case should be led by a claim expert, who can determine whether insights that may look valuable are actually useful, leaving the analysts to focus on the technical response. Equally, they can advise on whether an initiative is practical and implementable on the front lines. For example, the use of social media data in price optimization models may seem appealing to an analyst, but pricing and compliance teams are likely to frown on such practices.

That's not to say that you don't need to involve legal, compliance and marketing personnel, particularly at the beginning and end of a use case initiative, but those who are closest to how it will be applied in the business should lead from the front. This has the added benefit that where a use case is proven to deliver value to the business, those in line management who have contributed to that success can sell the benefits to their direct colleagues, some of whom may not see how big data and enhanced analytics relate to their roles.

Figure 4. Illustration of how sprint planning works in practice



Life insurers are just starting to use big data and predictive analytics to inform decision making (8%), but over 60% anticipate using them in the next two years.

Measured approach

Taking these three points together, the Muhammad Ali reference seems apt, in that piling investment into big data and enhanced analytics simply because they are seen as the future isn't necessarily the optimal way to derive the undoubted benefits they present to forward-looking insurers.

Given the criticism that insurers have received in the past about being slow to adopt technology, company boards may understandably balk at our suggestion that they should be prepared to bob and weave rather than land a knockout punch in the big data arena. The underlying point is that it could be very easy for insurers to back themselves into

a corner by going off in fruitless, costly and time-wasting directions. The sources of real value are likely to be very different, depending on the nature and structure of an insurer's business, so it will pay in the long run to take due time, experimentation and care to identify them.

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