

# Advanced analytics and the future: Insurers boldly explore new frontiers

2017/2018 P&C Insurance Advanced Analytics Survey Report (U.S.)



Three clear front-runners lead the pack of insurers' priorities for data and advanced analytics: the customer experience, claim management, and telematics data for pricing, customer selection and product design.



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# Executive summary

## Insurers boldly explore new analytics frontiers

In a short space of time, emerging data sources and advanced analytics have become new frontiers for transforming insurance company operations and customer experiences. Many P&C insurers are already embarking on this voyage of discovery, hoping digital platforms and mobile apps will move them light-years ahead of their competition with faster, better information and more convenient service delivery.

Insurers can now investigate an expanding data galaxy full of promise, including unstructured internal data, the Internet of Things (IoT), driver and home telematics, social media, wearables and open-source web data. Analytics techniques are moving into a new orbit to explore this new frontier, with discussions about web scraping, artificial intelligence (AI), machine learning, intelligent automation (which brings AI and automation together) and InsurTech innovation all increasingly intriguing topics for insurers.

Previous Willis Towers Watson surveys revealed increasing use of predictive models by P&C carriers to gain an edge in the market – particularly in pricing accuracy, and more recently in claims management and customer service. Rather than simply reconfirming that trend, we have shifted our focus to examine how insurers are preparing for the future, including which new data sources they perceive as most useful (*Figure 1*), how they are adapting their current analytical techniques and where they are looking next to gain competitive advantage.

Figure 1. **Top-growing new data sources insurers plan to use two years from now**

Personal lines	Now	Two years
Smart home/Smart building data	0%	52%
Usage-based insurance information (telematics)	26%	70%
Social media	26%	52%
Unstructured internal claim information	39%	61%
Unstructured internal underwriting information	30%	52%
Images	13%	35%

Commercial lines	Now	Two years
Unstructured internal claim information	46%	92%
Other unstructured customer information	11%	54%
Unstructured internal underwriting information	25%	39%
Usage-based insurance information (telematics)	11%	47%
Web/Clickstream/Phone/Email customer interactions	11%	36%
Images	3%	39%

# Survey highlights

## A focus on elevating the customer experience

Improving customer centricity is front of mind for insurers. Big leaps in how insurers plan to use customer data (from 49% to 76%), surveys (from 43% to 69%) and vehicle telematics (from 24% to 57%) are seen as the main facilitators of faster, smoother and more personalized customer experiences over the next two years.

## Broader AI and machine learning applications

Few insurers have started to adopt AI and machine learning, with the biggest application to date an effort to better understand risk drivers (20%). Within two years though, many more insurers plan to use these techniques to reduce time spent on tasks by employees (49%), to identify high-risk cases (45%) and to build risk models for better decision making (45%).

## Claim management transformation

Insurers see huge unexplored potential for advanced analytics in the claims area. Fraud prevention (82%) and triage to identify complex claims (80%), together with the evaluation of claims for both litigation and subrogation potential, are key applications for development over the next two years.

## Telematics' star is rising

Among both personal and commercial lines insurers, expectations for the wider use of telematics data are very high, with a focus, unsurprisingly, on pricing and underwriting. But that keen interest is also expanding into customer management, claims and loss control over the next five years. Beyond the auto market, 43% of respondents see a significant role for telematics in homeowners' insurance within this time frame.

## The benefits are clear

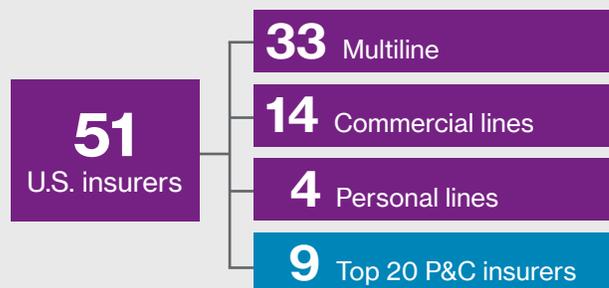
The dominant measure of success in the use of data and analytics is improved loss ratio (81%). Encouragingly, over a third of companies surveyed say that advanced analytics have already had a strong positive impact on the bottom line, with a further 54% citing a positive impact. Nearly three-quarters say advanced analytics also positively support top-line growth through stronger renewals, expansion of underwriting appetite and improved market share.

## IT infrastructure upgrades

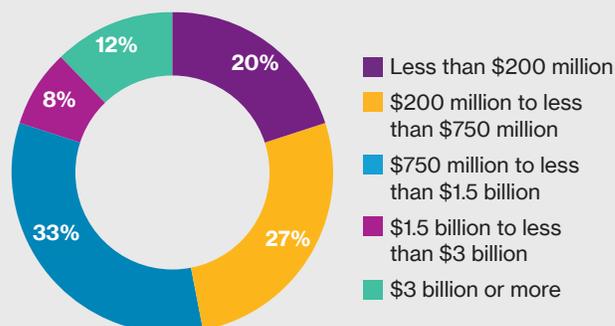
Small, midsize and large companies alike are actively exploring IT infrastructure options that will allow them to manage big data more effectively. Nearly half of small and midsize insurers are gearing up to use cloud-based services. A rising proportion of larger companies (from 19% to 48%) are also looking at cloud solutions and a significant number (37%) say they are also investigating Hadoop for distributed storage and processing of large data sets.

## About the survey

Willis Towers Watson's 2017/2018 Advanced Analytics Survey asked U.S. P&C insurance executives for their insights on the future of advanced analytics. Fifty-one P&C insurers participated in the web-based survey fielded in fourth quarter 2017: 33 multiline carriers, 14 commercial lines carriers and four personal lines carriers. Respondents included nine of the top 20 U.S. P&C insurers.



Participants reported annual direct written premium (US\$) as follows:



# In near orbit

## Customer focus, claims and telematics data

Three clear frontrunners lead the pack of insurers' priorities for data and advanced analytics: the customer experience, claims management, and telematics data for pricing, customer selection and product design.

### The customer experience

Insurers are striving to replicate the more rapid and personalized user experience implemented by retail and other online environments and apps that have raised consumers' expectations.

Typical aims mentioned by more than half of survey respondents involve faster service (67%); faster, easier information access (65%); more personalized experiences (61%); and more mobile-friendly applications (53%), with relatively minor differences in priorities among small, midsize and larger carriers. One area receiving closer attention from larger insurers, however, is the introduction of more product options.

To help them achieve these goals, many insurers recognize the need to broaden their data horizons (Figure 2). This is exemplified by big jumps in proposed data usage for both auto and home telematics and web scraping in the next two years.

Similarly, Figure 2 also shows a strong appetite for and belief in the benefits of telematics data, both for auto policies,

where it is already established, and as an increasingly important factor for homeowners policies. We cover this in more detail below.

### Claim management

The perceived potential of advanced analytics to transform claim management is evident from the dramatic expansion of data applications planned in the next two years (Figure 3). Closer attention to major sources of potential fraud is a high priority (e.g., excessive treatment, the activities of fraud rings and inaccurate applications). Specific triage applications are likely to focus on analyses of claim amount (70%) and potential complexity (50%).

It is recognized, however, that some lines of business are more inherently suited to more in-depth claims analysis. Personal lines auto and home carriers alike anticipate large increases in advanced analytics use for claims over the next two years: from 23% to 68% of those surveyed for personal auto coverage, and from 18% to 54% for homeowners coverage. In commercial lines, existing claim analytics usage is highest in the workers compensation class (27%) and is expected to grow to 65% in two years. Other commercial and specialty lines where carriers are looking to make big claim analytics gains in the next two years include commercial auto, accident and health, general liability, business owners and medical malpractice.

Figure 2: Top data sources that insurers plan to use two years from now for customer centricity

	Now	Two years
Internal customer data	49%	76%
Customer interactions/surveys	43%	69%
Auto telematics	24%	57%
Social media	18%	45%
Web scraping	6%	37%
Clickstream data	14%	35%
Home telematics	0%	29%

Figure 3: How advanced analytics will transform claim management

	Now	Two years
Evaluation of claims for fraud potential	26%	82%
Claim triage (identify complex claims to triage workflow)	26%	80%
Evaluation of claims for litigation potential	15%	74%
Evaluation of claims for subrogation potential	13%	62%



Figure 4. **Telematics data use by company size (auto and homeowners carriers)**

	Large		Midsize		Small	
	Now	Two years	Now	Two years	Now	Two years
Personal auto	<b>50%</b>	<b>94%</b>	<b>13%</b>	<b>50%</b>	<b>0%</b>	<b>71%</b>
Commercial auto	<b>29%</b>	<b>67%</b>	<b>0%</b>	<b>22%</b>	<b>0%</b>	<b>33%</b>
Homeowners	<b>0%</b>	<b>65%</b>	<b>0%</b>	<b>22%</b>	<b>0%</b>	<b>0%</b>
Commercial property	<b>0%</b>	<b>38%</b>	<b>13%</b>	<b>38%</b>	<b>0%</b>	<b>0%</b>

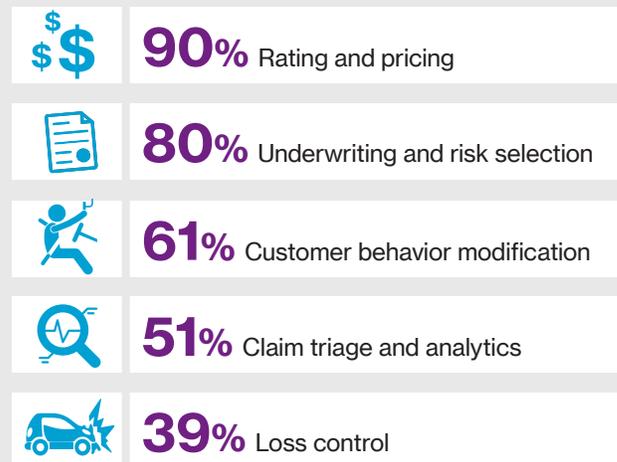
## Telematics

Usage-based insurance (UBI) programs have brought the benefits of telematics data in personalization and pricing to a significant proportion of U.S. personal auto carriers, but also to around 30% of commercial auto insurers. Survey respondents expect UBI's influence to grow in the auto market, with 78% maintaining that UBI will play an important or driving role in rating plans within five years.

Opportunities to use telematics and the technologies associated with the IoT to personalize risk assessment in the household and commercial property markets are following closely behind. Two years' time is expected to make a marked difference from a position where very few carriers currently use telematics data (Figure 4). And telematics data use is also expected to impact farm/crop insurance.

Telematics data are expected to more heavily influence pricing and underwriting than other functions but are also seen as having wider applications – from customer behavior modification (e.g., to tackle distracted driving) to claim triage and loss control (Figure 5).

Figure 5. **Five-year outlook for increased telematics impact on insurance business functions**



# Inner space

## The analytics environment

Insurers' stated advanced analytics intentions and ambitions clearly affect the systems and technologies used to manage and move data, the analytical methods that will reveal insights from that data, and the technical resources and capabilities at their disposal.

The range of internal and external data that companies say they find valuable is substantial and growing (Figure 6).

As a result, the volumes and variability associated with such an array of data types and sources are becoming increasingly difficult to manage using internal capacity, networks and processing systems. So insurers are actively exploring technologies to help them manage big data – principally, the cloud and Hadoop (Figure 7).

Figure 6. Which internal and external data are most valuable to your company?

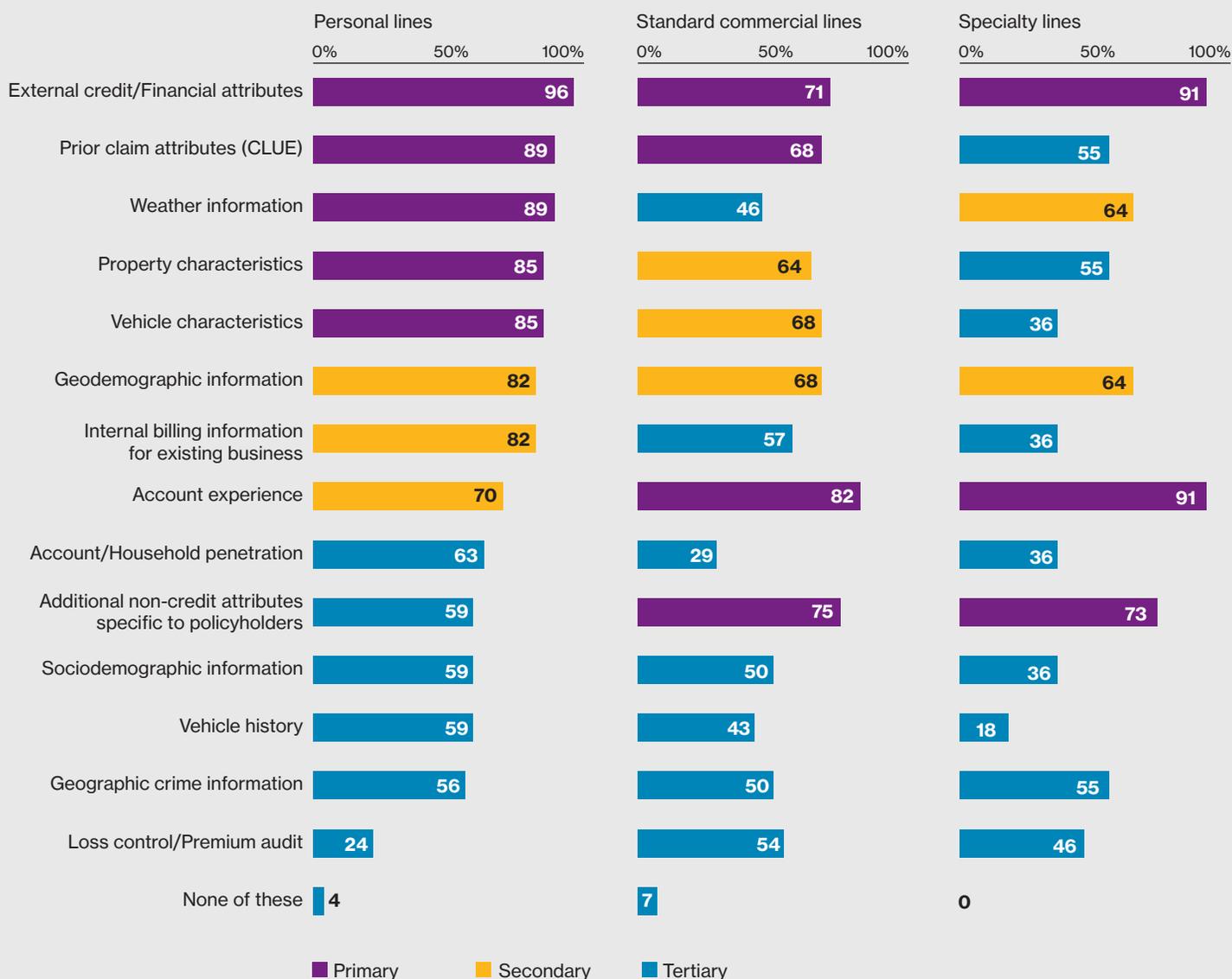


Figure 7. **Evolving approaches to managing big data (by company size)**

	Large		Midsize		Small	
	Now	Exploring	Now	Exploring	Now	Exploring
Cloud-based (Amazon Web Services, Azure)	19%	48%	7%	50%	0%	40%
Hadoop	19%	37%	7%	14%	0%	20%

In tandem, attitudes toward the modeling techniques that are useful for pricing, claims and marketing are also evolving. While generalized linear models and one-way analyses used by about three-quarters of companies are still seen as the primary methods that will carry them forward, around a quarter of companies surveyed are looking to augment their modeling capability over the next two years with such methods as decision trees, random forest and neural networks.

### AI, machine learning and the role of InsurTech

AI and machine learning are associated with some of the techniques now considered by many companies, often fueled by the growing band of InsurTech businesses and start-ups that want to secure a place in the insurance value chain. Recent trends elevate a greater collaborative focus on back-office operations support\* among InsurTech businesses, and have moved away from market-disruptive, customer-facing applications that often entail high market entry barriers.

Typically, greater automation that enhances business models and substantially cuts costs across product portfolios is the underlying operational goal. This is reflected in the ways that companies say they currently use and expect to use AI and machine learning technologies in the next two years (Figure 8).

*Greater automation that enhances business models and substantially cuts costs across product portfolios is the underlying operational goal.*

Figure 8. **How AI and machine learning are expected to streamline processes**

	Now	Two years
Reduce time spent by humans	8%	49%
Identify high-risk cases	10%	45%
Build risk models for better decision making	8%	45%
Help humans identify appropriate risk attributes	6%	43%
Better understand risk drivers	20%	41%
Identify patterns of fraudulent claims	6%	39%
Augment human-performed underwriting	6%	37%



\*Willis Towers Watson Q4 2017 InsurTech Briefing: <https://www.willistowerswatson.com/InsurTechQ42017>

Figure 9. What are the three biggest challenges preventing your company from becoming more data-driven?



# Analytics asteroids

## Potential obstacles to progress

Experience shows that top-notch analytics draw as much from culture and strategy as the tools and people that make them possible. Organizations' will and ability to be data-driven are important drivers. Often, as our survey confirms, IT networks and connectivity are the biggest obstacles to overcome (Figure 9). Many also concede, however, that work is still needed to improve the levels of understanding of advanced analytics outputs of those that use them within the business, with 83% of respondents categorizing their current capabilities as either "moderate" or "limited." The benefits of advanced analytics will likely be hard to attain if companies can't access and use data at the right time, in the right place and deploy data to the right people, including the end customer, in a comprehensible way.

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## Next steps for insurers

### Bringing the new analytics universe within reach

This research finds that insurers are quite positive about the potential business benefits of big data and advanced analytics. Accordingly, insurers seem poised to use them to better quantify risk, streamline processes and improve customer experiences or, more likely, a combination of all three.

Our experience suggests that the new analytics universe will be within closer and more immediate reach if companies recognize and follow three guiding principles.

**Data are the primary source of value in analytics.** New analytical methods, including AI and machine learning, are justifiably getting a lot of attention in quantitative circles right now, but we believe insurers should focus the most significant initial effort on their sources of data. Why? Because new (or better) experience data, predictors and customer response information will always trump new methods being thrown at the same data.

**More data, in-depth analysis and new insights aren't the end game.** They have to translate into something the business can understand, implement and monitor, from which it can derive and offer value. Otherwise, the work done is simply a technical modeling exercise.

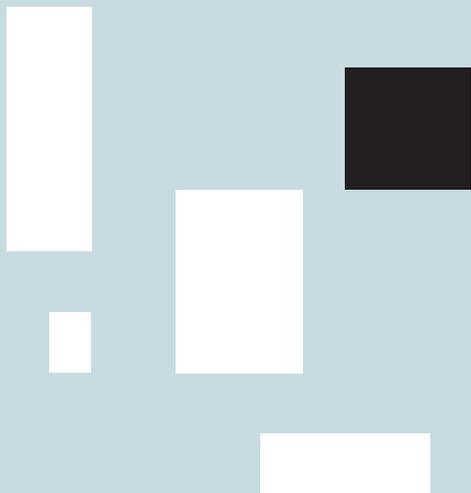
**Stay on top of the technology.** Legacy company systems and networks will make it increasingly difficult to conduct business effectively in the advanced analytics age. At the extreme, the way some companies have done business will become more challenging in the near future, so new technologies that enhance analytical capability and system connectivity, including those coming out of the InsurTech movement, will have a greater role to play.

#### Further information

For more information about survey results, or to discuss the findings and our observations, contact:

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## About Willis Towers Watson

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