

top issues

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Insurance modernization
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The insurance industry in 2015



pwc

The role of advanced analytics

Customer behavior is a complex subject that affects the insurance industry in fundamental ways, from product development, marketing and distribution to inforce management, financial reporting, and risk management. In 2014, LIMRA and PwC completed an extensive research study on customer behavior.¹ A key finding of this study was that the life insurance industry lags the property and casualty insurance industry (and both lag other industries) in using advanced analytical techniques to better understand customers.

However, the gap is beginning to narrow as more and more insurance companies are realizing the benefits of using advanced analytics for designing products, segmenting markets, developing distribution strategies, and managing inforce business, setting assumptions for financial reporting, and developing metrics for risk management. In fact, a growing number of insurance companies have developed a new area of expertise (or center of excellence – COE) to serve the increasing need for data analysis, predictive analytics, and behavioral simulations.

Although insurers – especially in the life industry – have been behind the curve with advanced analytics, the gap with other industries is starting to narrow.

The mission of this new COE is to work with actuarial, distribution, marketing, underwriting and inforce management areas to address such questions as:

- How do we improve the sales productivity and profitability of our agency force?
- How can we more quickly and accurately identify emerging experiences?
- How should our capital allocation strategy respond to different economic or regulatory changes?

Figure 1

Strategy & growth	Customer & marketing	Sales & distribution	Products, pricing & underwriting	Process & operations	In-force management*	Capital, risk & finance
1. How will changing consumer demographic and socio-economic forces impact demand for our products?	4. Can we do a better job of identifying and valuing our best and worst customers?	7. How should we structure the customer experience through each distribution channel, so as to maximize sales and profits?	10. What is the growth opportunity of our products and services? How does this change under different bundling and pricing scenarios?	13. What operations or technology initiatives will reduce costs without limiting growth?	16. How can we improve policyholder persistency?	19. How should our capital allocation strategy (such as voluntary reserves) respond to different economic or regulatory changes?
2. How are key macro-economic and regulatory changes impacting growth opportunities?	5. How can we best use media and other communications to acquire new customers or deepen relationships with existing customers?	8. What are the implications of refocusing distribution to lower-cost channels?	11. Can we optimize pricing by capturing new health data to apply to our underwriting process?	14. How do we optimize the multi-channel customer service experience for each of our segments?	17. How do we analyze mortality and morbidity results to improve pricing?	20. How do we optimize our portfolio of investments given our strategy and external constraints?
3. Can we grow our business by creating partnerships with asset management firms?	6. What steps can we take to improve customer loyalty?	9. How do we improve the sales productivity and profitability of our agency force?	12. Do our product designs reflect the evolving needs of our customer base?	15. What is the most cost-effective path for managing the flow of policies?	18. How can we more quickly and accurately identify emerging experiences?	

*Including claims & benefits

1 *Dynamic Policyholder Behaviors: A survey and literature review*, Society of Actuaries (March, 2014)

For example, advanced analytics show that a financial advisor who sells a particular type of product more than once to the same customer will have better persistency than a financial advisor who sells a product to a customer just once. In addition, a financial advisor who cross-sells different types of products to the same customer has even better persistency. Finally, a financial advisor who cross-sells different types of products to not only the same customer but also the customer's family has the best persistency.

Another example of how advanced analytics can provide significant insights is simulating how customers select and utilize their insurance products. In recent years, life insurance companies have sold complex products with which they have limited historical experience that give policyholders a variety of options for premium payment, investments, and withdrawals. To complicate the situation further, insurers have sold these products during a prolonged period of steadily declining interest rates and low inflation. Thus, a significant challenge confronting the industry is how customers will behave under different economic conditions.

To understand customer behavior requires a change in insurers' mindset. First, it is important to view the customer not just as a male age 40 nonsmoker, but as part of a household. Viewing the customer as part of a household switches the focus to:

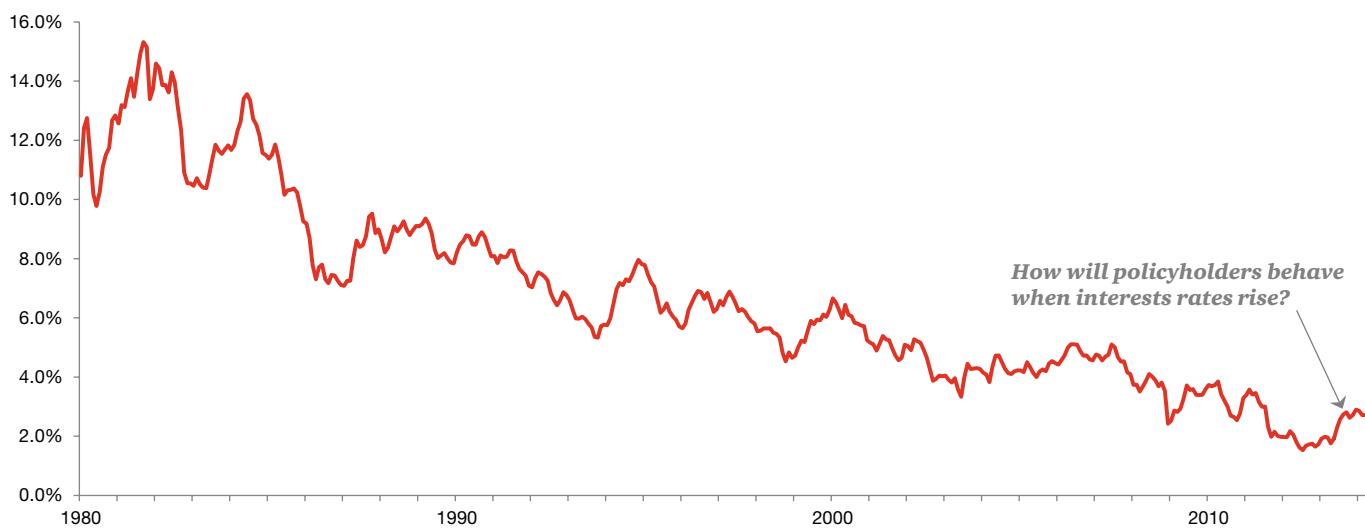
- The composition of that household and how it changes over time;

- The life events, such as having children, that take place in the household;
- The household's income, spending, and savings habits;
- The type of assets the household owns and the liabilities it owes; and
- The choices the household makes, both rational and behavioral.

Second, simulating customer behavior under multiple scenarios can help insurers develop a more holistic understanding of the choices policyholders make. They will discover that certain customer behaviors that seem "irrational" may actually reflect their relatively limited view of customers' personal circumstances. For example, classifying a customer's actions as "irrational" because he surrenders a variable annuity contract that was deeply "in-the-money" may be inaccurate. The customer may have needed the cash surrender value to make mortgage payments or cover a large, unexpected medical expense.

These types of behavioral simulations are possible because of the ability to store vast amount of digital data inexpensively, and because the computational speed of computers allows insurance companies to analyze diverse data sources and to form connections that were inconceivable ten years ago. This has given rise of the new profession of "data scientist," an individual or a team of individuals with strong analytical skills and expertise in particular subject matter or business domains.²

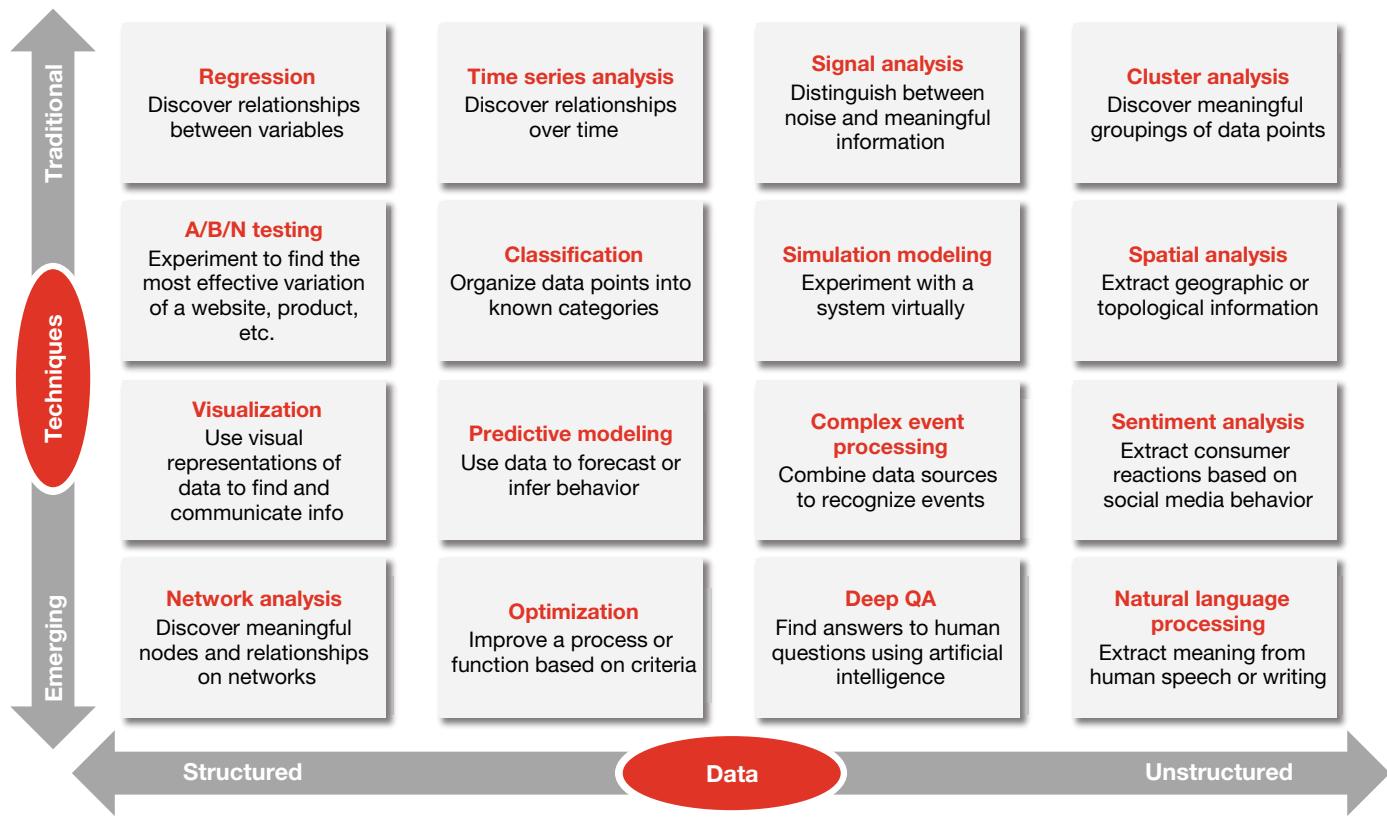
Figure 2: US Ten Year Treasury Rates



Furthermore, advanced analytics have given birth to a host of new and emerging technologies that are radically different from the legacy technologies that most insurance companies use today. For example, in-memory technology makes it possible to run queries in minutes instead of hours, and natural language processing serves as a more targeted, semantically-based complement to pure statistical analysis. As technology advances, companies are using a broad range of traditional and advanced modeling techniques to generate insights. As early adopters of these new technologies emerge and disrupt business as usual, others will discover a change in “mindset” is required to exploit these technologies.

Finally, advanced analytics also place a strong emphasis on collaboration. Professionals have to become increasingly specialized, because there is only so much information one person can master. For example, simulating the behavior of customers requires a team of individuals that collectively has a deep understanding of behavioral economics, insurance products, marketing, complex modeling, data management, and insurance regulations. Accordingly, different disciplines have to collaborate because the best insights from advanced analytics lie at the intersections of disciplines.³ In many instances, this may require an effective change management program to break down silos.

Figure 3



³ Blackwell, Alan F., Wilson, Lee, Street, Alice, Boulton, Charles, Knell, John. “Radical innovation: crossing the boundaries with interdisciplinary teams,” *Technical Report, Number 760*, University of Cambridge (November 2009)

Implications

- Consistent, high-quality data that informs decisions throughout the organization is at the core of insurance modernization. Effective analytics make that data truly useful and help insurers more effectively price risk, develop and market products, and target customer segments.
- A modernized company that uses data effectively likely will have a more holistic view of customers, the market, and opportunities than it did pre-modernization. For example, it will look at customers as not just a single data point, but a node on a related group of data points.
- Effective analytics require the contributions of everyone in the organization, not just IT and actuaries. This means that organizational models in modernized companies will be less siloed than in traditional ones, and that employees from different functions will need to closely collaborate to develop and share the knowledge and insights that inform good business decisions.

Advanced analytics place a strong emphasis on collaboration, and are not just the domain of IT or actuaries.

The role of advanced analytics

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