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# Letter From the Editor

By Ailen Okharedia

**W**elcome to the September 2018 edition of *NewsDirect*. We have a collection of interesting, informative and very topical articles in this issue.

In this edition, we have articles that cover a wide range of topics including:

- Insurance for the Underserved: Lessons About Human Behavior From the Field
- Automated Machine Learning—A Gateway for Accelerated Data Science Upskilling
- Using Behavioral Economics, Digitization and Big Data
- Trends in the Marketing and Distribution of Life Insurance Products

This will be the last issue of this publication with me as editor. We have covered a range of topics during my two-year tenure. I am even more excited today than I was with my first issue about the potential for behavioral economics, digitization and big data to change the way we do things as an industry and make us more relevant to the public at large.



I would like to register my thanks to all members of the Marketing and Distribution Section Council both past and current. I'd also like to give special mention to David Schraub and Sam Phillips who have assisted greatly with soliciting articles from interesting authors and the editorial effort required to finalize each issue. Thank you!

I hope you enjoy this edition of *NewsDirect*! ■



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# Insurance for the Underserved: Lessons About Human Behavior From the Field

By Katy Davis and Manasee Desai

Since the publication of *Nudge* almost 10 years ago<sup>1</sup>, behavioral economics has become more than just a hot topic for the financial sector. Financial institutions have evolved from seeing behavioral economics as a marketing tool to increasingly building their own in-house behavioral science teams with cross-functional reach. Even city governments have caught the bug and started hosting behavioral design units to run iterative tests and improve public services.<sup>2</sup> For the private sector, behavioral economics has been embraced as a tool to inform product design and drive consumer engagement.

At ideas42, a non-profit organization that sits at the intersection of research, consulting, and design, one of our priorities is promoting better product design for individuals who are traditionally left out of the formal financial market.<sup>3</sup> Through this work, we get a hands-on glimpse into how underserved consumers are navigating their financial lives. This window into the decision-making process sheds significant light on why consumers may be rejecting products that, at first glance, seem beneficial.

Take the case of microinsurance. The economic value proposition offered by these products may seem clear from the viewpoint of industry experts who are familiar with the devastating impact that financial shocks can have on individuals who lack adequate coverage. And yet, insurance industry efforts to tap into underserved segments in developing countries with microinsurance products have had mixed results, at best.

Here, we take a closer look at the set of questions that underserved populations may be asking themselves when considering whether to purchase or maintain insurance policies. Using a behavioral lens to tackle this challenge can uncover new ways to concretize the value of insurance, build trust with insurers, and tailor product design to consumer needs. These improvements could help not just lower-income consumers, but all consumers. To help ground some of these common

global themes in real world experiences, we share lessons from the field in South Africa, the Philippines, and elsewhere.

## ASSESSING VALUE: DO I NEED INSURANCE COVERAGE?

When was the last time you thought about whether you had earthquake or flood insurance? Any chance it followed a major natural disaster? From an actuarial perspective, calculations of risk should remain relatively constant in the short term, unless an event reveals new information that has not yet been factored into those calculations. For most humans, however, assessments of risk are not informed by statistical analysis but by one's own perceptions of risk and a psychological phenomenon known as *availability bias*.<sup>4</sup> Humans tend to overestimate the probability of events that are more recent or more vivid in one's mind. Given the wide reach of television and social media, this means that consumers may perceive outsized risk for events that are highly discussed and top-of-mind, and underestimate the risk of events that are less "vivid."

Even if an event is likely, the need for insurance coverage may not be apparent if the associated costs are unclear. This calculation is particularly tough when you're estimating the potential cost of an unfamiliar or uncertain event. Though you might start saving money for your child's college education when they are born, you might not fully calculate out the potential costs on a granular level. Because those costs remain abstract rather than *concrete*, you may only fully understand the total cost once you find yourself paying the bills—and come up short.

Consider burial insurance: it's an event that is certain to happen for each of us (probability of 100 percent), yet the event itself often remains abstract in our thinking. When we asked township residents in South Africa to detail the potential costs of a funeral, 92 percent mentioned the cost of the casket, and 88 percent mentioned food, but only 16–20 percent mentioned items like tombstones, decorations, or obituary services, which together constitute a considerable portion of the total expense. Consumers may be woefully underestimating the potential cost of events like these and therefore undervaluing the benefits of insurance. And when events are emotionally unpleasant to think about, such as end-of-life planning, consumers are even more likely to avoid thinking concretely about the event. For this and other reasons, people can be **overconfident** about their ability to handle these financial obligations.

## Behavioral Solutions: Make the Value of Insurance Concrete, not Abstract

In order for consumers to appreciate the value that insurance can offer, providers should prompt consumers to think more concretely about the uses and benefits of insurance. Studies have found that individuals are more likely to purchase



smaller insurance products that cover specific purposes than policies that provide more general coverage.<sup>5</sup> Concretizing the value of a policy can also be accomplished by pointing to specific categories of expenses associated with coverage, and comparing expected costs with available resources to expose gaps in preparedness. Visualizations could display these cost categories arranged in a “set” and indicate which categories are covered and which are not. In other domains like charitable giving, researchers have found that these types of visualizations, or so-called *pseudo-sets* (imagine an almost-complete but not-quite-complete pie graph), can be effective at prompting people to take action to “complete the set.”<sup>6</sup>

### **Assessing Relationships: Do I Trust This Provider?**

Who are the competitors for a typical insurance provider? Insurance providers would probably answer: other insurance providers in the industry. From a consumer’s perspective, however, alternatives to insurance include a wider set of players to meet their financial needs—and insurance providers may or may not be on the list at all. Financial diaries collected in India, South Africa and Bangladesh found that individuals in low-income households are quite sophisticated in their financial

management strategies and commonly use multiple formal and informal financial instruments to meet their needs.<sup>7</sup>

Around the world, different segments of society view financial service providers with different levels of trust. The 2017 global Edelman Trust Barometer study found that the financial services sector was the least trusted industry among all business sectors. Further, the report found a widening gap between the trust in financial services held by the top quartiles of society and the rest of the population.<sup>8</sup> In the developing world, trust in mainstream financial institutions may be even lower for individuals who have traditionally not participated in the formal economy, especially when there is a history of discrimination or exploitation by formal institutions like governments or government banks.

According to an old adage, trust is notoriously hard to gain, and easy to lose. In many countries, households report widely-circulated stories of insurance providers refusing to give pay-outs during moments of great need. Further, the behavioral concept of *negativity bias* suggests that individuals will be more likely to remember a story about someone not getting their claim filled than one in which a payout was received.



## SUMMARY: BEHAVIORAL LESSONS FROM THE FIELD

- 1. Assessing Value: Make the value of insurance concrete, not abstract.** Insurance uses and benefits must be vivid. Help people figure out how to cover all of their needs on a granular level.
- 2. Assessing Relationships: Maximize perceived returns—and deliver predictably every single time.** Denying claims, even if justified in a given case, could be disastrous to your bottom line in communities where take-up is limited by past negative experiences and where word-of-mouth is strong.
- 3. Delivering Value: Don't make the consumer fit the product, make the product fit the consumer.** Listen, understand your customer's context, and design for them.

We recently came face-to-face with this phenomenon at a financial education course hosted by an insurance company for customers in South Africa. Participants generally expressed enthusiasm and gratitude to the company hosting the course. However, after a participant shared a story about a friend's difficulty getting a claim paid out, the majority of the questions raised from that point onward were in reference to this story.

These vivid stories feed into a widespread perception that insurance companies may promise to cover costs in a particular event, but back out when it comes time to pay up as promised. In many communities, people are accustomed to relying on their neighbors and families rather than insurance products to deal with financial shocks. Paying hard-earned dollars into an insurance product could therefore appear to be a far riskier endeavor than just accumulating these dollars in a trusted vehicle and facing the event on your own or with your community's support.

### **Behavioral Solutions: Maximize Perceived Returns—and Deliver Predictably Every Single Time**

Most critically, insurance providers must follow through on their promises. Customers must be clear on exactly which events will prompt a payout, and insurance companies must deliver in those events. If customers hold misperceptions about which circumstances will result in a payout, the onus is on the provider to correct this misperception—or risk losing customers. Along these lines, a small microinsurer in the Philippines has an internal policy of accepting almost all small claims, as the cost of fraud in these cases was found to be considerably lower than the cost of reputation-damaging stories

about negative experiences. Event-driven claim filing could bypass the claim filing process entirely and reduce uncertainty for consumers.

In addition, investing in trust-building activities can establish faith that payouts will be available at a later time of need. Some Indian health insurance plans offer a free health screening at the start of every policy to reinforce their commitment to delivering value for customers. These trust-building activities need not just be financial rewards, either. Providing customers with tangible evidence of their policy being active, like account balance reports, assistance from customer service representatives, and physical certificates can go a long way towards providing helpful reassurance that the provider is committed to serving the customer's best interests.

## DELIVERING VALUE: AM I LIKELY TO LOSE THIS COVERAGE?

Perceptions of value aren't the only reason that consumers may choose not to take up products or services. Often, underbanked populations opt not to take-up financial products because of a misalignment between the irregularity of their income and the need to submit regular payments.<sup>9</sup> Though there are many actuarial (and behavioral) benefits to maintaining a fixed, predictable payment schedule, there is often misalignment with the actual cash flows that households experience. Volatility in income and expenses means that making a regular monthly payment creates undue pressure on a household's financial stability, with the risk of losing a policy altogether. In communities where use of insurance products is not yet the norm, stories of this nature can have a particularly strong effect on undermining trust.

### **Behavioral Solutions: Don't Make the Consumer fit the Product, Make the Product fit the Consumer.**

Product design must reflect the actual needs and context of the consumer. Experimental studies have shown that increasing the flexibility of repayment options for microfinance borrowers with irregular income can increase the amount of loans repaid and reduce the psychological stress associated with making regular payments.<sup>10,11</sup> Similarly, increasing flexibility around the size and frequency of premium payments and payment dates to match actual cash flow cycles could help insurers better capture lower income markets while reducing risk of non-payment. If insurance providers genuinely want to capture new consumer segments, they must be willing to shape product design and delivery around those consumers' needs.

## TESTING POTENTIAL SOLUTIONS

Designing financial products to fit consumer needs can require drastically rethinking the structure and delivery of those products. While behavioral science offers new ways to do this, the hardest part is understanding which design solutions will be

most effective in a given context. Highlighting instructive failures can be just as critical as sharing success stories. In the upcoming year, we'll be putting many of these behavioral principles into practice in our work with insurers across Africa and Asia, testing whether these solutions have the impact we expect, and sharing results with the field. In the meantime, there is a growing number of resources like the Behavioral Scientist (behavioralscientist.org) and the Behavioral Evidence Hub (Bhub.org) that enable researchers to share evidence about successes AND failures in behavioral design. ■



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## ENDNOTES

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# Automated Machine Learning—A Gateway for Accelerated Data Science Upskilling

By William Surette

Actuaries have always been jacks-of-all-trades. Mathematics and insurance knowledge form their professional foundation, but actuaries have also learned from other disciplines, such as law, accounting, marketing, and (of course) data science. But over the last decade or so, many actuaries have been finding it increasingly difficult to keep up with the rapidly developing field of data science. The good news is that this is beginning to change.

In just the past couple of years, a new technology has emerged called “*automated machine learning*” or AutoML, putting cutting-edge data science in the hands of actuaries, drastically accelerating the learning curve and their ability to apply data science to the myriad of insurance problems.

Actuaries know that insurers have an abundance of use cases they can apply predictive modeling to: identifying leads to solicit in marketing campaigns, identifying which policy applicants to refer for blood work, routing the right claims to salvage and subrogation teams to maximize recoveries—the list goes on and on. Essentially, many of these use cases come down to sorting, and this sorting is achieved through data science techniques. The idea is to sort the leads so that the best ones to solicit are at the top. Sort the applicants so that the right ones to refer for blood work are at the top. Sort the claims so the right ones to review are at the top. This means that the sort order is absolutely critical.

No algorithm can achieve a perfect ordering. That is, there will always be leads, applicants and claims that don’t get to the top of the list, thus becoming missed opportunities. But the better the sorting is, the fewer missed opportunities you will have, and the more value your underwriters, adjusters and others can add to your organization. Processes like this, where simple sorting drives optimization, exist everywhere in insurance. Insurers know it, and they rightly feel a sense of urgency to optimize these processes. If their competitors are applying these



techniques to more use cases than they are, they’ll lose. If competitors are framing the problem better than they are, they will lose. If the competitors are sorting better than they are, again they’ll lose. This is no secret. The headline of an article that appeared on Bloomberg on June 28, 2018 read, “AI Will Thrash the Economy Like a ‘Tsunami,’ Allstate CEO Says.”

So, insurers want to do three things: (1) apply these techniques to more business problems than their competitors, (2) frame the problems in a more appropriate way than their competitors, and (3) achieve a better sorting than their competitors. To apply these techniques to more use cases, they need experts to identify those use cases, i.e. they need actuaries, and they can now use AutoML to scale up the volume. To frame the problem in the most appropriate way, they need subject matter experts; again, they need actuaries. And how can an insurer get a better sort order than their competitor? In short, they need access to a breadth of sophisticated machine learning algorithms.

Let’s take a marketing campaign as an example. There are many ways to sort the leads. Some insurers use a model to sort the leads according to who is most likely to respond to their



mail—an approach that completely ignores profitability. Others might use a model to sort them by some combined measure of profitability and likelihood to respond. You, as the subject matter expert, must determine the criteria that you’ll use to sort them. This is what we call “framing the problem” and this is where your domain expertise, not your ability to code, is key. There is nobody better qualified to frame the problem than the actuary. But even if two insurers frame the problem the same way, one can still get a better sort order and beat their competitor. They do this by trying a variety of modeling algorithms. Traditionally, generalized linear models (GLMs) have been the primary modeling algorithm used by insurers. But there are a plethora of machine learning (aka predictive modeling) algorithms that often outperform GLMs, thus resulting in a better sorting. Hence the pressure actuaries have felt to keep up with data science techniques!

Many actuaries try to develop their data science skills so that they can build these models themselves, which is frustrating and inefficient. If there’s one quality I’ve seen throughout the actuarial profession, it is pragmatism. Actuaries are keenly aware that their job is not to produce data science as an end unto itself; their job is to produce results that are valuable for the company. Many actuaries try the self-study approach either through textbooks or increasingly via online courses offered by Coursera, Udemy, etc. But most actuaries want to be actuaries; they need a well-rounded skill set that draws from different fields, but they can’t be everything. They can’t be lawyers, accountants and data scientists too, though they need some familiarity with each of these. Data science has increasingly been a challenge for actuaries because the amount of learning involved to produce machine learning models was tantamount to beginning a new career. Until now.

AutoML is accelerating actuaries’ abilities to apply the most cutting-edge data science techniques to business problems. Tools like *DataRobot* provide a graphical user interface (GUI) (as well as optional programming interfaces via R and Python) which take in a dataset made up of historic training examples, applies all the data science best practices a data scientist would apply, and automatically produces accurate, interpretable and deployable predictive models, in minutes to hours.

Actuaries are experts who understand the business and their company’s data. In other words, they can identify use cases, they can frame the problem, and they can certainly pull together the appropriate dataset. By using AutoML tools, they don’t have to clean the data, nor do they have to worry about variable selection, encoding variables, finding interactions, finding transforms, overfitting, etc., etc. Some AutoML tools will try dozens of different approaches, each custom built for your problem, pairing a variety of data preprocessing steps with all the different modeling algorithms that might work on your use case. And

all of the models are interpretable—there are no black boxes. I typically take a dataset and produce these models in under an hour. (Deployment might be even simpler, but that’s not really the point of this article.) Some AutoML tools even handle free-form text, e.g., you can incorporate adjuster notes into your claims models!

What if the actuary actually does want to learn more technical data science? Or what if an insurer wants their actuarial teams to further develop their data science skills? First, AutoML allows the actuary to really focus on framing the problem without getting bogged down learning syntax and debugging code. Many MBA programs are currently using AutoML for this reason. For example, “*Managing with Data Science*” is a course being offered by Harvard Business School; “A new modeling platform, DataRobot, will be a vehicle for some of the learning.”

Additionally, with some AutoML tools, the automated steps are documented, so you can drill down into the process to learn more about the different techniques being used behind the scenes. Often you can drill down to documentation of the algorithms and even all the way to published academic research. AutoML platforms allow actuaries to produce valuable data science results while learning. And learning while you go is a proven approach. Actuaries in the process of gaining their credentials rotate through various areas of an organization because insurers can’t wait until the actuary is done with their exams to begin producing results. And the practical experience gained is invaluable. AutoML enables the actuary to approach data science the same way. (But lest you be scared away, don’t worry, there are no exams!)

Actuaries are the ideal end-user for an AutoML tool. They are experts on the business use cases and they are experts on the data, and that’s exactly the skill set needed to effectively use AutoML. Actuaries can now produce machine learning results, adding value to their organizations, while learning data science. Will this result in lower demand for data scientists? If you think your company will run out of data science problems to solve, then maybe the answer is yes, but no company isn’t running out of data science problems anytime soon. There are plenty of data science problems that AutoML doesn’t handle, so everyone’s job is safe! ■



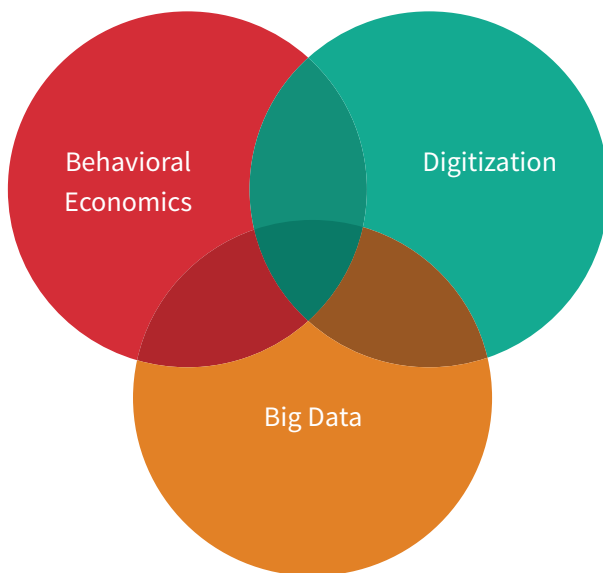
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# Behavioral Economics, Digitization and Big Data: Enablers for Disrupting the Insurance Industry

By Dr. Eugene Wessels

In our May 2017 issue we highlighted the underlying factors that make the “Insurance is sold, not bought” paradigm a reality. We presented the opportunities that behavioral economics, digitization and big data have for transforming how insurance companies engage with their customers by making the paradigm work for them. We also showcase insurers that have successfully engaged these tools to positively impact their industry.

Figure 1  
Enablers for Disrupting the Insurance Industry



In this article, we examine how King Price Insurance has developed these tools to become one of the fastest growing non-life insurance companies in South Africa.

## KEY LEARNING FROM DAYCARE

One of the key learnings from behavioral economics is that people tend to discount the future at a high rate of interest.

Put another way, we have a general bias toward immediate gratification over future satisfaction. There's the classic example of kids in daycare being offered the option of one marshmallow now or two in an hour, called Stanford marshmallow experiment (W. Mischel and E. Ebbesen in 1960), which highlights delayed gratification; about one-third eat the marshmallow immediately, one-third tried delay but could resist and one-third were successful in resisting and got the second marshmallow. Playing on instant gratification is an opportunity to enter the market with a unique offering and developed its entire business model on the realization that an incentive today is worth more than one that's provided in a year's time.

## THE APPRECIATION OF DEPRECIATION

The innovation was as follows: Car insurance premiums that decrease monthly. Your car loses value the moment you take ownership of it and continues to depreciate in value every month after that. So, why keep paying the same monthly premium to insure something that's worth less? The King Price model decreases car premiums monthly in line with their depreciating values, so your car is always insured for what it's worth. While other insurers may review their premiums and provide no-claim bonuses annually (or less frequently) behavioral economics tells us that more frequent, although smaller, premium decreases are more effective for attracting and retaining customers.

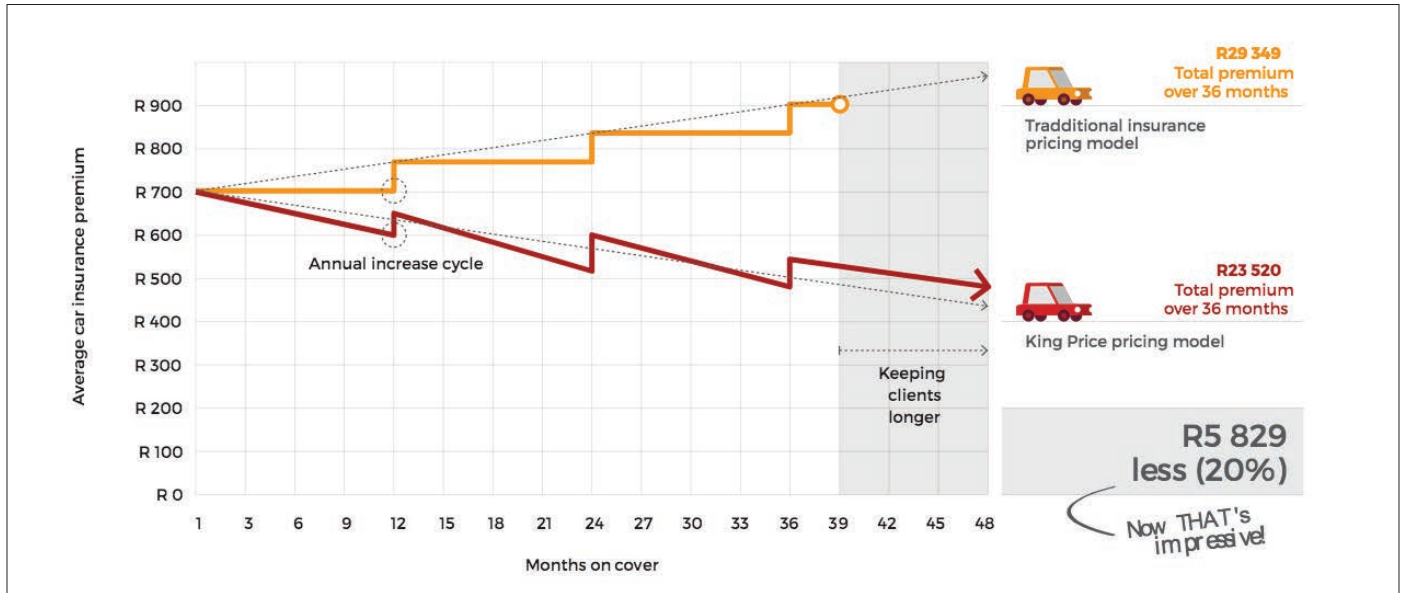
This decreasing premium model essentially forfeits revenue that competitors would pocket, thereby placing increasing pressure on profitability in what's already a highly competitive industry. For this reason, big data and analytics capability are critical to enable finger-on-pulse monitoring of key business performance measurements.

## REAL-TIME DASHBOARDS

With its business model that intentionally forfeits revenue, the only way for the insurer to stay profitable in its competitive market is to target profitable (low risk) customers. The development of a mobile app-enabled dashboard that provides real-time (or near real-time) key performance indicators to managers and other stakeholders was critical. The predictive analytics models that drive the dashboard push relevant, timely information to these decision makers, enabling them to identify and target profitable customers as well as to tweak existing digital marketing campaigns to generate more leads as examples. Thus, managers move from a perception-based decision-making strategy that's flawed with its own biases and blunders, to a data-driven decision-making strategy.

These dashboard analytics aren't restricted to only managers. Individual analytics are made available agents which allows all

Figure 2  
King Price Pricing Model vs Traditional Insurance Pricing Model



Source: <https://www.kingprice.co.za/about/cheap-car-insurance>

Figure 3  
King Price Management Dashboard



agents to have a view of their performance and how they compare to other agents.

The real lessons here are that, by providing accurate, role-determined information to specific people, the company has created a company-wide culture of delivery. This ensures that it's not just those in management roles who feel they have a

stake in the success of the organization, but all the employees from the CEO down. ■



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# Trends in the Marketing and Distribution of Life Insurance Products

By Jeff Root and Nic West

InsurTech has been around for a number of years with hundreds of millions of dollars being invested into these technology companies. The impact of these investments in the distribution of life insurance products has been underwhelming so far.

Life insurance incumbents have been focused on short-term sales targets to the detriment of making the investments necessary for longer-term and more game-changing innovation. There is an argument about whether incumbents have been adopting new technology as quickly as they have emerged. It is also debatable if incumbents have been as responsive as they could have been in developing products to meet the development of new and emerging markets.

As a brokerage general agent (BGA) on the front lines of the digital life insurance agent movement, we believe it is going to be a while before there are any major changes to life insurance distribution.

## WHAT'S HAPPENING NOW?

One of the technology accelerators for the insurance industry is through the use of application programming interface (APIs). Put simply, APIs enables interconnectivity of systems, thereby making it easier to develop programs. Life insurance companies have been able to leverage APIs to more easily develop new ways for engaging with its target market. This is just one example of how incumbents are leveraging new technologies. There are many more, but it is safe to say that these are still early days, and it will take some time to see major wins in these efforts. All of this is to say that even with carriers adopting new technology—they are still learning how to use it.

On the distribution side of things, we are seeing a consolidation industry-wide. There has been a decline in the number of life insurance companies, a decline in the number of BGAs and a decline in number of agents. Life insurance distribution is not experiencing the level of disruption as what is suggested by some of the hype. Beyond more consumers researching online and buying over the phone, there really hasn't been any life insurance disruption when it comes to distribution. At least not

the level of disruption that is commensurate with the hype and level of investment.

Despite the significant funding for direct to consumer life insurance startups that are going to “simplify the way life insurance is purchased,” anecdotal evidence suggests that the impact to life insurance distribution has thus far been underwhelming. For the most part, these startups are collaborating with a life insurance company that allows them to make use of their system for making underwriting decisions through the use of APIs. Anecdotal evidence suggests that only a small percentage that start the process actually end up getting approved (low, single-digit percentage). A significant portion of actual sales takes place through those that abandon the process and get redirected to an agent for further deliberation. The need for further agent interaction is quite telling.

What all of these direct to consumer startups have are a beautiful user experience and application process. However, they are only able to effectively target a small segment of the market. At the same time, they are actually advertising in the same channels as the incumbents.

## HOW CAN LIFE INSURANCE DISTRIBUTION BE IMPROVED?

The current process for life insurance is too long and cumbersome. Our data has shown that consumers want convenience and are willing to pay for it. One misconception is that price is the most significant factor for consumers who purchase life insurance. Price does not sell more life insurance. Convenience does. According to data collected from NinjaQuoter—a life insurance quoting software where consumers view instant life insurance quotes from multiple carriers with the first results being the least and gradually getting more expensive—consumers chose on average the carrier in the third to fifth position, not the cheapest. The results that consumers are choosing have product names that say, “no exam” or “express.”

This suggests that developing the most low-cost product is not the most important factor—yet it seems to be a race to the bottom for life insurance companies trying to get more market share. ■



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