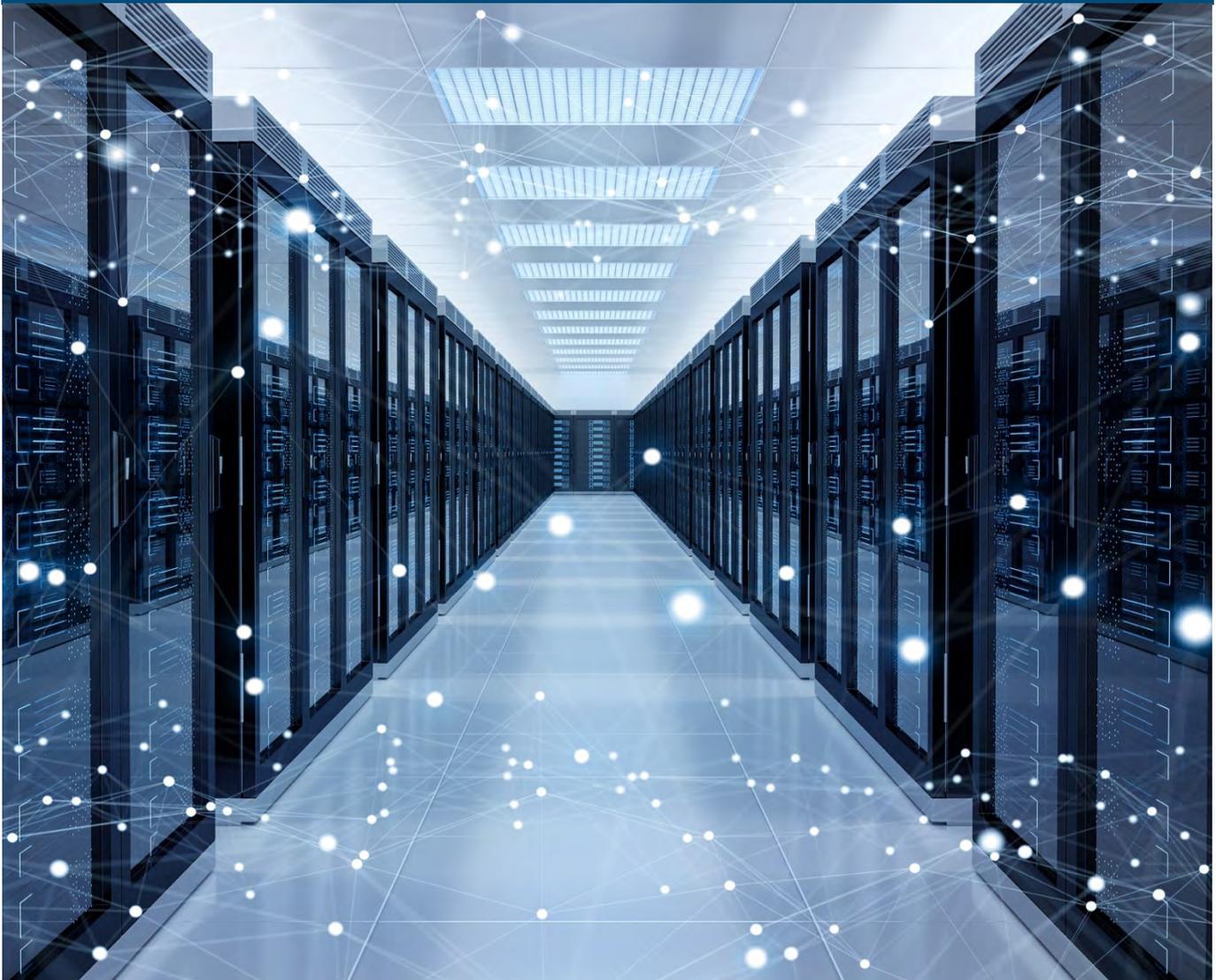


Behavioral Science Report





Behavioral Science Report

How techniques and models are used to optimize various insurance decisions and processes

AUTHORS

Jack Kerbeshian, FSA, MAAA
Actuarial Consultant
Risk & Regulatory Consulting

Veronika Cooper, FSA, MAAA
Actuarial Consultant
Risk & Regulatory Consulting

Benjamin Leiser, FSA, MAAA
Consulting Actuary
Risk & Regulatory Consulting

Patricia Matson, FSA, MAAA
Partner
Risk & Regulatory Consulting

SPONSOR

Society of Actuaries' Actuarial
Innovation & Technology Program
Steering Committee (AITPSC)

SOA Behavioral Science Project
Oversight Group

Caveat and Disclaimer

The opinions expressed and conclusions reached by the authors are their own and do not represent any official position or opinion of the Society of Actuaries or its members. The Society of Actuaries makes no representation or warranty to the accuracy of the information.

Copyright ©2019 All rights reserved by the Society of Actuaries

CONTENTS

Executive Summary	4
Section 1: Introduction	6
Section 2: Methodology	8
2.1 INITIAL RESEARCH	8
2.2 QUESTIONNAIRE AND INTERVIEWS	8
2.3 PANELISTS' BACKGROUNDS	8
2.4 SUMMARY OF RESEARCH AND RESULTS OF QUESTIONNAIRE	9
Section 3: Summary of Results	10
3.1 GENERAL INFORMATION ON BEHAVIORAL SCIENCE	10
3.1.1 DEFINITIONS AND EXPERIENCE WITH BEHAVIORAL SCIENCE	10
3.1.2 USE OF BEHAVIORAL SCIENTISTS AND REFERENCES	12
3.1.3 REGULATORY/ACTUARIAL GUIDELINES	12
3.1.4 BENEFITS AND DRAWBACKS	13
3.1.5 APPLYING BEHAVIORAL SCIENCE	14
3.1.6 CURRENT DEVELOPMENTS	16
3.1.7 TECHNIQUES USED	18
3.2 UNDERWRITING	19
3.2.1 NEWER AND EMERGING UNDERWRITING TECHNIQUES	19
3.2.2 TRUTHFULNESS	20
3.2.3 UNDERLYING PROBLEMS WITH APPLICANT RESPONSES	22
3.2.4 RISKS	23
3.2.5 NON-DISCLOSURE	23
3.2.6 MEASURING RESULTS	24
3.2.7 AREAS THAT BEHAVIORAL SCIENCE CAN IMPROVE	25
3.2.8 CHALLENGES	25
3.3 REACHING CUSTOMERS / DISTRIBUTION TO CUSTOMERS	26
3.3.1 REACHING THE UNDERINSURED MIDDLE MARKET	26
3.3.2 ENHANCING THE SALES AND DISTRIBUTION PROCESS	27
3.4 AGENT BEHAVIOR	30
3.5 CUSTOMER ENGAGEMENT POST SALE	31
3.6 POLICYHOLDER BEHAVIOR MANAGEMENT	32
3.6.1 APPLICATION OF BEHAVIORAL SCIENCE FOR POLICYHOLDER BEHAVIORS	32
3.6.2 POLICYHOLDER BEHAVIORS IMPORTANT FOR INFLUENCING AND IMPROVING	33
3.7 ADDITIONAL INFORMATION	33
Section 4: Concluding Remarks	35
Section 5: Panelists	36
Section 6: Acknowledgements	37
References	38
Appendix A: Questionnaire	39
About The Society of Actuaries	43

Behavioral Science

How techniques and models are used to optimize various insurance decisions and processes

Executive Summary

Insurers invest significant effort in creating policies, products, and communications based on how they believe people should make decisions and act rather than on how they really do. Behavioral science or behavioral economics (BE) can improve efficiency in this area. Situated at the intersection of psychology, neuroscience, sociology, and economics, BE centers on applying an honest understanding of human behavior to practical problems. BE is a method of economic analysis that applies psychological insights into human behavior to explain and possibly even influence economic decision-making.

BE is beginning to display signs of potential for the insurance industry. It is still a relatively new concept within the life insurance market, so companies are trying to fully understand the value, impact, and best ways to utilize BE. Some believe that now is the time for life and health insurers to apply BE to help solve problems, such as underinsurance, inaccurate disclosures, and unhealthy lifestyles.

While the focus of this research is on life insurance underwriting, BE goes much deeper in the scope of potential influence as it is applicable in marketing/sales, policy retention, placement of business, and claims. BE is really at the heart of accelerated underwriting and some of the other “incentive”-based programs. It has significant use in the marketing/sales arena to help identify the buyers. There is a lot of work in the industry right now on market segmentation and how that overlays distribution channels – direct to consumer mail, digital, agent phone sales, and in-person agent sales.

There are many benefits of BE; for example, better educating applicants on the benefits of truthful and correct disclosure can result in improvements in complete and reliable application information. This would theoretically speed the underwriting approval time and result in more accurate underwriting pricing. Another benefit is providing more life insurance to more consumers by making the buying process more personalized and relevant.

There are also drawbacks of BE and some elements to consider include a negative impact on client experience (if done poorly) and the resource-intensive nature of BE. While customer experience is critical to a company’s success, there is the balance of needing to mitigate mortality and morbidity risk with improvements to the client experience.

Behavioral scientists believe that cognitive limitations affect most people’s ability to use and understand the information available to them. Research by noted psychologists such as Daniel Kahneman indicates that people have two systems of thinking: fast thinking, based on intuition and automatic processing; and slow thinking, which is deliberate and requires more work.

An example of fast thinking is when we form quick opinions of people based on what they are wearing. People prefer fast thinking because it is routine and cannot be shut down. This is true even when slow thinking would be more advantageous. Improving how people understand and manage information can assist us in determining ways to nudge them toward certain behaviors.

There are many reasons why the applicant is not truthful: sometimes the applicant does not understand the question (especially if it is not worded well or is subject to multiple interpretations), so lack of honesty can be accidental. In other cases, it is intentional, possibly because the consumer is concerned about how their personal information could be used or shared. Best practices include making sure questions are worded well and not subject to multiple

interpretations, such as reviewing application questions to eliminate redundancies and questions that have little protective value.

There are many BE techniques (e.g. framing, anchoring, nudging, and social norming) summarized in this report that could be applied to guide product design, modeling, and underwriting. Much of the research being done is to test how BE can be utilized to improve disclosure rates. Current insurance applications encourage fast thinking, resulting in people providing less accurate information in applications for insurance.

Using new and multiple sources of data will help to better identify potential anti-selection, non-disclosure, and better segment risks. Underwriting risk classes can be better priced assuming more reliable answers, which could result in faster underwriting time and less need for complete medical records and free up the underwriters to focus on cases that are more complex.

An increasing number of direct insurance carriers are interested and asking about BE and how it can be incorporated within their organization to help improve the customer experience and drive more sales. Utilizing the BE techniques has proven to increase consumer retention, repeat sales, and promote positive interactions with insureds. An incentive included within certain insurance products helps motivate a consumer to continue to interact with the company and potentially other policyholders.

Not only can BE encourage sales, it can be used to influence post-sale policyholder behavior. Appropriate follow up, somewhat similar to what takes place during the purchase of a car or home, could be applied here as well - things like making sure a consumer understands the benefits and features of their purchase, responding to any questions, and making them feel a part of something meaningful. It helps consumers stay connected, providing something tangible of value, as well as timing offers to meet the policyholder behaviors and influence policyholder decisions.

Because BE is still in its infancy in the insurance industry, companies should consider guidelines such as using simple everyday language and increasing the applicant's sense that answers are being monitored, making lying a more deliberate act. Regulatory considerations will loom large as the effort to utilize BE is undertaken. Hopefully, regulators will respond positively to an updated approach while being mindful that their core responsibility is to make sure the consumer's interests are protected. In addition, tools need to be implemented that measure the success of BE in insurance and allow for flexible changes.

This report is designed to provide general familiarity to the reader interested in the subject of BE and motivate additional research on the topic.

Section 1: Introduction

The Society of Actuaries (SOA) Actuarial Innovation & Technology Program Steering Committee (AITPSC) sponsored this research study (hereafter “the Study”) to investigate BE and how techniques and models are used to optimize various insurance decisions and processes. Risk & Regulatory Consulting (RRC) carried out the main objectives of this project, including background research, interviewing panelists, and developing this report. The objectives of the Study were to do the following:

1. Perform research regarding current industry methods and approaches for using BE in the insurance industry, including details of how it is applied, and include any observations we have on the benefits, drawbacks, and prevalence of its use.
2. Identify and interview a broad group of panelists with strong industry representation to avoid any bias in the results.
3. Supplement the research with results of the interviews, including any theoretical and practical issues noted with methods. Responses will likely be too varied to draw strong conclusions from the interviews alone because BE methods are not at the point of a significant convergence of practice.
4. Summarize the results of the research and interviews, including the approach, the information gathered, and the conclusions generated. The summary includes the following:
 - A review of basic BE, including techniques used, regulations, benefits and drawbacks, application, and current developments.
 - How BE influences underwriting.
 - How new and emerging underwriting techniques, such as accelerated underwriting, utilize BE.
 - Theories of why the applicant is not always truthful and best practices for soliciting truthful answers.
 - How effectiveness of BE in underwriting is measured and how quickly.
 - How BE is used to influence outcomes by the agent.
 - How BE is used to influence policyholder behavior outcomes.
 - Nondisclosure risks that exist.
 - How BE can be used to reach customers and enhance sales.

Based on the results of the research, RRC has summarized the approach, information gathered, and conclusions. The summary includes information that is responsive to each of the objectives outlined above.

RRC is an insurance consulting firm serving the regulatory community and has performed a range of research projects for the SOA. Information regarding RRC can be found on their website, www.riskreg.com.

Life insurance has lagged behind other types of insurance, such as property and casualty, in modernizing the underwriting experience. In underwriting, the ability to obtain accurate information from an applicant is supreme. The practice of asking people to report their health and other underwriting application requirements has improved over decades, yet under-reporting remains a widespread issue. This leads to the possibility that it might be something about the way we ask the question. BE is the field that integrates elements of psychology into the economic theory of human behavior and, when applied to the underwriting process, can help us better understand what drives the behaviors of customers. For example, rethinking how a certain question is asked can be quite useful for understanding the issue of under-disclosure. Something as simple as altering the way we ask an underwriting question could help applicants give more honest and accurate answers and, ultimately, make a difference in the outcomes for both insurers and their policyholders.

This research could benefit both the consumer and the insurer as BE can positively influence the interactions insurers have with their customers, as well as customer behavior during the insurance purchasing process. The goal for this project was to gather information from those in the field of BE and insurance underwriting and produce a report that sheds light on various ways that BE can help life insurance companies improve business outcomes.

This research may positively influence the interactions insurers have with their customers as BE concepts can be used in the design of the application form questions, resulting in disclosures that are more accurate. The research may also help to provide transparency around how BE can influence consumer behavior during the insurance purchasing process, which can ultimately lead to more efficient risk management, improved sales, and better customer retention. Since BE is about how and why we make decisions, this research can also lead to better underwriting capabilities, resulting in sustained risk taking, efficiency, growth, and a better customer experience. Lastly, this research can help to establish the actuarial profession as a key knowledge base for this type of integration of applying concepts from BE to the everyday behaviors associated with insurance, such as underwriting, to help better understand what drives the behaviors of customers.

Information from existing research has been gathered, as well as from those active in the BE field and those at the forefront of the life insurance underwriting field. This report summarizes this research, best practices, and possible future applications.

Section 2: Methodology

2.1 INITIAL RESEARCH

The researchers conducted an initial review of the existing literature regarding industry approaches for using BE. The researchers reviewed several research documents covering current approaches used in both the U.S. and Canada. The papers and research documents used for this purpose are included in the [References](#) section of this report.

2.2 QUESTIONNAIRE AND INTERVIEWS

The researchers developed an interview questionnaire based on the initial review of the literature to obtain additional information from a group of selected panelists. The questionnaire covered topics such as the following:

- General information regarding BE and the situations in which it is used.
- How BE can be used to enhance underwriting processes.
- How BE can help reach customers / distribution to customers.
- How BE can influence the agent's behavior and customer engagement post sale.

Thirteen panelists were interviewed through the questionnaire and were chosen based on one or more of the following characteristics:

- Practical experience in BE in the insurance industry.
- Background in actuarial science, education, or underwriting.
- Experience researching and developing theoretical methodologies for BE.
- Experience relating to regulatory requirements that involve BE.

The panelists provided their opinions relating to BE use in the insurance industry by responding to multiple questions within the questionnaire in writing. The researchers then consolidated all questionnaire responses. Since the sample size was small, and the questions were open-ended, the responses were not conducive to present a distribution of results.

2.3 PANELISTS' BACKGROUNDS

The panelists' backgrounds included both theoretical and practical experience for insurance companies, reinsurance companies, and consulting firms. Several have used BE techniques over many years. These panelists have also published papers on the topic.

The range of use of BE in insurance encompasses many products and disciplines. The focus of this paper is the use of BE in the life insurance industry.

The panelists' experience includes developing and/or implementing BE in the life insurance industry. Some have been members of committees that have set professional standards. Others have experience that includes the following:

- Reviewing multiple (one panelist reviewed over 100) company applications.
- Speaking at several industry conferences on BE research, offering suggestions on how companies can improve disclosure and, in turn, their business results.
- Leading client projects involving application processes such as Personal Interview History Scripts and Delivery Receipt designs.

- Initiating a leadership group to share knowledge, thoughts, and ideas that leveraged knowledge from A/B testing¹ completed in the insurance purchasing journey.
- Providing guidance (either in general theory or by actually applying their expertise) in revamping forms to capture better and/or more accurate information from a potential insured.
- Conducting an annual consumer survey around life insurance buying behaviors.

2.4 SUMMARY OF RESEARCH AND RESULTS OF QUESTIONNAIRE

The researchers then summarized the research and enhanced the results of the research based on the panelists' responses to the questionnaires.

¹ A/B testing, also known as split testing, is a marketing experiment wherein you "split" your audience to test a number of variations of a campaign and determine which performs better. In other words, you can show version A of a piece of marketing content to one half of your audience, and version B to the other half.

Section 3: Summary of Results

3.1 GENERAL INFORMATION ON BEHAVIORAL SCIENCE

3.1.1 DEFINITIONS AND EXPERIENCE WITH BEHAVIORAL SCIENCE

Definition

As noted in the Executive Summary, BE is a method of economic analysis that applies psychological insights into human behavior to explain and nudge economic decision-making. The field of BE blends insights of psychology and economics, and provides some valuable insights that individuals are not behaving in their own best interests. BE provides a framework to understand when and how people make errors. Systematic errors or biases recur predictably in particular circumstances. Lessons from BE can be used to create environments that nudge people toward wiser decisions and healthier lives.

BE emerged against the backdrop of the traditional economic approach known as the rational choice model. The rational person is assumed to correctly weigh costs and benefits and calculate the best choices for himself. The rational person is expected to know their preferences (both present and future), and never flip-flops between two opposing desires. He has perfect discipline and can restrain impulses that may block him from achieving his long-term goals. Traditional economics use these assumptions to forecast real human behavior. The standard policy advice that stems from this way of thinking is to give people as many choices as possible, and let them choose the one they like the most. Individuals are in the best position to know what is best for themselves.

In contrast, BE shows that human beings do not act that way. People have limited cognitive abilities and a great deal of difficulty exercising self-control. People often make choices that allow a mixed relationship to their own preference (happiness). They tend to choose the option that has the utmost immediate appeal at the cost of long-term happiness, such as taking drugs and overeating. They are deeply influenced by context and often have little notion of what they will like next year or even tomorrow. The latter shows that we are extremely inconsistent and imperfect human beings. We choose a goal and then often act against it, and self-control issues get in the way of carrying out our goals. BE traces these decision errors to the design of the human mind. Neuroscientists argue that the mind consists of many different parts (mental processes), each functioning by its own logic. The brain is best signified by an organization of systems that interact with each other. A crucial insight is that the brain is a democracy. That is, there is no leading decision maker. Although the behavioral goal of an individual can be stated as maximizing happiness, attaining that goal requires contributions from several brain regions.

BE attempts to integrate psychologists' understanding of human behavior into economic analysis. In this respect, BE matches cognitive psychology, which attempts to guide individuals toward healthier behaviors by correcting cognitive and emotional barriers to the pursuit of genuine self-interest. Finally, BE (including focusing on errors) suggests ways how policymakers might rearrange environments to facilitate better choices. For example, simply restructuring items that are currently offered within the school encourages children to buy more nutritious items (e.g., placing the fruit at eye level, making choices less convenient by moving soda machines into more distant areas, or requiring students pay cash for desserts and soft drinks). In sum, the basic message of BE is that humans are wired to make decision errors and they need a nudge to make decisions that are in their own best interest. The understanding of where people go wrong can help people go right. This approach complements and enhances the rational choice model. This theory states that individuals rely on rational calculations to achieve outcomes that are in line with their personal objectives. These decisions provide people with the greatest benefit or satisfaction — given the choices available — that is in their highest self-interest. Most mainstream academic assumptions and theories are based on rational choice theory.

The panelists' experience in BE covers a broad range of areas (theoretical, practical, or both). Some specific examples of areas where they applied BE include:

- Researched different evidence of insurability question designs to see which produced the highest disclosure rates for life insurance, disability income, and group Evidence of Insurability (EOI) application questions.
- Studied recommended Interstate Compact medical history questions against six alternative treatment (question) designs and recorded average time of completion for each treatment to see which treatment resulted in the highest disclosure rate per medical condition category and how disclosure rates correlated with time of completion.
- Helped clients to create products, policies, and communications based on how people really think and behave rather than how we think they should think and behave.
- Used BE to tackle challenges such as:
 - Selling life insurance in non-traditional channels
 - Product development
 - Sales messaging
 - Redesigning digital customer journeys
 - Online nudges
 - Increasing the honesty and accuracy of application disclosures
 - Improving the design of application forms
 - Drafting questions that achieve better disclosure
 - Testing new technology
 - Disability income claims
 - Redesigning forms to increase honesty and accuracy
 - Helping policyholders get back to work
- Improved policyholder retention (monthly payments, accident and health policies).
- Focused on applicant's/insured's purchasing journey of life insurance with a focus on several aspects; improving client experience, incorporating in a medical history questionnaire redesign to help influence truthfulness and increase disclosure and incorporating aspects of BE techniques in a client facing online interface (again client experience, disclosure). One particular panelist is currently studying behavioral insights from online behavior to discover the correlation between these behaviors and truthfulness or to improve the client experience.
- Re-designed or re-worded some or all of the questions on an insurance application or Part I non-medical section.
- Used predictive analytics to help life insurance carriers identify buying propensity in their inforce books for upsell and cross-sell opportunities.
- Studied buying behaviors related to retirement readiness as an example.
- Designed a "smart" digital application for life insurance. This tool will have the capability to "read" the applicants' behaviors in completing the application. It will know if the person waivers in answering questions about height, weight, smoking status, etc. It will know if the user first fills in one answer and later changes it. This tool may eventually impact the manufacturer's selection of underwriting requirements, influencing whether the applicant is subject to tests for weight, smoking status, etc.
- Worked directly with multiple clients to explore and potentially deploy "nudging" techniques to influence the behavior of potential customers considering the purchase of a life insurance or annuity policy. The latest technology and big data sources were used to identify social media accounts of individuals considering the purchase of life insurance, and to deploy "nudging" techniques via paid advertisements for life insurance and/or industry facts from credible sources that show the value of life insurance.
- Developed a proprietary database of information on every adult in the United States. This includes a variety of data sources, compiled in a proprietary manner, including cognitive techniques to estimate policyholder behavior, including aspects such as "likely to buy" life insurance and "likely to qualify" for life insurance. This information can be deployed in a target marketing initiative to greatly increase effectiveness and close rates.
- Augmented a company's inforce block by knowing how much life insurance a given policyholder has. Also ran a traditional needs calculator on individuals because the inputs to that calculator via big data sources are

available. There is no need to ask a person how many kids they have, or what the value of their mortgage is, etc. That information can be bought inexpensively today. Armed with such information, operational techniques can be deployed to target the right customers in a cross-sell / up-sell campaign. It is known who needs more life insurance, and who is likely to buy it.

- Did not take the negative approach of “failure to disclose information could lead to rescission or constitute fraud.” Instead, appealed to the applicants sense of fairness, “we are only able to give you and others this easy process and fair price if applicants are honest.”

3.1.2 USE OF BEHAVIORAL SCIENTISTS AND REFERENCES

Although there are those who have accused BE of being unoriginal, and its conclusions of little significance, the insurance sector has begun using this theory to better understand the behavior of policyholders.

Innovative companies in the industry have been conducting behavioral tests over time that have provided reliable conclusions to understand why someone does not renew their policy, or how to increase customer loyalty.

Of the panelists surveyed, about half said they use a behavioral scientist. Some have several on staff and are likely to add more.

For those who do not employ a scientist, some of the methods of acquiring knowledge include:

- Collaborating with a consulting company with expertise in BE.
- Partnering with firms that specialize in BE with their own BE teams.
- Having people in various divisions of the company who have done some research on this subject.

Some of the more popular references provided by the panelists include (see [References](#) for links):

- “The (Honest) Truth About Dishonesty” by Dan Ariely
- “Thinking, Fast and Slow” by Daniel Kahneman
- “Asymmetric Information in Insurance Markets: Empirical Assessments,” Handbook of Insurance, 2nd Edition, Georges Dionne, Editor
- “Nudge: Improving Decisions about Health, Wealth, and Happiness” by Richard Thaler and Cass Sunstein
- “Predictably Irrational” by Dan Ariely

3.1.3 REGULATORY/ACTUARIAL GUIDELINES

Regulatory considerations will loom large as the effort to utilize BE is undertaken. Hopefully, regulators will respond positively to an updated approach while being mindful that their core responsibility is to make sure the consumers’ interests are protected. Regulatory requirements are often a concern around underwriting application redesign pilots; carriers are reluctant to re-file applications with the frequency required to support, test, and learn approaches.

It is a good idea to reference industry-standard set and/or recommended guidelines, include in-house experts, and consult legal counsel when making any business decisions based on BE.

In target marketing, there are few regulations that affect who to go after with specific offers for life insurance. The broadest use of legal data sources, both public and private, may be used to identify potential targets for life insurance, annuities, or any other product.

Once a particular individual chooses to apply for life insurance, a more regulated situation arises. For the purpose of underwriting that case, and ultimately assigning a risk class, insurers must operate within all applicable laws and regulations, which will continue to evolve and adapt as new data sources and cognitive techniques come into use in the life insurance sector.

Some of the sources referenced by panelists include:

- Interstate Compact suggestions for application design (<https://www.insurancecompact.org/index.htm>).

- ‘Occasional papers on BE’ produced by the United Kingdom’s Financial Conduct Authority (<https://www.fca.org.uk/>). Whilst not produced for the insurance industry, these papers cover many of the key principles and issues of relevance.

3.1.4 BENEFITS AND DRAWBACKS

One panelist stated there are few industries in the world where BE can have a more positive impact than in life and health insurance.

While everyone sees the benefits and can articulate them, fewer respondents thought there were drawbacks.

Some of the benefits provided by one or more panelists included:

- Improve the negative perception of the insurance industry to potential insurance applicants.
- Better educate applicants on the benefits of truthful and correct disclosure. The benefit would be improvements in complete and reliable application information, which would theoretically speed the underwriting approval time and provide more accurate underwriting pricing.
- Minimize application fatigue.
- Increase the percentage of honest and accurate disclosure. It aligns the applicant/policyholder with the interests of the company. An insurance company is always at risk of the policyholder knowing more about themselves than the insurance company does. If the use of BE can enable better, more honest behavior from policyholders, there is a clear benefit to the insurer from understating the risk profiles better.
- Provide positive reinforcement of the impact and need for insurance products.
- Provide greater detail and transparency on each question asked of an applicant. This would result in application questions being worded in a way that makes more sense and flows more smoothly.
- More clearly and specifically define the disclosure/responses to every question.
- Normalize applicant behavior(s).
- Bring the application questions and insurance application process into the 21st century.
- Improve application and Personal Health Information (PHI) disclosure rates, which will improve mortality and morbidity experience and company profitability. It is another tool and lens for an insurance company to help drive and improve client experience, influence client disclosure, and assess client behavior to help improve or protect mortality and morbidity.
- Help reduce claims, specifically contestable claims and related investigation/litigation costs, through improved risk assessment.
- Improve target marketing and what is particularly appealing is the potential to positively influence the interactions insurers have with their customers, leading to better persistency and greater opportunities for additional or cross sales.
- Reduce inappropriate or poorly designed sales.
- Reduce friction in obtaining needed applicant disclosures and provide a more tailored approach to assessing an individual’s risk profile. Benefits to business outcomes can be realized by helping applicants better understand the importance of accurate disclosures and making the application process easier to navigate.
- Expand insurability, as BE principles can shift an individual’s assessment of and attitude towards risk during the sales and application process (improved sales, take-up for insurers).
- Provide more life insurance to more consumers by making the buying process more personalized and relevant.

Some of the drawbacks mentioned in the survey responses included:

- Lack of education of staff members regarding the concept of BE within a company (in general).
- Additional time and corporate resources allocated to understanding and implementing BE throughout an organization.

- Refiled application forms.
- Possibility of additional (or new) regulatory scrutiny; and data privacy issues/concerns.
- Potential increase in the cost of acquisition of new business. Incorporating BE aspects doesn't have to be labor intensive, however to run A/B tests, assess behavioral insights data, or ultimately remodel risk-based questions through a refiling exercise, all take considerable effort and resources, which are at a premium in today's workplace.
- A challenge to continue to provide fair opportunity for consideration of coverage in an environment where a 'one-size-fits-all' approach to obtaining underwriting information is modified.
- Different approaches that may have negative consequences in rubbing the client the wrong way or be viewed as "creepy".

3.1.5 APPLYING BEHAVIORAL SCIENCE

Insights from BE can be used to guide product design, modeling, and underwriting. The following section describes how to apply BE along with some of the benefits for each.

Product design

- Design the product to help protect consumers from their own irrational decision-making. Discuss policy terms in words that "normal" non-industry people use.
- If persistency improves, it may impact lapse assumptions. Improved disclosure rates across product lines may lead to improved profitability and lower premiums. Medicare supplement coverage is an example where BE in application design may significantly benefit profitability.
- Help uncover unanticipated consumer needs, leading to design of products that address those unmet needs.
- Make sure products are designed and marketed to meet fundamental human needs and motivations. Often these needs and motivations are not what we think they are.
- Learning and better understanding the "how" and "why" around consumers decisions to buy insurance products allows for new and different types of products to be developed and introduced in the market. BE strategies can be applied to design these various products to cater to the buying habits of certain subsets of the population seeking insurance outside of the normal face-to-face agent-selling method.
- Identify meaningful and personalized product features that vary based on individual preferences.
- Allow for more versatile product distribution platforms. For example, easier e-apps or other online application completion platforms.
- Create a product that will appeal to the customer instead of fit the needs of the insurer/agent.

Modeling

Assumptions about human behavior can be found at the heart of many financial models, for example, assumptions on how quickly consumers will switch to new annuity products when interest rates rise; or how life insurance buying behavior will be influenced by consumer genetic testing. BE helps question these assumptions and suggest new ways to test them.

BE concepts can be used in the design of the questions themselves that are answered to increase disclosure, can be used to help influence disclosure, and assess behavioral insights that are assessed and correlated with truthfulness. Ultimately, as you drive disclosure, it impacts modelling decisions. This can influence potential knockouts based on disclosure or behavioral analysis, as well as be used to reflex questions or data needs incorporated into a modelling environment. Models can uncover the most likely behavior given specific circumstances, as well as predict what approaches can then nudge or impact those behaviors.

BE modeling can also help with the following:

- Tune models to better predict consumer behavior, especially given that the insurance buyer is not adequately represented in random-population sampling.

- Develop techniques for more accurate pricing: specific type of modeling could be developed with predictive modeling/machine-learning tools to move the needle one way or another when pricing products where different types of BE techniques have been incorporated.

Underwriting

An example of how BE can be useful in underwriting comes from research into disclosure during the application process. The work was prompted by the thinking of Dan Ariely, a leading proponent of BE. One of Ariely’s main principles is that most people will “only be dishonest to the point they can still feel good about themselves.” How to help people disclose relevant risk data to an insurer is an issue that led to reviewing some of the questions on current application forms in the U.S. market and consider how they might be improved.

Below are a few main areas of difficulty uncovered from the applications that were reviewed during the research of one panelist.

Tobacco and drug questions

First, focusing on the tobacco usage questions found on many applications, underreported smoking has a direct impact on premiums and claims paid. An interesting trend arises by comparing the percentage of Americans who enrolled in health insurance schemes under the Affordable Care Act (colloquially known as Obamacare) and who disclosed smoking, versus the percentage of state residents who claimed to be smokers (see Figure 1). Although the figure is only showing the comparisons for a few states, the findings are consistent. In the majority of the states where tobacco use was tracked, the percentage for those who were enrolled and who disclosed smoking was significantly below that of the states’ average.

Figure 1 – Percentage of individuals who admit to smoking

State	% of pop. that smokes	% of Obamacare enrollees who smoke
Idaho	17%	3%
Kentucky	27%	11%
Michigan	21%	9%
Montana	19%	7%
Ohio	23%	9%
Texas	16%	5%
Wyoming	21%	6%

Source: Kaiser Health News, 2016

One explanation for the difference is the premium incentive (non-smokers are charged a lower rate than smokers are), which may well be known to applicants. However, there is also an element of social stigma that comes with admitting to being a smoker and addicted to nicotine. Insurers can investigate deeper into this aspect by considering a tobacco question taken from a current application.

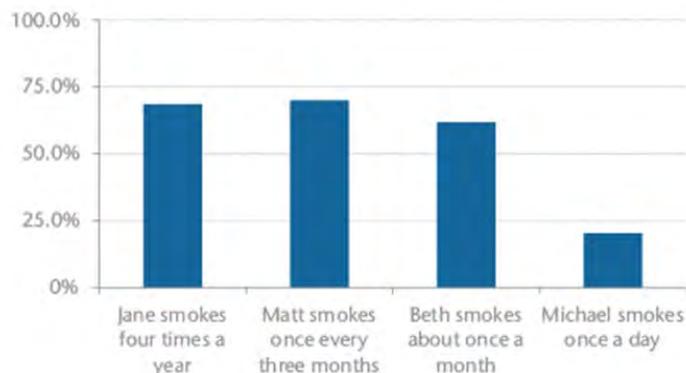
Note that a “Yes” answer to this broad question, “Have you used tobacco or nicotine delivery products in any form in the past 12 months? Yes or No?,” is an admission that the respondent is a tobacco user. This might seem subtle, but it is very powerful in terms of the social stigma attached to the label “tobacco user” and the need to feel good about oneself.

For further evidence of the power of social acceptability, a study was conducted online of individuals (age 18 or older) that included the following scenario: Four people were applying for individual life insurance. As part of their life insurance applications, each was asked if he or she had smoked in the past 12 months.

The results reveal that the participants were generally content with classifying a person as a social smoker if the person answered “No” to using tobacco in the past 12 months. Much of the participants’ response (see Figure 2) was due to

how a tobacco user is perceived. For example, around 20% of the participants thought the “No” answer was socially acceptable for someone who smokes once a day.

Figure 2 – Percentage of participants reporting applicant’s answers were socially acceptable



Multi-part questions

Complex, multi-part questions often occur in the middle of an application form process. An applicant must answer them after having spent considerable time responding to questions about the products, levels of coverage they need, and even how they want to pay premiums. No wonder an applicant might slip into fast thinking to get through the question.

Incentive questions

Some current application form questions provide individuals with incentives to misrepresent. This is extremely prevalent in the Simplified Issue life insurance and Medicare Supplement markets. This might not seem obvious, but if there is one thing that BE teaches us, it is that people do not want to do more work than is necessary. Consequently, the idea of answering “No” to avoid answering the second question is appealing enough to be considered an incentive. While insurers need to obtain the additional information, our recommendation is to avoid asking for it until later in the form.

Using a BE approach to constructing application questions can improve the quality of the questions asked, as well as the information received.

BE has shown that the way a question is phrased and the context in which it is asked can significantly influence the accuracy of the responses it elicits. It can be introduced to elicit disclosures that are more accurate and better educate the applicant about the pitfalls of material misrepresentation. These are not always well understood by the consumer. The biggest concern in underwriting is applicant disclosure or the lack thereof. Redesigning application forms to obtain answers that are more accurate is the greatest thing that can be done in the insurance industry. Currently, it is not being done across the board, but slowly more companies may achieve a higher percentage of disclosure as they apply the most important BE concepts when/if they choose to modify their forms.

The above are just a few examples of how current applications encourage fast thinking, resulting in people providing less accurate information in applications for insurance.

A more detailed discussion of underwriting will occur later in section 3.2 Underwriting.

3.1.6 CURRENT DEVELOPMENTS

While many Americans have an unmet need for life insurance coverage, the industry has struggled to motivate consumers to shop for this product. How can we encourage consumers to act on this important issue?

The field of BE provides insight into this problem. While most people would like to believe they are rational decision-makers, research in BE demonstrates that many decisions are irrational and subject to a variety of cognitive shortcuts and biases.

One panelist described a recent LIMRA study. The study stated the impact of these biases on life insurance shopping and whether these concepts could be leveraged to improve marketing messages. Three findings of interest, as described by the panelist from the study: Live in the Present, Follow the Crowd, and A New Approach, relate to the concepts of loss aversion, present-day bias, and social norms.

Live in the Present

Humans also make decisions based on present-day bias, meaning we place more value on things we have right now (or will have soon) than on things we might gain in the future. Unfortunately, life insurance is perceived as something that might provide value in the future but not in the present, so consumers find it easy to put off shopping for coverage.

LIMRA tested a marketing message emphasizing the value that life insurance provides right now — namely, the peace of mind that one’s family is protected. This message successfully improved attitudes about life insurance for several demographic groups, including married consumers, those with young children, and those with higher household incomes. It was also surprisingly effective at improving the perception that life insurance is affordable, even though the message did not mention cost, but instead focused on the benefits of coverage.

Follow the Crowd

While most people like to view themselves as independent thinkers, our decisions are strongly influenced by social norms. We tend to adjust our behavior based on what everyone else is doing, allowing for more efficient decision-making. Generally speaking, the more similar the comparison group, the stronger the effect.

Unfortunately, life insurance is rarely discussed among friends, so consumers often have no idea whether others like them have coverage. In fact, only 43% percent of respondents in the study believe life insurance is “something most people have,” when in reality, LIMRA research shows that six in ten U.S. adults have coverage.

LIMRA tested a message telling consumers that most people like them do, in fact, have life insurance coverage, tailoring the message slightly to match the demographics of the consumers reading it. This was the most broadly successful message tested, improving attitudes about life insurance for all consumer segments in some way. In particular, this message was effective for those groups that were otherwise difficult to reach, such as single people and those without children.

Some life insurers think that, to overcome historical middle market hurdles and materially grow new sales and revenue, they must identify buying triggers using BE and digital technologies to drive engagement via direct-to-customer sales. Insurers are trying to make the choices associated with buying insurance simpler, utilizing less choice options and less complex, more transparent insurance language/terminology. Insurers can use new labels for product segmentation to nudge potential buyers to middle-market options for those who can afford it. Display of third-party recommendations as is done for hotels, restaurants, and a sundry of other industries may be beneficial to propelling desired buying behavior. A continuous challenge for making headway into the middle market remains limited disposable income, where life insurance premiums are competing with a long list of other routine expenses. A recent news story noted 40% of adult Americans do not have enough savings to handle a \$400 emergency bill. If that is even remotely accurate, it raises the question, how feasible is it for the middle market to allocate disposable income to life insurance?

A New Approach

BE teaches us that humans are motivated by loss aversion, meaning that we hate losing something twice as much as we enjoy gaining it. As a result, we are hardwired to avoid a small certain loss, even if it means risking a larger potential loss. This bias works against the life insurance industry, since we are asking consumers to accept a small certain loss (paying the premium) instead of risking a large potential loss (dying prematurely while uninsured).

LIMRA investigated whether this concept could be turned around to encourage people to shop for individual life insurance. They tested a message emphasizing what consumers could lose by not shopping for coverage — the opportunity to get a good deal. They found that when framed in a positive light, this message was effective for some

demographic groups but not others. Uninsured consumers who were married or had children responded well to this message and viewed life insurance more positively than did those who saw a traditional marketing message.

The industry has struggled for years to encourage consumers to make rational decisions about life insurance. By leveraging the power of the irrational, it may be possible to help consumers overcome their cognitive biases and make better decisions for themselves and their families.

3.1.7 TECHNIQUES USED

There are many BE techniques used or that could be used within the insurance industry. Below are examples from research and panelist responses:

- Framing - a cognitive bias where people decide on options based on if the options are presented with positive or negative semantics; e.g. as a loss or as a gain. People tend to avoid risk when a positive frame is presented, but seek risks when a negative frame is presented. Can use a "Declaration of Truth" to set truthfulness as an expectation. This is also used in concept with an initial email to a client welcoming them to the online experience.
- Nudges - any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives.
- Cognitive aids such as colors and shapes.
- Social norming - our day-to-day behavior is influenced strongly by what we understand to be the prevailing social norms or social customs. The majority of a given community of people accepts social norms. For example, with the increasing prevalence of legalization and social acceptance of marijuana, some companies have stopped asking about it together with other hardcore drugs (e.g. cocaine, heroin).
- Availability heuristic - refers to the human tendency to judge an event by the ease with which examples of the event can be retrieved from your memory or constructed anew.
- Anchoring - the common human tendency to rely too heavily, or "anchor," on one trait or piece of information when making decisions. Usually once the anchor is set; there is a bias toward that value. Used for BMI and Tobacco usage for online interface.
- Messenger effect - resembles the fundamental attribution error by which social perceivers take behavior at face value without sufficient appreciation of contextual factors.
- Managing default/inertia - tendency to stay in the default choice is called default bias (or status quo bias) and encompasses people's tendency to choose inaction over action, as well as their preference to stick with previously made decisions. Inertia is a strong force keeping many people in status quo, no matter what that means.
- Fluency - if one object is processed more fluently, faster, or more smoothly than another, the mind infers that this object has the higher value with respect to the question being considered. From a customer experience angle and to avoid fatigue, can fluctuate the choice architecture from yes/no to open-ended questions.
- Choice architecture - the design of different ways in which choices can be presented to consumers, and the impact of that presentation on consumer decision-making. This helps with specificity of data, as well as how to structure questions about more severe impairments. For example, they should be in the first boxes seen versus last and allow the client options to recall history.
- Sentinel/Hawthorne Effect - type of reactivity in which individuals modify an aspect of their behavior in response to their awareness of being observed. In underwriting, there is a sentinel effect by using labs because the customer knows of the testing.
- Self-herding - our tendency to follow the same decisions we have made in the past (future decision are influenced by previous decisions).
- Scaling - the process of assigning numbers to increasing levels of performance.
- Hovering technology - new technologies that enable us to track behavior and connect with customers.
- Psychological manipulation - change the behavior or perception of others through indirect, deceptive, or underhanded tactics.

- Prospect theory - describes the way people choose between probabilistic alternatives that involve risk.

3.2 UNDERWRITING

3.2.1 NEWER AND EMERGING UNDERWRITING TECHNIQUES

The newer and emerging underwriting techniques, such as accelerated underwriting (AUW), can benefit by utilizing BE. It can also be applied to current and traditional underwriting techniques. BE principles can guide application design for both accelerated and traditional underwriting techniques: question wording, sequencing, and clarity around the applicant's progress along the process. BE can guide disclosures that are more honest by inserting the honesty disclosure at the beginning of the application (versus the end) and by providing options for the responses in the form of drop downs instead of Yes/No (e.g. how much do you smoke: not at all, x per day, x per week, etc.).

AUW typically involves a reduction in the requirements of traditional underwriting if certain minimum demographic or health-related requirements are met by the applicant. The premise for accelerated underwriting is that alternative approaches and data can be used to segregate applicants by risk, and those with a lower risk can be underwritten with a lesser amount of medical information. As a result, the price may be higher than under the traditional approach, but many programs are designed to enable similar pricing through the use of alternative approaches and data.

For AUW, there is a desire of the insurer to minimize or offset the loss of mortality protection offered by lab studies and physical measurements. The introduction of BE techniques is likely to be implemented with this in mind. Thus, eliciting accurate disclosures and emphasizing consequences of misrepresentation will be an important goal. Likewise, these techniques should presumably enable better distinction between applicants who should and should not qualify for accelerated processes.

AUW has substantial impact on BE. It makes the underwriting process simple, non-invasive, faster, and decisions can be made while the topic is on the applicant's mind. To the extent words can be used that describe life insurance in terms that are commonly used by non-industry people, it becomes even more powerful.

Some of the benefits of using BE in AUW are:

- Better distinguish those who qualify for acceleration.
- Minimize or offset loss of mortality offered by labs.
- Emphasize consequences of misrepresentation.
- Quicker completing times.

Many underwriting programs are incorporating e-applications. It is critical to create these e-applications with appropriate BE tools so a company can obtain the most accurate information possible. These tools could include reflex questioning, sliding scales, and hovering technology. Also, providing real-time validation with all the existing and new data sources available and providing live links for definitions and explanations would potentially alleviate some lack of appropriate disclosure. These tools can also be used with current/traditional underwriting methods.

This latest research shows that simple changes in the way application questions are phrased can increase disclosure significantly. This clearly has benefits for insurers and reinsurers, as more accurate responses can improve underwriting and pricing decisions. It also has clear benefits for the applicants themselves, as more accurate and personalized risk assessments can reduce premiums for those who may previously have found themselves categorized alongside poorer risks.

Importantly, the research shows that rather than there being a trade-off between more accurate disclosure and quicker completion times, these better-designed questions can deliver both. Better questions can also improve customer journeys, making it simpler and quicker to apply for cover. As our research has highlighted, creating questions that are easy to answer is more important than simply trying to decrease the number of questions.

In addition, it is important to focus not just on how a question is asked, but also by whom. Research to date has focused on direct-to-consumer application disclosures, but often there is an intermediary in the process and the role of the messenger can often outweigh that of the message. For example, a financial adviser could alter the impact of these strategies, as insurers must rely on how these advisers communicate the questions. In addition, testing the influence of different messengers and the relative merits of online, face-to-face, telephone, and artificial intelligence should be explored.

There are endless opportunities in the filed Part 1 and Part 2 application, but additionally in areas where you are engaging directly with a client/insured, whether it be email or a web-based user interface. Much of the filed language is relevant for traditional and online interface, which feeds both AUW and traditional. Beyond Question & Answer and associated techniques, different BE techniques are more applicable for a digital interface (i.e. anchoring, Hawthorne/Sentinel effect), as well as having the ability to assess behavioral insights to correlate behavior with truthfulness (e.g. time spent on a question (outliers), if you changed your answer, etc.).

3.2.2 TRUTHFULNESS

In underwriting, the ability to obtain accurate health information from an applicant is supreme. The practice of asking people to report their health has been refined over decades, yet under-reporting remains an issue in markets around the globe. This leads us to consider if it is something about the way the question is asked.

How do insurers currently express their expectation to applicants so that they will provide honest, accurate answers to underwriting questions? Most often, it's an honesty declaration for them to sign at the end of the form, combined with warnings that misrepresentation may affect their ability to make a claim.

These tools, understandably, talk to the "rational" parts of our brains; the parts that say, what harm will lying do? How would they find out I am not telling the truth? They also assume that any misrepresentation is intentional and deceitful. Thus, according to rational traditional economic theory of human behavior, these warnings should effectively discourage under-disclosure.

However, BE, the field that incorporates elements of psychology into economic theory of human behavior, opens our eyes to numerous other possibilities. Because the vast majority of our daily decisions are made using our automatic, subconscious brains, the failure to give a truthful answer to a health question may result from the influence of the context at the point that we are answering the question.

What is particularly appealing is the potential to positively influence the interactions insurers have with their customers. Effective use of BE concepts in the design of application form questions, for example, promises to help people make more accurate disclosures which, in turn, means underwriters can make better and fairer decisions.

It could come down to a couple of factors. One may be embarrassment, especially if the adverse history is related to psychiatric, sexual, criminal, or substance abuse history. The social stigma surrounding these issues leads to less candid disclosures. Some may view these items as personal, and thus 'not the insurer's business.' Secondly, there is a moral calculus at work in some instances. Otherwise honest people may view obtaining life coverage as vital to their family's interests, even to the point of not disclosing disqualifying information. In this equation, the insurer (presumably with deep pockets) taking a loss is preferable to their loved ones being left without coverage, especially if the coverage is sought after a heightened risk of early mortality (recent cancer diagnosis, pending workup for a dread disease, etc.) is realized by the applicant.

There is a consistent gap between what applicants say they have, are, and do, and what is indicated by population averages. One panelist noted that research has shown, for example, that 18.2% of U.S. life insurance applicants fail to declare they are obese or morbidly obese, and that 22.9% of applicants do not honestly disclose the extent of their tobacco usage.

There are many reasons for this disclosure gap and inaccuracy on behalf of the applicant may be intentional or unintentional. Intentional inaccuracy could be driven by financial motives - a desire to ensure coverage and reduce premiums. Applicants are making an economic cost-benefit analysis, weighing up the potential gain against the

probability of being caught and the magnitude of punishment. Based on this hypothesis, fraud and cheating should be combatted through increasing the probability of getting caught and subsequent punishment.

However, if people were performing a cost-benefit analysis, then standard economics would predict a higher level of cheating and dishonest behavior. The likelihood of being caught for making dishonest disclosures and the severity of punishment is small, making cheating appear to be the economically rational choice.

This behavior reflects what is seen in everyday life. Research finds that when participants are faced with the opportunity to cheat with no external consequences to cheating and substantial potential gain from cheating, participants still did not cheat much, or as much as they economically should. Questions need to be asked in a way that discourages this and lets the applicant know their information is being checked through other data sources.

We must also avoid assuming that all inaccurate disclosures are intentional. One of the fundamental things to remember is to make the behavior you are seeking people to carry out as easy as possible. Unnecessary friction can act as a barrier to change. Small, seemingly irrelevant details that make a task more challenging or effortful can make the difference between someone carrying out a behavior and not.

It appears that many application questions are just too difficult for people to answer accurately. This difficulty can be caused by an applicant's lack of knowledge and understanding, but can also be influenced by the applicant's desire to use minimal mental effort when answering questions.

Ultimately, an insured may not be truthful for a litany of reasons, which could be the economic incentive of getting a better class, rationalization that they "don't" consider themselves a smoker, or really don't have a condition, thus disassociate themselves, avoid the embarrassment of disclosure (to examiner or advisor), etc.

There are no negative consequences for misrepresentation. If found out, an applicant is denied. Then, they can apply for another policy from another carrier that is effectively the same in the mind of most applicants. Benefits of lying are enormous. Smoker premiums are double nonsmoker, so why would you voluntarily pay twice as much if you have a good chance of not being discovered?

An applicant may not be truthful because they do not fully understand the question being asked. Current traditional underwriting applications are not always intuitive and often group a number of medical impairments into a single question, and applicants may not understand that a medical condition that they have is actually being asked about. A better practice would be to not group as many medical questions into a single question, or do a better job of explaining what is being asked. There are times where an applicant is purposefully not providing complete and truthful answers, but the majority of incorrect or incomplete answers is the result of not understanding the question or the nature of a medical condition.

In summary, some of the reasons the applicant is not always truthful include:

- Lacking the understanding of insurance products and their purpose.
- Being unsure if dishonesty will be uncovered.
- Not knowing how a company would be able to prove or disprove their behaviors.
- Not understanding the true intent of the questions being asked of them.
- Having a negative perception of the insurance industry as a whole. It is socially acceptable to steal from an insurance company and, given some court outcomes, you could say it is legally acceptable.
- Misinterpreting questions and/or the application process.
- Being convinced that with the two-year contestable clause, you are not likely to be caught.
- Being unaware of the punishment for getting caught. Get your money back with interest.

Some best practices include:

- Implementing simpler and less lengthy questions to answer.
- Implementing an easy and explainable application process.
- Incorporating an honesty statement.
- Avoiding medical jargon and insurance acronyms.
- Being transparent in the application process.

- Sticking to the important, relevant factors used in the underwriting process (do not ask for unnecessary details).

3.2.3 UNDERLYING PROBLEMS WITH APPLICANT RESPONSES

Research into dishonesty suggests that, given the opportunity, most of us would cheat a little bit, but we would not cheat to such a degree that we preclude a positive view of ourselves. This prevailing truth of consumer dishonesty is evident in the insurance industry. Most of these applicants would not consider themselves dishonest people but can rationalize a little cheating while simultaneously maintaining a positive self-perception.

This suggests that there are further underlying motivations for intentionally inaccurate disclosures. One key explanation is that, whilst inaccuracies might be intentional, they may be driven by psychological rather than financial motives. Many of us have a desire not to admit difficult things, such as weight or alcohol consumption, to oneself or others. Sometimes the truth really does hurt.

Some applicants downplay or minimize adverse history. While they may be aware that they have a condition the insurer inquires about, they see their particular history as irrelevant to the risk assessment ('it was a long time ago' or 'my doctor tells me I'm stable, so there's no real issue,' etc.) and elect not to disclose it. Likewise, some applicants are intentionally opaque and make a disclosure in a way that technically answers a particular line of inquiry by the insurer, but puts forward the most positive aspects of their particular impairment, while evading disclosure of less-favorable elements of that impairment.

Some examples of why there may be problems with applicant responses include:

- Lack of ability to answer a question(s).
- Under-disclosure of personal history.
- Bending the truth.
- Rationalizing lying.
- Distance from the date of a condition and/or health event.
- Lack of trust in the insurance industry.
- Not sure of having to justify an answer due to lack of proof from the insurance company.
- They make their own decision on what is relevant information.
- Negative reinforcement in the questions asked.
- Not understanding the application process.

3.2.4 RISKS

Panelists were asked what risks (i.e. smoker non-disclosure) would benefit the most from BE and what are the biggest non-disclosure risks? They were asked to rank from highest to lowest with the following results. The following represents the summed-up rank given by each panelist for each risk and then ranked the total.

Risk	Rank
Tobacco use	1
Alcohol abuse	2
Illegal drug use	3
Weight	4
Health history	5
Family history	6
Criminal history	7
Financial history	8
Hobbies	9
Sexually-transmitted diseases	10
Travel	11
Occupation	12

3.2.5 NON-DISCLOSURE

Assuming that an applicant is using his or her automatic brain when filling in an underwriting form, there are several possible reasons why he or she might not give a truthful answer. Here are a few examples:

- The question is too complicated or requires doing a calculation.
- Asking applicants to remember things from a long time ago.
- Making it obvious what the “right” and “wrong” (read “expensive”) answer is.
- Guiding applicants toward particular answers by putting cues in the question, or in the response options.
- Not making it necessary for the applicant (or agent) to read the whole question before just ticking “no.”

Of course, not every underwriting form has all these issues and, similarly, there is not enough evidence yet to say that removing these problems will result in disclosure that is more accurate. However, the insurance industry is getting one step closer by making systematic changes to underwriting questions and tracking the changes in disclosure. Just some of the successes have included increasing disclosure of health behaviors by providing applicants with a greater number of response options than just “Yes” and “No” and changing the placement of the honesty declaration.

The premise of BE is that you cannot ask people to tell you what drives their behavior, you have to observe them live in the field. We know that changing and filing an application isn’t as straightforward in some parts of the world as it is in others, but when the opportunity arises, changing the way the underwriting question is asked could help our applicants give more honest and accurate answers and, perhaps one day, make a difference in the premiums people pay.

The key to making questions easier to answer accurately is to reduce the amount of mental processing and working memory, known as “cognitive load,” required to do so. Applicants tend to want to answer questions quickly, and will often use mental shortcuts instead of giving full thought and time. In the drive to simplify applications by reducing the number of questions, insurers often combine multiple questions, thereby increasing the cognitive load required to answer each one.

Ways to minimize cognitive-load needs for applicants include:

- Using simple, everyday language – leave no room for confusion or ambiguity.
- Avoiding asking more than one thing in a question – numerous simple questions are easier to process than one long question.
- Prompting memory by listing possible answers – drop-down menus, scales, and other methods can replace free-text responses.

BE has shown that the way a question is phrased and the context in which it is asked can significantly influence the accuracy of the responses it elicits. Research suggests there are three key principles for increasing the accuracy of applicant disclosures: Make it easier to be accurate, easier to be truthful, and harder to lie.

Often people do not want to admit to their behaviors if there is shame or social stigma attached. They would rather shade the truth, or even be outright untruthful, than cause themselves psychological pain. Insurers, therefore, need to design questions in ways that let applicants feel comfortable that their behavior is acceptable and normal.

Ways to phrase questions that can normalize and destigmatize applicant answers include:

- Assuming the behavior exists – ask, “When did you last...?” rather than “Have you ever...?”
- Minimizing an applicant’s feeling of being at the extremes of acceptable norms – provide multiple answer options that are weighted towards extremes of behavior.

No one is completely honest all the time. Most people tend to shade or stretch the truth, or even outright lie, up to the level that maintains their self-image as reasonably honest individuals. This is possible when it is easy to do so and easy to self-justify having done so.

Ways to make it harder for the applicant to self-justify lying include:

- Not making the “wrong” answer obvious – avoid binary questions and clear cut-off points.
- Increasing an applicant’s sense that answers are being monitored and making lying a more deliberate and salient act - ask for double-confirmation.
- Making lying more psychologically jarring - use language that triggers an emotional response.

Stating that information will be checked against independent records (e.g. from big data) is useful, for example, prescription histories or criminal history checks. Informing agents or applicants that there may be follow-up checks to ensure they were honest at the time of application.

3.2.6 MEASURING RESULTS

Panelists were asked what methods their company utilizes to determine whether the underwriting program using BE tools and platforms (i.e. media, big data) gets desired results and how long it will take to measure.

Due to BE studies, companies are confident that embracing the changes prompted by the studies will reap benefits at implementation. Because of multiple ever-changing factors that influence mortality, morbidity, and profitability, it is challenging to measure and identify the unique or sole impact of BE.

Some type of A/B testing at the initial stages to measure frequency and/or accuracy of disclosures with BE techniques implemented as compared to a control group using traditional questioning is recommended. Longer term, the full impact will take years to realize as claims experience can be assessed.

To keep it simple, one panelist’s company focused on using data analytics, disclosure rates, and behavioral insights analysis to determine the effectiveness of disclosure rates in both traditional and accelerated (predictive model)

pathways. Additionally, they look to run A/B tests to look for additional opportunities to put into production and to determine whether the technique is applicable to Traditional and/or AUW.

Other methods of measurement include:

- Post issue audits.
- Random holdouts.
- Retro studies for any anticipated changes.
- Looking at the response rates for a question relative to a control group.

3.2.7 AREAS THAT BEHAVIORAL SCIENCE CAN IMPROVE

BE techniques have led to areas of improvement such as cost savings, time savings, and risk classification.

Increased applicant disclosure leads to improved mortality, morbidity, and profitability; however, it may be too early to know what all the benefits will be. It has to be seen if it results in timesaving, as it tends to lengthen EOI questions. BE design principles clarify form questions and insurance jargon, which promotes ease of understanding for agents and insureds, and facilitates better risk classification by removing uncertainty associated with poor question design.

The results highlight simple and practical steps insurers can take to improve disclosures and customer journeys. Importantly, the research shows that, rather than there being a trade-off between disclosure, that is more accurate and quicker completion times, as the two often go hand-in-hand.

A higher and more truthful disclosure rate allows for better pricing, quicker processing, more accurate risk appraisal, and less cost in human capital to issue and obtain an insurance policy.

Facebook nudging clearly improves effectiveness of target marketing efforts and, ultimately, sales volume. Third-party data has had a huge positive impact on the industry. It allows carriers to issue many more policies much faster and less invasively at competitive premiums.

Cost savings and time savings come from getting better data from the applicant up front. If the data source is trusted, it is possible to proceed with underwriting without spending time or money on additional requirements.

3.2.8 CHALLENGES

BE is where psychology and economics intersect. Science seeks to understand how and why individuals make decisions. Behavioral scientists believe that cognitive limitations affect most people's ability to use and understand the information available to them.

If you are reading this and already thinking, "There is no way we can change our applications," then it won't matter how well it is proved that there are issues with them, as you have thrown in the proverbial towel. However, the research presented may change your mind and motivate you to review your questions. In fact, the hope is you will even consider sitting down with a customer and asking how they interpret the meaning of the questions, and then seeing if our findings hold true.

Some of the main challenges include:

- Redesigning and refiling expenses.
- Marketing and sales personnel pushback.
- Expenses associated with system changes.
- EOI questions may get longer, which can affect customer experience and prompt producer complaints unless offset by time savings in the app completion or PHI completion process elsewhere.
- Regulatory considerations.
- The process can be time-consuming or labor intensive.

As noted, there is a need to be mindful of regulatory considerations. Additionally, companies will want to be sure that the introduction of these techniques does not inadvertently worsen the current levels of disclosure or the customer experience. Regulatory approval is difficult for new processes. Industry adoption is slow so early adopters can struggle to gain acceptance, despite the competitive advantages.

Often questions are designed in this way to try to reduce the number of questions in an application. Technologists tell us not twenty, not ten, but five, or maybe fewer questions, to make it quick and easy for applicants. However, the risk is to confuse fewer with simpler. An applicant would much rather answer ten simple questions than three complex ones. The three complex ones require cognitive load and take longer. Having fewer questions is great, but only if this is achieved by asking about fewer conditions.

The process can be time-consuming or labor intensive: identify the problem, analyze, design tests around addressing the problem/intervening, measure results, and potentially iterate the test and learn processes. This requires a commitment and willingness to test, learn, and improve. Carriers might also have reservations about treating various subsets of applicants differently during the experimental phase.

Resources to not just run A/B tests, but to analysis behavioral insights, disclosure rates analysis, and then any subsequent actions requires further resources (i.e. engineering changing knockouts aligned with disclosure or online behavior for AUW). Additionally, using BE requires coordination, collaboration, and aligning prioritization across many cross-functional teams and business areas to be effective and to not paralyze your momentum.

There is little basic knowledge by the masses as to what BE is, how it works, how it can be communicated to internal and external clients, what it can do for an individual, and what exactly its purpose is within an organization.

The biggest challenge is the “slow to change” mindset of life insurers. If Google or Amazon were to approach this business, they would do it much differently, with much more effective use of modern-day digital techniques and data sources. The second biggest challenge is the implementation challenges around lack of IT ability/willingness and regulatory hesitation.

BE is relatively new to the industry. Underwriting has used a sentinel effect for years, but more advanced techniques that are being used to improve the quality of answers are new. There is not a lot of testing yet to see which questions/techniques work best, and what the financial impact to underwriting and mortality is from it.

At the same time, making changes to the way questions are asked when the data available for underwriting is evolving rapidly as well. It can be tough to assess the full impacts if moving both pieces at once.

3.3 REACHING CUSTOMERS / DISTRIBUTION TO CUSTOMERS

3.3.1 REACHING THE UNDERINSURED MIDDLE MARKET

The middle market segment of customers for life insurance is underserved. This leaves an over \$20 trillion protection gap that represents over 50 million households. Closing the gap means leveraging a secret weapon, BE, using the study of human behavior to trigger the decision to purchase.

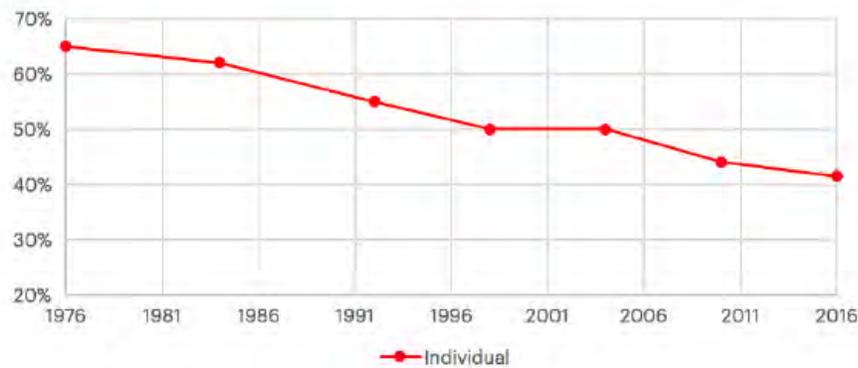
The middle market was once a sweet spot for life insurers. Insurance agents had conversations across the kitchen table, and were trained in what to say to convince people to buy. Agents were essentially using BE techniques. They provided examples of what a family could lose if the primary earner suddenly died. They also created the sense of urgency to buy and presented a nicely-wrapped policy as a form of immediate gratification for a product that is rarely used and that many people do not want to think about.

Insurers today have a complicated relationship with the middle market. They know that value is trapped there. The article “Life Insurers’ Secret Weapon” states that pursuing the middle market could mean up to \$12 billion in revenues and half a billion dollars in profit annually. Yet over the last 40 years, most traditional agents have migrated to the more affluent market where commissions are higher. Insurers have been slow to transform the distribution model used to reach this market.

To overcome barriers to selling to the middle market and grow new revenue, insurers must create the activation points, or buying triggers, that agents used to do across the kitchen table. BE, coupled with digital technologies to drive engagement, can help. Insurers can tap into human psychology, emotions, and social dynamics that drive how, why, and when we make choices. These choices can transform customer experiences, protection products, price points, and more.

Life insurance companies' presence in the U.S. middle market has declined over the past 40 years. Since the mid-1970s, individual ownership has decreased steadily from 65 percent to just 42 percent in 2016 (Figure 1). Many consumers recognize that they are underinsured, with one in four with only group insurance thinking they need more life insurance. Just over half of the middle market consumers feel ill-prepared financially for the death of a loved one.

FIGURE 1
Individual life insurance ownership is declining in the United States



Source: Conning, "2016: Life-Annuity Consumer Markets Annual Data."

Life insurance has always been a difficult product to market to the most desirable risks. People do not like to contemplate their mortality, especially when it seems a long way off. BE has the opportunity to make marketing messages more impactful and drive applicants toward a purchase decision. This is especially true when the applicant has a nominal amount of coverage through their employer and, thus, thinks of himself or herself as adequately insured when they may not really be.

Much of the industry focus is on creating digital solutions. However, in the rush to make life insurance easy to buy online, we risk forgetting that it still needs to be sold. What is needed is to make sure that, by removing what technologists see as friction, companies are not, in fact, also removing persuasion. BE helps us identify the most powerful persuasion techniques for the digital world.

Has anyone done this successfully yet? Conceptually, companies should communicate that the cost of buying insurance is not as bad as people think, and that you are being responsible by looking after your family and loved ones by owning a policy.

3.3.2 ENHANCING THE SALES AND DISTRIBUTION PROCESS

Agents play a crucial role in bringing life insurance to consumers. They have abandoned the middle market. Commission levels and the design of products discourage them from connecting with them. An agent will earn much more from an affluent customer even though the amount of time and effort required is roughly the same.

The lack of agents in this market shows direct models have not performed well. Without someone reaching out to them to purchase life insurance, it is easily put off. Life insurance is not like home or auto insurance, a must-have.

Buying it can be confusing and stir up emotions. This is why life insurance must be “sold,” but who is doing the offering?

If agents targeted the middle market, they would discover that the middle market customer has changed. Like the affluent, these consumers find information online and expect custom-made services that progress as their needs change. In fact, as one panelist pointed out, 57 percent of people are willing to provide personal data in return for added benefits. They live in a world where Netflix knows what they like to watch, Uber shares driver ratings, and Amazon delivers packages in two days.

Tainted by these experiences, middle-market consumers also want similar experiences from insurers in product offerings, product reviews, and recommendations. It is important to network with consumers at the right time with the right products. However, even with digital technologies at their fingertips, insurers are not doing this.

By using BE and digital channels, insurers can reach the middle market. BE can create new activation points. Digital channels, such as online, mobile, and call centers, make agents more effective and able to create a union at the right time when consumers are likely to purchase. These are scientifically proven theories. All it takes is some creativity to uncover how to use them. The following are a few examples provided by a panelist.

Influencing how consumers evaluate products and services

Consumers are often quickly stymied by the complexity of life insurance. With BE, insurers can make the process more transparent. Consider the choice architecture theory, which says consumers are influenced by how options are shown to them. Instead of overwhelming consumers from the start with too many choices, insurers can anchor on term life insurance and then gradually up-sell or cross-sell options that have a savings or investment component.

By segmenting product options into ascending bronze, silver, gold, and platinum categories, insurers can leverage decoy pricing, using low-value bronze or high-value platinum prices to guide customers to the desired middle-range cost options. By providing information via recommendation engines about what people with similar customer profiles have purchased, insurers activate herd behavior, which is people’s propensity to follow the wisdom of the crowd.

Emphasizing the probability of positive or negative outcomes

Insurers can use BE to frame why life insurance is important in the context of a customer’s health history. This might mean using data around the probability of a person dying in the next five years to create a motivating reason to purchase. Alternatively, data might affirm the probability of protecting a family’s future income with a certain policy type. With a customer’s attention, insurers can continue to personalize the experience by gamifying the process with targeted questions and answers. By contextualizing the magnitude of the loss that a family could suffer without appropriate life insurance coverage, insurers bring the BE theory of loss aversion into play. Loss aversion, the pain of losing something, is a more powerful motivator than the prospect of gaining something new. People are motivated to meet their personal goals by the prospect of losing money that they have pledged toward achieving them.

Delivering rewards at the commitment to purchase

Middle-market consumers do not have a lot of disposable income and tend to want to see something tangible for the purchases they make. However, when they send insurers their check, they get nothing in return. BE introduces faster gratification. After all, the present bias theory reveals that people value short-term benefits over long-term assurances. Insurers can offer rewards like rebates or personal fitness trackers within weeks of issuing a new policy. Alternatively, they could allow customers to pay a premium for the initial years of coverage at once in exchange for a discount. In both scenarios, customers believe they are being rewarded for committing to purchase and feel more positive and engaged.

In *Rational and Behavioral Perspectives on the Role of Annuities in Retirement Planning*, author Jeffrey R. Brown states that people tend to underestimate the likelihood, and desensitize the consequences, of a low probability event that they have not yet experienced, such as death. This stems from an inherent **overconfidence bias**, which affects many young consumers whose mortality does not play a present role in their everyday lives. Over time, people tend to become overconfident in their prior beliefs because of an availability bias. Only when events or new information are

brought to light for the consumer will that consumer begin to feel the need for purchasing life insurance. Overconfidence is disproportionately an attribute of men, which partly explains why women drive many life insurance purchases.

The Brown paper touches upon the *hot and cold states* of emotion. Consumers in a cold (non-stimulated) state make different decisions than those in a hot (emotional or otherwise stimulated) state. Hot emotions often lead consumers to purchase life insurance, even after these emotions have cooled down over time. For example, a national tragedy involving the death of a young individual or individuals may serve as an impetus for consumers to purchase life insurance. In the literature review, Brown did not find any research concerning consumer and policyholder behavioral changes after large catastrophe events, rather the research focused on insurance company behaviors and whether they denied claims, withdrew from markets, etc. Understanding how catastrophic events can affect life insurance and annuity customer and policyholder behaviors appears to be another promising area for further research.

Another piece of literature dealt with the concept of diverting the negative emotional association from life insurance products and inserting positive reactions. In “Behavioral Finance and Life Insurance,” Justin A. Reckers and Robert A. Simon found that emotional awareness broadens decision-making beyond focusing on the financial circumstances of the consumer. For the economically rational policyholder who only considers payouts, protecting one’s family in case of a premature death is the only motivation for purchasing coverage. Therefore, inserting a positive emotion into purchasing life insurance, such as protecting loved ones or drawing out the positive payout benefits, will help present the product in a much more consumer-friendly light.

Understanding the intersection between BE principles and the purchase of life insurance has a few key implications for life insurance providers. Because consumers need to be reminded that they are not immune to death and their sense of immortality is faulty, carriers framing risk and insurance decisions and presenting coverage plans should consider stretching the time horizon over which risk is measured, and aligning certain life events into this horizon. This helps override the consumer’s overconfidence and availability biases and pushes the consumer towards a “hot” emotion by making the span of their lifetime and the associated risks more tangible. Coverage plans need to be framed in a way that allows the consumer to view the purchase of life insurance as a good investment for the family or loved ones, and that those loved ones will be better off with the insurance policy. Another implication comes in the form of associating positive emotions with life insurance. For instance, with whole life, carriers can make the consumer aware that the policy can pay for itself over time. Because consumers respond well to the idea of something not having to be paid for directly, such whole life policies could be sold as protections that will one day be “free.”

Again, the proverb that “life insurance is sold, not bought” rings true: Life insurance is not simply an individual decision. The path to purchasing this product delves into social norms and interplays within a potential consumer’s social network, namely because the death of that individual affects that social network and every individual it comprises. In Andy Chui and Chuck Kwok’s “National Culture and Life Insurance Consumption,” the social lens of communities is posited to be based in both history and gender binaries. The paper works to explain the variance between different cultures and their consumption of life insurance, with the authors analyzing cultural dimensions such as individualism and the prevalence of social networks to explain some of the adoption rates of life insurance products. Their analysis focused on the differences between “masculine” societies (where performance and achievement are valorized) and “feminine” societies (which stress social networks, helping others, and tending to the quality of life), suggesting that “feminine” societies or populations tend to be more interdependent, whereas “masculine” societies tilt towards independence. For instance, North American and Western European cultures would have an independent construal, whereas Asian countries would have an interdependent construal. This is, of course, only one of many different social and cultural factors at work when a person makes a decision, and the driving factors are often difficult to discern.

By applying this idea of the self through the *social/financial domain* principle, Chui and Kwok determined that people with independent construals of self are more likely to see life insurance as a necessity. These individuals view reliance on a social network as a sign of weakness. So, instead of relying on an external social network (outside of the nuclear family), independent populations turn to the market for life insurance in order to enhance the financial security of their family. On the other hand, populations with an interdependent construal of the self would rely on their social

networks to help take care of loved ones when they themselves pass away, so there is less of an incentive to purchase a life insurance policy.

The business implications of these examples revolve around gaining a holistic understanding of a target market and its customers. Carriers can consider surveying potential market locations while keeping in mind these “soft” cultural dimensions among the market’s economic, demographic, and institutional players. To execute well on such a holistic understanding would require running pilots in target markets with a high density of a particular demographic and analyzing the strength of their social networks. For instance, if a carrier were to target a densely populated area of Asian-American immigrants, Chui and Kwok’s research would hypothesize that, given the “femininity” of Asian culture, the demand for life insurance would be low. However, the research also shows that cultures that are more feminine tend to purchase general insurance, which means the carrier should consider initiatives to cross-sell its life products.

The following are areas where panelists thought enhancements using BE could be achieved in the life insurance industry in the sales process:

- Improving the design of all the literature/material associated with obtaining insureds.
- Creating environments that nudge customers and sales associates to more intelligent decisions and healthier lives.
- Helping better understand the biases that influence the insurance sales process.
- Helping better understand impulses that arise during the insurance buying process.
- Better shaping the contexts in which the sales process occurs.
- Better understanding cognitive and emotional barriers to the insurance sales process.
- Helping address common barriers to the consumer’s understanding of and comfort level with the insurance buying process.
- Placing sales and marketing efforts where the consumer already goes – whether it be online or public transportation – incorporating the sales effort to where the consumer is.
- Making the acquisition of life insurance noninvasive and relatively easy from the consumer perspective. Mainly obtaining data from other sources (big data) and use less invasive underwriting.
- Creating specialized marketing campaigns and arranging various types of distribution outlets to drive new and/or more sales.
- Making the sales process more economical and the buying experience more relevant and personalized.
- Identifying market segments and allowing better push of products and services that are of value to those segments through the way or distribution channel that has the best opportunity for success.
- Nudging independent distribution to select your company over others. Distribution is heavily influenced by compensation, so it may be harder to influence this process compared to the insurance application.

3.4 AGENT BEHAVIOR

Framing life insurance in a way that supersedes its negative association with death and diverts the consumer’s attention away from realizing or assessing his or her own mortality is an important foundational idea for carriers to understand. People categorize their finances in ways that change how they perceive the associated money (mental accounting). Life insurance, therefore, can be considered for more than just protection against tragedy. Agents can also contextualize and sell a policy as a disciplined, mandatory savings plan that will help the insured stick to their retirement savings goals — framing life insurance as a pillar for a comprehensive financial plan for the future.

Life insurance, as stated before, is “sold, not bought” due to the inherent nature of the product, which carries many negative connotations and associations that most people do not want to think about on a day-to-day basis. Since people generally do not enjoy planning for death and, especially in the early life cycle stages, are incapable of placing a value on the duration of their expected life, life insurance is not commonly an active purchase decision. When it comes to mortality, consumers seem to have difficulty in properly discounting their risk of dying (hyperbolic discounting). In “Cashing Out Life Insurance: An Analysis of the Viatical Settlements Market,” Neeraj Sood found that people tend to anchor their mortality based on perceived current health risks that are unlikely to happen, thereby prioritizing their current state and being incapable of properly discounting their future state. Among Sood’s citations

was a piece of literature by where he found that the way a person frames his or her mortality differed dramatically from that person's expected lifetime projection. When asked the age to which they would live versus the age at which they would die, the effect measured out to a difference of ten years.

Another important aspect of life insurance, in addition to the protection aspect, is the savings and tax benefits from owning a life insurance policy. These topics are crucial to the sales of life insurance policies, but one panelist's literature review did not find much relevant literature on this topic with regard to value assessment biases. Therefore, this is an important area for future research.

To combat the inability to assess future value and having the consumer rely heavily on present value, carriers can introduce new financial calculations at the point of sale. Using tools to quantify the full dollar value over the lifetime of that customer deters the consumer from incorrectly assessing future value.

Typically, consumers are loss-averse to purchasing life insurance because a potentially large time gap exists between making the payments for protection, submitting the claim, and receiving the benefit. An obvious related hurdle lies in the fact that nobody purchasing life insurance will ever make the claim himself or herself and see the benefit of their payments. Therefore, life insurance must be seen as an investment whereby consumers are stimulated by incentives to protect their loved ones over an extended period.

BE techniques could positively influence agent behavior by reducing the risk of 'directed responses' that may not be in the best interest of accurate risk assessment and which could lead to unintentional material misrepresentation. Likewise, it could help generate additional sales by improving the buying process and better establishing need, both of which could drive increased application activity, which improves the agent's commission inflow.

Incentive programs and agent-retention guidelines around the level and/or percentage of accurate disclosure of their clients, retention of clients, and feedback from their specific client base could be developed. Manufacturers must deploy much more granular, proactive techniques and dashboards to monitor the new business function, including real-time analysis by individual producer, on the type of business being submitted. When a given producer has never, or rarely, submitted a case from a smoker, that business should be investigated. The producer can be sent a message to let him or her know it is noticed, monitored, and that such cases may be audited. If skeptical submissions are discovered, one can shut off that producer for a temporary period.

If quality of leads improves, or the "story" they are able to tell is more satisfying, the sale can be easier. While the change aspect is challenging, if an agent sees benefits, they are much more likely to embrace and influence positively.

3.5 CUSTOMER ENGAGEMENT POST SALE

Another aspect of the social media nudging can be to nudge existing "happy" policyholders to promote their satisfaction with life insurance company X on social media. Policyholders can be identified who may have just received a benefit or are otherwise happy customers. Those customers can be extremely influential in helping their friends and family to buy similar policies. There are techniques (a) to identify these customers and (b) to nudge them to action on social media.

BE can be utilized to positively influence customer engagement post sale. Below are some panelist examples.

- Increase retention of current policyholders using BE.
- Provide a better understanding of the risks of replacement (contestability period reset, etc.) may help keep lapse rates at a desirable level.
- Provide additional opportunities for new insurance sales or cross sales to applicants as they move through different stages of life and their needs change.
- Better anticipate customer behavior.
- BE can be utilized to initiate repeat sales.
- BE can be utilized to positively interact with our applicants/insureds.

- Motivate a consumer to continue to interact with the company and potentially other policyholders.
- Understand consumer interests and propensities; this opens up opportunity for engaging in educational topics, health and wellness, upselling, and cross selling of products.
- Make sure the consumer understands the benefits and features of their purchase, respond to any questions, make them feel a part of something meaningful.
- Include incentives within certain insurance products to help motivate a consumer to continue to interact with the company and potentially other policyholders.

3.6 POLICYHOLDER BEHAVIOR MANAGEMENT

3.6.1 APPLICATION OF BEHAVIORAL SCIENCE FOR POLICYHOLDER BEHAVIORS

Below are examples of policyholder behaviors within the life insurance industry that BE can help maximize and model.

Life insurance:

- Shock lapse and related anti-selective mortality on level premium term plans.
- Conversion elections.
- Loan utilization.
- Dividend elections.
- Premium persistency, funding patterns, and withdrawals for flexible premium plans.
- Index elections and transfers between indices for indexed products.
- Fund elections, fund transfers, and fixed account transfers for variable products.
- Traditional lapse and surrender for all life products.

Annuities:

- Additional premium deposits.
- Annuitization rates.
- Renewal rates.
- Withdrawals.
- Living benefit elections and utilization on variable and indexed products with these guarantees.
- Index elections and transfers between indices for indexed products.
- Fund elections, fund transfers, and fixed account transfers for variable products.
- Full surrender rates.

The application of BE can help to increase the understanding of the policyholder behaviors relating to life insurance and annuity products and what the key benefits are. BE techniques have the potential of improving and augmenting predictions of consumer behavior, leading to better outcomes for the insurer and the insured.

Carriers price their overall products to reflect some utilization of all of the various benefits. Some benefits are more valuable than others. In addition, when benefits are “in the money,” with optionality at the choice of the consumer, a carrier may not be motivated to encourage them to exercise their options or maximize their benefits.

According to one panelist, BE can also be used for the following relating to policyholder behavior:

- To test the assumptions made about deferred annuity customers and their reaction to changes in interest rates.
- To simplify communication of the renewal process, highlight the value of the product, and elicit multiple calls to action (digital, phone, mail).

3.6.2 POLICYHOLDER BEHAVIORS IMPORTANT FOR INFLUENCING AND IMPROVING

Beyond the pure self-interest the insurer has in its policyholders' longevity, there is a net benefit to society in having a healthier populace. Life insurers have an opportunity to support this behavior and could use techniques to understand and improve the health outcomes for their policyholders. This could include healthy lifestyle behaviors such as exercise, diet, and medication adherence.

Panelists described the following behaviors as being important for influencing and improving the insurance process:

- Retention - the ability for the policyholder to keep their policy in force.
- Growth potential - earn more money on a policy(ies), if possible.
- Investment - help people understand it is a savings tool for retirement and/or their child's college fund, if applicable.
- Repeat customer - educate them on the potential need for more insurance products with your company.
- Loyalty - persuade a policyholder to share their story and entice other consumers to purchase products with them (i.e.: family members, friends, co-workers, etc.).
- Honesty - make sure the product they purchase fulfills their need at that time in their life. If not, make sure to find the product(s) that will (e.g. WL vs. Term vs. UL).
- Persistency of policy with mutually advantageous terms.
- Upsell opportunities as more info is learned about the consumer and if such upsells are justified from the consumer perspective.
- Net promoting of the insurer.
- Purchase of insurance where there is a need gap.
- Paying on time.
- Ensuring that the broad spectrum of needs are covered based upon life events.
- Enabling the ability to interact with carrier/agent in the channel or way that they prefer for improved engagement.

For life insurance, the behavior issue that is most important to improve is the initial response to the application questions. Once a contract is in force, the biggest issues are the policyholder's decision to lapse versus keep in force or sell the policy. There may also be data around risk behavior that may increase the risk of a claim.

3.7 ADDITIONAL INFORMATION

Panelists were asked which five questions they would ask about another insurance company's implementation of BE. There was a lot of overlap in the responses and many of these questions are either 1) similar to, but worded differently than, the actual survey questions panelists' received, or 2) would be the logical next steps in the research and advancement of BE within the insurance industry. The following questions were provided:

- 1) What BE techniques have you found to be most useful in application question design?
- 2) If you have implemented BE principles in your organization, have you been able to construct meaningful metrics for assessing efficacy and, if so, what examples could you provide?
- 3) How do you monitor if it is working?
- 4) How did you approach/begin the process?
- 5) What were the hurdles to implementation?
- 6) How did you demonstrate success/value to stakeholders?
- 7) How did you address concerns (if any) from Legal or Compliance about treating various segments of customers differently during a testing phase?
- 8) What were the most challenging aspects of testing BE principles?
- 9) How much resource have you put behind your BE practice?
- 10) How long was the process end-to-end (ideation, testing, analysis, implementation) and how many people were involved?

- 11) Do you partner with the academic community? If so, how?
- 12) Did you partner with consultants/experts or work with in-house resources?
- 13) How do you prepare agents for the impacts?
- 14) Did the length of the application change when BE was employed?
- 15) What sources of data do you use to build your models?
- 16) Have amendments and/or out for signature rates decreased?
- 17) Has the average number of underwriter file touches decreased?
- 18) Has there been an impact on contestable claims?
- 19) What have been responses from the Interstate Compact and DOIs/ Departments of Financial Services?
- 20) What specific attributes do you look for when evaluating and hiring candidates with expertise in BE?
- 21) What response would you have if regulators took an unfavorable view of the introduction of BE in the life insurance space (e.g. criticism of 'manipulation of customer behavior,' introduction of unintentional bias, etc.)?
- 22) Are there any techniques that you would consider off-limits due to either potential negative perceptions by or actual negative impacts to consumers?
- 23) How have you been able to align resources to help drive BE forward in your company and get BE prioritized?
- 24) What areas of field behavior have you had success influencing, using BE?
- 25) Have staff members embraced it and if so, how?
- 26) What are some 'tips for success' you can provide to other companies looking to implement BE?
- 27) What have been your most meaningful results?
- 28) What are discussions with consumers regarding outcomes if impacting price?
- 29) Are you using any type of BE program on inforce policies? If so, what are you doing?
- 30) What percentage of the effort behind any BE-related changes is coming from applying a BE framework to your product, and what percentage is coming from data and analytics enhancements that support these or are done in conjunction with BE?
- 31) What took you so long!?

Section 4: Concluding Remarks

Many of the questions posed by the panelists are covered to some degree in this report; however, there are still a lot of questions to be answered. Based on our analysis, there are clear indicators we are in the early stages of using BE in the life insurance industry. We have barely begun to scratch the surface of the possibilities of using new technology and BE.

Initial efforts to include BE were met with a lack of awareness of BE in the marketing, compliance, and actuarial departments. One panelist stated that attempts were made to alter some application questions, but were rejected by compliance and marketing who preferred to continue to use the current question and answer order, format, and desire to reduce the number of medical questions. This is unfortunate since the desire to reduce the number of medical questions has resulted in greater confusion and less reliable answers.

The areas for the greatest potential of BE relate to underwriting, enhancing sales, and influencing policyholder behavior. With underwriting, a substantial amount of research has begun surrounding non-disclosure risks, particularly surrounding truthfulness on applications. Newer underwriting techniques, such as AUW, rely more on the applicant being truthful because of the elimination of labs. With BE, there are ways questions are worded that can influence truthfulness. With the expansion of big data, there is an abundance of information available on applicants. An example currently utilized by insurers is prescription checks to verify medications taken.

The middle-market segment of customers for life insurance is underserved. The protection gap is over \$20 trillion. Filling this hole means leveraging a secret weapon, BE, using the study of human behavior to trigger the decision to purchase. Insurers today have a complicated relationship with the middle market. They know that value is trapped there. BE, coupled with digital technologies to drive engagement can help. Insurers can tap into human psychology, emotions, and social dynamics that drive how, why, and when we make choices to transform customer experiences, protection products, price points, and more.

Along with engaging customers to purchase, BE is capable of influencing behavior post sale. This could be in the form of coaxing persistency or inducing repeat sales.

Knowing what is known now, insurers have two choices:

1. Do nothing. Manage risk in the traditional way, load up the personal statement questions, rely on the application of non-disclosure agreements, increase examination of early claims, change the product, or adjust the pricing to make up for losses.
2. Accept that humans are not rational and change our own mindsets to break the cycle.

The focus of this research and report was broad. Many of the responses from panelists ended up focusing more on underwriting and the application process; however, BE applies much more broadly and the focus of future research and reports can certainly be on additional underwriting and application issues, but also on policyholder behavior, agent behavior, enhancing sales, and distribution.

For more information on BE and its techniques, please visit the [References](#) section.

Section 5: Panelists

Special thanks goes to those who took the considerable time and effort required to provide thoughtful and detail-oriented responses to the questionnaire.

Name
Matt Battersby
Pam Bergsten, <i>FALU, FLMI, ACS</i>
Keith Brown, <i>MSM, CLU, ChFC, FALU, FLMI, RHU</i>
Eric Carlson, <i>FSA, MAAA</i>
Sandra Chefitz
Andy Ferris, <i>FSA, MAAA, FCA</i>
Cheryl Johns, <i>FLMI, FALU, CLU</i>
Joel Jones, <i>FLMI, AALU</i>
Jason Jump, <i>FSA, MAAA</i>
David Moore, <i>FSA, MAAA</i>
Rick Pretty, <i>FSA, MAAA</i>
Timothy Ranfranz
Blair Stephenson, <i>FALU, FLMI</i>

Section 6: Acknowledgements

The researchers' deepest gratitude goes to those without whose efforts this project could not have come to fruition: the Project Oversight Group and others for their diligent work overseeing questionnaire development, analyzing and discussing respondent answers, and reviewing and editing this report for accuracy and relevance.

Project Oversight Group Members:

Dorothy Andrews
Michael Chan
Kevin Pledge
Sarah Waked
Jundie Wei

At the Society of Actuaries:

Korrel Crawford
Dale Hall
Mervyn Kopinski

References

The following documents have been reviewed to prepare portions of the information provided in this report (along with links, if available).

- Shahram Heshmat, Ph.D. 2017. What Is Behavioral Economics? Helping people lead healthier and happier lives. <https://www.psychologytoday.com/us/blog/science-choice/201705/what-is-behavioral-economics>.
- Richard Thaler and Cass Sunstein. 2009. Nudge: Improving Decisions about Health, Wealth, and Happiness. Penguin Books.
- Lizzy Lubczanski. 2015. Using behavioral economics in underwriting. <https://www.thinkadvisor.com/2015/08/14/using-behavioral-economics-in-underwriting>.
- Dan Ariely. 2013. The Honest Truth About Dishonesty: How We Lie to Everyone--Especially Ourselves. HarperCollins Publishers.
- Daniel Kahneman. 2011. Thinking, Fast and Slow. Farrar, Straus and Giroux.
- "Asymmetric Information in Insurance Markets: Empirical Assessments," Handbook of Insurance, 2nd Edition, Georges Dionne, Editor.
- Dan Ariely. 2009. Predictably Irrational, Revised and Expanded Edition: The Hidden Forces That Shape Our Decisions. HarperCollins Publishers.
- Tim Hoyling and Martin Spit. 2016. Life Insurers' Secret Weapon: Behavioral Economics. <https://www.accenture.com/us-en/insight-life-insurer-secret-weapon-behavioral-economics>.
- Keith Brown. 2017. How Using Behavioral Economics Can Improve Underwriting Results. <http://www.genre.com/knowledge/publications/ri17-1-en.html>.
- Society of Actuaries. 2014. Modeling of Policyholder Behavior for Life Insurance and Annuity Products - A survey and literature review. <https://www.soa.org/resources/research-reports/2014/research-2014-modeling-policy/>.
- Jennifer L. Douglas and Kimberly Landry. 2016. Using Behavioral Economics to Market Life Insurance. <http://www.insurancenewsnetmagazine.com/article/using-behavioral-economics-to-market-life-insurance-3085#.XMIqKOhKg2w>.
- Jeffrey R. Brown. 2007. Rational and Behavioral Perspectives on the Role of Annuities in Retirement Planning. <https://www.nber.org/papers/w13537>.
- Andy C. W. Chui and Chuck C. Y. Kwok. National Culture and Life Insurance Consumption. <https://www.jstor.org/stable/25483247>.
- Neeraj Sood. 2003. Cashing Out Life Insurance: An Analysis of the Viatical Settlements Market. https://www.rand.org/pubs/rgs_dissertations/RGSD175.html
- Justin Reckers and Robert Simon. 2014. Behavioral Science and Life Insurance. <http://www.morningstar.com/advisor/t/42987554>.

Appendix A: Questionnaire

Questionnaire – SOA Behavioral Science (Economics) Techniques and Models in the Life Insurance Industry

Project Scope

Review and highlight research regarding behavioral economics and its application to the underwriting process to supplement existing knowledge. The goal of the study is to explore ways in which behavioral science techniques and models are used to optimize various life insurance decisions and processes. Examples may include customer engagement, insurance underwriting processes, and policyholder and behavior management. The main focus of this study relates to life insurance underwriting.

This will be accomplished using research approaches that include reviewing specifics of appropriate literature along with questionnaires of individual panelists regarding current practices. The results of these approaches will be analyzed and summarized in a final report.

General Notes on Questionnaire

Thank you for participating in this questionnaire. Please note the following:

1. If a particular question does not apply to you, please state “Not Applicable”.
2. We are seeking your personal point of view as an expert in the field. However we do encourage you to solicit feedback from others to the extent you think it will improve your response.
3. Your responses are confidential. The final research report will be based on anonymized responses, and would not involve specific information on any particular company or client.
4. This survey is intended to be updated electronically within this MS Word document. The “Response” section for each question will expand as responses are typed in.

Definition

Behavioral Economics - a method of economic analysis that applies psychological insights into human behavior to explain and nudge economic decision-making.

Questionnaire:

General

1. Please share examples of your experience (theoretical, practical, or both) in the use of behavioral economics (such as improving design of underwriting application forms, reaching new customers, improving distribution, or providing more accurate disclosures, etc.). How do you define behavioral economics if different then the definition above?

Response:

2. Does your company use a psychologist or qualified behavioral scientist? Please reference any books or papers they use in the approach they adopted if applicable.

Response:

3. Please discuss how you have considered any regulatory or actuarial guidelines (and which ones) that apply to the use of behavioral economics in the insurance industry.

Response:

4. What, in your opinion, are the benefits and drawbacks of using behavioral economics in insurance? As a benefit, how, in your opinion, can behavioral economics improve business outcomes for insurers?

Response:

5. How can insights from behavioral economics be applied to guide:
 - a. Product design

Response:

- b. Modeling

Response:

- c. Underwriting

Response:

6. What are some of the current developments in life insurance behavioral economics?

Response:

7. Identify the behavioral economic techniques you have used, i.e. framing effect, endowment effect, social norming, etc.

Response:

Underwriting Processes

8. How can the newer and emerging underwriting techniques, such as accelerated underwriting, utilize behavioral economics? How can it be applied to current and traditional underwriting techniques?

Response:

9. What are the theories (or based on your experience) of why the applicant isn't always truthful? What are the best practices for soliciting truthful answers?

Response:

10. What are examples of underlying problems with applicant responses? Such as:

- Truthfulness
- Optimism (i.e. I won't be the one to die)
- Bias
- Skepticism
- Use of self-efficacy
- Resilience

Response:

11. In your opinion, what risks (i.e. smoker non-disclosure) would benefit the most from behavioral economics or what are the biggest non-disclosure risks? Please rank from highest to lowest and fill in items in the “Other” categories as needed.

Rank	
Tobacco use	
Illegal drug use	
Alcohol abuse	
Health history	
Hobbies	
Occupation	
Weight	
Family history	
Travel	
Criminal history	
Sexually transmitted diseases	
Other	
Other	

12. How has behavioral economics improved non-disclosure in areas such as the following:

- Ensuring complete and honest disclosures per underwriting guidelines
- Framing (i.e. changing the order of categories impacts the response)
- Not fully understanding the question and not asking

Response:

13. What methods does your company utilize to determine whether the underwriting program using behavioral economics’ tools and platforms (i.e. media, big data) gets desired results and how long will it take to measure?

Response:

14. Describe how behavior economic techniques have led to areas of improvement such as cost savings, time saving and risk classification? What other areas of improvement have you seen?

Response:

15. What are some of the challenges with the implementation of a behavioral economics framework?

Response:

Reaching Customers / Distribution to customers

16. How can behavioral economics be used to reach the underinsured middle market?

Response:

17. How can behavioral economics be used to enhance the sales and distribution process?

Response:

Agent Behavior

18. How can behavioral economics be utilized to positively influence agent behavior?

Response:

Customer Engagement Post Sale

19. How can behavioral economics be utilized to positively influence customer engagement post sale?

Response:

Policyholder Behavior Management

20. How can the application of behavioral economics help to increase understanding of the following policyholder behaviors relating to life insurance and annuity products and what are the key benefits?

Examples for life insurance products include:

- Shock lapse and related anti-selective mortality on level premium term plans
- Conversion elections
- Loan utilization
- Dividend elections
- Premium persistency, funding patterns, and withdrawals for flexible premium plans
- Index elections and transfers between indices for indexed products
- Fund elections, fund transfers, and fixed account transfers for variable products
- Traditional lapse and surrender for all life products

Examples for annuity products include:

- Additional premium deposits
- Annuitization rates
- Renewal rates
- Withdrawals
- Living benefit elections and utilization on variable and indexed products with these guarantees
- Index elections and transfers between indices for indexed products
- Fund elections, fund transfers, and fixed account transfers for variable products
- Full surrender rates

Response:

21. In your opinion, what policyholder behaviors are important for an insurer to influence and improve?

Response:

Additional Information

22. What five questions would you ask about another insurance company's implementation of behavioral economics?

Response:

About The Society of Actuaries

The Society of Actuaries (SOA), formed in 1949, is one of the largest actuarial professional organizations in the world dedicated to serving more than 32,000 actuarial members and the public in the United States, Canada and worldwide. In line with the SOA Vision Statement, actuaries act as business leaders who develop and use mathematical models to measure and manage risk in support of financial security for individuals, organizations and the public.

The SOA supports actuaries and advances knowledge through research and education. As part of its work, the SOA seeks to inform public policy development and public understanding through research. The SOA aspires to be a trusted source of objective, data-driven research and analysis with an actuarial perspective for its members, industry, policymakers and the public. This distinct perspective comes from the SOA as an association of actuaries, who have a rigorous formal education and direct experience as practitioners as they perform applied research. The SOA also welcomes the opportunity to partner with other organizations in our work where appropriate.

The SOA has a history of working with public policymakers and regulators in developing historical experience studies and projection techniques as well as individual reports on health care, retirement and other topics. The SOA's research is intended to aid the work of policymakers and regulators and follow certain core principles:

Objectivity: The SOA's research informs and provides analysis that can be relied upon by other individuals or organizations involved in public policy discussions. The SOA does not take advocacy positions or lobby specific policy proposals.

Quality: The SOA aspires to the highest ethical and quality standards in all of its research and analysis. Our research process is overseen by experienced actuaries and nonactuaries from a range of industry sectors and organizations. A rigorous peer-review process ensures the quality and integrity of our work.

Relevance: The SOA provides timely research on public policy issues. Our research advances actuarial knowledge while providing critical insights on key policy issues, and thereby provides value to stakeholders and decision makers.

Quantification: The SOA leverages the diverse skill sets of actuaries to provide research and findings that are driven by the best available data and methods. Actuaries use detailed modeling to analyze financial risk and provide distinct insight and quantification. Further, actuarial standards require transparency and the disclosure of the assumptions and analytic approach underlying the work.

Society of Actuaries
475 N. Martingale Road, Suite 600
Schaumburg, Illinois 60173
www.SOA.org