LEVERAGING BEHAVIOURAL SCIENCE IN INSURANCE:
A SYSTEMATIC REVIEW

Anuradha Raghuram

Master of Behavioural & Decision Sciences
University of Pennsylvania

Summer 2019

Capstone Reader: Dr. Alex Shpenev
ABSTRACT

LEVERAGING BEHAVIOURAL SCIENCE IN INSURANCE: A SYSTEMATIC REVIEW

Anuradha Raghuram

Capstone Reader: Dr. Alex Shpenev

Over the past decade, the U.S. insurance industry has faced stagnant growth due to limited technological advancement, information asymmetry and waning customer satisfaction. Collectively, these factors, among many other structural drivers, impede incumbent players to attract and retain their customer base. In recent years, a number of insurance technology “insurtech” firms have emerged, seeking to disrupt and make existing activities within the insurance value chain more efficient, primarily through digital innovation. The discussion in this white paper is structured twofold. First, I walk through the current U.S. insurance landscape, innovations, and challenges within the value chain. In particular, I focus on the underwriting and claims activities in the context of property & casualty insurance. Second, I illustrate how behavioural science serves as a valuable use-case to improve customer engagement and retention. Through a combination of meta-study methods and case studies, I identify five key areas of behavioural change: reducing switching behaviour, managing uncertainty, increasing trust, encouraging accurate information disclosure, and providing customer autonomy. Exploration of behavioural science in insurance has meaningful implications for industry players, not only in terms of diagnosing biases, but also in terms of how they can elicit positive behavioural change in the long-run.
Leveraging Behavioural Science in Insurance: A Systematic Review

July 2019 | White Paper

By Anuradha Raghuram
Master of Behavioural & Decision Sciences, University of Pennsylvania
About Ipsos

Ipsos Group S.A. is an independent market research company controlled and managed by research professionals. Founded in France in 1975, Ipsos has grown into a worldwide research group with a strong presence in all key markets. Ipsos ranks third in the global research industry.
Table of Contents

Section I: The U.S. Insurance Landscape ................................................................. 6
  Introduction ........................................................................................................... 7
  Context .................................................................................................................. 9

The Traditional Insurance Business Model ......................................................... 10
  Traditional Incumbent Challenges ................................................................. 12

Innovations in Insurance ....................................................................................... 14
  The Insurtech Tide ............................................................................................. 14
  Insurtech by the Numbers .................................................................................. 15
  Current Trends .................................................................................................... 17
  Insurtech Challenges ......................................................................................... 19

Scope ...................................................................................................................... 20
  Verticals: Underwriting and Claims ............................................................... 20
  Product: Property & Casualty .......................................................................... 21

Section II: Applications of Behavioural Science in Insurance ............................. 22

Behavioural Science: An Overview ................................................................. 23

Situation Analysis ................................................................................................. 24
  What does underwriting mean for customer engagement? ....................... 26
  How do claims ensure customer retention? ................................................. 30

Key Lessons .......................................................................................................... 36

Appendix ............................................................................................................... 40

References ............................................................................................................. 41

Acknowledgements .............................................................................................. 46
Section I: The U.S. Insurance Landscape
Introduction

The U.S. is currently the world’s largest insurance market by premium volume (Insurance Information Institute 2018). According to the U.S. Bureau of Economic Analysis, insurance activities have contributed $602.7 billion (3.1 percent) to national Gross Domestic Product (Insurance Information Institute 2019). Moreover, the U.S. insurance industry has employed approximately 2.7 million people (Ibid). Of the gross $4.64 trillion premiums written globally, $1.27 trillion (27 percent) are written in the U.S. (Ibid.). As a result of “sustained economic growth, rising interest rates and higher investment income,” the U.S. insurance industry is growing at a more rapid rate than non-US insurance industries (Friedman et al. 2019). Exhibit 1 below depicts these key U.S. statistics in relation to the global insurance landscape.

According to a 2017 study by the U.S. Census Bureau, it is expected that by 2035, approximately 78 million people will be over the age of 65 (U.S. Census Bureau 2017). With an ageing population comes an increased prevalence of critical illnesses and a greater demand for insurance coverage. Additionally, the U.S. population has grown at a rate of 5% since 2011, “with populations in the top metro areas growing even faster” (The Zebra 2019) – the byproducts are greater instances of traffic congestion, urban crime and uninsured drivers. Additionally, gas prices have also dropped, “the lowest they’ve been in the past decade,” resulting in an increase in driving across the U.S. (Ibid.).

While insurance company failures are far and few, firms are imposed with the joint liability of managing insolvency and protecting impacted policyholders through state-mandated insurance guarantee associations. Regarded as “one of the largest insurance failures in U.S. history,” long-term health insurer Penn Treaty was “ordered to liquidate and wind down its affairs, [orphaning] tens of thousands of policyholders” in early 2017 (Walsh 2017). With liabilities of approximately $4 billion and a mere $700 million in assets, the Penn Treaty’s fall resulted in a substantial “shock to the health marketplace,” burdening large insurers like Anthem Inc., Aetna and Blue Shield of California with sizeable claims settlements (Kaiser Health News 2017). As the industry is now facing “a state of severe decline,” companies must determine how to continue engaging and maintaining their policyholder base while still “[making] money on it” (Ostrov 2016).
Some of the main challenges faced by traditional insurers today include: asymmetric information (Eling & Lehman 2018, Cortis et al 2019, Debono & Farrell 2019), inaccurate policyholder pricing (Simonson & Jain 2004), and customer moral hazard (Doherty & Posey 1998). In light of these shortcomings, a host of disruptive technologies have emerged, and offer abundant opportunities for incumbents to address challenges surrounding customer engagement and retention. These digital entrants range from “tech giants” such as Amazon, Google and Apple (Seekings 2017, CB Insights 2019) to “agile startup entities” all of whom harness innovative strategies to establish market share. In all, these realities prompt a growing need to focus on re-establishing the beleaguered insurance industry. Players taking ownership of these challenges has meaningful implications: first, for stakeholders across the industry at both macro (companies, regulators and policymakers) and micro levels (policyholders), and second, aids in supporting “innovation, competition, and efficiency in a capitalistic marketplace” (Cass et al. 1997).
Insurance in the U.S. is divided into two general categories: Life & Health (long-term care, dental, vision, medications, annuities etc.) and Property & Casualty (flood, earthquake, home, auto, fire, disability, liability etc.).

The U.S. insurance industry comprises of several holding companies, each of which own smaller insurers, as well as reinsurers in some cases. These groups vary from one another, based on the type of insurance they cater to, as well as the value chain activities they focus on. These activities are divided amongst subsidiaries in the insurance group. For instance, GEICO is an insurance agency consisting of several insurance companies - when customers sign up for a premium with GEICO, this premium is assigned to whichever subsidiary writes the policy for the customer. In contrast to insurance groups, some smaller companies choose to exist as their own entity. While this conglomerate model comes more operational pressures and increased accountability within the group, insurance groups have greater chances of survival in the long run, over a single entity insurance company.

The insurance value chain comprises of five core areas: product management, underwriting, distribution, claims, and administration (Exhibit 2).

$4.64 trillion worth of premiums written globally
$1.2 trillion worth of premiums written in the U.S.

$641.8 billion (Health & Life)
$558.2 billion (Property & Casualty)

5,977 Companies
2.6 million Employed
47.2% Property & Casualty companies
52.8% Health & Life companies

Exhibit 1: U.S. Insurance Industry Factsheet

Source: Insurance Information Institute 2017 Facts Statistics
The Traditional Insurance Business Model

The fundamental purpose of insurance companies is to help spread the risk of one individual across an entire customer base. The process by which risk is transferred and disseminated is known as risk pooling. Most individuals will purchase insurance, “even if they have very low risk of death, injury or property damage,” as the upfront value or premium, is less than the out-of-pocket cost for covering the damage (Obrella 2019). Certain types of insurance, such as health and auto insurance are legally mandated in some U.S. states. However, other types of insurance are optional and therefore, not everyone chooses to purchase certain kinds (e.g. renter’s insurance). Risk pooling therefore distributes insurance costs among both low and high-risk customers, as a way to hedge against high risk individuals. Moreover, this helps insurers make “total losses more predictable than for each individual insured, thereby reducing the risk relative to the whole” (Cass et al. 1997).

Premiums are estimated through actuarial valuation, a combination of statistical analysis and historical judgment to predict both level of risk and instances of uncertainty (Hargrave 2019). Additionally, estimation methodologies entail diagnosing potential instances of fraud or false claims, in order to determine accurate, reliable premium values. Insurance companies circulate revenues threefold: 1) to recuperate individual damages as well as the damages incurred by other customers, 2) to cover underwriting fees, or the costs associated with vetting and assessing the risks of a customer, and 3) to generate investment income and finance its operations.

Following premium collection, companies are tasked with processing a customer’s insurance claim. This entails validating the filed claim, verify the accuracy and adjust payment accordingly. Within the claims stage, the identification of fraudulent activity is paramount, to ensure any potential losses to the company are minimised (Hargrave 2019). Collection timings and fixing of premium payments vary by insurance type. Health insurance for instance, consider factors such as the future probability of individuals of a certain demographic falling ill, existing hospital charges, potential medical inflation (hospital costs, treatment, etc.). In the case of auto insurance, the condition of the vehicle is evaluated, the “wear-and-tear” lifespan, and likelihood of facing an accident. Bearing these considerations in mind, insurers approximate premiums accordingly for each customer bracket (Reddy & Mathur 2018).
It is important to note the distinction between the various industry players that make up the insurance landscape. Insurers, or carriers are entities that underwrite and provide insurance to insurance customers i.e. policyholders. Within the claims stage, claims are either filed by the insurer themselves or via insurance brokers/agents. The main role of these intermediaries is to act as an advisory for policyholders.

Some insurance companies might purchase insurance for themselves, i.e. reinsurance. The purpose of reinsurance is to aid in reducing the financial burden reduce the variability of the financial costs to insurance companies arising from the occurrence of specified insurance claims (Patrik 2006). Similar to individuals and businesses purchasing insurance from an insurer, insurance companies buy insurance from one or more reinsurers (Cass et al. 1997). Tables 1 and 2 outline the five largest insurers within the U.S. insurance industry by market share:

Table 1: Top 5 Insurance Writers of Property & Casualty Insurance by Direct Premiums Written, 2017

<table>
<thead>
<tr>
<th>Rank</th>
<th>P&amp;C Group/Company</th>
<th>Market share</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>State Farm Mutual Automobile Insurance</td>
<td>10.10%</td>
</tr>
<tr>
<td>2</td>
<td>Berkshire Hathaway Inc.</td>
<td>6.00%</td>
</tr>
<tr>
<td>3</td>
<td>Liberty Mutual</td>
<td>5.30%</td>
</tr>
<tr>
<td>4</td>
<td>Allstate Corp.</td>
<td>4.90%</td>
</tr>
<tr>
<td>5</td>
<td>Progressive Corp.</td>
<td>4.30%</td>
</tr>
</tbody>
</table>

Source: NAIC data, sourced from S&P Global Market Intelligence, Insurance Information Institute.

Table 2: Top 5 Insurance Writers of Life & Health Insurance by Direct Premiums Written, 2017

<table>
<thead>
<tr>
<th>Rank</th>
<th>L&amp;H Group/Company</th>
<th>Market share</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Metlife Inc.</td>
<td>13.60%</td>
</tr>
<tr>
<td>2</td>
<td>Prudential Financial Inc.</td>
<td>7.40%</td>
</tr>
<tr>
<td>3</td>
<td>New York Life Insurance Group</td>
<td>5.00%</td>
</tr>
<tr>
<td>4</td>
<td>Principal Financial Group Inc.</td>
<td>4.40%</td>
</tr>
<tr>
<td>5</td>
<td>Massachusetts Mutual Life Insurance Co.</td>
<td>3.90%</td>
</tr>
</tbody>
</table>

Source: NAIC data, sourced from S&P Global Market Intelligence, Insurance Information Institute.
Traditional Incumbent Challenges

While insurance companies seek to support and insure individuals across the risk spectrum, they are faced with a multitude of strategic constraints from specific exclusions to inflexible coverage limits (Thompson 2019, Lemonade). To identify some of the most current challenges and prevalent threats, I survey a combination of market reports, news articles and academic literature and identify five blindspots faced by traditional players today:

1. **Customer Experience:** By and large, waning customer interaction poses the biggest threat to traditional companies today. Prior meta-studies (Ipsos Loyalty Report 2017, Ipsos & Medallia 2018) support this, revealing that across the range of customer experience-oriented sectors (retail, banking, hotels, mobile network providers and insurance), customer experiences within insurance and banking are consistently ranked low across both North America and Europe. Insurance customers in particular, “reported that their providers failed to meet their expectations.” Moreover, in an age where 30 percent of the U.S. population are comprised of Millennials and Generation Z, traditional insurers are finding it increasingly challenging to align to the changing “world of responsive brands and personalised customer experiences,” as well as ongoing customer-provider interaction (2018 Brookings Institution Report). Therefore, in addition to redesigning incumbent customer service processes, traditional companies need to “start valuing each service experience brought to customers and understand customer’s satisfaction” in order to stay afloat in a now dynamic, rapidly evolving industry.

2. **Timeliness:** Similar to customer experience and interaction, recent studies (Catlin & Lorenz 2017, Brüggemann et al. 2018, Sexton et al. 2018) underline the notion that traditional insurers are slow to react unlike the industry’s younger insurtech counterparts, who constantly seek to disrupt activities within the value chain. Delays occur for multiple reasons: some purely due to internal bureaucratic hurdles such as poor communication, and in other cases, profit-driven like Allstate and the State Farm Insurance Company in the 1990s. In traditional business models, claim management occurs after an incident has occurred – looking forward, traditional insurers need to shift away from this reactive to a proactive
model, not only to help customers anticipate risk, but shed light on certain types of consumer behaviour. Employing predictive techniques before the claims stage in the insurance value chain is therefore key to establishing a responsive service model.

3. **Gauging Uncertainty:** Over time, risk segmentation has become more granular, thereby posing a substantial pressure to traditional risk pooling approaches (Sexton et al. 2018). Incumbents currently lack “sufficient understanding of the past or the drivers of future scenarios” – even in cases where companies employ controlled experiments to capture the incidence of an unforeseen circumstance or incident, the rate of identification is “so small that reliable experience cannot be obtained” (Ibid.). While the focus to date has been more risk-centric, insurers need to pivot toward developing mechanisms to predict uncertainty in addition to risks (Gutterman 2017).

4. **Pricing:** Traditional companies must rework preexisting pricing systems. According to a 2019 briefing by CB Insights & Willis Towers Watson, traditional pricing teams analyse historical data to determine premium rate changes, which are then passed for implementation through a rate-engine. IT functions within insurance companies are then tasked with the oversight, updating and management of these rate calculations. Given the time consuming, multi-step nature of the pricing process, insurers do not adjust or tailor premium pricing customer-to-customer. Therefore, it is important that traditional companies move away from potential pricing inertia by adopting “a more agile approach to pricing” (CB Insights & Willis Towers Watson 2019.). Facilitating this change is twofold: first, give the responsibility of controlling pricing back to pricing and underwriting teams and second, acknowledge the need to readjust incumbent pricing algorithms regularly.

5. **Collaboration:** Finally, one of the most significant challenges that traditional insurance companies face today is operating in tandem and conjunction with the new wave of insurtech startups entering the industry (Friedman, Gandhi & Purowitz 2018). To date, insurtechs have received over $1 billion in global funding (CB Insights & Willis Towers Watson 2019), a testament to their burgeoning
innovative potential. The growing market share in insurtech startups prompts incumbents to “take decisive action to accelerate the development of these new capabilities,” be it “recruiting more digital-savvy customer relationship managers, partnering with third parties, or acquiring firms with the skills and technology solutions they need” (Sexton et al. 2018).

Innovations in Insurance

The Insurtech Tide

Over the past decade, the once digitally dormant insurance industry has undergone rapid transformation. Originating from the established financial technology or “fintech” industry, insurtech refers to technology-led companies in the insurance sector, who leverage the “utilisation of technology to improve efficiency and savings [from] the current insurance model. (McKinsey 2017). Similar to fintechs, insurtechs aim to cater to a more digitally-savvy customer base. However, this is not to say that these companies disregard traditional insurance customers. Rather, incumbents and insurtechs look to one another for innovative partnership and collaboration. Mega-funded pacesetters include cloud-based health insurer Zenefits ($500 million), health insurance startup Oscar ($400 million), and most recently, socially conscious P&C insurtech, Lemonade in April 2019 ($300 million) (Kottmann & Dördrechter 2017)

In an age of digital growth, incumbents are faced with high stakes, potentially “missing out on the $1.6 trillion of value that the new generation of insurtechs are set to create in the next three years” (Sexton et al. 2018). Thus, through joint ventures, traditional companies can continue to: 1) retain and grow their customer base and 2) harness insurtech entities to redesign the overall customer experience using technology and human-centered design (Catlin, Münsterrmann & Ricciardi 2017, Friedman, Gandhi & Purowitz 2018). In addition to collaborating with insurtech companies, incumbents too, are paving their own digital inroads. State Farm, the largest P&C insurance provider in the U.S., recently launched an in-house insurtech research wing, 485 Think Labs. Similarly, Berkshire Hathaway’s auto insurance subsidiary GEICO launched Kate, a virtual assistant using artificial intelligence (AI) to provide customers with timely access to their policyholder information (Golia 2018).
Insurtechs have also started playing a vital role in the regulatory landscape. Singapore, Hong Kong, Australia and the U.K. are now looking to involve insurtech companies in macro-level decision making. For example, the Monetary Authority of Singapore (MAS) has established an incubator “sandbox” for insurtechs to experiment with “innovative business models within pre-defined boundaries” (Yong 2019). Industry regulators in Hong Kong recently developed “a one-stop e-claim web portal and chatbots” (Ibid.). These cases are among a multitude of partnerships between policymakers, regulators and technology-led companies, and point to the merits of collaboration, not only from a provider standpoint, but more importantly, from the customer’s point of view. In the U.S., while the insurance industry has started encouraging state-level regulators to pioneer sandboxes and launchpads for insurtech companies, there are a number of concerns surrounding customer privacy, information disclosure and the potential misuse of user data. Despite these institutional barriers, the advent of technological innovation offers a “win-win path forward” for both incumbents and insurtechs, becoming a focal strategic point for providers across both domains (Insurance Information Institute 2018).

**Insurtech by the Numbers**

While innovation in the insurance space has seen a rise in prevalence, global insurtech investment has declined since 2015. As of June 2018, only four insurtechs have launched since the beginning of the year. Hitherto 2018, only 88 insurtechs launched in 2017, “half the number recorded in both 2015 and 2016” (Friedman, Gandhi & Purowitz 2018). However, despite this decline, insurtech launches have “still accounted for two-thirds of all new fintechs, as non-insurance launches fell by 73 percent” (Ibid.). In fact, investments indicate otherwise. From an annual $140 million back in 2011, investments have increased to $270 million in 2013 and $2.7 billion in 2015. Moreover, according to McKinsey’s Panorama FinTech database, the U.S. has consistently been ranked as the pioneer market for insurance innovation with “46 percent of the companies are headquartered in the region with another 40 percent based in EMEA” (Catlin, Münstermann & Ricciardi 2017, Friedman, Gandhi & Purowitz 2018).

An insurance study by McKinsey (2017) underlines that insurtechs are both active across all value chain activities and verticals i.e. property & casualty, life and health insurance. (Exhibit 3). “Easily accessible slivers of the industry,” namely underwriting and distribution, are ripe areas for insurtech intervention across insurance types - especially
within P&C insurance (Catlin & Lorenz 2017). Conversely, involvements within marketing and claims management fronts are still minimal.

Exhibit 3: Percentage Share of Innovations in Insurtech¹

Source: McKinsey & Company Insurtech Database 2017
¹500 insurtechs registered in the database
Current Trends

Eling & Lehman (2018) categorise insurtech offerings into three main areas: 1) enhance customer experience, 2) improve existing business processes, and 3) develop new insurance products. Through a metastudy of seven comprehensive industry studies (Table 3 - Appendix), I identify three trends through which insurance players market their offerings:

1. Technology

Results from a 2017 McKinsey study pinpoint eight forms of digital disruption, with big data, machine learning and usage-based models leading as the most prominent technologies (Exhibit 4).

Exhibit 4: Insurtech adoption of technologies and digital practices¹ (%)

Source: McKinsey & Company Insurtech Database 2017
¹500 insurtechs registered in the database
Rising contenders in this domain also include Internet of Things (IoT) technologies and AI mechanisms like gamification and robotics. With greater infusion of technology into our day-to-day surroundings (commercial buildings, vehicles, health services etc.), there is a greater availability of real-time data to insurers and insurtechs and granular insight into how risks evolve in real-time. (Catlin et al. 2017, Sexton et al. 2018). In a landscape where customer trust is waning and data security is jeopardised, insurers now leverage gamification and AI through the use of chatbots and virtual assistants to “make traditionally cumbersome processes more engaging and integrated into their customers’ lives” (Kaesler & Schollmeier 2018).

2. User-First Approach
With more access to data and always-on technologies comes a greater focus on consumer behaviour. For instance, within life and health insurance package offerings, insurance businesses now offer wearables to track physical activity, a trend that has now become commonplace across the industry. More ambitious developments include leveraging real-time data to detect early signs of depression, to predicting natural disasters using geospatial analytics (Isaac 2017, Sexton et al. 2018) Across the board, there is a significant shift from traditionally reactive to proactive customer insights. Newer insurance players also stress the transparency and customer autonomy, giving them the “flexibility to decide what to insure – and also, often, when.” More commonly referred to as “insurance as a service,” insurers are now enabling customers “to insure items only when they are in use” (Kaesler & Schollmeier 2018).

3. Alternate Business Models
Insurers and insurtechs are also foraying into a host of other businesses through cross-sector partnerships. For instance, Airbnb has started offering liability coverage to its guests through a global Experiences Protection Program. Similarly, Zipcar offers third party liability coverage and Personal Injury Protection to renters. Collectively, these examples underline a stronger focus on on-demand, situational insurance. Additionally, these shared ecosystems enable insurers and insurtechs to “add value through network effects [by] leveraging allies’ already-established platforms” (Sexton et al. 2018, Kaesler & Schollmeier 2018).
Insurtech Challenges

While insurtechs seek to tackle the aforementioned challenges faced by incumbents, they too face their own set of blindspots.

Industry regulation is the most significant structural barrier, with numerous levels of legal restrictions at every stage of the value chain. For example, some U.S. states permit using credit scores when determining rates for P&C policies, or the use of genetic/biometric data for L&H policies, yet others prohibit it altogether. Given these contrasting policies, even the most innovative businesses are faced with a complex landscape, which “may prove even more daunting for startups and less-seasoned companies” (Gregory & Hanson 2017). The result is that traditional players might express hesitation to collaborate with startups in the space, or further the efforts of in-house incubators (Hargrave 2019). On the other hand, most insurtech startups are still dependent on traditional companies for the handling of critical activities such as underwriting and claims. Thus, due to regulatory and legal barriers, collaboration between new and incumbent players is hampered.

Across the industry, more traditional business models have utilised “push” strategies, especially for products that are not compulsory. On the other hand, insurtech business models aim to create and capitalise customer “pull” as a part of their customer-first strategies. While the behaviourally-driven approach is gaining traction across the industry, insurtechs still expect “certain changes in customer behaviour to occur a decade before they could happen” (Kottmann & Dördrechter 2017). Be it traditional companies or startups, innovative players need to start shifting away from supply-side models, characteristic to the “first wave of insurtechs,” and more toward demand-side thinking (Ibid.). In other words, focus efforts on “how risk coverage is presented and sold to customers, models that are not merely digital updates of traditional or slightly altered insurance propositions” (Ibid.).

Moreover, with digital disruption on the rise, the need for intermediaries, i.e. brokers and agents. Therefore, the industry is posed with the question: are technological advances a threat to incumbent supply-side players or an opportunity to provide better service to the demand-side? The answer is that it depends – agents and brokers are going to have increased expectations to provide a positive overall customer experience.
With increased dependencies from the carrier side, innovative intermediaries “may now have the upper hand and some carriers need them more than they perhaps ever have [positioned] to become even stronger as they continue to evolve to meet the needs of customers and carriers” (Wells 2019). Collaboration is not only warranted between traditional incumbents and insurtechs, but also among insurtech players themselves.

Scope
This report will focus on components where there are consistent blindspots faced by both incumbents and digitally-savvy players:

Verticals: Underwriting and Claims
This paper identifies identify and claims as the most pivotal points in a customer’s journey, from start to finish. The rationale to focus on these two areas stems from prior academic literature (Kunreuther et al. 1995, Fitzpatrick 2003, Lynn et al. 2018) and industry research (Catlin et al. 2017, Catlin & Lorenz 2017, CB Insights Quarterly InsurTech Briefing 2019). Underwriting skills are of paramount to any insurance business model, “built on years of experience and proprietary data” (Catlin et al. 2017).

Traditional incumbents still hold this advantage today, given their large capital reserves and ability to take risk onto their balance sheets - on the contrary, insurtech startups seldom engage in risk. In lieu of risk mitigation, “insurers of the future will pay more of a risk avoidance role” (Ibid.). Given the shift in business attitudes, customer acquisition, engagement and overall value creation generated by underwriting activity diminishes. This probes businesses to reflect on the repercussions of adopting a passive approach on customer satisfaction, especially within the underwriting stage (Wilamonwicz 2019).

In addition to underwriting, claims has become a top priority for insurance businesses. In a customer’s journey, the claims process is often a make-or-break experience. The way in which companies communicate necessary information and deliver customer expectations has significant implications for long-term satisfaction and retention. Recognising that the claims stage is integral for customer retention, businesses have started encouraging collaborations between claims departments and other functions such as marketing, user experience, and IT are increasingly becoming the new operating model. A 2017 McKinsey study found that digital claims transformations have generated impact across all of claims’ three key performance indicators, namely customer


experience, efficiency and effectiveness (Brüggemann et al. 2018). Yet, digitization within the claims stage “has seen little progress,” as still comprises a small share of all insurtech-related innovations (Exhibit 4). This lack of traction can be attributed to growing customer expectations in adjacent industries like banking, as well as a general lack of focus on claims processes. Until about a decade ago, more than half of all insurance businesses focused on front-end services and only 10 percent on claims (Blake 2017, Mandel 2018, Wilamonwicz 2019).

Product: Property & Casualty

With regard to the type of insurance, this report will focus on P&C insurance, in particular auto and home insurance. Prior research (Brüggemann et al. 2018, Mintel Report 2019) underline P&C as a uniquely compulsory financial product. In the U.S., nearly all states mandate drivers to own auto insurance, and almost all banks require consumers to have some form of home insurance to obtain a mortgage. Despite a majority of individuals and households maintaining some form of P&C insurance or another, a 2019 study by market research group Mintel underlines “one area where P&C coverage is lacking concerns renters: while they comprise 36% of US households, only 40% maintain renters insurance” (Mintel 2019). While renters are often bound “by the terms of their leases to hold renters insurance,” many in the U.S. overlook this purchase altogether (Ibid.). In terms of auto insurance, rates are higher now than they have ever been, impacting 83% of all drivers in the U.S. With increased traffic congestion, crime and uninsured drivers, premiums have risen since 2011 (Mintel 2019, The Zebra 2019).

Given these external pressures, there is a strong demand for home and auto insurance. However, insurers still face a “Catch-22” when it comes to promising and delivering a positive customer journey, in that “consumers would prefer to not interact with their insurer at all” (Mintel 2019). Therefore, the dissonance between customer engagement and retention stages within the P&C vertical is a topic warrants further exploration, one that has meaningful implications for insurance players across the spectrum. The next section of this report will explore the power of leveraging behavioural science, not only to diagnose certain types of consumer behaviour, but respond to them through a people-driven lens.
Section II: Applications of Behavioural Science in Insurance
Behavioural Science: An Overview

By and large, we tend to design policies, products and services based on how we think people should make decisions and/or behave, rather than how they actually do. We therefore fall into a rationality ‘trap,’ where we assume that all individuals act perfectly rational. Behavioural science aims to rectify this trap. Stemming from economics, psychology and neuroscience, this field aims to help decision makers understand why people behave the way they do (Congdon & Shankar 2018, Ideas42 n.d., BehaviouralFinance.com n.d., Ipsos 2017). In addressing some of the cognitive biases driving customer behaviour, institutions and organisations are better equipped to help individuals make choices that are best for themselves and society at large.

Applications of behavioural science have entered the spotlight in recent years across academic and industry contexts, especially in the financial realm. Nonetheless, its use cases within the insurance industry are still nascent. The aim of this paper therefore, is to underscore how behavioural science provides plenty of opportunities for insurance players, particularly within the underwriting and claims stages of the value chain, and how integrating these teachings has positive implications for end-users and insurance players alike.

Beyond innovative front-end technologies and competitive pricing, insurance players will need to develop a capability to understand which biases drive certain consumer behaviours (Sexton et al. 2018). Doing so helps businesses “become more than indemnifiers of risk [they] can coach businesses and individuals to avoid risk” in the long run (Finnson 2017). In order to understand human behaviour, players will also need to adopt new operating models, ones that “entail embedding more partners into the insurance value chain” (Sexton et al. 2018). The value proposition of behavioural science for businesses is twofold: first, it offers a realistic perspective of customer behaviour. As
such, the insights generated “are much more likely to be valid and actionable,” and in the long run, lead to the desired behavioural change. Second, it is “always on,” which means that it is an inherently iterative pursuit. For instance, the assessment of human behaviour, “prior to the launch of that product or service or program has enormous risk mitigation potential” (Syal 2018).

Before delving into the most prevalent biases, it is important to discuss the link between customer engagement and retention, as these are often used interchangeably. Customer engagement is typically defined as the end user’s behavioural manifestations toward a brand or firm beyond simply purchasing the good or service. (Van Doorn et al. 2010, Bijmolt et al. 2010). On the other hand, engagement can be defined as a psychological state, based on interactions with a focal brand or service relationships (Romero & Okazaki 2015). The second definition is more relevant, given that insurance is a service-centric product. Moreover, prior studies underline that engagement is a shorter-term measure of customer usage of products/services, whereas retention refers to a longer-term behaviour, rooted in sustained commitment (Rodden, Hutchinson & Fu 2010). However, this paper argues that customer engagement is generated along various points in the customer journey, from sales to claims, and therefore is rooted in sustained commitment i.e. retention.

**Situation Analysis**

Before addressing some of the consumer biases prevalent within the underwriting and claims stages, it is important to delineate “System 1” thinking from “System 2” thinking. Coined by psychologist and economist Daniel Kahneman, these are thought to operate simultaneously in our brain. System 1 thinking refers to a “fast, automatic, uncontrolled and effortless way of thinking” – it relies on shortcuts, emotional appeal and is therefore, an unconscious process. On the other hand, System 2 thinking refers to a “slower, more reflective, controlled and effortful way of thinking,” one that is more deliberate and conscious (Kahneman 2011, Cetinok & Sagara 2017, Battersby 2018). Characteristics of each are detailed in Exhibit 5.
In the context of insurance, consumers tend to make most judgements about their individual risk through the System 1 approach. Take for instance, natural disasters. It is common to see an uptick in homeowners purchasing P&C insurance after a major flood and witnessing others around them suffering from the repercussions of a flood. “The [risk] is now more available, even if the risk itself hasn’t changed [however], rates of insurance decline again as memory fades” (Battersby 2018).

Strategies employed by first wave of insurtechs and other innovative players predominantly focussed on addressing biases associated with System 1 thinking. Looking forward, businesses need to pivot toward strategies that encourage their customers to engage in System 2 thinking. The long-run goal is to transform the System 2 process into a habitual, System 1 mode of thinking (Kunreuther, Slovic & Olson 2014). For insurance players, this is especially important between the underwriting and claims stages, which focus on customer engagement and retention respectively.

As an overview, there are two key behaviours insurers should be aware of: adverse selection and moral hazard. Adverse selection refers to an outcome where the policyholder is misplaced into a particular risk group, one that might not reflect the individual’s actual risk profile. This asymmetry is either due to consumers withholding information from insurers, or the insurer’s negligence of a particular type of information.
when pricing risk. Moral hazard refers to a situation where the policyholder changes their behaviour after acquiring insurance cover (Cortis et al 2019). As these two behaviours go hand in hand, what results is a continuous feedback loop between misinformation and misallocation, particularly within underwriting and claims.

What does underwriting mean for customer engagement?

As of 2017, the P&C sector has suffered a record loss of $53 billion, of which the net underwriting loss comprised $23.2 billion (Jacob 2019). Therefore, understanding key behavioural drivers from a consumer standpoint presents valuable implications for underwriters across the industry, in terms of encouraging users to engage with their service. The following behaviours and biases arise from the moral hazard-adverse selection spiral:

1. **Switching Behaviour**

Samuelson & Zeckhauser (1988) explore the switching behaviour phenomenon through a field study examining university health plan enrollments and find that individuals feel a need to be in control and avoid facing regret later on. Similarly, Kunreuther et al. (1995) find that insurance customers faced high switching and search costs, resulting in many opting to stay with their current P&C insurer. Together, these studies underline the prevalence of status quo bias, where individuals adopt a certain type of behaviour or decision.

The insurtech revolution has made switching much easier for customers, as high premium prices are no longer as justification of “more care” or “lower probability of insolvency” (Kunreuther et al. 1995). Ironically, we see that the status quo bias among P&C customers today is to engage in switching behaviour between carriers. Therefore, insurers face greater negative effects when search costs are low and for less frequently purchased items (Fatas 2019). At the same time, U.S. consumers are entrenched by state-level mandates requiring homeowners, renters, and/or drivers to own some kind of P&C insurance. At first glance, one might view

**Challenge 1: How do P&C underwriters uphold customer engagement, given that switching has become the new status quo?**
these regulations as lucrative opportunities for insurers, in that a sizeable customer base is sustained. However, this is not to say that customer loyalty is.

Why is price such a salient switching factor? For a long time, insurers have proxied the risk of consumers on a range of rating factors, from gender, age, car model (in the case of auto insurance), postcode (in the case of homeowners and renters) etc. This pricing mechanism is problematic for two reasons: first, it either overcompensates or underestimates an individual’s actual risk, and second, mispricing leads to frustrated consumers switching due to adverse selection on the insurer’s part.

A 2019 report by research group Mintel finds that U.S. consumers are “highly attuned to the price of their P&C policies,” often engaging in switching behaviour in pursuit of cheaper alternatives (Mintel 2019). Key findings underline that a majority of consumers indicate the primary motivation for switching is saving money on premiums (Ibid.). One in five consumers with auto insurance have switched carriers within the last two years. Similarly, renters tend to switch more than drivers, whilst instances of homeowners switching are slightly lower (Ibid.). From a provider standpoint, insurers are challenged with the task of ensuring economical prices and whilst balancing substantial losses plaguing the P&C industry today. Together, these findings illustrate how premium prices encourage end users to react in a System 1 fashion whereby consumers initiate the process of finding new carriers in response to an increase in their existing premiums.

2. Availability Heuristic
Availability is a heuristic whereby people form judgements about the likelihood of an event based on the information they possess. These mental shortcuts could be based off recollection of historical examples, instances, or past memory. (Esgate & Groome 2004). The efficacy of this heuristic is strongly influenced by uncertainty and risk, both of which are prevalent within the underwriting process. In the domain of P&C insurance, the availability bias helps explain why homeowners purchase insurance after witnessing a disaster. Yin et al. employed a repeated choice game and found that when subjects experienced a first hypothetical typhoon, the availability heuristic was much higher, as demonstrated by a sharp rise in demand for home insurance. Conversely, insurance demand decreased “when there are no disasters in ensuing games” (Yin et al. 2016). In other words, in the short term, people find it easier to recall the effects of a disaster.
As time progresses, two interesting behaviours arise: first, people cancel their insurance policies after a few loss-free years as they consider their policy a poor investment, and second, residual insurance demand is higher than demand before the first disaster, indicating a “long-term impact of the availability heuristic” in games where people experienced multiple disasters (Yin et al. 2016). Biases in recollecting a past event therefore makes it challenging for underwriters to convince those insured that “the best return on an insurance policy is no return at all,” and to maintain their coverage (Kunreuther, Slovic & Olson 2014). Despite this challenge, the fact that the heuristic prevails in the long-run and elicits a marginally higher demand than pre-disaster presents a strategic opportunity for underwriters today.

Challenge 2: How can P&C underwriters sustain a demand for coverage against high-risk, improbable events?

Insurers now have more access to real-time data, through the incorporation of AI and machine learning, as well as the use of IoT technologies ranging from telematics (using metrics like location, time of day, mileage etc.), to smart home devices (like smoke alarms, thermostats and fridges). These act as enablers, providing underwriters with more data sources of interest, and more importantly, encourages insurers to adopt a “more active role in engaging with the customer between the point of sale and claim” (Sexton et al. 2018, Cortis et al. 2019). While the possibilities of tapping into new data sources seem endless, insurers will still need to acknowledge existing end-user behaviour and investigate why customer engagement is not sustained in the long-term, especially in cases where customers have more flexibility with withdrawing or cancelling their policy.
3. Trust Bias

Prior studies by Kahneman, Tversky and others underline how individuals, when faced with complex, unfamiliar or ambiguous circumstances, “tend to build reliable and plausible stories which are easy to believe and trust (Rizzo 2015). In turn, this fallacy drives consumers to avoid purchasing insurance coverage for high-risk, low-instance occurrences (such as death). This is because “we think that the probability of death or illness is extremely low now [without] taking into consideration the higher probability of such an event in a long-term horizon or applying other relevant information” (Ibid.). Most communication strategies in insurance marketing tend to fixate on positive aspects, such as quality of customer service and seldom on improving the knowledge of customers in terms of the probable risks. As a result, customers remain in an uncertainty bubble, sceptical of premiums issued by insurers – what follows is switching, as discussed above.

A 2018 survey by market research firm YouGov shows that 47 percent of Americans trust their insurers, while 43 percent do not (Hammond 2018). Generationally, a greater lack of trust is observed among customers under 55 (Ibid.). In light of these statistics, insurance players are now harnessing new sources of data to design affordable, personalised premiums for customers. Despite these innovative strides, big data veracity still remains an overlooked issue given the prevalent practice of harvesting data from multiple sources. This is further reflected in Mintel’s P&C customer survey which found that “the youngest consumer segment was slightly more sensitive to issues of trust and satisfaction,” particularly when assessing premium options and later during the claims stage (Mintel 2019). The survey also found that renters choose to opt out of home insurance altogether rather than obtain coverage through an insurance company they are sceptical of (Hammond 2018, Mintel 2019).

Along with the surge in public discourse surrounding data misuse, insurance players are challenged with assuring end users that first, user information is solely for underwriting analysis purposes (Cortis et al. 2019), and second, that the prices issued are reflective of transparent and reliable data practices. Additionally, from a regulatory standpoint, insurance companies are an anomaly, with little regulatory guidance surrounding data.
transparency. Rather than relying on regulators to administer consumer protection policies, insurance players need to take ownership and build customer trust, especially within the underwriting stage.

Technology itself is not the solution to addressing blind spots surrounding consumer trust. In addition to leveraging big data to formulate bespoke policies for customers, underwriters are now tasked with communicating how their pricing strategy has their customers’ best interests. Trust building is a two-way process, one where insurers should not only should seek to build trust with customers, but also reciprocate and “rely on their own ability to trust those customers in turn” (Hammond 2018).

**How do claims ensure customer retention?**

Similar to underwriting, P&C players are tasked with understanding their customers, and the various biases expressed not only during the preceding stages of the consumer journey, but at the final, “make or break” claims stage. A 2017 global panel survey by Ipsos & Medallia revealed that 77 percent of all customers choose a product or service based on the prior, “good experiences they had with [the company]” (Ipsos & Medallia 2018). What is more telling, is that 73 percent of all digital consumers stated that they were “willing to pay more for better experiences.” Findings from this study highlight that after trust and price, insurance customers “ranked customer experience as the third most frequent reason to renew an insurance policy” (Ibid.). The following two biases are prevalent within claims:

4. **Cognitive Dissonance**

In the case of auto insurance customers, filing a claim can result in a subsequent increase in premium. Irrespective of whether a driver either files a medical claim or a comprehensive claim (for non-accident related damages) certain states increase premium rates by nearly 65%, while others maintain the existing rate (The Zebra 2019). Moreover, coupled with a rise in the number of claims associated with weather events (floods, fires, hurricanes etc.), insurer profit margins are greatly reduced. In response, they are compelled to raise premiums to offset the rise in claims (Mintel 2019).

These realities surrounding premium pricing and claims disclosure pose an important question for insurers in terms of devising ways to “reduce questionable behaviours whilst enhancing consumer welfare” (Miyazaki 2009). Behavioural Economist Dan Ariely
explains that padding is not motivated by criminal tendencies but rather, self-image. In his book ‘The (Honest) Truth About Dishonesty: How We Lie to Everyone – Especially Ourselves’ Ariely underlines that individuals engage in untruthful behaviour, to the extent that our self-image as “honest individuals” permits (Ariely 2012). The bias driving this “soft fraud” behaviour is referred to as cognitive dissonance, the tension that exists between conflicting actions or feelings (Festinger 1962).

As a result of a culmination of the factors discussed above, some customers engage insurance padding, “the purposeful inflation or overstatement of the actual value of a loss when making a claim” (Miyazaki 2009). Padding is particularly prevalent among home and auto insurance customer segment (Thiem 2010). Through an experimental study, Miyazaki underlines how as deductible amounts increase, so does the proportion of subjects who deem insurance padding as fair and ethical. The study’s findings also demonstrate participants disclosing higher claim award amounts as a result. Similarly, Köneke et al. (2015) reveal that people are more likely to fill out claims more truthfully when prompted to sign the submission form prior to disclosing the necessary information. In this case, obtaining a signature serves as a salient commitment device to get insurance customers to truthfully comply. Looking ahead, players need to focus on ways to encourage accurate claims disclosures and exhibit trust in their customers, whilst reciprocating the transparency.

**Challenge 4: How can players ensure that they encourage accurate claims disclosures?**
5. Autonomy Bias

A 2018 Insurance Journal article found that one of the largest drivers of customer satisfaction within the claims stage stemmed from businesses providing “greater online access to self-service tools” through their digital offerings (Lajdziak 2018). A 2017 report by Bain & Company finds that little over half of insurance customers in 2017 had any contact with their insurance providers over a 12-month period (Naujoks et al. 2017). Customer autonomy is prevalent in home and auto insurance segment, where customers purchase insurance every three to six years (Ibid.).

Stemming from the self-determination theory, autonomy bias examines the extent to which an individual’s behaviour is self-motivated, namely “our universal and innate need to be agents of our own lives.” This cognitive process entails deciding what, how, and when we do something. A range of prior studies have shown how restrictions on one’s autonomy leads to dissatisfaction and can even diminish positive feelings and well-being of altruistic actions when coerced (Convertize n.d.). P&C insurers currently face an autonomy paradox within the claims stage of the customer’s journey. While customers value continued support, information disclosure and simplicity pre-claims, they also prefer to avoid interactions with their insurer at the last stage. In fact, many customers do not consider these interactions meaningful, as these primarily focus on the cumbersome context of claims handling (Mintel 2019).

AI technologies now enable insurers to handle claims processes through deep learning, neural networks and natural language techniques. Together, these and hope to create a new kind of positive interaction. Moreover, some providers further segment claims processes to provide end users with a “best-match” experience, either through fully autonomous self-service journeys (e.g. selecting a car repair facility), or working with a claims handler for high-risk, litigation heavy cases (Brüggemann et al. 2018). Therefore, acknowledging autonomy bias serves as a meaningful tool for motivating customers to renew their policies and drive retention in the long-run.

Challenge 5: How do players strike a balance between quality and quantity of B2C interactions?
In Practice: Four Case Studies

In this section, we detail four players in the U.S. insurance industry today and how they leverage behaviourally-informed mechanisms to tackle the underlying behaviours and biases discussed in Section 2. These examples offer 2 key insights:

1) Innovative technologies and human-centered design are not exclusively limited to startups or younger businesses in the industry but are also embraced by traditional incumbents.

2) The implementation of behavioural science is not always deliberate. Rather, we uncover these principles through our analyses.
**Case 1**

**Flyreel**

**Summary:** Traditionally, property valuation is based on market averages, rather than physical inspection. The result is that some properties are either over or undervalued, which in turn impacts the insurance premium customers pay. Colorado-based startup Flyreel provides an AI-powered solution that offers customers and their insurance carriers visibility into each property and its specific details. When a property is scanned via smartphone, Flyreel’s technology identifies other pertinent details about the contents of a property in real-time, and funnels potentially relevant information into that customer’s carrier. With every property scanned, the computer vision AI ‘learns’ and iteratively develops a more robust underwriting process, whilst placing trust and transparency back in the hands of the customer.

**Behavioural mechanisms:**
- **Personalisation** - Through the use of a conversational, two-way chatbot, Flyreel seeks to establish a strong foundation with their customers throughout the customer journey, from inspection to coverage selection.
- **Procedural utility** - People tend not only value outcomes, but also processes leading to those outcomes (Frey, Benz, & Stutzer 2004). Flyreel adopts this strategy through an ‘always-on’ approach by offering continued guidance from start to finish.
- **Mental accounting** - Economist Richard Thaler underlines that individuals think of value in relative rather than absolute terms (Thaler 1985). Customers derive satisfaction knowing that the quality of service is as fungible as the face value of coverage they receive.

**How it works:**
- **Conversational AI assistant**
  - Our friendly, intuitive assistant adapts and guides end users through inspections like your best underwriting expert would.
- **Insurance specific computer vision**
  - Our proprietary computer vision documents property contents, condition and more as users are guided through inspections.
- **Detailed property & contents report**
  - You’re given access to new and enriched data with unprecedented speed for better underwriting decisions.

**Sources:** Flyreel site, VentureBeat (2019), Frey, Benz, & Stutzer (2004), Thaler (1985)

**Case 2**

**ROOT**

**Summary:** Root is a car insurance company that aims to address informational issues surrounding premium pricing by encouraging positive driving behaviour. Using smartphone telematics (e.g. brake sensors, speed of turns, drive duration), Root delineates between safe and unsafe drivers - and only insures the safe ones. Traditional underwriters in the auto insurance space rely heavily on demographics and less on actual driving behaviour when assigning rates. What makes Root’s model unique is that they focus their service on those who exhibit positive driving habits (i.e. a smaller customer segment) which in turn, enables them to formulate more affordable rates.

**Behavioural mechanisms:**
- **Personalisation** - Similar to claims, premiums are assigned on a ‘case-by-case’ basis and aims to tackle the availability heuristic by offering a similar coverage to a customer’s previous insurer, but encourages drivers to take a more active role in pricing by offering customizable options (e.g. drivers can add or remove coverages as and when they think they need it).
- **Framing** - By highlighting positive and negative aspects of driving behaviour, they shape perceptions surrounding insurance pricing – the safer the driver, the better the coverage. This technique originates from Kahneman & Tversky’s work on prospect theory, where they framed gambling choices as a loss or gain.
- **Incentivisation** - Through incentives, Roots encourages behavioural change by tapping into intrinsic motivations in addition to monetary ones. Additionally, this mechanism enables them to tackle switching behaviour by encouraging its customers to refer their friends, in exchange for cash bonuses or lower coverage rates.

**How it works:**
- **Simple pricing**
  - Once you get a quote, you can add or remove coverages and adjust your limits (plus, you can easily see how much you’ll pay.)
- **Fair rates**
  - Most traditional auto insurance companies only base rates on demographics, like age and ZIP code. You deserve a rate based on how you actually drive, not who you are. This is where our test drive comes in.
- **All in an app**
  - Everything you need to manage your policy and handle a claim is all at your fingertips in our easy-to-use app.

**Sources:** Root site, Kahneman & Tversky (1979), Gneezy, Meier & Biel (2011)
Summary: Launched in 2011, Snapsheet is an auto insurance marketplace catering to drivers and motorists, as well as traditional P&C carriers like Liberty Mutual and USAA. Through the use of virtual photo submissions, Snapsheet provides its customers with accelerated claims service, whilst maintaining a low-touch user experience from uploading photos of their damages, liaising with auto repair shops, to insurance carriers.

Behavioural mechanisms:
- **Ambiguity aversion**: People are more likely to comply to a set of objectives when the process and benefits associated with completing the task are made known. Moreover, when people are provided with list of steps to follow, it not only provides them guidance but also with autonomy. Through their checklist approach and persuasive communication, Snapsheet provides customers autonomy whilst giving them direction along the way.
- **Anchoring**: Anchoring a sense of autonomy has been previously explored from education to health. Snapsheet concretizes their value proposition (shortened claims cycle) by the positive outcomes of self-service through numbers. In doing so, they acknowledge customer autonomy whilst “re-biasing” preexisting, negative perceptions surrounding claims processes.

How it works:

**Behaviour/Bias:** Autonomy bias  
**Vertical:** Auto  
**Type:** Series E

**3 Simple Steps**
1. **Vehicle Info**  
   Confirm the vehicle that was damaged  
2. **Take Photos**  
   Photograph the vehicle & damage  
3. **Get Estimate**  
   We’ll handle this and send it to you

Sources: Snapsheet site, Salomon (2003), Theron (2004)

---

Summary: Ranked as one of the top five biggest players in P&C insurance, Allstate’s offerings comprise a wide range of auto and home insurance. Although considered a traditional player in the insurance space, Allstate launched a Data, Discovery & Decision Science unit, in hopes of tackling current challenges faced by incumbents and insurtechs today. Allstate has also implemented a range of technologies in recent years, including: AI chatbot Amelia, who employs machine learning to provide niche service to end users, QuikFoto Claim to tackle claim fraud through virtual photo technology and augmented reality technologies like Escape Route to encourage customers to plan evacuations in the event of a home fire.

Behavioural mechanisms:
- **Social proof**: Coined by Robert Cialdini (1984), this mechanism refers to the way in which influence is expressed, either normatively or informationally. By integrating informative descriptive norms into their interface communications, they underline how accurate claims submission is a participatory, interdependent process that “hurts everyone.” This compliance method serves as an effective precursor to the more digital-savvy mechanisms such as QuikFoto, which mandates customers to document and submit them for claims processing.
- **Reciprocity**: Understandably, claims submission is a sunk cost to the customer. Recognising this, Allstate engages its customers pre-claims by offering safe drivers with cash rewards. This mechanism leverages the reciprocity technique in two ways: first by offering rewards in return for prosocial behaviour, and second, minimises cognitive dissonance by setting a precedent for honest claims disclosure.

Fraud Hurts Everyone

**INSURANCE FRAUD IS ON THE RISE.**

The National Insurance Crime Bureau (NICB) reports a 23 percent rise in questionable insurance claims from 2008 to 2018. With insurance fraud increasing in America, most states have established fraud bureaus to help fight it.

How does insurance fraud impact you? Fraudulent claims can lead to higher insurance premiums for everyone, costing billions each year. These types of crimes are difficult to prevent and prosecute, but you can help fight back. Learning more about insurance fraud can help you identify and report it.

Sources: Allstate site, Cialdini (1984), UK Behavioural Insights Team (2012)
Key Lessons

The insurance landscape warrants exploration through a behavioural lens for two reasons: from a supply side view, businesses not only need to attract customers and engage them, but also “make sure that they are not an overall expense during their customer lifetime” – that is, minimise instances of claims (Frandsen 2016). From a demand side view, purchasing insurance coverage or obtaining claims are not activities that a customer is willing to spend their money and time on (Ibid.).

Moreover, insurance products are not one-off. Because of this key characteristic, companies need to ensure that their customer is profitable across their “entire customer lifetime [with] the company.” Additionally, acquisition efforts (marketing, underwriting services, implementation of cutting-edge technologies etc.) present substantial upfront costs to businesses. A 2013 study by research firm Copenhagen Economics underlines that on average, it takes about 2-3 years before a customer is profitable to an insurance business (Frandsen 2016). While the acquisition timeline has drastically shortened, given the rise of digital capabilities and an increased customer-first business model, players are now faced with a new challenge – retaining customers in an ecosystem where switching costs are minimal.

Today, most players have integrated technology into their business model. The result is increased access to alternate data sources and data assets, gleaned from the variety of digital innovations outlined in Section 1. Another key challenge companies face today is translating behavioural insights acquired from analysing data back into the business model. Take for example auto insurance. From growing positive perceptions surrounding the safety of self-driving vehicles to the increased prevalence of car ownership collectives, auto insurance companies might assume that insurance rates are bound to decrease. Yet, auto rates might continue to rise as they have in recent years, given that “how expensive new vehicle accidents are due to the advanced technology contained within the car” (Ipsos What the Future Mobility Report 2019). Looking ahead, insurance players not only need to focus on gleaning behavioural insights to frame front-end marketing efforts, but also adapt their technologies accordingly.
The case studies above illustrate that significant strides have been taken to integrate behaviourally-informed principles within their pricing practices. While this has provided customers with more transparency, autonomy and trust, not all insurance players leverage behavioural science at the front end of the business-to-customer ‘B2C’ relationship model. With more and more insurtechs entering the U.S. market, companies need to pivot their efforts from product/price differentiation and more toward how they market their offerings to customers. Employing behavioural insights through opportunistic delivery (be it timing, phrasing of promotions, UX design etc.) enables players to retain a strong customer base in the long-run whilst catering to a specific customer target (Hallsworth et al. 2014). One behaviourally-driven framework to consider is the EAST framework. Developed by the UK Behavioural Insights Team in 2012, the EAST framework aims to target System 1 processing (i.e. fast, automatic, emotional, unconscious decision making) and comprises of four key tenets: easy, attractive, social and timely. Exhibit 6 below details features of each technique:

1) **EASY**: Simplification of information/messages, reducing effort or difficulty to perform an action, offering default options, etc.

2) **ATTRACTIVE**: Harness personalization, eye-catching graphics, utilize rewards/sanctions

3) **SOCIAL**: Employ vast social networks, leverage social norms, commitment devices

4) **TIMELY**: Tap into channels people are most receptive to (email, text, mail, physical sites), highlight cost-benefit of now vs. later

Exhibit 7: The E.A.S.T Framework

Source: Halpern et al. (2014)
Before incorporating EAST into their marketing strategies, the first step is to map out the customer experience from start to finish. With a clear roadmap, companies can better assess which problems arise at what stage of the user journey. Within the problem analysis stage, players need to consider the nature of these pain points. Preliminary questions might include the following:

- *How many issues do customers face at each stage?*
- *How significant is that particular stage in the user journey?*
- *How significant of a hindrance is this to their overall experience?*
- *Does this problem arise at multiple stages of the user journey?*

Once these challenges are identified, businesses should list out what behavioural outcomes they want to amend, as well as what performance metrics will measure the behavioural change. Following this process, it is important to determine what marketing activities (i.e. your behavioural solutions or interventions) will help bring about the desired behaviour - this entails listing out relevant tenets of EAST for each marketing effort. Finally, before large-scale implementation, businesses should test their proposed solutions. Leveraged by the BIT, the test-and-learn approach is highly relevant to the current, digitally-centred insurance landscape. Marketing testing comprises a range of activities, from A/B testing to customer surveys, and can be tested on a smaller scale before adapting the approach and avoid wasting time and costs (Somerville & King 2018, Wallaert 2018). Exhibit 8 depicts the overall implementation framework:

![Exhibit 8: Implementing EAST in marketing strategy](Source: Somerville & King (2018))

While behavioural science offers creative, low-cost, easy-to-integrate solutions, there are some counter considerations as to whether these are effective mechanisms for marketing in the long-run. Is there a saturation point, after which the customer segment "might no
longer resemble the one in which those [behavioural] interventions were first studied” (Shaw 2019). In a 2019 study conducted by market research consultancy Trinity McQueen, approximately 2000 British adults were presented with a range of behavioural interventions and asked to evaluate how effective the product or service’s marketing tactics were. Main findings show that nearly two thirds of the subject pool identified the use of behavioural mechanisms like “scarcity and social proof claims used by hotel booking websites as sales pressure,” and half stated little trust in the hypothetical company (Ibid.). In all, results from this study underline that heuristics are not static, but rather dynamic, and that consumers develop resistance to certain marketing tactics as a result of sheer overuse (Todd & Gigerenzer 2003). Therefore, it is crucial that businesses continually monitor and adapt their marketing nudges to avoid falling into a nudge resistance trap.

Players in the insurance industry also face the challenge of targeting a diverse customer base, comprising of varying demographics and characteristics. Take for example generational differences. Nudges that employ personalisation might work better when targeting “millennials and Gen Z, who have grown up in a world of responsive brands and personalized customer experiences and are accustomed to being in regular dialogue with companies” (Ipsos & Medallia 2018). Surprisingly, baby boomers and older customers are even more likely to demand immediate service (Mintel 2019). Insurance businesses must be mindful of customer heterogeneity and tailor their nudges accordingly.

In sum, exploration of the U.S. insurance space presents a number of meaningful implications. For players across the industry, the findings in this paper shed light on how behavioural science can be employed threefold: first, to drive innovation within their existing business model; second, enable businesses to better market their offerings and sustain user retention; finally, encourage companies to collaborate within the industry and beyond. This is not to say that current research methodologies or marketing strategies are ineffective, but rather, that behavioural science theory can serve as powerful ancillary tool to help diagnose types of behaviour and encourage the formation of more constructive, positive ones that benefit society as a whole.
# Appendix

## Table 3: Trend Metastudy

<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Source</th>
<th>Value Drivers</th>
</tr>
</thead>
</table>
| 1 InsurTech Caught On The Radar: Hype Or The Next Frontier?          | Kottmann & Dördrechter   | Oliver Wyman | 1. Consistency (e.g. business model reflects the natural behaviour of the involved parties)  
2. Differentiation (e.g. economies of scale and scope, building a clearly differentiated brand, or maintaining a lasting technological advantage) |
|                                                                      |                          |              | 2. Consistency (e.g. business model reflects the natural behaviour of the involved parties)  
2. Differentiation (e.g. economies of scale and scope, building a clearly differentiated brand, or maintaining a lasting technological advantage) |
| 2 Digital disruption in insurance: Cutting through the noise          | Catlin et al.            | McKinsey    | 1. Growth (e.g. customer experience, cross-selling and upselling)              |
2. Cost reduction (e.g. reducing administrative/acquisition expenses whilst decreasing risk) |
|                                                                      |                          |              | 2. Growth (e.g. customer experience, cross-selling and upselling)              |
2. Cost reduction (e.g. reducing administrative/acquisition expenses whilst decreasing risk) |
| 3 The five trends driving insurtech                                   | Kaezler & Schollmeier    | McKinsey    | 1. Adaptability (e.g. cross-industry, cross-service)                          |
2. Customer satisfaction (e.g. within specific stage vs. whole value chain) |
|                                                                      |                          |              | 2. Adaptability (e.g. cross-industry, cross-service)                          |
2. Customer satisfaction (e.g. within specific stage vs. whole value chain) |
| 4 Insurance at the Intersection: Reinventing the Model, Repositioning the Brand | Sexton et al.            | Cognizant   | 1. Evolving business models (e.g. partnerships with non-insurance verticals)  |
2. Customer behaviour (e.g. level of engagement, sustained retention)   |
|                                                                      |                          |              | 2. Evolving business models (e.g. partnerships with non-insurance verticals)  |
2. Customer behaviour (e.g. level of engagement, sustained retention)   |
| 5 CB Insights Quarterly InsurTech Briefing                           | CB Insights & Willis Towers Watson | CB Insights | 1. Industry adoption (e.g. media attention, customer adoption, funding momentum)  
2. Market strength (e.g. investments in R&D, number of investors, incumbent dealmaking power) |
| 6 Ipsos Home Insurance Study                                         | Ipsos Group S.A.         | Ipsos Group S.A. | Based on six key metrics: information availability, purchase intent, liking, uniqueness, believability, need fulfilment |
| 7 Insurtech 10: Trends for 2019                                      | KPMG Report              | KPMG        | “Customer satisfaction and retention will likely be a more important key performance indicator (KPI) than operational efficiency.” |
References


Frandsen, K. (2016, March 1). Consumer switching behaviour in the insurance industry - Impact of a premium increase strategy on private customer retention in a Danish insurance company. Retrieved from https://www.academia.edu/23803595/Consumer_switching_behaviour_in_the_insurance_industry_-_Impact_of_a_premium_increase_strategy_on_private_customer_retention_in_a_Danish_insurance_company


https://www.obrella.com/insurance-faq/how-do-insurance-companies-work/


Acknowledgements

I would like to thank industry partners Sanjay Ponnaiya and Christopher Palmer for their continual support in developing this paper. I would also like to give thanks to faculty advisor Dr. Alex Shpenev for his constructive inputs and guidance along the way. Finally, I am grateful for the Master of Behavioural & Decision Sciences faculty for their academic counsel. The views expressed in this white paper are those of the author and do not necessarily reflect the views of our partners and reviewers.