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InsurTech: The Next Disruptor to the Insurance Industry

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InsurTech is a portmanteau of the words "Insurance" and "Technology" and refers to technology that mediates insurance transactions between consumers and insurance companies. These firms are exploiting the lack of inertia in traditional insurance systems by challenging age-old marketing, underwriting and pricing of insurance products. They are proving transacting insurance products is no different than transacting widgets, creating disruption to an industry thought navigable only by specialists such as actuaries, accountants and medical underwriters. The application of InsurTech is marked by the innovative use of technology to transform the insurance customer's buying, underwriting and in force management experience by replacing traditional constructs of insurance with technology driven systems that use big data and big data analytics that are independent of the "old-school" approaches (Kocianski, 2018). This paper will discuss the current state of InsurTech, the reliance on big data and big data analytics, and the implications for the insurance industry.

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Contrary to popular notion, the term "big data" has a history that dates to the 1990s (Lohr, 2013). Lohr (2013) reports that the earliest use of the term with a meaning similar to its current usage was by chief scientist of Silicon Graphics Incorporated (SGI), John Mashey. John Mashey gave a presentation titled "Big Data ... and the Next Wave of InfraStress" to the USENIX Association, the Advanced Computing Systems Association. His presentation discusses the issues of storage, bandwidth, memory, user expectations, system environment and other issues that remain relevant today in working with big data. Since the Mashey presentation, the term "Big Data" has also become known for its ubiquitous influence on consumer transactions and social media interactions, and for igniting discussions about data privacy, getting unwanted attention from regulatory agencies.

The hype surrounding big data is studied and tracked by Gartner Inc. using the Hype Cycle. (Gartner, 2017). Gartner claims to be the "best first source for addressing virtually any IT issue because of [their] world-class, objective insight, the rapid access to that insight, and the low cost compared to the impact and other alternatives (Gartner, 2017, p.1)." Gartner Hype Cycles are graphical representations of the life cycle and adoption of various technologies and their applications. There are five stages to the hype cycle. They are: 1) innovation (or technology) trigger, 2) peak of inflated expectations, 3) trough of disillusionment, 4) slope of enlightenment, and 5) plateau of productivity. Placement in the cycle reflects relevancy to real world problems. The methodology attempts to trace the evolution of an innovation from a novelty stage to its ultimate maturity as either a vital business agent or an over-hyped innovation that did not pan out.

Gartner defines each of the stages. The innovation trigger is the breakthrough moment, where there is a lot of "buzz" but no evidence, necessarily, of effectiveness. As the attention increases, the innovation reaches its peak of inflated expectations, with a number of successes as well as failures. The trough of disillusionment follows if the innovation fails to live up to its early promise. Continued investments to improve the product can move the innovation into the slope of enlightenment, where the application of the innovation becomes more pervasive as a viable solution to a business problem. If the plateau of productivity is reached, the innovation is widely viewed as necessary to operations and the investment in the technology is improving a company's bottom line.

Big data moved from its innovation trigger phase in 2012 and dropped into a trough of disillusionment by 2017.[1] It is noteworthy that big data was dropped from the hype cycle in 2015 because it was felt that it was no longer an emerging technology, as opined by the analyst who created the 2015 hype curve (Woodie, 2016). Big data returned to a position of disillusionment in the 2017 Gartner hype cycle. However, Bennett (2017) of Thompson Reuters has a more optimistic view of the market maturity of big data. Bennett feels big data is "well beyond disillusionment and moving into productivity—but that comes with the caveat that this is just another tool in the box (p.1)." Bennett's view of big data includes analytical tools and machine learning algorithms to access, process and mine big data for information. Gartner's definition is more limited in scope and restricted to defining big data in terms of three Vs: volume, velocity and variety (Sicular, 2013).

Currently, big data is defined in terms of the five Vs (Cano, 2014; Jain, 2016; Leboeuf, 2016). They are:

- **Volume:** The size of the data set
- **Velocity:** The speed at which data is available
- **Variety:** Use of nontraditional insurance data
- **Veracity:** The reliability of the data
- **Value:** The monetary contribution of the data

INSURTECH APPLICATIONS

InsurTech applications use big data and big data analytics to transform the insurance buying, underwriting, and in force management experience. Some highly recognized InsurTech organizations who are the early catalysts of change in the insurance industry, include:

- Lemonade Insurance Company. It changed the customer buying experience through InsurTech cell phone applications (Fromm, 2017). The app driven experience underwrites insurance policies by utilizing big data-based algorithms to issue policies in less time than consumers have experienced under traditional underwriting of the past. Paying claims is lightening quick as well (Lemonade, 2018).

- Haven Life, a Mass Mutual insurance company, is deploying life insurance applications using InsurTech devices and approaches (Huckstep, 2017). It deploys big data, big data

analytics, AI and other machine learning tools to speed up the underwriting and issuance of term life insurance policies (Dignan, 2017).

- InsurTech consulting firms are cropping up in the life insurance space to address the challenges insurers are facing to understand the evolutions currently taking place in the marketplace. Attracting and retaining new customers is the number one priority of insurers in this new age of technology driven devices transforming the customer engagement relationship (Cision PR Newswire, 2018).

The industry may be ripe for these innovations, but many incumbent players remain reluctant to adopt them (Satter, 2018). Insurance is a highly regulated industry with many layers of jurisdictional legal baggage to deal with. Regulators are still developing their own expertise in big data and big data analytics and may be resistant to relaxing regulations before their education is complete, despite the arrival of these innovations. Insurance companies understandably may err on the side of caution and shy away from start-up ventures rather than risk regulatory challenges. Many of the InsurTech startups still require the help of traditional insurers to handle underwriting and manage catastrophic risk. However, insurance is dependent upon consumers and as more InsurTech startups garner consumer interest with a more refined, technology enabled

and savvy behavioral approach, insurers will figure out how to harness these technologies and work to develop actuarial standards of practice to satisfy regulatory concerns to safeguard consumer protections.
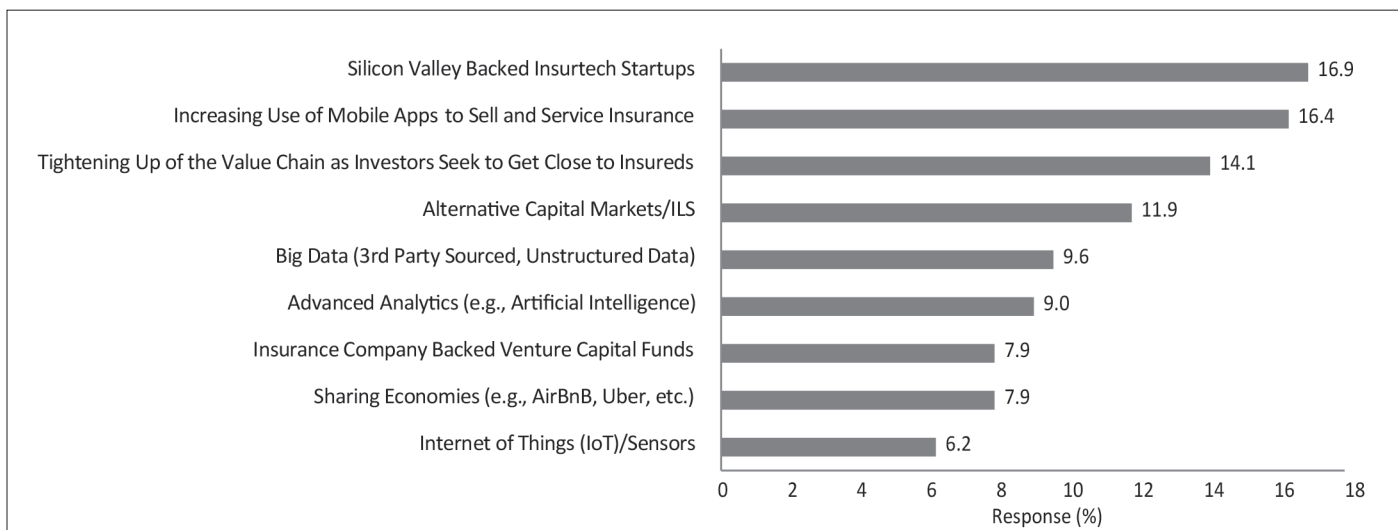
DISCUSSION

Over the last few years, InsurTech startups have grown to more than 1,500 firms, with funding more than a $1 billion for three consecutive years ending in 2017 (NAIC, 2017). The National Association of Insurance Commissioners (NAIC) is closely monitoring these firms for the disruption they pose for the industry. At the 2018 Spring NAIC Meeting in Milwaukee, Wisconsin, the American Family Insurance Company made a presentation to the Innovation and Technology (EX) Task Force of the NAIC (NAIC, 2018). The presentation identified the greatest threats to the insurance industry and InsurTech was identified as the number one threat (Fig. 1), as summarized from A.M. Best data and research. The third largest threat is interesting in that it identifies investors getting "close" to insureds. The threat posed is to the traditional agent mediated relationship between the insured and the insurance company. This threat suggests the agent is being displaced and this displacement will eliminate a huge revenue source for agents, commissions on insurance premiums, which is also a huge expense for insurers. Therefore, displacing agents with technology has huge potential expense savings for insurance companies.

There is a need to evaluate the risks these innovations pose to the continued health of insurance organizations. The American Academy of Actuaries (AAA, 2018) released a monograph on Big Data and the Role of the Actuary in the Summer of 2018. This is required reading for every actuary.

CONCLUSIONS

It is unlikely InsurTech, big data, and big data analytics are just fads. The changing nature of the social behavior of consumers and their need and preference for technology solutions are the key reasons for the change in the platform of engagement. Industry needs consumers to thrive and the lack of regulatory infrastructure is not a showstopper. Regulators will need to develop data and model governance policies and regulatory tools to police the use and application of InsurTech technologies to prevent "unfair discrimination (McKenny, 2016, p.1)" of insurance consumers resulting from inaccurate data sources, mathematical algorithms which may mis-estimate a logical relationship between insured behaviors and insurance risks, and insurance data rating variables disallowed by regulators. Industry is wise to work expediently to develop standards of practice to police itself as a preemptive, good faith effort to aid in crafting the narrative around the regulatory control of these innovations and to work cooperatively alongside regulators to safeguard consumer protections. Consumers are influencing the changing nature of insurance transactions by demanding

Figure 1
Insurance Industry Greatest Threats

Threat	Response (%)
Silicon Valley Backed Insurtech Startups	16.9
Increasing Use of Mobile Apps to Sell and Service Insurance	16.4
Tightening Up of the Value Chain as Investors Seek to Get Close to Insureds	14.1
Alternative Capital Markets/ILS	11.9
Big Data (3rd Party Sourced, Unstructured Data)	9.6
Advanced Analytics (e.g., Artificial Intelligence)	9.0
Insurance Company Backed Venture Capital Funds	7.9
Sharing Economies (e.g., AirBnB, Uber, etc.)	7.9
Internet of Things (IoT)/Sensors	6.2

Source: A.M. Best Company. Used by Permission.

fast, cheap insurance, and a hassle-free experience. Insurers and regulators will likely need to strike a balance between regulatory supervision and industry innovation to deliver an improved level of service to consumers at competitive costs. Insurance is a profitable industry, which is strong motivation for insurers to satisfy the concerns of regulators. ■

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ENDNOTE

1   You will find the Hype Cycle at *https://www.gartner.com/newsroom/id/3798863*

REFERENCES

American Academy of Actuaries (AAA). (2018, Summer). *Big Data Monograph*. Washington, D.C.

Bantleman, J. (Retrieved April 2, 2018). "Big Data: Business of Technology Challenge." Retrieved from *https://www.wired.com/insights/2013/01/big-data-business-or-technology-challenge/*

Bennett, D. (2017, September 26). "Big Data Hype Cycle." Retrieved from *https://blogs.thomsonreuters.com/answerson/big-data-hype-cycle/*

Cano, J. (2014, March 11). "The V's of Big Data: Velocity, Volume, Value, Variety, and Veracity." Retrieved from *https://www.xsnet.com/blog/bid/205405/the-v-s-of-big-data-velocity-volume-value-variety-and-veracity*

Cision PR Newswire. (2018, March 28). "Atidot Raises $5M Series A to Bring Big Data and Predictive Analytics to Life Insurers, Appoints Martin Snow as Vice President and CDO." Retrieved from *https://www.prnewswire.com/news-releases/atidot-raises-5m-series-a-to-bring-big-data-and-predictive-analytics-to-life-insurers-appoints-martin-snow-as-vice-president-and-cdo-678148443.html*

Deda, B. (2017, September 20). "What is InsurTech and How Can You Harness its Disruptive Powers?" Retrieved from *https://www.vertafore.com/resources/blog-posts/what-insurtech-and-how-can-you-harness-its-disruptive-powers*

Derman, E. (196). "Model Risk." *Quantitative Strategies Research Notes*. Retrieved from *http://www.emanuelderman.com/media/gs-model_risk.pdf*

Devakunchari, R. (2014). "Analysis on Big Data Over the Years." *International Journal of Scientific and Research Publications*. 4(1). Retrieved from *http://www.ijsrp.org/research-paper-0114/ijsrp-p2573.pdf*

Dignan, L. (2017, June 26). "How Haven Life uses AI, machine learning to spin new life out of long-tail data." Retrieved from *https://www.zdnet.com/article/how-haven-life-uses-ai-machine-learning-to-spin-new-life-out-of-long-tail-data/*

Fromm, J. (2017, July 17). "How Startup Lemonade Is Redefining Insurance for Millennials." Retrieved from *https://www.forbes.com/sites/jefffromm/2017/07/12/how-startup-lemonade-is-redefining-insurance-for-millennials/#c2418c611b06*

Gartner (Gartner). (2017, September 11). "Gartner's Hype Cycle Reveals the Digitalization of the Supply Chain." Retrieved from *https://www.gartner.com/newsroom/id/3798863*

Gartner (Gartner). (2017, September 11). "Gartner Hype Cycle." Retrieved from *https://www.gartner.com/technology/research/methodologies/hype-cycle.jsp*

Huckstep, R. (2017, June 4). "Haven Life—Making Life Insurance Relevant to a Digital Generation." Retrieved from *https://www.the-digital-insurer.com/blog/insurtech-haven-life-making-life-insurance-relevant-to-a-digital-generation/*

Jain, A. (2016, September 17). *The 5 Vs of Big Data*. Retrieved from *https://www.ibm.com/blogs/watson-health/the-5-vs-of-big-data/*

Kocianski, S. (2018, April 4). "The InsurTech Report 2.0: The Technologies Disrupting the Insurance Industry and What Incumbents Can Do to Stay Ahead." Retrieved from *https://finance.yahoo.com/news/insurtech-report-financial-technolgy-firms-080600292.html*

Leboeuf, K. (2016, January 27). Retrieved from *http://www.excelacom.com/resources/blog/the-5-vs-of-big-data-predictions-for-2016*

Lemonade. (Retrieved April 7, 2018). "Forget Everything You Know About Insurance." Retrieved from *https://www.lemonade.com/*

Lohr, S. (2013, February 2). "The Origins of Big Data An Etymological Detective Story." Retrieved from *https://bits.blogs.nytimes.com/2013/02/01/the-origins-of-big-data-an-etymological-detective-story/*

Mashey, J. (1998). "Big Data ... and the Next Wave of InfraStress." Retrieved from *http://static.usenix.org/event/usenix99/invited_talks/mashey.pdf*

McKenney, M. (2016, December). "What is Unfair Discrimination in General Insurance Rating? A Regulator's Perspective." *Insights*. Retrieved from *https://www.soa.org/News-and-Publications/Newsletters/General-Insurance/2016/december/What-is-Unfair-Discrimination-in-General-Insurance-Rating--A-Regulator-s-Perspective.aspx*

National Association of Insurance Commissioners (NAIC). (2017, December 13). "InsurTech." Retrieved from *http://www.naic.org/cipr_topics/topic_insurtech.htm*

National Association of Insurance Commissioners (NAIC). (2018, March 23). *INNOVATION AND TECHNOLOGY (EX) TASK FORCE*. *http://www.naic.org/cmte_ex_ittf.htm*

Satter, M. (2018, February 15). "Insurers Slow to Adopt InsurTech Could be Courting Risk." *Retrieved from https://www.benefitspro.com/2018/02/15/insurers-slow-to-adopt-insurtech-could-be-courting/?slreturn=20180305151537*

Sicular, S. (2013, March 27). "Gartner's Big Data Definition Consists of Three Parts, Not to Be Confused with Three 'V's." Retrieved from *https://www.forbes.com/sites/gartnergroup/2013/03/27/gartners-big-data-definition-consists-of-three-parts-not-to-be-confused-with-three-vs/#7508041442f6*

Woodie, A. (2016, August 15). "Why Gartner Dropped Off the Hype Curve." Retrieved from *https://www.datanami.com/2015/08/26/why-gartner-dropped-big-data-off-the-hype-curve/*