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Big Data And Algorithms Are Revolutionizing The Insurance Industry

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# BIG DATA AND ALGORITHMS

## are Revolutionizing the Insurance Industry

By Kara P. Pike, Saul Ewing LLP, Fran Roggenbaum, Saul Ewing LLP and Fred Garsson, Saul Ewing LLP

The use of Big Data and Algorithms are revolutionizing the insurance industry. They are doing this by improving the speed and accuracy of most core insurance company functions and processes, and are expected to represent a “win” for both insurers and consumers alike. Many are surprised that we are now past the point where the use of Big Data and Algorithms are mere theoretical concepts – both are currently being actively used by insurers throughout the US. Not surprisingly, both are now subject to insurance statutes, regulations and regulatory guidance in many states. The key regulatory issues associated with the use of Big Data and Algorithms include the potential for unfair discrimination (even if it is unintentional), the accuracy/reliability of the data utilized for the purposes intended, the lack of transparency to consumers, and the ability of regulators to appropriately monitor and evaluate the use of Big Data and Algorithms to assure regulatory compliance.

How did this all happen and how did it happen so quickly? Advances in technology, artificial intelligence and the corresponding increase in the availability of new types of data (Big Data) have impacted numerous industries and their consumers for the past several years. While there is not a singular definition of Big Data, there are consistent themes that focus on large amounts of data and information that are obtained from many sources – public and private – through the use of personal computers and mobile devices, and which sources include, but are not limited, to social media, unstructured data (video, text, voice), geospatial/location information and telematics.


While insurers have always been in the “data” business, Big Data is changing the way insurers obtain and use data for their core functions, such as marketing, underwriting and pricing insurance policies, and adjusting and paying claims. These changes include insurers having access to voluminous amounts of data and new sources for that data, with advanced tools to analyze the data and more sophisticated use applications. Additionally,

insurers are utilizing data that is outside of the traditional scope of insurance underwriting information to determine insurability.

A major focus of the use of Big Data is in connection with Algorithmic Underwriting. An algorithm is generally defined as a computational or machine learning process that informs human decisions made in insurance practices. In other words, data is collected and used to make a decision, such as whether to insure a particular risk, how much to charge as a premium, and whether to pay a claim. Algorithmic Underwriting uses external data and information sources, including but not limited to credit scores, locations, home ownership, educational attainment, occupation, licensures, civil judgments and court records, social media habits, lifestyle habits (e.g., TV, diet, types of personal activities) and purchasing habits to help insurers decide whether to bind coverage and how much to charge. Algorithmic Underwriting generally utilizes predictive models (i.e., processes of using mathematical and computational methods that examines current and historical data sets for underlying patterns and calculates the probability of various outcomes).

The increased use of Big Data is Algorithmic Underwriting by insurers has already demonstrated its ability to be highly beneficial to both the insurance industry and insurance consumers, but it also has the potential to raise regulatory concerns related to the impact on insurance consumers from the use of such expanded data (see the following Saul Ewing video link on The Intersection of Big Data and Insurance Regulation <https://www.youtube.com/watch?v=HULk12XAcHA>).

As noted above, some areas of concern with the use of Big Data in Algorithmic Underwriting on insurance consumers have been identified by several states, including the potential for unfair discrimination, the accuracy/reliability of the data utilized, the lack of transparency to consumers, and the ability of regulators to appropriately monitor and evaluate the use of Big Data in Algorithmic Underwriting to assure regulatory compliance. By far



the most significant area of concern of state insurance regulators is with unfair discrimination, which is succinctly described in a 2021 Colorado Unfair Competition – Deceptive Practices Law (CO, Ins. Code §10-3-1104.9) as:

*the use of one or more external consumer data and information sources, as well as algorithms or predictive models using external consumer data and information sources, that have a correlation to race, color, national or ethnic origin, religion, sex, sexual orientation, disability, gender identity, or gender expression, and that use results in a disproportionately negative outcome for such classification or classifications, which negative outcome exceeds the reasonable correlation to the underlying insurance practice, including losses and costs for underwriting.*

One of the difficulties in identifying unfair discrimination in the world of Big Data is that sometimes the actual data point is not on its face unfairly discriminatory, it is in its application that it creates a disproportionately negative outcome for a protected class.

With respect to regulatory compliance, an initial hurdle that has been identified is whether regulators have the staffing and specialty technological expertise to evaluate the accuracy and reliability of the sources of Big Data and the appropriateness of the predictive models utilized in Algorithmic Underwriting. As insurance licensees incorporate advanced technologies and complex algorithms into their business processes, regulators need to have the staff, technology and understanding to evaluate and regulate the uses of these technologies.

Due to these concerns, in 2016, the NAIC formed the Big Data and Artificial Intelligence Working Group, whose 2023 Charges include the following (abbreviated from the Working Group webpage, which is available at [https://content.naic.org/cmte\\_h\\_](https://content.naic.org/cmte_h_)

[bdwg.htm](#)):

- Research the use of big data and artificial intelligence, including machine learning in the business of insurance, and evaluate existing regulatory frameworks for overseeing and monitoring their use.
- Review current audit and/or certification programs that could be used to oversee insurers' use of consumer and non-insurance data and models using intelligent algorithms including artificial intelligence and, if necessary and appropriate, issue recommendations and coordinate with appropriate NAIC committees on the development of or modifications to model laws, regulations, handbooks, and regulatory guidance regarding data analysis, marketing, rating, underwriting and claims, regulation of data and model vendors, regulatory reporting requirements, and consumer disclosure requirements.
- Assess data and regulatory tools needed for state insurance regulators to appropriately monitor the marketplace, and evaluate the use of big data, algorithms, and machine learning in underwriting, rating, claims, and marketing practices. If necessary and appropriate, propose a means to include these tools in existing and/or new regulatory oversight and monitoring processes to promote consistent oversight and monitoring efforts across state insurance departments.

While the NAIC Working Group is taking steps to advance the above objectives, several states have proceeded to take action, including California (Bulletin 2022-5 on Allegations of Racial Bias and Unfair Discrimination in Marketing, Rating, Underwriting, and Claims Practices by the Insurance Industry due to the use of artificial intelligence and various forms of Big Data analysis); Colorado (2021 law addressing Insurers' Use of External Consumer Data and Information Sources, Algorithms



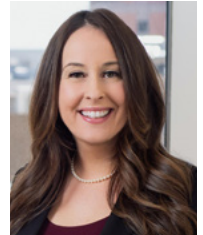
and Predictive Models); Connecticut (2022 Notice to insurers that Reminds Insurers to Avoid Discriminatory Practices with Big Data and to advise of New Data Certification Requirements Issued to Insurers); New York (2019 Circular Letter on the Use of Consumer Data and Information Sources in Underwriting in Life Insurance and 2020 Letter Request to insurers authorized to write life insurance and annuities to provide information on the use of accelerated or algorithmic underwriting); and Pennsylvania (Notice 2019-03 addressing prohibitions in underwriting and rating with an insurer's obtaining information on the acquisition of opioid reversal agents that do not relate to the health status of the individual applicant or enrollee). Each of these notices, bulletins and laws are meant to address the biggest areas of concern related to the impact on insurance consumers with the use of Big Data and Algorithmic Underwriting.

Finally, due to the potential resource and technology expertise issues of insurance regulators, several state regulators have issued notices advising of the hiring of an outside consultant to assist the regulator in analyzing insurers' use of Big Data and Algorithmic Underwriting. For example, the Colorado Division of Insurance in April 2022 announced that it had contracted with O'Neil Risk Consulting & Algorithmic Auditing (ORCAA), a consulting firm that helps companies and organizations identify and manage algorithmic risks, to assist with the implementation of the new law addressing Insurers' Use of External Consumer Data and Information Sources, Algorithms and Predictive Models. In addition, in June 2022, the District of Columbia

Department of Insurance, Securities and Banking advised that it has entered a partnership with ORCAA to help identify whether District residents may be experiencing unintentional bias in the underwriting and rating criteria of automobile insurers that are using data analytics.

In summary, the expectation is that there will be an ever-increasing use by insurers of Big Data in Algorithmic Underwriting due to the high potential for positive advancements in the insurance industry and to the consumer experience. However, insurers should expect that there will be increased regulatory scrutiny based upon the proposals and actions of the NAIC as well as individual states.

Kara Pike advises clients in the insurance industry on regulatory matters involving federal and state insurance laws. Her experience includes working on numerous multi-state insurance regulatory issues, including underwriting limitations, unfair discrimination, partnership policy requirements, rebating, and rate and form requirements. Kara also handles various matters related to InsurTech and assists clients in navigating the rapidly evolving regulatory landscape surrounding InsurTech. These matters include advising insurance entities on regulatory and transactional issues involved in adopting new technologies and distribution models and advising InsurTech startups with regulatory compliance and agreements. Kara's keen understanding of state regulation and the legislative process stems not only from her private practice but also from her past work in the executive branch of Pennsylvania state government.



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