

Evaluating models and tools for fairness

Webinar Executive Summary
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Re/think the Future of Risk Assessment
A Munich Re North America Life Webinar Series

NOT IF, BUT HOW



Evaluating models and tools for fairness

What language and tools should life insurers use to have a productive discussion about bias and fairness in models to support risk assessment?

Presented by Hareem Naveed, Director, Integrated Analytics, Munich Re North America Life, and Amy Atkinson, Deputy General Counsel, Munich Re Life US.

The goal of accelerated underwriting (AUW) is to make it easier for the consumer and the insurer.

Unlike traditional, full underwriting, AUW is strategically aligned with modern consumer purchasing habits — digital, faster, and less invasive. A typical AUW life insurance program leverages some combination of models, rules, and third-party data sources to assess risk.



AUW timeframe:
1-3 weeks

vs. 4+ weeks for full underwriting

15-50% of applicants are eligible for AUW

*based on US life market experience

Models must be fair, unbiased, and transparent.

Data science models are not inherently biased or unbiased. However, if no equity metric is used in the model's calibration, the view of data may reinforce a historically biased decision process. It is the insurer's responsibility to validate the data and models used in AUW are unbiased, fair, and transparent to the consumer.

Key factors to consider:

- Inputs – When scoping the problem, determine which third-party data are appropriate as inputs.
- Outputs – When building and deploying models, incorporate a bias audit into the model selection process.

Mitigating bias is an iterative, ongoing process.

Before we use third-party data, there are three questions to address:

- What is the benefit of this data for the use case?
- Does it satisfy requirements around the use of third-party data?
- Are there proper procedures in place to store and access the data in a safe and secure manner?

We recommend conducting a bias audit before deploying models for use in production.

Collaborating with a legal and compliance team from the beginning is vital.

Some believe that the use of data tools in AUW may be prejudiced by prior decision makers or can reflect biases that persist in society at large. Because of this, the New York Department of Financial Services requires life insurers to demonstrate that their models do not produce a disparate impact on protected classes.

The National Association of Insurance Commissioners (NAIC) recently adopted Artificial Intelligence Guiding Principles. To ensure models are compliant, legal counsel should be involved in the process from the very

beginning, helping data scientists determine if the third-party data and models used in AUW adhere to such Principles in addition to any other relevant guidance as well as internal processes.

While the NAIC Principles are geared towards US companies, they are based in part on the Organization for Economic Co-operation and Development (OECD)'s AI Principles. These Principles have been adopted in numerous countries and therefore provide guidance that has broader applicability and can be used by stakeholders and legal advisors to provide regulatory context for AI programs.

NAIC AI Guiding Principles

- F** – Fair and Ethical
- A** – Accountable
- C** – Compliant
- T** – Transparent
- S** – Secure, Safe and Robust

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About the authors

Hareem Naveed is a Director for Munich Re's North American Integrated Analytics team. She specializes in working with established clients and new startups to introduce innovative solutions to the life insurance market that support point of sale underwriting. Hareem is currently building out an area of practice focused on evaluating bias in machine learning models. Hareem has a master's degree in mathematics from the University of Toronto.

Amy Atkinson is Deputy General Counsel of Munich Re Life US and provides support to several business units, including innovation and predictive analytics. Prior to joining Munich Re in 2005, she was with the Georgia Insurance Department. Amy served in various capacities in her ten years with the Department, including Deputy Commissioner of Insurance. Amy received her law degree from the College of William and Mary.