



ARTIFICIAL INTELLIGENCE

Last Updated 8/23/2023

Issue: Artificial intelligence (AI) is a technology which enables computer systems to accomplish tasks that typically require a human's intelligent behavior. Examples include gathering information, analyzing data by running a model, and making decisions.

The use of AI has proliferated across all industries led by a rise in accessible data, increased computing capabilities, and changing consumer expectations. AI tools continue to evolve and create opportunities for business growth. It is disrupting and improving organizations across all industries, including insurance. Companies such as IBM, Apple, Google, Facebook and Amazon are leveraging AI platforms and solutions for customers, partners and employees. In the insurance industry, AI is **transforming areas** (<https://equarium.hannover-re.com/4498-5-use-cases-for-ai-in-insurance>) such as underwriting, customer service, claims, marketing and **fraud** (/index.htm#cipr_topics/topic_insurance_fraud.htm) detection.

Background: AI technology continues to develop and improve all the time. It is increasingly proficient at performing tasks historically difficult for computers to execute like recognizing images, identifying spoken words, and parsing unstructured data. Higher computing power, memory capacity, cloud computing, big data technologies, and global connectivity have enabled machines to run complex algorithms faster and handle more data than a human could. Additionally, shaped by their experiences with other industries, insurance customers now expect quick on-demand services.

The successes of AI are also facilitated by the massive amounts of data now available. The speed at which data is generated has made data management tools like AI even more important. Whether it is structured or unstructured data (e.g., social media, wearables, telematics, sensors, news, weather and traffic reports), AI is helping insurers make sense of big data. Traditional statistical models cannot handle the large quantity of data. As AI is able to execute complex analyses and computations at a speed impossible for humans, it generates faster insights.

AI has the potential to affect the insurance industry in multiple ways. It is currently used in claims processing, underwriting, fraud detection and customer service. Many insurers are using virtual assistants like **chatbots** (/index.htm#cipr_topics/topic_chatbots.htm) to improve customer experience. Chatbots are available 24/7 to give basic advice, check billing information, and address common inquiries and transactions. Insurers currently using chatbots include startup Lemonade, Geico, Allstate and Lincoln Financial. In addition, claims management can be augmented using machine learning techniques in different stages of the claim handling process. Machine learning models can help quickly assess the severity of damages and predict the repair costs from historical data, sensors and images.

Committees Related to This Topic

Big Data and Artificial Intelligence (H) Working Group (/cmte_h_bdwtg.htm)

Innovation Cybersecurity and Technology (H) Committee
(/cmte_h.htm)

Additional Resources

Data, Innovation and Cyber - NAIC Library Collection List

(<https://naic.soutrnglobal.net/Portal/Public/en-US/Collections/Collection/28>)

What's Happening in Generative AI

(https://content.naic.org/sites/default/files/national_meeting/AI9_August_2023_Deloitte)

The Impact of Artificial Intelligence Along the Insurance Value Chain and on the Insurability of Risks

(<https://link.springer.com/article/10.1057/s41288-020-00201-7>)

Geneva Papers on Risk and Insurance, 2022

National Association of Insurance Commissioners (NAIC) Principles on Artificial Intelligence (AI)

(</sites/default/files/inline-files/AI%20principles%20as%20Adopted%20by%20the%20Adopted%20by%20the%20Aug.14,2020>)

Challenges for the Insurance

Industry in the Future (</research/journal-of-insurance-regulation>)

December 2019, Journal of Insurance Regulation

CIPR Event: Demystifying the Use of AI in Insurance

Insurers are sitting on a treasure-trove of **big data** ([/index.htm#cpr_topics/topic_big_data.htm](https://www.naic.org/industry/ai-topics/topic_big_data.htm)), the main ingredient AI requires to be successful. The abundant unstructured data can be leveraged through AI to increase customer engagement, create more personalized service and marketing, and match the customers with appropriate products.

A 2021 **PwC survey** (<https://www.pwc.com/us/en/tech-effect/ai-analytics/ai-predictions/insurance.html>) found that the most effective use of AI in insurance companies is in the customer experience space while insurers top AI-related concern is the potential for cybersecurity breaches with AI technology. **Looking forward** (<https://www.mckinsey.com/industries/financial-services/our-insights/insurance-2030-the-impact-of-ai-on-the-future-of-insurance>), AI will enable insurers to move from a "detect and repair" framework to a "predict and prevent" framework, allowing insurers to help their customers manage their risks and avoid claims altogether.

A recently emerging form of AI is **large language models** (<https://www.techopedia.com/definition/34948/large-language-model-llm>) (LLMs). LLMs are trained to understand the complexities of language, and can recognize, generate, and classify text, allowing them to converse with humans naturally and answer complex questions. One of the most popular LLMs is OpenAI's **ChatGPT** (<https://openai.com/blog/chatgpt>). Since its launch in November of 2022, ChatGPT is estimated to **have accrued** (<https://www.reuters.com/technology/chatgpt-sets-record-fastest-growing-user-base-analyst-note-2023-02-01/>) over 100 million monthly users (as of January 2023). Individuals are **using this technology** (<https://interestingengineering.com/innovation/chatgpt-30-incredible-ways-to-use>) to improve their lives in a number of ways from writing code and answering difficult math problems to crafting cover letters and resumes. Though, given that ChatGPT has **limitations** (<https://www.forbes.com/sites/bernardmarr/2023/03/03/the-top-10-limitations-of-chatgpt/?sh=5de42ad8f355>), including lacking common sense, emotional intelligence or an understanding of context and may even "**hallucinate**" (<https://medium.com/chatgpt-learning/chatgpt-and-the-generative-ai-hallucinations-62feddc72369>) facts, users should be careful about trusting all of its information.

Still, LLMs like ChatGPT and other **generative AI** (<https://generativeai.net/>) are set to potentially disrupt industries and job markets around the world. In a recent report, Goldman Sachs **estimates** (https://naiconline-my.sharepoint.com/personal/jmcfarlin_naic_org/Documents/ChatGPT.docx?web=1) that over 300 million jobs could be affected by technologies similar to ChatGPT, with white-collar and IT jobs most affected. AI's impact on the world of insurance is still **uncertain** (<https://www.insurancebusinessmag.com/us/news/technology/will-chatgpt-disrupt-insurance-insurtechs-weigh-in-438604.aspx>). Though some in Insurtech expect technology like ChatGPT to have "transformative power" on the industry, helping those in insurance track emerging issues and customer needs, the limitations previously discussed make it unlikely that ChatGPT will **replace** (<https://www.insurancebusinessmag.com/us/news/technology/when-will-machines-take-over-insurance-jobs-96400.aspx>) underwriters, claims handlers, or customer service representatives in the near-future.

Status: The NAIC formed the Innovation Cybersecurity and Technology (H) Committee (formerly Innovation and Technology (EX) Task Force) to explore the technological developments in the insurance sector. The Committee provides a forum for state insurance regulators to discuss innovation and technology developments and how these will affect consumer protection, insurer and **producer** ([/index.htm#cpr_topics/topic_producer_licensing_narab_II.htm](https://www.naic.org/industry/ai-topics/topic_producer_licensing_narab_II.htm)) oversight, and the **state insurance regulatory framework** ([/index.htm#cpr_topics/topic_mccarran_ferguson_act.htm](https://www.naic.org/industry/ai-topics/topic_mccarran_ferguson_act.htm)). The Committee is also charged to discuss emerging issues related to insurers or licensees leveraging new technologies, such as artificial intelligence.

In 2019, the Task Force established the Big Data and Artificial Intelligence (H) Working Group to study the development of artificial intelligence, its use in the insurance sector, and its impact on consumer protection and privacy, marketplace

(<https://www.youtube.com/watch?v=jIS2fBqiUhY>)
August 2019

OECD Principles on Artificial Intelligence (<https://www.oecd.org/going-digital/ai/principles/>)
May 2019

Intelligent Machines and the Transformation of Insurance (<https://naic.soutronglobal.net/Portal/Public/en-US/RecordView/Index/24766>)
January 2019, CIPR Newsletter

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CIPR Homepage ([/cipr_home.htm](https://www.naic.org/cipr_home.htm))

dynamics, and the state-based insurance regulatory framework. The Working Group developed regulatory **principles on artificial intelligence** (/sites/default/files/inline-files/Al%20principles%20as%20Adopted%20by%20the%20TF_0807.pdf) that were adopted by the full NAIC membership at the 2020 Summer National Meeting.

Beginning in 2021, the Working Group began surveying insurers by line of business to learn how AI and machine learning techniques are currently being used and what governance and risk management controls are in place. A **report of the aggregate responses** (https://content.naic.org/sites/default/files/inline-files/PP%20Auto%20Survey%20Team%20Report%20120822.pdf) from private passenger auto writers was issued in December 2022, and **analysis of a survey** (https://content.naic.org/sites/default/files/national_meeting/Big-Data0813-AttB081223_0.pdf) of homeowners' insurers was released in August 2023. Following analysis of this data, the Working Group is considering the creation of a risk hierarchy to prioritize the need for more model governance and insurer oversight, as well as the evaluation of consumer data recourse and transparency surrounding collected data. The Working Group is also considering evaluating regulatory framework around the use of third-party models and third-party data and addressing concerns about third-party concentration by insurer use. Artificial Intelligence's role in insurance is fluid and the Working Group has suggested that additional white papers on best practices may be useful on subjects in the AI/ML space.

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