



The Impact of AI on Reinsurance, 2023

**Inver
Re**

The Impact of AI on Reinsurance, 2023

Advancements in the ability of generative AI to learn the rules of natural language are laying the foundations for fundamental change in how unstructured data is processed in the reinsurance industry.

Artificial Intelligence (AI) is not a new technology.

Predictive (or traditional) AI that uses machine learning to analyse data, recognise patterns and make predictions has been around for decades. But at the end of 2022, a new type of AI system came to prominence: generative AI.

In this article we consider the impact of recent advancements in generative AI within the broader context of AI in reinsurance.

Like predictive AI, generative AI has also been around for decades. But, building on the foundations of a breakthrough in AI design proposed by a group of Google researchers in 2017, recent advancements have enabled a profound shift towards AI systems having task-agnostic capabilities.

“An AI system that can learn and use the rules of natural language to generate content and perform basic reasoning tasks is referred to as generative AI.”

Large Language Models (LLMs) are a type of generative AI that are able to assimilate, learn and apply the rules of natural language to generate content and perform basic reasoning across a broad range of tasks.

For an industry where so much value is locked up in the natural language of contracts, claims and reports, these advancements have the potential to benefit many aspects of reinsurance.



For us at Inver Re, our reinsurance broking is underpinned by insight driven analytics, and advances in generative AI have already created new opportunities for us to deliver tailor made services to our clients.

We have used generative AI to help create new segmentations of risk that identified hidden inflationary effects impacting one of our client's portfolios. The use of the technology in this case enabled us to unlock insight that was previously buried within a fog of unstructured data. Our approach relied on a combination of predictive and generative AI and is an approach that we can now apply to a broad range of cases.

“Recent advancements have enabled a profound shift towards the AI system having task-agnostic capabilities.”

Additionally, we have also prototyped generative AI for extracting and structuring information from unstructured data and we are now exploring the potential for integrating it into our core data pipelining tasks. With this technology, basic data collection and processing tasks that might previously have taken a month to do manually, can now be achieved in a fraction of the time.

Generative AI brings many new opportunities for the application of AI in reinsurance. But for existing applications, generative AI will not replace predictive AI.

With the Atlantic hurricane season underway, take a classic property portfolio in Florida as an example. Historically, if replacement costs were suspected to be understated then standard practice would have been to scale the exposure by an arbitrary figure based on expert judgement. Now, an analytics team can make a precise estimation based on location level intelligence generated

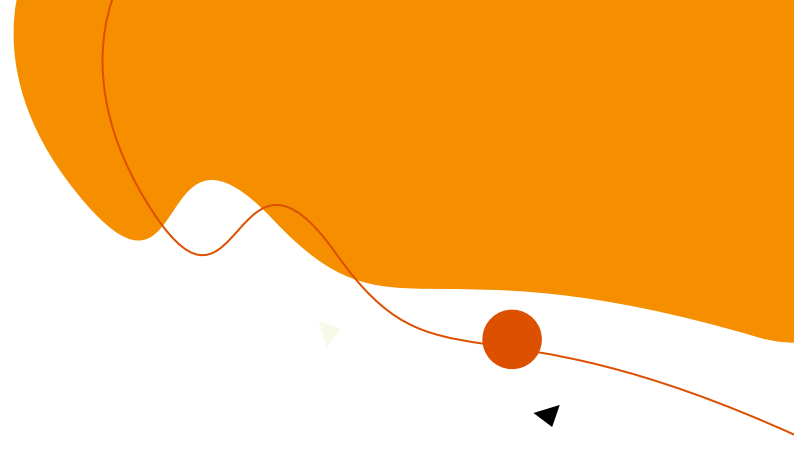
from predictive AI applied to unstructured data like aerial photography – thereby enabling better risk assessment and pricing. Suppose a hurricane moves through a client portfolio and creates widespread damage. A separate predictive AI can now be used to quickly quantify the extent of loss before claims estimators are able to get out on the ground – thereby improving claims management and operational efficiency. Generative AI cannot currently outperform predictive AI at these types of tasks – it is not designed to.

“Generative AI will enhance and augment predictive AI in reinsurance, rather than replace it.”

Alternatively, take the task of searching for contract terms within a legal document. These types of tasks are becoming increasingly automated using predictive AI. But while predictive AI might perform very well at locating information like contract terms, extracting meaning from such text remains a challenge.

Rather than replacing it, this is an example of where generative AI might augment predictive AI, to enhance the overall ability of the system. In simplified terms within this context: predictive AI can locate the text, generative AI can interpret it.

Leading global organisations like McKinsey and Goldman Sachs are already leveraging these abilities of generative AI to empower employees with real time access to enormous archives of unstructured data. It seems inevitable that similar advancements will be made in reinsurance too, and Inver Re is partnered with Artificial Labs, who are one of the companies currently leading the way in this.



Generative AI is positioned to fundamentally change how unstructured data is processed within reinsurance. But beyond that, it is impossible to predict where advancements in AI will take us. Researchers debate if and how an Artificial General Intelligence (AGI) that is reflective of human level intelligence might emerge. Some believe it could emerge as a single system, others believe it could emerge as a distributed, interconnected ecosystem of human and artificial intelligences working together.

“Generative AI is positioned to fundamentally change how unstructured data is processed within reinsurance.”

It seems unlikely that a single AGI that cracks all the intricacies and real-world problems of risk transfer will emerge anytime soon. But a distributed, interconnected ecosystem of intelligences doesn't sound dissimilar to the structure of the reinsurance market. As AI becomes increasingly embedded within this structure, the potential for improvement in the risk transfer intelligence of the reinsurance market goes beyond what we are able to conceive today.

With this increasingly complex and interconnected system of intelligences, it will be essential that advances are achieved ethically. In the simplest terms, this means understanding technologies before rushing into adopting and embedding them into black box processes. One tale of caution to have made the press revealed that a team of researchers had developed a prompt injection attack that could force undesirable behaviour from an LLM, by using complex strings of characters to remove restrictions on the system from generating nefarious content. This type of a prompt injection attack could potentially pose a serious security risk, and it is one of many risks associated with generative AI alongside bias, privacy issues and the ability to generate convincing but factually incorrect responses.

To conclude, generative AI will not only be pertinent to the tasks that reinsurers and brokers carry out, but also to the risks which they reinsure. Generative AI will change reinsurance exposure to lines such as cyber, errors & omissions, employment practices liability, and many others.

“With this increasingly complex and interconnected system of human and artificial intelligences, it will be essential that advances are achieved ethically.”

In short, whatever way you slice it, continued advancements in AI will impact the reinsurance market profoundly. At Inver Re, we believe the opportunities far outweigh the risks.

Written by Oliver Mapp, Senior Data Scientist & Actuary at Inver Re.

www.inverre.com

The information contained herein is based on sources we believe reliable and should be understood to be general risk management and insurance information only. The information is not intended to be taken as advice with respect to any individual situation and cannot be relied upon as such.

Inver Reinsurance Brokers Limited is an Appointed Representative of Ardonagh Specialty Limited which is authorised and regulated by the Financial Conduct Authority. Registered Office: 2 Minster Court, Mincing Lane, London EC3R 7PD. Registered Number: 5734247 England and Wales. Inver Re (Bermuda) Limited is authorised and regulated by the Bermuda Monetary Authority (56087). Registered office: Canon's Court, 22 Victoria Street, Hamilton, Bermuda. Trading address: 34 Bermudiana Road, BCB Building, Pembroke, HM 11, Bermuda.

190-2309