AI in Insurance: Executive Cheat Sheet

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Research | Strategy | Competetive Intelligence

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About This Cheat Sheet

Emerj AI Cheat Sheets are intended to serve as important executive guides to AI applications and trends in critical industry areas. The purpose of this Cheat Sheet is to help insurance executives quickly grasp key concepts and trends. We've also created a resource list of our most helpful free research into the applications of AI in insurance.

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Natural Language Processing

Definition

Natural language processing (NLP) is a subfield of artificial intelligence that deals with programming software to process and analyze large amounts of data that has been captured in the way humans write, speak, or document information. For example, an insurance carrier might use NLP to develop a conversational interface/chatbot that can answer questions from customers or allow them to file a claim from the chat window. Chatbots necessarily involve NLP because they deal with recognizing the intent within text data, as well as responding to customers with text. In essence, the NLP software needs to "learn" the appropriate text responses to text it receives.

Several of the largest insurance carriers offer customer-facing chatbots on their websites that allow customers to file claims, move payment dates, and get auto insurance quotes
- Progressive's Flo chatbot, which emulates the company's popular mascot, was purportedly built using Microsoft Azure Bot Service and LUIS, and the company claims customers can use the chatbot to get a quote for auto insurance.
- Allstate Business Insurance Expert (ABIE) is a chatbot for the company's business insurance clients. Allstate claims the chatbot can help small business owners by answering initial questions such as "what is a deductible?" and "how does the insurance claims process work?"

Affected Business Functions

Customer Service

NLP could enable large insurance enterprises to offer improved customer service and better buying experiences, especially to millennial customers that are used to fast, online channels. Additionally, insurance carriers might prefer to develop omni-channel conversational interfaces to make it easier for their customers to access information about their policies or file claims through chat messages.

Predictive Analytics

Definition

Predictive analytics involves the use of machine learning to analyze current and historical datasets to make predictions about the future. For example, insurers could use predictive analytics to determine the appropriate payout for a claim based on similar past claims, thus reducing claims leakage. Underwriters could also use predictive analytics to predict the risk an applicant poses to the carrier, which we detail further below.

Example Use Case

Internet of Things (IoT) Devices

Internet of Things or IoT refers to the larger connected device environment that is emerging from the combination of electronics and internet capabilities. This includes smart home devices such as Amazon Echo or Google Home and wearable devices such as smartwatches or fitness trackers. Insurance firms can use the data being collected by all these different devices to personalize insurance products. Specifically, AI-enabled IoT devices are seeing the most use in auto insurance; drivers can install devices in their cars or download an app on their smartphone

to track their driving behaviors, feeding this data into an auto insurer's predictive analytics algorithm.

Affected Business Function

Auto Insurance Underwriting & Personalized Policies

Some auto insurers offer applicants the ability to track their driving behavior with IoT devices in their car. These devices can be installed into the car directly or downloaded onto a smartphone that drivers can leave in their car as they drive. IoT devices for tracking driving behavior often pick up on how fast a driver is going, how sharp their turns are, and how abrupt their stops are. This data is then fed into a predictive analytics algorithm that puts out a score of some kind that rates the driver on how much risk they pose to the insurance carrier. The auto insurer could then use this information to decide whether or not to onboard an applicant and how much the applicant's policy should cost. The insurer could also adjust the price of an existing customer's policy for good or bad driving behavior, decreasing or increasing the premiums the customer pays respectively.

- Progressive offers an auto insurance program called Snapshot where they offer customers an IoT sensor that can be placed in cars to collect data about individual driving habits, such as how hard a driver breaks or how wide their turns are. The company claims they use this IoT sensor data combined with customer demographic data to offer customers an auto insurance rate that is tailored specifically to them.

Machine Vision

Definition

Machine vision is a type of machine learning that allows computers to "see" entities within images and videos. In doing so, the user can verify the existence of these entities and run analytics on them that can inform business decisions.

Affected Business Function

Home and Business Insurance Underwriting

A home insurer might use a machine vision algorithm to run through satellite images of a property to determine if the property is prone to flooding or if the property has a trampoline. It can use this data to determine whether or not to underwrite a property. The algorithm may stop at pointing out an element of the property, or it may include a predictive analytics aspect that recommends the insurer to approve or reject an applicant based on the risk the property poses.

- Cape Analytics is a prominent machine vision vendor for analyzing satellite images. AXA worked with the vendor for improving its catastrophe risk management for homes and businesses applying for reinsurance. This was to bolster their reinsurance business.

Using Cape Analytics' software, AXA was able to evaluate properties on whether or not they had a pool enclosure.

Claims Processing

Some auto insurers allow their customers to take pictures of their car's damage using their smartphones. These images can then be uploaded to the insurer's system and run through a machine vision algorithm paired with predictive analytics capabilities. Based on the damage, make, and model of the car, these algorithms could provide an estimate on how much the auto insurer should payout to the customer on their claim. This could reduce the time it takes for customers to receive their payouts and reduce claims leakage, saving insurers money.

Business Bottom Line

A big reason for the acceptance of AI in insurance might be that insurance companies have historically collected massive amounts of data over the past decade. This includes customer demographic data, property data, automotive data, historical claims payout data, historical applicant risk data, and sales/pricing data with regards to premiums. Data is key to AI applications, and as such, it's no surprise that AI found its way into insurance use-cases. Business leaders in insurance are beginning to think of all these different types of data as fodder for AI implementations. It's likely that insurance executives that invest in ways to leverage their data will likely come out on top over their competitors in the coming few years as AI starts to become ubiquitous in insurance.

Resources

We've highlighted some of our best free reports available on Emerj.com, including brief bullet points and a few of the most relevant insights for insurance leaders captured concisely:

[Connected Insurance and AI – The Possibilities of IoT Data](https://emerj.com/partner-content/connected-insurance-and-ai-the-possibilities-of-iot-data/)

Link:
https://emerj.com/partner-content/connected-insurance-and-ai-the-possibilities-of-iot-data/

- **Auto Insurance:** Companies like Progressive use IoT devices in customers' cars, intending to train their algorithms to assess a customers' level of insurance risk based on distance driven, acceleration speeds, and more.
- **Health and Life Insurance:** We explore the possible uses of personal fitness and health data for updating life insurance risk assessments at an individual user level.
- **Voice and Customer Service Data from IoT Devices:** Allstate is experimenting with the use of Amazon Alexa as an extension of its customer service function, opening up a potentially broader landscape of customer experiences and convenience.

[Artificial intelligence in Health Insurance – Current Applications and Trends](https://emerj.com/ai-sector-overviews/artificial-intelligence-in-health-insurance-current-applications-and-trends/)

Link: https://emerj.com/ai-sector-overviews/artificial-intelligence-in-health-insurance-current-applications-and-trends/

- **Cost Efficiency:** Insurance and healthcare companies like Accolade and Collective Health are developing software platforms That can use AI to suggest preventative healthy habits and behaviors to patients. This might include recommendations about nutritional strategies or exercise that can in turn help lowers costs from preventable healthcare issues caused by unhealthy habits.
- **Fraud Detection:** Researchers at firms such as Kirontech and Azati claim to be developing machine learning algorithms to analyze health insurance claims to predict cases of fraud.

[AI in Auto Insurance – Current Applications](https://emerj.com/ai-sector-overviews/ai-auto-insurance-current-applications/)

Link: https://emerj.com/ai-sector-overviews/ai-auto-insurance-current-applications/

- **Claims Assessment:** Companies like Ant Financial and Tractable claim to have developed AI software that can automatically appraise auto insurance claims by analyzing images of vehicular damage.
- **Chatbots for Customer Service:** Insurance carriers like Geico and Progressive have launched conversational interfaces that can help customers answer questions they have about their insurance and service their accounts by asking simple questions in natural language.
- **Policy Pricing:** Companies like Ant Financial claim to use AI to help auto insurance companies produce more accurate customer risk profiles and appropriate pricing using machine learning. Information such as customer data or data from IoT sensors in cars are being used by insurance carriers to develop such personalized policy offerings.

[How America's Top 4 Insurance Companies are Using Machine Learning](https://emerj.com/ai-sector-overviews/machine-learning-at-insurance-companies/)

Link: https://emerj.com/ai-sector-overviews/machine-learning-at-insurance-companies/

- **Chatbots:** Large insurers like Allstate and Progressive have launched customer service focused conversational interfaces that can help with customer account servicing, respond to internal agent inquiries and provide guidance on business protocols to human customer service reps.

- **Driver Performance Monitoring:** State Farm and Liberty Mutual are among insurance firms that claim to have developed machine learning algorithms are being applied to client data to help inform the development of products for insurance clients. (see below).
- **Insurance Market Analytics:** Progressive claims to be using machine learning algorithms to interpret driver data in an effort to identify business opportunities and reduce risks. Under the program, customers with safer driving habits might be offered insurance with lower premiums.

Emerj Artificial Intelligence Research

Emerj helps organizations develop AI strategies and make AI investments to reduce risk and improve their competitiveness. From the World Bank to global pharmaceutical companies, we work with leading organizations that need to make critical decisions about AI and technology strategy.

Our market research and advisory services are focused exclusively on competitive artificial intelligence strategy and AI market insights. Through our proprietary research methods and network of global advisors, we keep a pulse on what's possible and what's working, mapping emerging AI capabilities and helping companies leverage them to win.

Learn More About Emerj Services

- [AI Market Research](#)
- [AI Business Strategy](#)

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Daniel Faggella, CEO at Emerj

Called upon by the United Nations, World Bank, INTERPOL, and many global enterprises, Daniel is a globally sought-after expert on the competitive strategy implications of AI for business and government leaders.

Daniel helps business and government leaders navigate the competitive landscape of AI capabilities and build strategies that win. In addition to his advisory work with leaders, Daniel has interviewed thousands of AI researchers and founders, and his research and reports are cited by Harvard Business Review, the World Economic Forum, and other leading publications.

Daniel has been devoted to studying the consequences and applications of AI since graduating from UPENN with a master's degree in cognitive science. He lives in Boston, the Athens of America.