

Sentiment Analysis Using Streaming Analytics For Customer 360 Decision Support Approach: A Case Study In Insurance Industry

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Introduction:

In the current world every day we are dealing with one or the other insurance products like auto insurance, property insurance, health insurance or life insurance etc. The insurance world is producing 1.5 quintillion bytes of data every day, natural language processing is the key to find sense out of this volume of data. In this paper, we are trying to explain real-time data streaming and will evaluate the importance of sentiment analysis using cloud-based natural language processing (NLP) and how it is shaping the insurance industry by providing a 360-degree view of the customer decision support system.

Sentiment analysis has taken the center stage in business decision making in recent years with the growth of the social media. With the advent of Big Data, cloud computing, real-time data streaming and machine learning, the NLP got a new dimension to expedite their search on sentiment analysis and, practical usability. Meaningful insights from the sentiment analysis helps to measure the customer satisfaction and provide companies the data they need to manage their leads.

AIM:

In this study we collected customer real time feedback from company site and from social media sites of some of the top insurers. We, first separately and then combinedly processed those feedbacks in Azure cloud environment using NLP algorithms. A stochastic model was built and applied to gather the feedback for all stages of insurance lifecycle (submission, quote, under-writing, policy issuance, Renewal including claim life cycle if any) to identify critical action able information.

For our research work, we captured and ingested large amount of real time data from social media and company websites using an Azure data factory (ADF) pipeline and using Azure eventhubs. Those data then passed to Azure blob storage to read it through Data bricks. We built our Auto-ML framework using spark engine to build the NLP model and access the data from blob containers. There all time feedbacks both positive and negative observations are captured in different dashboard using a Power BI dashboard

RESULTS:

In this digital world, the driving factors of success for the insurers are the real customer feedbacks and how soon they can address customer concerns. This NLP framework aids as a business meme for companies to build multi-support-based channels to give the best customer care and upsurge the brand value. At each point of their decision model: sales, marketing, binding, billing, and claims handling this NLP framework is going to give them information what customers need and how their competitors are doing to increase their leads. The present experiment is intended to boost the insurance product design by taking all level of customers in mind, improve claim handling process, encourage clear and concise communication and product recommendation.

CONCLUSIONS:

As known, reading customers mind is a difficult task. In digital world, ease of doing business and better customer services are the most important aspects to beat your competitors. Our results provide multi-faceted evidence on how and what customer feedback means to insurance industries and how they can leverage that to upscale their business targets. In future, we will make our research settings large to accommodate some more NLP procedures using some best tools available in the market. We will also compare and try our outputs with the third-party

vendor products to study an efficient sentiment analyzer using deep learning algorithms for video and audio files.

Riad Solh, A., Lasri, I., & El Belkacemi, M. (2021). Cloud- Based sentiment analysis for measuring customer satisfaction in the Moroccan banking sector Using Naïve Bayes and Stanford NLP. Journal of Automation,

Mobile Robotics and Intelligent Systems, 14(4), 64–71. <https://doi.org/10.14313/jamris/4-2020/47>

Ahmad, S., Lavin, A., Purdy, S., & Agha, Z. (2017). Unsupervised real-time anomaly detection for streaming data. *Neurocomputing*, 262, 134–147. <https://doi.org/10.1016/j.neucom.2017.04.070>

Ediger, D., Appling, S., Briscoe, E., McColl, R., & Poovey, J. (2014). Real-time stream-ing intelligence: Integrating graph and NLP analytics. 2014 IEEE High Performance Extreme Computing Conference (HPEC). <https://doi.org/10.1109/hpec.2014.7040990>

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Bibhu Dash Bibhu Dash is a PhD scholar at University of the Cumberlands and working as a Data Analytics Architect at a fortune 100 Insurance company. I am having a master's degree in Electronics and Communication engineering and holds an MBA from Illinois State University, Normal IL on Finance and Analytics. I am having more than 15 years of experience in data transfers, data governance, Analytics, and machine learning. Currently I am working on a call center analytics project where we are building a framework to study real time data streaming and speech analytics using NLP.