Project Definition and Scope

My capstone project focused on using customer sentiment analysis to improve customer experience and relations at UNIQA Insurance Group in Austria. Uniqa is looking for ways to improve its processes and reputation, therefore reducing customer churn and potentially opening up space for new markets and customers through the analysis of customer sentiment. Customer sentiment can be defined as a metric that businesses use to measure how their customers think and feel about their brand. As instructed by the stakeholder during the project's inception, the scope of the project would be to principally use text data gathered externally and online from various social media platforms to create a dashboard with various KPIs reflecting customer sentiment (e.g. 'Negative', 'Netural', or 'Positive' sentiments) using free and open-source tools. However, due to many challenges including inability to grant social media account credentials, deprecated and costly APIs, as well as lack of relevant and/or useful data, the scope of the project had to be changed in order to focus predominantly on online review websites in order to garner customer sentiment. Furthermore, similarly to many companies at the moment, UNIQA is looking towards the future and advocating for the use of Artificial Intelligence (AI) in speeding up processes and generating new ways of thinking and analyzing data. Therefore, the use of AI, specifically Open AI's Large Language Model (LLM), ChatGPT, was encouraged and recommended to be used throughout the project.

Methodology and Analyses

As stated before, rather than predominantly using social media applications, review and customer data was scraped from review websites such as Trustpilot and Google Reviews. This data was then analyzed by ChatGPT and translated into English, resulting in the display of the sentiment and sentiment scores for each review. Using Python in a Jupyter Notebook setting, different KPIs (key performance indicators) were aggregated and the average customer sentiment as well as

sentiment score was found for each review platform. The findings overall were that UNIQA has a negative sentiment score (low customer satisfaction). After this segment, it was decided to benchmark my findings against that of UNIQA's top competitor in Austria: the Vienna Insurance Group (VIG). Gathering data in the same way for VIG, the customer sentiment and sentiment scores were analyzed and compared to UNIQA's. At a surface level it would have seemed as if VIG was outperforming UNIQA in the eyes of the customers (although not by much); but, further research had to be done in order to ascertain if these findings were statistically significant (if the statistics really had any bearing in a business context). A sensitivity analysis was conducted in Jupyter Notebook using various robustness checks to determine the significance (i.e., Two-sample Two-sided T-test, Confidence Interval Check, and Chi-square Test of Independence). From the tests, it was discovered that the findings were not statistically significant, and therefore it could not be confidently stated that VIG is seen in a better light according to customer sentiments.

Benefits to the Client:

Despite the findings not being statistically significant, it was still found that UNIQA Insurance Group tends to have very negative customer sentiment and therefore lower customer satisfaction from the data that was gathered. As many of the reviews mentioned the words 'customer' and 'service' (often together in the same context as 'customer service'), it was recommended that UNIQA allocate resources to their customer service department in order to enhance customer relations. Furthermore, when searching for datasets to use, not much data could be collected from the social media APIs that were available; therefore, it was also recommended that UNIQA interact more with customers on social media applications in order to drive up engagement and strengthen their reputation as a customer-driven company.

Key Outcomes

- While online reviews suggest UNIQA has negative customer sentiment, it is unclear if this sentiment is significantly different from other competitors in Austria

- UNIQA should consider investing in improving customer service as it was frequently mentioned in reviews

- OpenAI's ChatGPT 3.5 was successfully used for sentiment analysis, demonstrating the potential of AI in this area and in a business context in general

Learning Experience

Throughout this project, I learned many lessons and improved upon topics taught in my classes. For example, I had to be very flexible and learned how to better adapt due to challenges in obtaining social media data and lack of good communication with the stakeholder/capstone sponsor. Instead, I pivoted to online review websites and independently crafted my project and its scope. In terms of my technical skills, I also improved by learning how to prompt engineer in order to obtain the best results necessary from Large Language Models like ChatGPT. Lastly, my critical thinking and analytical skills were also enhanced as I conducted multiple statistical tests to critically evaluate my findings and ensure their validity.