hAItta

Artificial Intelligence Serving Know-Your-Customer Processes in the Health Insurance Industry

INDUSTRY

Health Insurance

ORGANIZATION

Confidential

ORGANIZATION SIZE

Top 3 Insurance Firm in the Region

COUNTRY/REGION

South America

BUSINESS NEED

Profiling customers through AI techniques to understand their business behaviors and diminish their churn rate

THE CUSTOMER

For the last 50 years, and as a pioneer in the region in the health insurance industry, the organization has accumulated a solid and robust experience in the areas of health, tourism, death and burial support, and economic aid. Through its several branches, the organization provides its customer with top-of-the-range coverage regarding their different socio-economic situations and demands.

THE NEED

Throughout the last years the organization had enjoyed a steady and ongoing growth. Nonetheless, this healthy evolvement had been somehow darkened by a serious challenge to the business operations: although the new customer acquisition rate was high, the customer churn rate was excessive as well. Being the customer loyalty cost much higher than the cost related to acquiring new customer, it was compulsory to tackle this challenge.

THE SOLUTION

In February 2018 the organization and hAItta signed a 6-month project to use artificial intelligence in order to reduce the customer churn rate; i.e., through the machine learning-based models to be developed by hAItta the organization expected to foresee and detect the customers who might cancel their programs with the organization in a certain moment, and as a result to perform the correcting actions to avoid losing them.

After several meetings in the first days between the organization and hAItta, the project scope was perfectly defined: specifying most interesting customers from the business point of view and action plans considered by the organization. This initial stage of analysis and definition was paramount to limit the problem scope and to focus on those scenarios in which the difficulties were more evident.

The first phase was linked to obtaining data straight from the customer's database to generate the first feature set -those initial features were related to customers' qualitative information. This stage was properly a first data science iteration: data extraction; data exploratory analysis to find interesting patterns and to verify previous hypotheses; engineering features to be used as input for the model; and eventually training and testing through several algorithms, i.e. classification trees, logistic regression, ensembles -boosting and bagging approaches-, neural networks, etc.

Afterward new phases were followed upon using the same data science procedure -data extraction, analysis, feature engineering, and training- for new information chunks related to customers: payment behavior and debts, interactions with the organization, service use, amongst others.

Once the initially defined stages were finished, the several elements considered to feed the model could be compared: it allowed to analyze how each of them might improve the prediction of a likely program cancelation.

Following several tests and the analysis through robust methods of which the trained models granted the most precise and solid results, an A/B testing was carried out over a future time span on implementing the AI model in the organization.

To obtain this model more than 60 features were used which included information from several aspects of every single customer, thus being able to evaluate from different perspectives any potential behavior which might produce a service cancellation by a customer. This has provided the organization with a distinguishing capability to take decisions in a predictive and preemptive way to face a serious operational and business problem. The return of the investment will be therefore easily monitored and tangible in the coming months.

THE BENEFITS

From the work performed by hAItta, the organization has obtained mainly two benefits:

1. It is enjoying a machine learning-based "sentry", which helps the organization avoid unexpected customers' program cancelations.

2. Thanks to the several deep exploratory analyses performed by hAItta, several business and operational hypotheses -formulated throughout the project- have been able to be tested in a scientific way, allowing thus the organization to improve its strategic decision taking.

hAItta's dedication and focus on the problem surpassed the customer's expectations: it has provided the organization with a top-notch machine learning-based model to improve its business processes and operations, thus allowing the health insurance organization to keep on shaping the industry and being a reference in the sector.

TECHNICAL INFORMATION

hAItta used the so-called 'Python Data Science Toolkit', which is formed by open source tools and libraries such as:

- Numpy
- SciPy
- Pandas
- ScikitLearn
- Keras
- MatPlotLib
- SeaBorn
- …

Experiments and visualizations were shown to the client in early stages, using Jupyter Notebooks.

For source code versioning purposes, hAItta made use of private Git repositories.

There were no specials needs for infrastructure in order to run experiments or to operationalize the model in this project.

"Being totally sincere, when we decided to embark on this artificial intelligence project, we were not sure whether operatively meaningful results were going to be achieved. As the project moved forward and the first insights and foresights started coming up, we began realizing the amazing power of this cutting-edge technology. Definitely hAItta has performed a very good job on developing this machine learning-based model to reduce our customer churn rate. We must also highlight and thank hAItta for its permanent availability and patience to explain in detail how these AI models are developed, implemented, and function."

Organization Operation Director