Executive Summary

We aimed to model cold-calling success rates in the context of selling insurance. Traditional marketing managers often use cold calling as a part of their sales campaign in order to sell insurance policies to new generated leads. However, cold callers traditionally face a success rate of 1-2%, and a model predicting the probability of a successful cold call, given the recipient's characteristics, would increase the success rate of their cold calls, and subsequently the success of their marketing campaign.

Traditionally, a brute force approach is employed which not only wastes organisational resources and time but could affect the long term effectiveness of the caller through call reluctance as callers grow wary of rejection. We believe that we have proven that a data-centric approach to accurately predict the success of cold calls can help alleviate this industry challenge through our model.

The data was sourced from a data mining competition dataset from the Technical University of Munich and is provided by an anonymised bank that sells car insurance to clients through cold calling. Considering that the bank has information regarding prospective clients, the data can be used to optimise the accuracy in identifying clients that are willing and unwilling to purchase car insurance to increase the effectiveness of the bank's cold calling campaign.

Multiple GLM models created using different selection methods for significant variables and a Classification Tree were evaluated based on their accuracy in identifying clients who were interested in purchasing car insurance. From our evaluation, the most accurate model was the GLM model:

$$log\left(\frac{p(call\ success)}{p(call\ failure)}\right) = -2.13781158 - 1.66715158 * Entrepreneur1 + 1.45700202 * HHInsurance0 - 0.62457171 * CarLoan - 0.08442889 * NoOfContacts + 1.89481397 * PrevSucc1 + 0.30153617 * CallDuration$$

Our practical recommendations are as follows:

1. Firstly, callers should try to engage more with their recipients to increase the call duration to over for better chance of success.
2. Callers should also not continuously approach a recipient multiple times to increase the success of cold calling.
3. Companies should also not target entrepreneurs as they may be more willing to take risks and thus more unwilling to buy insurance.
4. Customers who have a car loan may be more unwilling to buy insurance due to increased costs
5. Subsequently, companies should target customers who are already customers of existing complementary products, in this case, customers who already have household insurance will be more willing to purchase car insurance after the call.
6. Customers who have bought other products during previous marketing campaigns will also be more likely to buy after the cold call.

We believe that while this predictive model is an important step forward in the direction of digital transformation of traditional marketing, the predictive model can be improved further through actual deployment and obtaining more data tailored to the context of specific companies to increase the predictive accuracy and consistency of the model.