Use Case: AI-Driven Digital Marketing Consulting for a Bank

White Papers

OBJECTIVE

The goal of this project was create an effective digital marketing strategy for a bank based on the results of a machine learning clustering algorithm that we developed. The objective was to segment its customers into meaningful clusters, thereby allowing the bank to tailor its sales and marketing efforts for each cluster.

Previously, the bank had a one-size-fits-all marketing strategy that did not maximize the future value gained from its customers. However, our AI-driven digital marketing approach allowed the bank to lower acquisition costs, increase customer lifetime value, increase brand awareness and loyalty, and develop effective sales funnels.

(For more details on the Machine Learning Clustering Algorithms, please refer to the end of this white paper)

DIGITAL MARKETING STRATEGY AND IMPLEMENTATION

As a successful ROI-driven digital marketing strategy begins with an audit of current capabilities and marketing campaigns, we first conducted a thorough audit of the bank's existing strategy, goals, systems & procedures, and marketing campaigns. We identified the bank's SEO (Search Engine Optimization) ranking, lead magnets, tripwires, social media marketing campaigns and paid advertisements, PPC (Pay-Per-Click) Google AdWords, and so forth. After the audit, we recognized that the bank's marketing strategy, goals, and implementation methods did not align with its overall business objectives and desired brand perception.

More specifically, the bank previously followed a one-size-fits-all approach. In other words, it did not distinguish between its different groups of customers but instead assumed that all of its customers were the same in that they valued similar qualities and had similar needs. This one-size-fits-all-approach is suboptimal and leaves money on the table, as the bank actually had multiple different customer segments with differing needs, value drivers, demographic characteristics, and behavioral tendencies.

Therefore, we developed a digital marketing strategy that accounted for the 8 different customer clusters that we identified from the machine learning algorithms developed. As such, we created 8 different sales funnels to address the needs of each cluster individually. This was essential to increase the ROI of every marketing dollar spent. Instead of wasting money on the wrong channels, targeting the wrong people, and mismatching content with the wrong audience, our approach identified the needs and characteristics of each distinct cluster.

For instance, we identified the best marketing channels (and combinations of channels) to reach each cluster, understood the types of products that each cluster demanded based on its demographic and behavioral characteristics, and designed content/messaging that would dramatically increase the likelihood of resonating with each cluster.

For each sales funnel, we prioritized organic traffic at the beginning of the implementation stage. We did this in a variety of ways: by boosting the bank's SEO ranking, by creating unpaid and targeted social media posts, by optimizing the user experience on the bank's website, by implementing content marketing, and so forth.

Once we created brand awareness and trust through organic methods, we shifted our focus onto PPC ads, targeted paid social media ads, and retargeting strategies to further drive traffic and

boost awareness. These are only some of the lead generation techniques that we used, which drastically improved the bank's digital presence and customer user experience.

During the implementation phase, we also optimized the bank's marketing campaign through data analysis. We analyzed the content that drove the highest amount of traffic, understood the reasons why they worked, and improved future content to best resonate with the bank's customer segments.

It is also important to note that we created the digital marketing strategy in a way that aligned the bank's overarching brand goals and business objectives with its marketing campaign strategy and implementation methods.

RESULTS

The AI-driven digital marketing strategy, which was highly targeted and deliberate, successfully generated a high ROI (Return on Investment). By understanding the needs and behavior of the different customer segments, we lowered the bank's acquisition costs, generated more and better leads, created higher conversion rates, improved the bank's social media presence, increased the CLV (Customer Lifetime Value) of its current members, shortened its current sales cycle, and improved its customer retention rates.

MACHINE LEARNING CLUSTERING ALGORITHMS

DATA

To create our segmentation models, we extracted multiple datasets from the Bank's data warehouse. These datasets included account data, client-specific demographic data, credit card data, loan data, and transactional data. In addition, we also scraped additional data from external sources (such as city-specific and region-specific data) to make our algorithms more robust.

PREPROCESSING

The goal of preprocessing was to convert the raw data into a format that is suitable for our algorithms and to engineer variables that effectively capture the psychology, behavioral tendencies, and needs of individual customers. We created a total of 34 variables that form the foundation of the clustering algorithms, as they are the basis upon which the clusters are created.

Before building the clustering algorithms, we performed a holistic exploratory data analysis on the formatted data to understand the nature and characteristics of the data.

MODEL BUILDING

After preprocessing the data and engineering variables, we moved on to the modelling stage of the project. At this stage, we conducted hundreds of model building iterations, where each iteration improved the algorithm.

We began by developing benchmark models for the entire dataset (all variables included). The algorithms that we created for these benchmark models include:

- K-Means
- Agglomerative (Hierarchical) Clustering

- DBSCAN (Density-Based Spatial Clustering of Applications with Noise)
- OPTICS (Ordering Points to Identify the Clustering Structure)
- K-Medoids
- BIRCH (Balanced Iterative Reducing and Clustering using Hierarchies)
- Gaussian Mixture
- Affinity Propagation

Although we used the Elbow Method and Silhouette Scores to identify the optimal number of clusters, we wanted to be more robust and deliberate in choosing the final number of clusters. Therefore, we used all the above algorithms to test out various numbers of clusters. The ultimate objective was to identify the optimal number of actionable clusters, where each cluster had unique characteristics.

As we iterated through the model building stage, we tested different combinations of model hyperparameters for each of the above algorithms. These settings allowed us to fine-tune the algorithms to improve their performance. In addition, we created clusters of varying sizes for each step in the model-building phase. Furthermore, we conducted a feature selection process to determine which variables had the highest clustering power and eliminate the variables that did not add value to the clustering process.

MODEL SELECTION

After creating over a hundred algorithms, we compared the resulting clusters of each algorithm. We selected the algorithm that yielded the best clusters, whereby customers had similar characteristics to other customers in its own cluster but differing characteristics to the customers in other clusters. The objective was to choose the most actionable clusters to create an effective digital marketing strategy.