Sound Credit Union - Understanding Branch Performance

sound credit union

UNIVERSITY of WASHINGTON

BACKGROUND

SCU has 28 branch locations that are spread out from Everett in the north to Olympia in the south of Washington. Sound has identified some areas of opportunity that we have been asked to look into. Sound has seen greater success in their more suburban locations such as Gig Harbor and less success in their more urban areas such as Seattle. Sound is eager to identify these qualitative and quantitative factors that make a branch successful, ie increase profit. They would like to take a data-driven approach when deciding what to change or improve about their current branches and what new locations have the highest possibility of cultivating a successful branch.

PROBLEMS, CHALLENGES & OPPORTUNITIES

Gain a better understanding of what variables impact the success of a branch, which are under our control (i.e. type of ATM, safe deposit boxes, drive through tellers, etc.) and which are not. Ideally we'd get a model into which we can plug some variable value to assist in making a branching decision.

During this project we found that there is no one size fits all model and as a group decided to split our data into two models. An Extrinsic model for all outside demographics and an Intrinsic model for all internal data from current branches.

Improving Total Profit. For current branches this can be done by identifying internal changes that can be made (improve loans by 5%, improve credit cards by 2%, ect.). Or for future branches by looking at external demographics of current successful branches and finding similar areas.

DESCRIPTIVE & DIAGNOSTIC ANALYTICS

During the Descriptive Analytics phase our goal was to explore the data, detect outliers and identify associations between variables. We determined that Total Profit was our key performance indicator and were able to see the distribution of the data and make visuals through Tableau. With these visuals we categorized branches as high or low performing.

When performing the Diagnostic Analytics we took our analysis further and drilled down on the demographic data. We identified a correlation between demographic data and profitability (Median household income). We also looked into extrinsic factors that correlate with profitability (Successful branched had ATMs)

PRESCRIPTIVE & PREDICTIVEANALYTICS

During the prescriptive analytics portion of our project we made use of machine learning in order to determine a course of action. We found better results when splitting the data into two datasets, and Intrinsic Model (top) and an Extrinsic model (bottom). We ran our dataset through R and ran linear regression to determine variables with the most predictive power. We found that variables within 1 mile of the branch held the highest significance.

After determining our variables we then performed the predictive analytics. We used Azure machine learning to help us predict Total Profit based of the variables we determined had the most predictive power. With the results of this analysis we were able to put together a set of recommendations for the Sound Credit Union Team.

DASHBOARD

Branch Selection:

$22.33M $2.09bn $2.48bn   2M

COGNATIVE ANALYTICS

Using text mining techniques to gather customer sentiment for each of the Sound Credit Union branches. For example, a word cloud can be generated to see what members say most about their experience.

Positive   Negative

TEAM A5

Devin Pompa   Shruti Kenjelkar   Anh Phan   Dakotah Rector   Gavin Reim   Brenda Villasenor

Check us our on Linked In, scan the QR code to connect!

TOOLS & PLATFORMS

Azure Machine Learning

tableau

R

Power BI

RECOMMENDATIONS FOR USE

Intrinsic Model:

Our recommendations for the SCU team is to use the Intrinsic Model as building a tool to help set goals. Because the bank cannot change the external surroundings this tool can be used to identify branch specific improvements. This can be accomplished by adjusting the branch data in the predictive model to improve total profit. This could be increasing transactions by 3% could in turn increase total profit by 2%.

Extrinsic Model:

When using the Extrinsic model we suggest the SCU team identify areas they have the ability to build a location, pull the data suggested from resources listed, then plug those values into the model. By doing this SCU will be able to see what potential profit they could see from each potential location and make a more informed decision on what the best location would be.