Marketing Analytics

Cell2Cell Churn Management Assignment

This case requires you to develop a model for predicting customer churn at "Cell2Cell," a fictitious wireless telecom company and use insights from the model to develop an incentive plan for enticing would-be churners to remain with Cell2Cell.
The data for the case is a scaled down version of the full database generously donated by an anonymous wireless telephone company. There are still 71,047 customers in the database, and over 65 potential predictors. Logistic regression is the best choice to develop your predictive model.
This case requires both statistical analysis and creativity/judgment. I recommend you not spend too much time fine-tuning your predictive model; make sure you spend enough time interpreting and using the results to come up with your plan.

Questions for the write-up and for class discussion
Your task is to execute the 3-stage process for proactive churn management as stated by Charles R. Morris on page 7 of the case. Please answer the following questions in your write-up **(five-page maximum with at least 1.5 line spacing)**:

1. Briefly describe your predictive churn model. How did you select variables to be included in the model?
2. Demonstrate the predictive performance of the model. Is the performance adequate?
3. What are the key factors that predict customer churn? Do these factors make sense? What is their relative importance?
4. What offers should be made to which customers to encourage them to remain with Cell2Cell? Assume that your objective is to generate net positive cash flow, i.e., generate additional customer revenues after subtracting out the cost of the incentive.
5. Assuming these actions were implemented, how would you determine whether they had worked?

The Data

- The data are called "cell2cell.csv" and can be found on bCourses.
- The data are documented in the "Cell2Cell Data Documentation.xls" spreadsheet, which is on bCourses.
- The data consist of 71,047 customers divided into calibration and validation sub-samples contained in the data file called "cell2cell.csv". The calibration data contain 40,000 customers, 20,000 of whom churn. The validation data contain 31,047 customers, 609 of whom churn. The 50% churn rate in the calibration data is not realistic, but the "over sampling" of churners makes it easier to identify the profile of churners as distinct from the profile of non-churners. The validation data contain roughly 2% churners, which is the current monthly churn rate at Cell2Cell.

How to proceed:
Run a Logistic Regression Predictive Model

- Read in the "cell2cell.csv" file.

- Run a logistic regression model with "churndep" as your dependent variable. It is described as "Churn (= missing for validation sample)". All the variables below "churndep", i.e. from "revenue" to "retcall" can be used as independent variables.
- Use the model to predict attrition probabilities.

Create a Lift Chart

The lift chart for the validation data is what you should use to determine if your model is adequate (which you should take to be at least 70% higher than average probability of churning, i.e. a lift of 170; on page 7 of the case it says 75% or 175, please ignore this). If you can't get a lift close 170, pick the decile with the highest lift to which to apply your churn management suggestions.

Determine and Rank the Economic Importance of the Predictor Variables

Determine the economic importance of each variable for predicting attrition. This calculation is best done in Excel. You can find the standard deviation of each variable in the spreadsheet "Cell2Cell Data Documentation.xls".

Create a Contingency Based Incentive Plan

- Looking at the importance-ranked list of predictor variables, decide which of them suggest a retention action by Cell2Cell.
- For each "actionable" predictor variable, specify what retention action you suggest, i.e. what type of incentive you plan to give to consumers to encourage them to remain with Cell2Cell (e.g. new phone, rebate of $X, new plan, etc.).
- Hint: In determining how much you can spend on incentives notice (1) that revenue data are in the dataset, and (2) the marginal cost of providing cell phone service is 0.

Specify the exact rules for making incentive offers to customers.

Hint: In determining how many suggestions to make, keep things simple (limited number of suggestions) but notice that each suggestion can be related to many variables. For example, "phone problems" are described by several different variables.

Develop a Way to Evaluate the Program

Specify what system you would set up to test whether you are getting a positive return on the investments in incentives you have decided to give to consumers. Be specific.

<u>E-mail me a Powerpoint or pdf file with a slide with the incentive plan you propose to offer to consumers and one slide on the test plan.</u>

Please email me the slide latest 2 hours before class and please name the file with the first names of your team (as you did for the Intuit Quickbooks spreadsheet), so I can later find it!

If you have any questions, please don't hesitate to ask