Modelling Telecom Customer Churn Using SAS® Enterprise Miner™ Software

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Agenda

- Background
- Project Objectives & Method
- Business Understanding
- Data – Sample & Explore
- Modelling & Analysis
- Conclusions
Background

- One of the large mobile service provider in UK.
- Churn at the telecom company

"Customer retention is critical to survival."
Project Objectives

1. Assess existing contractual churn model
2. Compare models (Logistic regression, Decision trees & Neural nets)
3. Assess SAS® Enterprise Miner™ software
Business understanding

- Service provider dynamics.
  - Vertically Integrated Network Operators (VINOP)
  - Independent Service Provider (ISP)

- New technical & service developments.

- Market penetration of 48 million subscribers in U.K.

- Top up service compared to contract service.
  - 18.8% top up service vs. 15.5% contractual churn rate.
  - Higher contractual service growth rate.
  - £557 avg. revenue per user from contractual subscribers.
Sampling Data

- Stratified Random Sampling
- Two Data Sets, from Two Time Windows
- Latency
Explore Data - Churn by Variable

Peak Churn

Tenure – 13 months
Number of subs – 1900

No of subscribers
Churn rate
Modelling - Summary

- **Input Data Node** used to bring in the data
- **Data Partition Node**
  - Training - 60%, Testing - 20%
  - Validation - 20%
- **Filter Outlier & Variable Reduction Node** – data cleansed and variables reduced
- **Tree, Neural network (Neural) & Regression (Reg) node**
- **Assessment node** – compare the models
Modelling – SAS Enterprise Miner

- Icons and drag & drop approach to modelling enabling users to concentrate on modelling & analysis
- Flexibility to work on the code
- A comprehensive selection of techniques
- Ability to build models quickly – on an average a model a week
- Well integrated to Base SAS® environment
Model Analysis

Lift value – ratio between the results obtained with and without the predictive model.

- Neural, Reg & Tree have lift values of 4.8, 4.6 & 4.1 respectively
- Tree model is 300% better than having no model
Model Analysis – Lift Curve

- Neural captures 48% of all churners in the 1st decile
- Top 5 deciles captured approximately 93% of all churners
- In 1st decile Neural captures 38% more churners than if no model was used
Conclusions

- Assess Existing Model - Similar significance and robust model

- *Comparing Models* - *Neural nets improved prediction*

- SAS® Enterprise Miner™ software capabilities – Ease of usage, time spent, techniques available
A Final Thought

Modelling is an enabler, its value being realised… when it is utilised to enhance processes & change behaviour
Thank You

Questions?

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