REWARDS THAT RESONATE

Crafting Lasting Customer Connections

MIT MANAGEMENT SLOAN SCHOOL

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Project Overview

Objectives

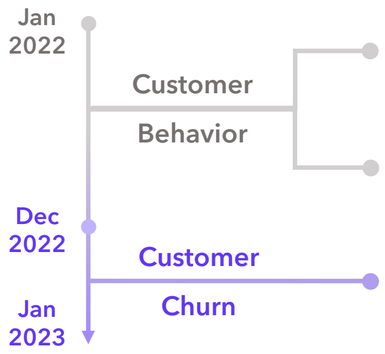
Identify Key Impact Of Xfinity Reward Engagement On **Customer Churn**

Business Scope

31M	7M	X	Y%
Xfinity Customers	Reward Customers	Rewards Redeemed	Churn Rate

Data Description

There are **three datasets** that are used in this project



Customer Base
Demographic features & purchase histories

Reward Redemption History
Reward categories & redemption dates

Disconnect (Churn) History
Disconnected products & disconnection dates

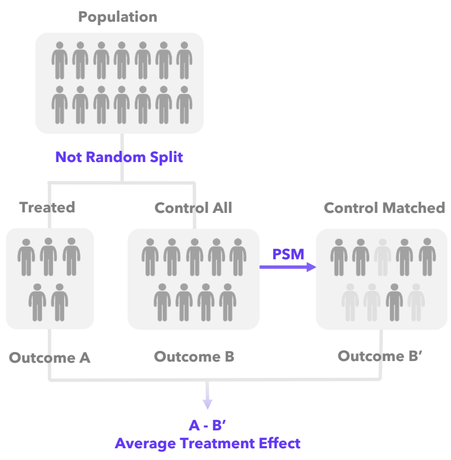
Analytics Approach

Causal Analysis

We used propensity score matching (PSM) to perform **causal inference** on observational data

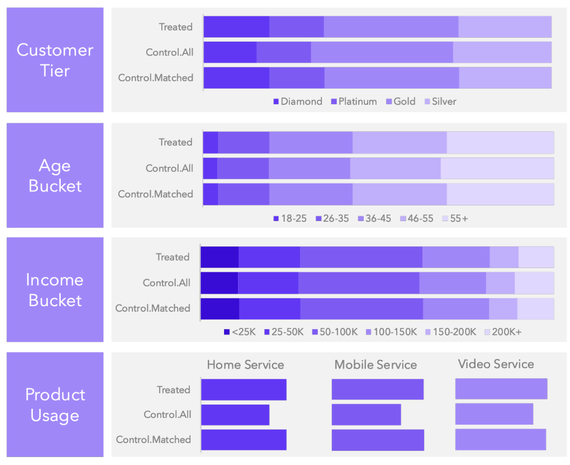
01 Methodology

Well-established method within Comcast



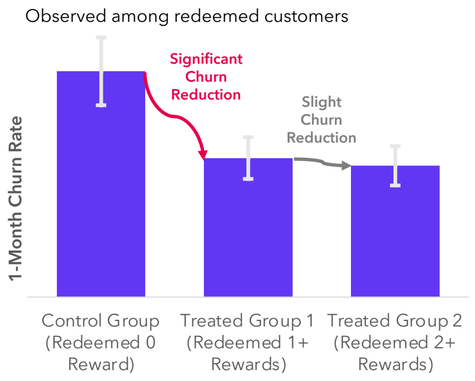
02 Matched Features

Key customer features are used for matchings



03 Churn Benefits

Observed among redeemed customers



04 Key Takeaways

Encourage at least one redemption among customers

- ✓ **Redeeming one reward** significantly reduces churn
- ✓ Redeeming additional rewards had a slight further reduction in churn
- ✓ **Similar churn benefit** was observed across all types of **rewards categories**
- ✓ Redemption amongst enrolled customers who have never redeemed should be prioritized
- ✓ Encourage customers for returning redemption throughout customer journey

Predictive Modeling

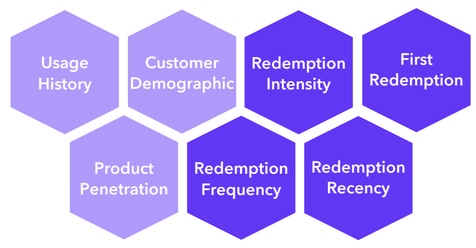
We built 3 machine learning models to quantify the customer journey

1. **Enrollment Model**
   Identify likelihood of a customer to enroll in rewards
2. **Redemption Model**
   Identify likelihood of an enrolled customer to redeem a rewards
3. **Churn Model**
   Quantify the impact of the reward redemption and types on customer churn

Churn Model Deep Dive

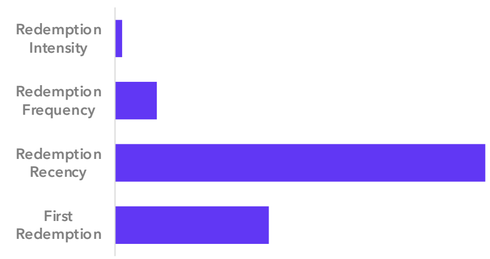
01 Engineered Features

Together with customer features, we engineered reward engagement by four aspects



02 Churn Benefits

Focused on customer redemption behaviors and their churn benefits



03 Predictive Modeling

Experimented with multiple models

Model	Train AUC	Test AUC
Logistic L2	0.69	0.68
CART	0.69	0.67
Random Forest	0.69	0.68
Gradient Boosting	0.69	0.69
XGBoost	**0.72**	**0.70**
Neural Network	0.73	0.68

04 Key Takeaways

Encourage reward redemption throughout journey

- ✓ **Redemption recency**, followed by **first redemption** explains most of churn reduction
- ✓ Further analysis is conducted on **redemption recency** threshold to stratify customers into **active, lapsed, and unengaged**
- ✓ Customer welcome journey should encourage customer **first redemption after enrollment**

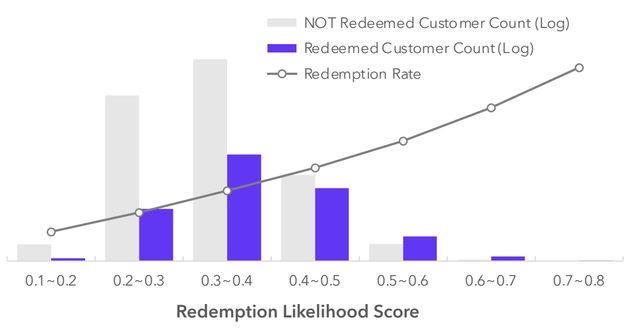
Business Implication

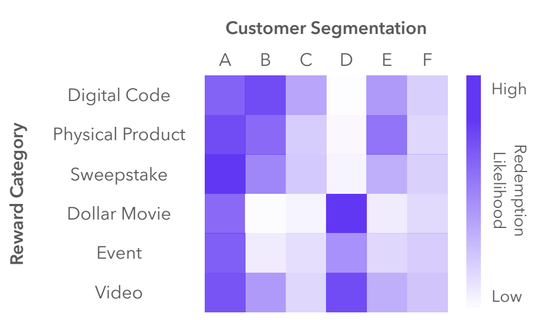
Company Adoption

We proposed two steps to **engage customers** for reward redemptions

Step 1 Identify Customers

- Evaluate **redemption likelihood score** for each customer
- Select customers with high redemption likelihood per business rule





Step 2 Target Customers

- Understand customer's different reward preference
- Message different rewards according to customer preferences

Future Steps

Comcast will proceed the project with following future advancements

Experimentation
Apply real-field AB-testing for reward impacts hypotheses

Personalization
Customized messaging on rewards based on segmentation

Evolution
Continue to evolve reward strategy based on learnings

Deliverables

We provided Comcast with following deliverables

01

Structured Documentations
- Executive-level presentation slides
- Detailed report with full process
- Reflective feedbacks and check-ins

02

Modularized Codes/Models
- Processed data outputs
- R scripts for casual inference
- Python scripts for models