

## **Class 8: Workshop: Improving Marketing Efficiency Using Predictive Analytics**

Dr Wei Miao

UCL School of Management

Thu, Oct 27 2022

## Section 1

# Tesco Case

# Background

Tesco is looking to promote its new **private-label** products to existing customers. The marketing analytics team decides to use the conventional mailing marketing strategy so that customer would receive color-printed leaflets via Royal Mails to their doorsteps.

## Cost-Benefit Analyses

- Each mail costs **£1.5** to produce and another **£0.5** to mail to the customers. If customer responds to the offer, the management expects customers to spend **£20** on trying the new products, where the COGS is **60%**.
- The cost is the marketing offer we send, `cost_per_offer`

```
1 # cost of sending an offer
2 cost_per_offer <- 1.5 + 0.5
3 cost_per_offer
```

```
[1] 2
```

## Cost-Benefit Analyses

- The benefit is the profit margin if a customer responds,  
profit\_per\_customer

```
1 # profit from a responding customer
2 COGS <- 0.6
3 profit_per_customer <- 20 * (1 - COGS)
4 profit_per_customer
```

```
[1] 8
```

## Break-Even Response Rate

- In order to break-even, we can calculate the break-even response rate from customers:

```
1 break_even_response <- cost_per_offer/profit_per_customer  
2 break_even_response
```

```
[1] 0.25
```

- Only if a customer responds to us with at least 25% response rate can we recover the costs of making an marketing offer.
- If we send offers to customers whose expected response rate is lower than 25%, we make a loss by expectation.

# Improving Marketing Efficiency Using Predictive Analytics

- 1 Prepare data for ML model (data wrangling)
  - a training set and a test set
- 2 Train predictive models on the training set (decision tree and random forest)
- 3 Predict customer response rate on the test set
- 4 Target customers based on predicted response rate
- 5 Compute ROI for each scenario
  - Blanket marketing
  - Decision tree
  - Random forest

**Let's work on the remaining case study questions together!**

## Section 2

# Predictive Analytics and Marketing



# Predictive Analytics and Customer Life Cycle

- Acquisition (Tesco Case Study)
  - Use predictive analytics to target responsive customers to reduce marketing costs
- Development
  - Use predictive analytics to recommend products to customers (personalized recommendation system)
- Retention (Week 5 Case Study)
  - Use predictive analytics to find risky customers and conduct churn management

