Analysis on Customer Behaviors
Presentation

By Joey Tse Kit Yee

Agenda

Background

Have a quick view on dataset

Visualizations

What are the charts tell us?

Key Insights

Business insights get from the graphs

Modelling
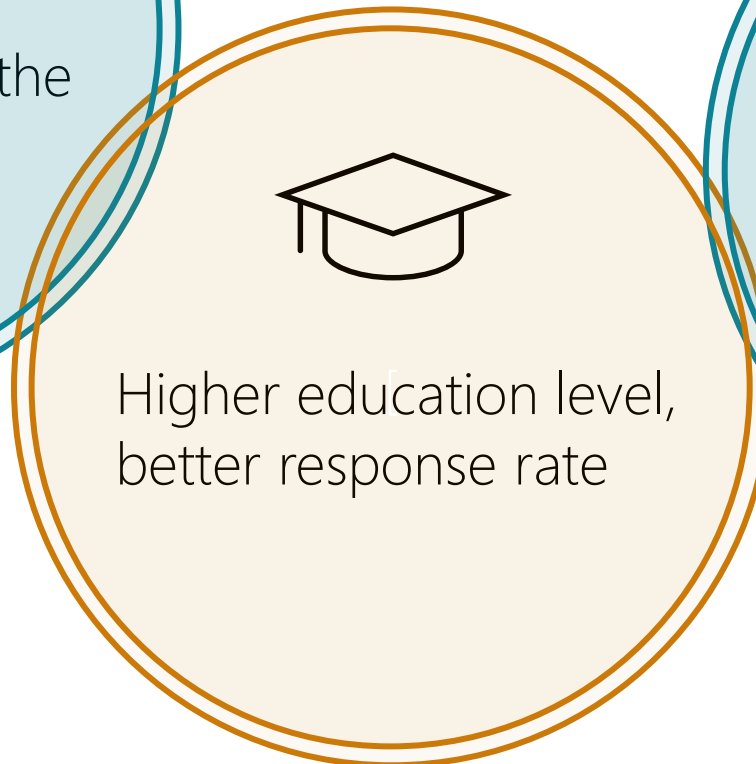
Better target customers

Suggestions

Business actions to be taken

Background

- A presentation on customer behaviors from ecommerce dataset.

- Focusing on 'What kind of customers have higher response to the marketing promotions?'

Factors determined the response rate

Elders respond to the promotions more

Higher education level, better response rate

How about customers with different marital status?

# Elders respond to the promotions more
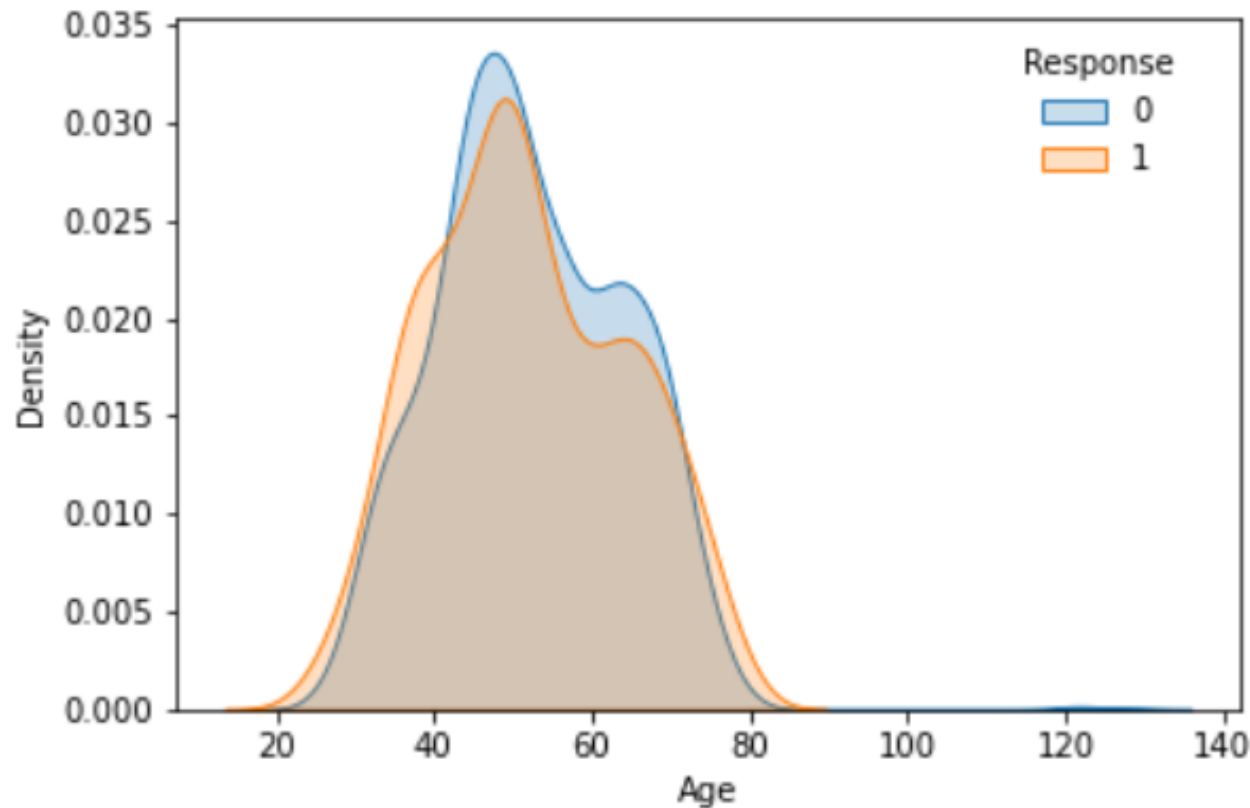
Ages from 20 to 40 and from 70 to 90, those customers tend to respond to the company's promotions.

Business Insights:

- The **younger customers** and **older customers** may have **more spare time.**

- Customer aged at forty to sixty something, are busy with their works, lives or families, so, less time to react when receiving promotion message.

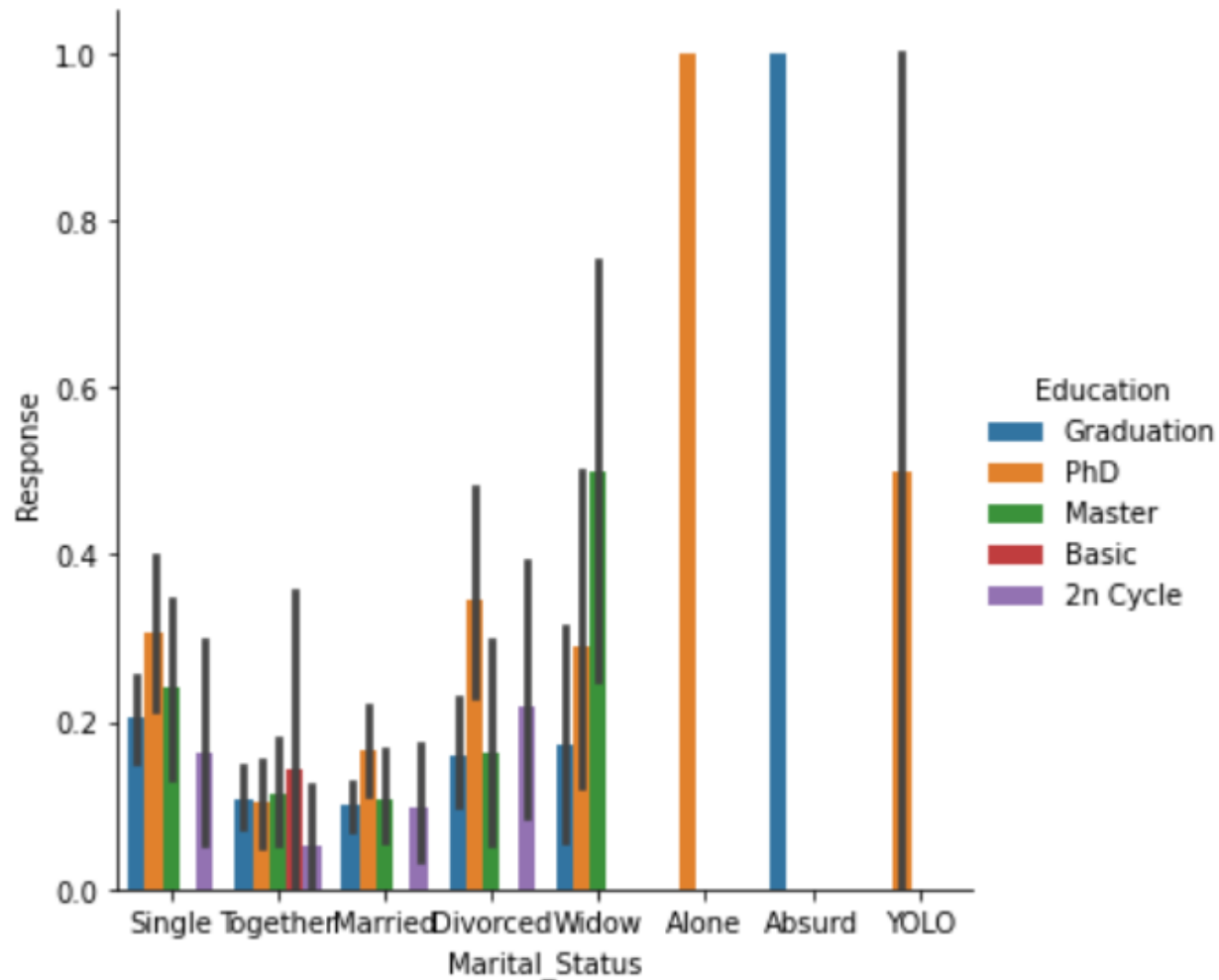# Higher education level Better response rate
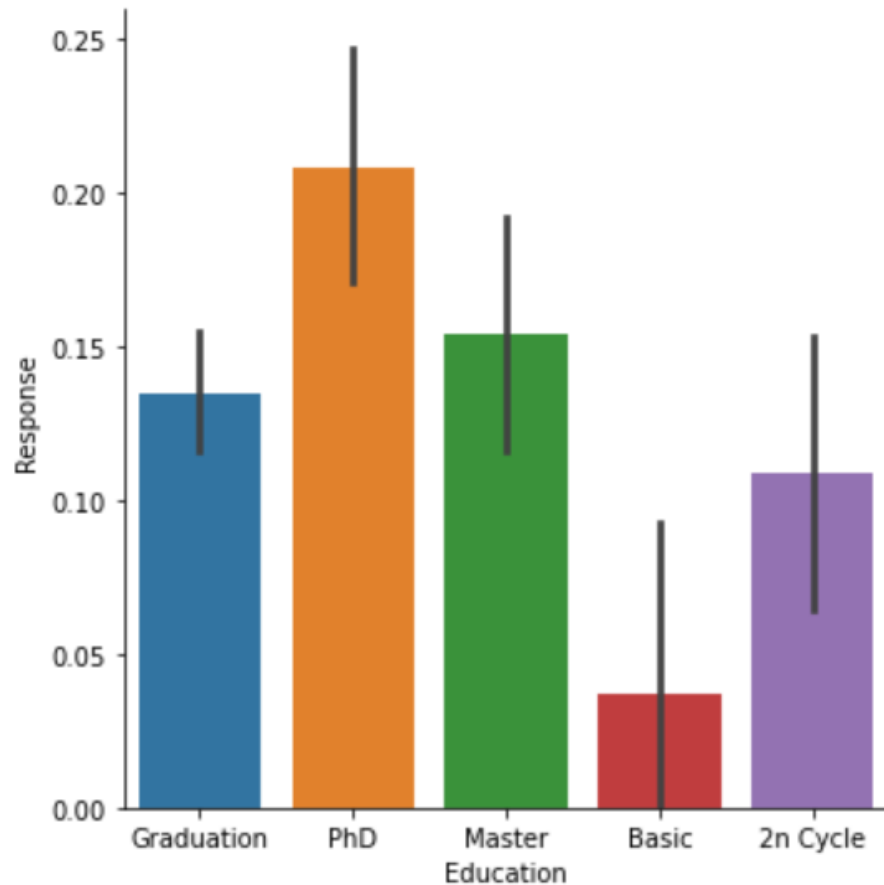
Those have **PhD-degree** is high at **20%**, others are around 10%, even lower.

Business Insights:

- Customers with **higher academic background**, they are in touch with **more informative message**.

- We may focus more on people who educated in PhD and Master.

Marital status is critical to response rate

Absolute responses from customer:
- Alone PhD
- Absurd Undergraduate

Relatively more responses:
- Yolo PhD
- Widow Master

Business Insights:

- Our promotion may focus more on people with **widow**, **alone**, **absurd** and **yolo** status, they may have **more me-time** than those together and married status.

ML Modelling

Machine Learning Algorithms

Good to do one-off computation by algorithm

More prediction-oriented
&
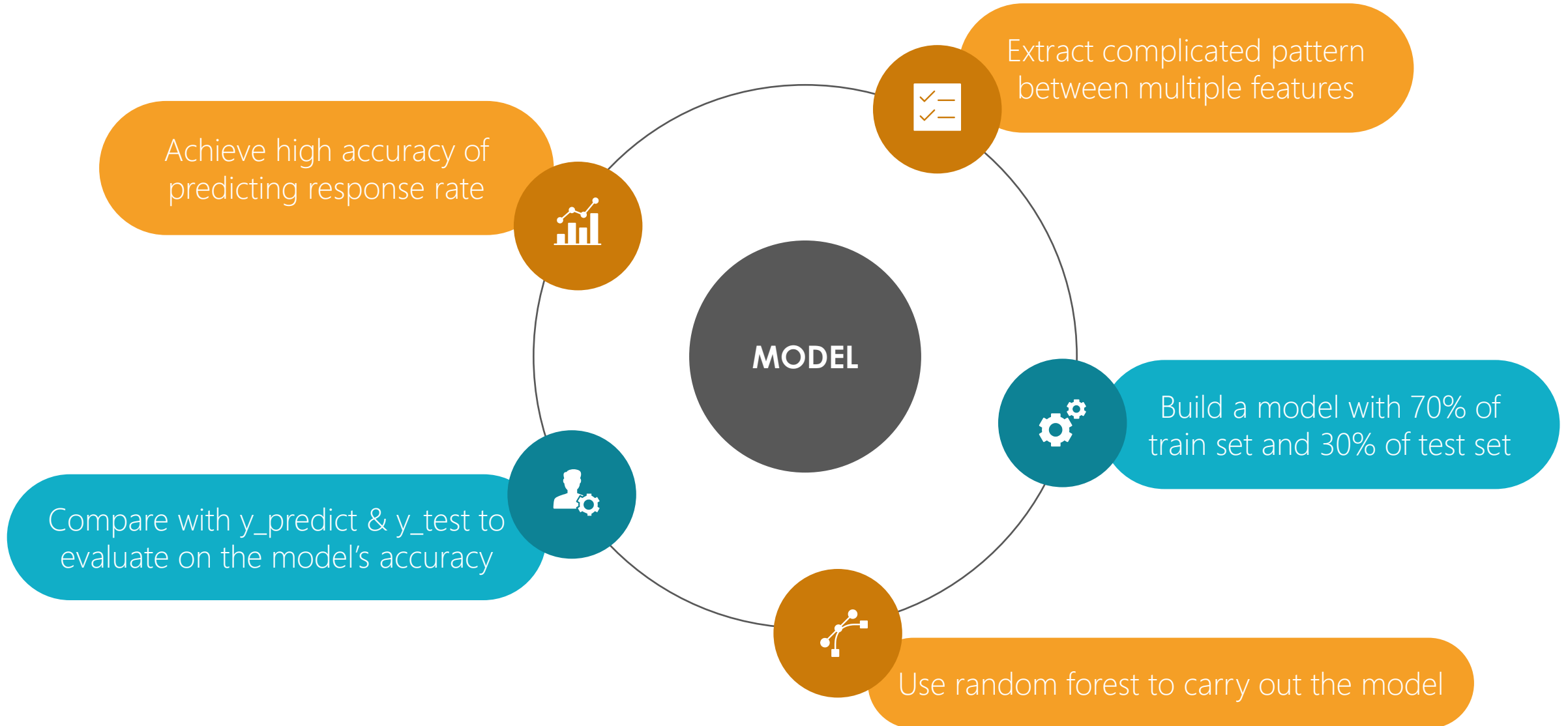Do predictions at individual level

Traditional Analysis

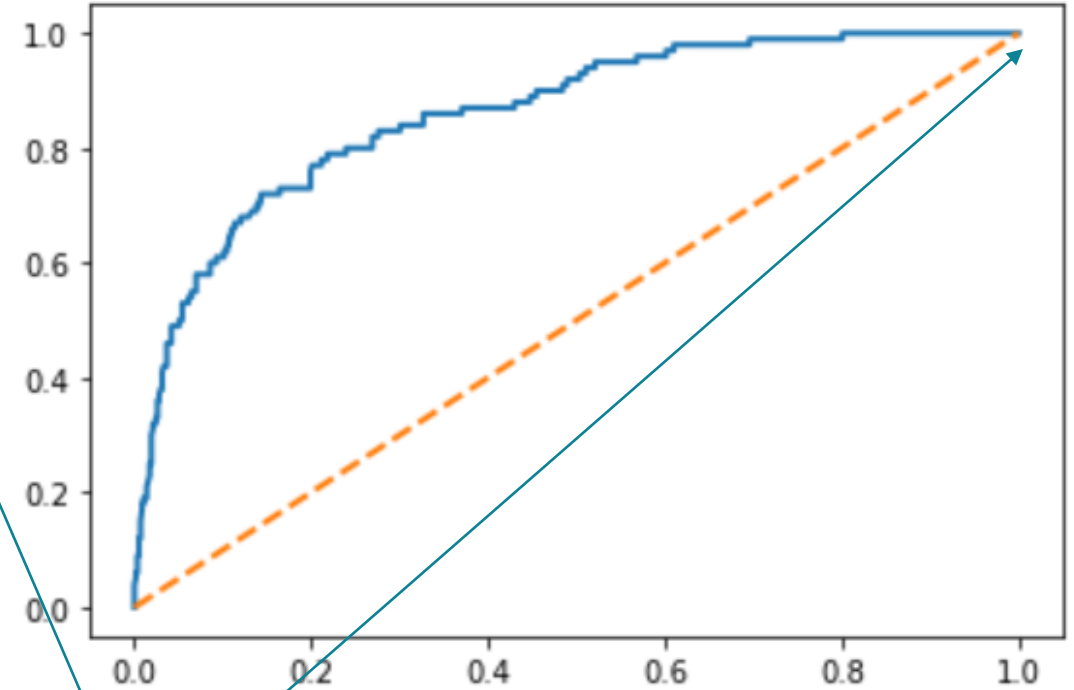Emphasis on p-value more with comprehensible model

Mostly interpretation-oriented
&
Do analysis at cohort level

ML model helps to detect complex patterns on determination of higher response rate.

Process & Advantages of conducting ML models

Extract complicated pattern between multiple features

Achieve high accuracy of predicting response rate

MODEL

Build a model with 70% of train set and 30% of test set

Compare with y_predict & y_test to evaluate on the model's accuracy

Use random forest to carry out the model

Predicting increasement of response rate
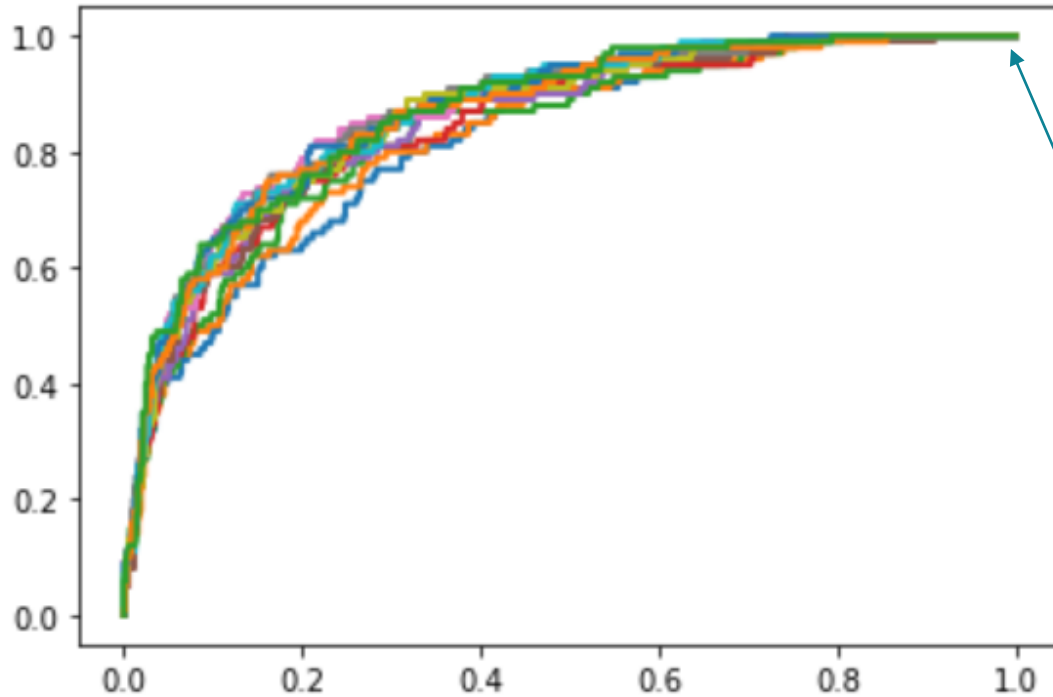
After doing several predictions,

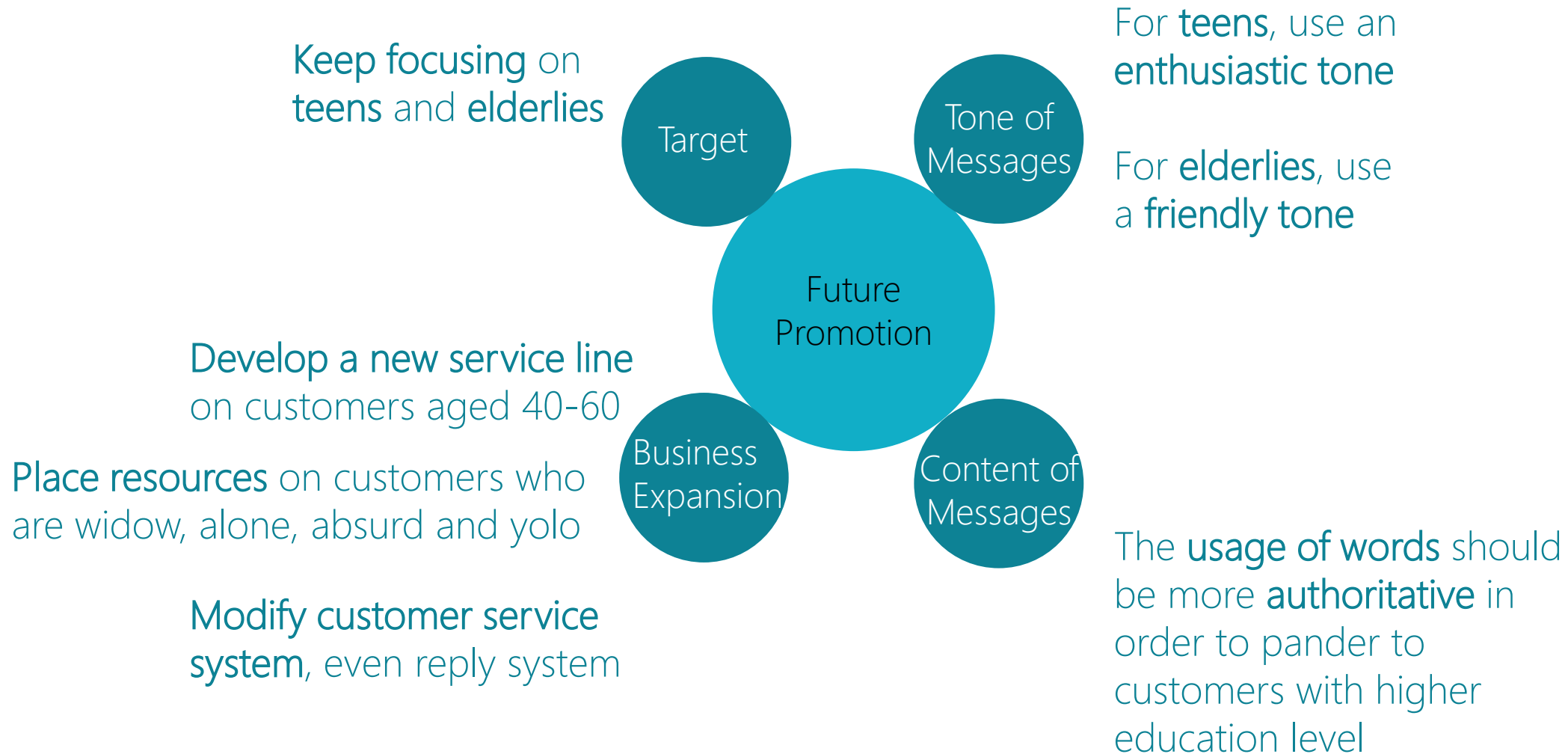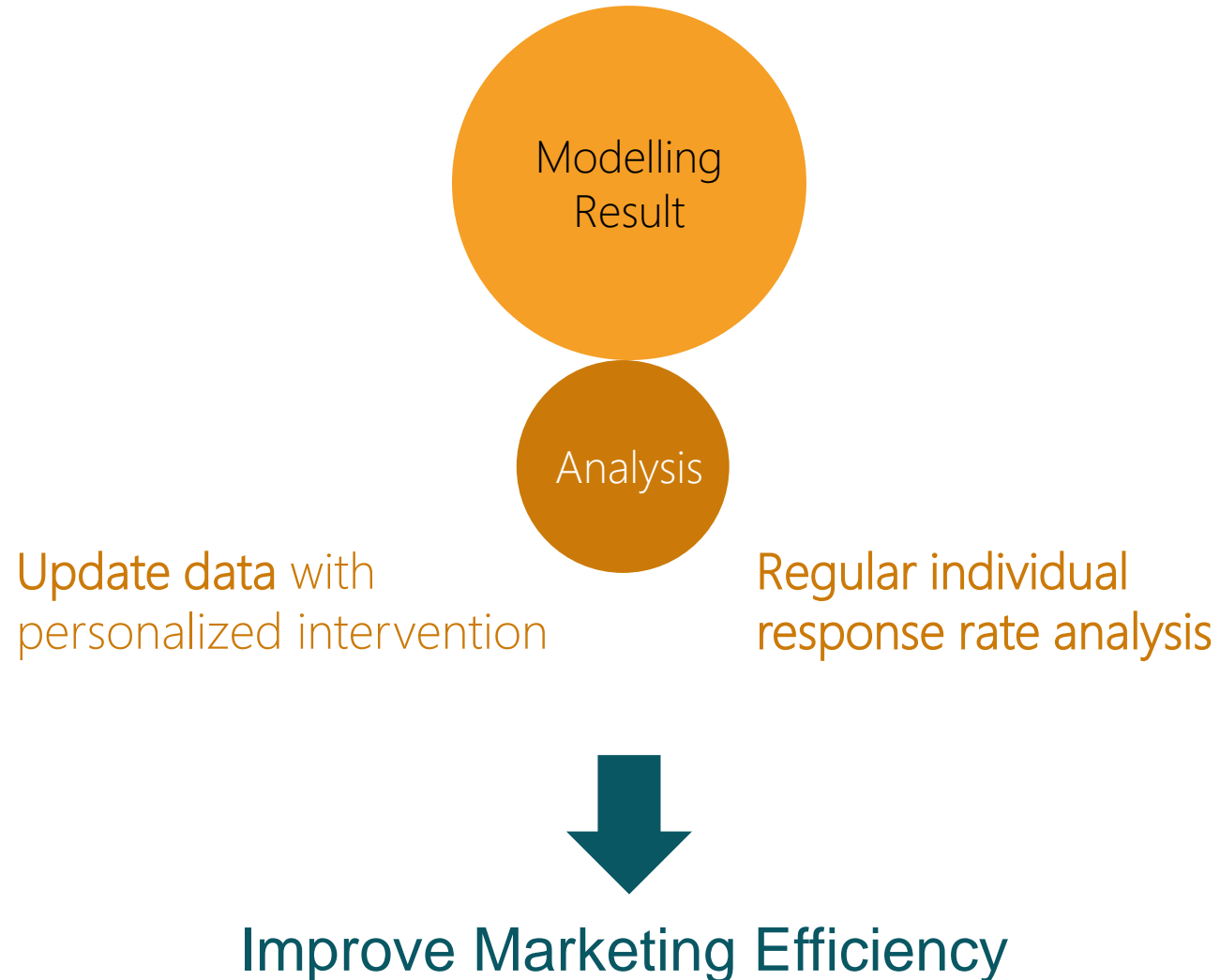those lines are trending to 1.0,

which are shown the model is getting to be more accurate &
can be well-predicted a more precise rate of promotion response.

Actions can be taken to higher response on promotions

Keep focusing on **teens** and **elderlies**

Target

Tone of Messages

For **teens**, use an enthusiastic tone

For **elderlies**, use a **friendly tone**

Future Promotion

Develop a new service line on customers aged 40-60

Place resources on customers who are widow, alone, absurd and yolo

Business Expansion

Content of Messages

Modify customer service system, even reply system

The **usage of words** should be more **authoritative** in order to pander to customers with higher education level

Actions can be taken to higher response on promotions

Modelling Result

Analysis

Update data with personalized intervention

Regular individual response rate analysis

Improve Marketing Efficiency

Thank You