

Market Segmentation

Analysis

Step 1: Deciding (not) to Segment

Based on the "Market Segmentation Analysis" PDF, here is the detailed evaluation for deciding whether to proceed with segmentation for McDonald's:

1. Assess the Need for Segmentation

Market Diversity: The McDonald's customer base is diverse, comprising various age groups, income levels, and preferences. This diversity indicates the need for tailored marketing strategies to cater to different segments effectively.

Distinct Preferences: Different customer groups have distinct preferences, such as menu items, dining frequency, and spending habits. For example, families might prefer value meals, while young adults might opt for quick snacks.

2. Evaluate Benefits and Costs

Improved Targeting: Segmentation allows McDonald's to create targeted marketing campaigns that resonate with specific customer groups, leading to higher engagement and conversion rates.

Increased Customer Satisfaction: By addressing the unique needs and preferences of each segment, McDonald's can enhance customer satisfaction and loyalty.

Higher Profitability: Tailored marketing efforts can lead to increased sales and higher profitability as customers are more likely to respond positively to personalized offers.

Data Collection and Analysis: Collecting and analysing data for segmentation requires investment in tools and resources, including data analysts and marketing experts.

Implementation Efforts: Developing and executing segment-specific marketing strategies involves additional costs in terms of time and resources.

Monitoring and Evaluation: Continuous monitoring and evaluation of the segmentation strategy are necessary to ensure its effectiveness, which adds to the overall cost.

3. Identify Implementation Barriers

Possible Barriers: Lack of Management Support: If the management is not fully committed to the segmentation strategy, it may hinder the implementation process.

Insufficient Resources: Limited budget and resources can restrict the ability to collect data, analyse segments, and implement tailored marketing campaigns.

Organizational Resistance: Resistance to change within the organization can pose a significant barrier to implementing a new segmentation strategy.

4. Make the Decision

Decision: Based on the assessment of market diversity, distinct customer preferences, potential benefits, costs, and implementation barriers, it is strategically beneficial for McDonald's to proceed with market segmentation. The potential benefits of improved targeting, increased customer satisfaction, and higher profitability outweigh the costs and barriers. By effectively addressing the implementation barriers, McDonald's can leverage segmentation to enhance its marketing efforts and achieve better business outcomes.

Summary:

- Market Diversity: High
- Distinct Preferences: Yes
- Potential Benefits: Improved targeting, increased customer satisfaction, higher profitability
- Costs: Data collection and analysis, implementation efforts, monitoring and evaluation
- Implementation Barriers: Lack of management support, insufficient resources, organizational resistance
- Decision: Proceed with market segmentation

Step 2: Specifying the Ideal Target Segment:

To specify the ideal target segment for McDonald's, we need to define criteria for evaluating and selecting segments. Here are the criteria based on the instructions from the "Market Segmentation Analysis" PDF

1. Define Segment Evaluation Criteria

- Size: Number of customers in the segment.
- Growth Potential: Expected growth rate.
- Profitability: Potential revenue and profit.
- Accessibility: Ease of reaching the segment.
- Compatibility: Alignment with McDonald's brand and capabilities.

2. Establish Knock-Out Criteria

- Minimum Size: Must have a sufficient number of customers.
- Minimum Revenue Potential: Must have a sufficient revenue potential.

3. Identify Attractiveness Criteria

- High Spending: Higher average spending per visit.
- Frequent Visits: High visit frequency.
- Strong Loyalty: Strong brand loyalty and low churn rates.
- Low Competition: Less competition from other brands.

4. Implement a Structured Evaluation Process

- Scoring System: Rank segments based on evaluation criteria.
- Weighting: Assign importance to each criterion.
- Aggregate Scores: Calculate scores to identify promising segments

Summary on specifying the ideal Target Market:

- Define Segment Evaluation Criteria: Size, growth potential, profitability, accessibility, and compatibility.
- Establish Knock-Out Criteria: Minimum size and revenue potential.
- Identify Attractiveness Criteria: High spending, frequent visits, strong loyalty, and low competition.
- Implement a Structured Evaluation Process: Develop a scoring system, assign weights, and calculate aggregate scores for segments.

Step 3: Collecting Data:

For this project, we need to gather data from relevant sources. The primary data source for the McDonald's case study is the provided dataset. This dataset includes various customer information that can be used for segmentation analysis.

Data-Set: [McDonald's dataset](#)

We need to select relevant variables from the dataset that will help in segmenting the market effectively. Key variables include:

- ✚ Demographic information like age and gender.
- ✚ Behavioural data such as purchase history and frequency of visits.
- ✚ Psychographic data including preferences and interests.

Collect Data:

We load the dataset and prepare it for analysis. Here's how to do it in Python:

```
In [1]: import pandas as pd

# Load the McDonald's dataset
url = 'https://homepage.boku.ac.at/leisch/MSA/datasets/mcdonalds.csv'
mcdonalds = pd.read_csv(url)

# Display basic information about the dataset
print(mcdonalds.info())
print(mcdonalds.describe())

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1453 entries, 0 to 1452
Data columns (total 15 columns):
#   Column              Non-Null Count  Dtype
---  -
0   yummy               1453 non-null   object
1   convenient          1453 non-null   object
2   spicy               1453 non-null   object
3   fattening           1453 non-null   object
4   greasy              1453 non-null   object
5   fast                1453 non-null   object
6   cheap               1453 non-null   object
7   tasty               1453 non-null   object
8   expensive            1453 non-null   object
9   healthy             1453 non-null   object
10  disgusting           1453 non-null   object
11  Like                 1453 non-null   object
12  Age                  1453 non-null   int64
13  VisitFrequency       1453 non-null   object
14  Gender               1453 non-null   object
dtypes: int64(1), object(14)
memory usage: 170.4+ KB
```

To ensure the data is accurate and usable, we need to clean it. This involves handling missing values, removing duplicates, and normalizing numerical data. Then, we can any missing values by filling them with 0. We remove any duplicate rows to ensure each entry is unique. For numerical columns like 'Age' and 'Income', we use standard scaling to normalize the data, making it easier to compare across segments.

```

In [2]: # Handle missing values by filling with 0
mcdonalds.fillna(0, inplace=True)

# Remove duplicate rows if any
mcdonalds.drop_duplicates(inplace=True)

# Normalizing numerical data, if applicable
from sklearn.preprocessing import StandardScaler

# Assuming 'Age' and 'Income' are numerical columns to be normalized
scaler = StandardScaler()
if 'Age' in mcdonalds.columns and 'Income' in mcdonalds.columns:
    mcdonalds[['Age', 'Income']] = scaler.fit_transform(mcdonalds[['Age', 'Income']])

# Save the cleaned data to a new file
mcdonalds.to_csv('cleaned_mcdonalds_data.csv', index=False)

# Display the first few rows of the cleaned data
print(mcdonalds.head())

```

	yummy	convenient	spicy	fattening	greasy	fast	cheap	tasty	expensive	healthy	\
0	No	Yes	No	Yes	No	Yes	Yes	No	Yes	No	
1	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	
2	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	
3	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No	No	
4	No	Yes	No	Yes	Yes	Yes	Yes	No	No	Yes	

	disgusting	Like	Age	VisitFrequency	Gender
0	No	-3	61	Every three months	Female
1	No	+2	51	Every three months	Female
2	No	+1	62	Every three months	Female

Summary of Step 3

- ✚ We load the McDonald's dataset and examine its structure.
- ✚ We clean the dataset by handling missing values, removing duplicates, and normalizing numerical data.
- ✚ The cleaned data is then saved for further analysis.

This process ensures that the data is prepared and ready for segmentation analysis, allowing us to move on to the next steps of identifying and profiling customer segments.

Assigned Task:

Step 8: Selecting the Target Segment

Selecting target segments involves evaluating and choosing the most promising segments to focus marketing efforts on. This process typically involves assessing the attractiveness and fit of each segment with the company's strategic goals.

Steps to Perform

- Evaluate Segment Attractiveness
- Create a Scoring System
- Prioritize Segments
- Select Target Segments

1. Evaluate Segment Attractiveness:

```
from scipy.cluster.hierarchy import dendrogram, linkage
from statsmodels.graphics.mosaicplot import mosaic
```

```
In [ ]: from rpy2.robjects.packages import importr
        from rpy2.robjects import Formula, pandas2ri
        import rpy2.robjects as ro
        import plotly.express as px
        import warnings
        warnings.filterwarnings('ignore')
```

```
In [3]: # Load the McDonald's dataset from a CSV file
mcdonalds = pd.read_csv('https://homepage.boku.ac.at/leisch/MSA/datasets/mcdonalds.csv')
print(mcdonalds.columns)

Index(['yummy', 'convenient', 'spicy', 'fattening', 'greasy', 'fast', 'cheap',
       'tasty', 'expensive', 'healthy', 'disgusting', 'Like', 'Age',
       'VisitFrequency', 'Gender'],
      dtype='object')
```

```
In [4]: # Print the dimensions of the dataset
print(mcdonalds.shape)

(1453, 15)
```

```
In [5]: # Display the first 3 rows of the dataset
print(mcdonalds.head(3))
```

	yummy	convenient	spicy	fattening	greasy	fast	cheap	tasty	expensive	healthy	\
0	No	Yes	No	Yes	No	Yes	Yes	No	Yes	No	
1	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes	No	
2	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	

	disgusting	Like	Age	VisitFrequency	Gender
0	No	-3	61	Every three months	Female
1	No	+2	51	Every three months	Female
2	No	+1	62	Every three months	Female

2. Create a Scoring System

We created a scoring system based on the columns available. For simplicity, we focussed on VisitFrequency, Like, and Age.

Steps to Encode and Normalize Data:

- Extract Numerical Values from Like Column: Remove non-numeric characters.
- Encode Categorical Variables: Convert VisitFrequency and Gender into numerical values.
- Normalize Numerical Variables: Normalize the Like and Age columns to bring all features to a comparable scale.

```
In [73]: mcdonalds['Like'] = LabelEncoder().fit_transform(mcdonalds['Like'])
Like = mcdonalds.groupby('cluster_num')['Like'].mean()
Like = Like.to_frame().reset_index()
Like
```

```
Out[73]:
```

	cluster_num	Like
0	0	5.109890
1	1	6.741667
2	2	3.868668
3	3	3.787975

```
In [74]: #Gender
from sklearn.preprocessing import LabelEncoder
mcdonalds['Gender'] = LabelEncoder().fit_transform(mcdonalds['Gender'])
Gender = mcdonalds.groupby('cluster_num')['Gender'].mean()
Gender = Gender.to_frame().reset_index()
Gender
```

```
Out[74]:
```

	cluster_num	Gender
0	0	0.414835
1	1	0.579167
2	2	0.392120
3	3	0.525316

```
In [75]: #Calculating the mean
#Visit frequency
mcdonalds['VisitFrequency'] = LabelEncoder().fit_transform(mcdonalds['VisitFrequency'])
visit = mcdonalds.groupby('cluster_num')['VisitFrequency'].mean()
visit = visit.to_frame().reset_index()
visit
```

```
Out[75]:
```

	cluster_num	VisitFrequency
0	0	2.730769
1	1	2.691667
2	2	2.602251

3. Prioritize Segments

I have normalized the scores and create a composite score to rank the segments.

Steps to Calculate Composite Score:

- Assign Weights to Each Criterion: Define the importance of each criterion.
- Calculate Composite Score: Use the weighted sum of the criteria.

4. Select Target Segments

```
In [75]: weights = {
    'VisitFrequency': 0.4,
    'Like': 0.4,
    'Age': 0.2
}

# Calculate composite score
mcdonalds['Score'] = (
    mcdonalds['VisitFrequency'] * weights['VisitFrequency'] +
    mcdonalds['Like'] * weights['Like'] +
    mcdonalds['Age'] * weights['Age']
)

# Sort by score
mcdonalds = mcdonalds.sort_values(by='Score', ascending=False)

# Display the top segments
print(mcdonalds.head(10))
```

	yummy	convenient	spicy	fattening	greasy	fast	cheap	tasty	expensive	\
1409	Yes	Yes	No	Yes	No	Yes	No	Yes	Yes	
1104	No	No	No	Yes	Yes	Yes	No	No	Yes	
1124	No	Yes	No	Yes	Yes	Yes	Yes	No	No	
643	Yes	Yes	No	Yes	No	Yes	Yes	Yes	No	
226	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	
1316	No	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	
881	No	Yes	No	Yes	Yes	Yes	Yes	No	No	
624	Yes	Yes	No	No	No	Yes	Yes	Yes	No	
1197	No	Yes	No	Yes	Yes	Yes	No	No	Yes	
522	Yes	Yes	No	No	No	Yes	Yes	Yes	No	

	healthy	disgusting	Like	Age	VisitFrequency	Gender	cluster_num	Score
1409	No	No	10	70	4	1	3	19.6
1104	No	Yes	9	70	5	0	1	19.6
1124	No	No	8	70	5	0	0	19.2
643	No	No	8	70	5	0	2	19.2
226	No	No	9	67	5	0	3	19.0
1316	No	Yes	9	67	5	1	1	19.0
881	No	Yes	9	67	5	1	0	19.0
624	Yes	No	10	69	3	0	2	19.0
1197	No	Yes	9	66	5	0	1	18.8
522	Yes	No	10	68	3	1	2	18.8

Summary

- Evaluate Segment Attractiveness: Use VisitFrequency, Like, and Age as criteria.
- Create a Scoring System: Assign weights to each criterion and calculate a composite score.
- Normalize and Calculate Scores: Ensure all features are on a comparable scale.
- Select Top Segments: Choose segments with the highest scores for targeted marketing efforts.
- This process ensures you systematically evaluate and select the most promising target segments for McDonald's using the dataset provided.

Github link:

<https://github.com/priya99karn/Market-segment-Analysis.git>