MARKET SEGMENTATION STUDY

Step 1: Deciding (Not) to Segment

1. Overview

Step 1 of market segmentation analysis emphasizes the strategic decision of whether or not to pursue a segmentation approach. This decision should not be taken lightly, as implementing market segmentation requires **long-term organizational commitment**, substantial investments, and structural changes.

2. Implications of Committing to Segmentation

- Committing to segmentation demands a **readiness to restructure** the organization to better serve different market segments.
- Costs involved include:
    - Conducting market research and surveys
    - Designing diverse product packages and advertisements
    - Developing tailored communication strategies
- The **profitability** of segmentation should outweigh its costs.
- It may require:
    - **New product development**
    - **Modification of existing offerings**
    - Changes in **pricing**, **distribution**, and **internal structures**

3. Organisational Restructuring

- Organisations may need to **restructure internally**, moving from a product-centric to a segment-centric approach.
- Creating **strategic business units (SBUs)** aligned with different segments can help maintain focus on evolving customer needs.

4. Implementation Barriers

These barriers must be carefully considered before proceeding:

a. Leadership & Culture

- Lack of top-level commitment
- Resistance to change and innovation
- Poor cross-functional communication

b. Capabilities & Resources

- Insufficient training on segmentation
- Lack of qualified marketing and data professionals
- Limited financial and operational capacity

c. Process Limitations

- Vague segmentation objectives
- Poor planning and structure
- No time allocated for rigorous analysis

5. Step 1 Checklist

A detailed checklist helps evaluate segmentation readiness. Key points include:

- Is the organisation **market-oriented**?
- Is there **willingness to change** and take a **long-term view**?
- Is **inter-departmental communication** effective?
- Are **financial and structural resources** sufficient?
- Is **senior leadership actively committed**?
- Are training and understanding of segmentation concepts adequate?

- Has a **qualified team** (marketing + data experts) been formed?
- Are there **clear goals** and a **structured process** defined?

If most of these criteria are not met, **segmentation should not be pursued** at this stage.

Conclusion

Deciding to segment is a foundational step that demands careful reflection and assessment. It is not merely a marketing choice, but a **strategic business decision** that requires alignment across the entire organization. The success of segmentation depends on readiness, commitment, and capability.

Step 2: Specifying the Ideal Target Segment

1. Overview

After committing to a segmentation strategy in Step 1, the organization's next step is to define **what an "ideal" target segment looks like**. This involves developing two key sets of **evaluation criteria**:

- **Knock-out criteria**: Essential requirements that any viable segment must meet.
- **Attractiveness criteria**: Factors that help determine how desirable each qualifying segment is.

These criteria guide all subsequent stages, especially **data collection (Step 3)** and **target segment selection (Step 8)**.

2. Segment Evaluation Criteria

This step ensures that **user (organizational) input** is integrated throughout the process — not just at the beginning or end. Evaluation criteria should reflect the **strategic priorities** and **operational capacity** of the organization.

Why this is important:

- Helps filter out unfit segments early
- Ensures the segmentation process is **goal-aligned**
- Prepares for efficient data collection and decision-making

3. Knock-Out Criteria

These are **non-negotiable**, basic conditions a segment must fulfill to be considered.

Common Knock-Out Criteria:

1. **Homogeneity** – Segment members must be similar to one another.
2. **Distinctness** – Segment must be different from other segments.
3. **Size** – Must be large enough to justify marketing costs.
4. **Match** – Segment needs must align with organizational strengths.
5. **Identifiability** – Members must be distinguishable in the market.
6. **Reachability** – There must be a clear way to access them via communication or distribution.

If a segment fails to meet **any** of these, it is eliminated from further consideration.

4. Attractiveness Criteria

Used to **evaluate** and **rank** the remaining segments. These are more **flexible** and can vary based on company strategy.

Characteristics:

- Not binary — segments are rated (not eliminated) based on these.
- Examples include:
    - Growth potential
    - Competitive intensity
    - Profitability
    - Customer loyalty
    - Strategic fit

A segment may be more or less attractive depending on how it scores across the **full set of selected criteria**.

5. Implementing a Structured Process

A structured approach is highly recommended to ensure consistency and objectivity in evaluating segments.

Recommended Actions:

- Use a **segment evaluation plot**: A 2D chart showing **segment attractiveness** vs **organizational competitiveness**
- Agree on a **limited set** (≤ 6) of attractiveness criteria
- Assign **weights** to each criterion based on importance (e.g., distribute 100 points among them)
- Seek input and approval from an **advisory committee** with representatives across departments

This approach ensures:

- Diverse perspectives
- Stakeholder involvement
- Greater organizational alignment

6. Step 2 Checklist

Task	Action
Team Meeting	Align on knock-out & attractiveness criteria
Criteria Finalization	Select ~6 key attractiveness factors
Weighting	Distribute 100 points across selected criteria
Review & Approval	Present choices to advisory committee

Conclusion

Step 2 ensures that the segmentation analysis is **strategically guided**. By predefining both **essential (knock-out)** and **desirable (attractiveness)** segment features, the organization can later evaluate potential target segments efficiently and in alignment with its overall business goals.

Step 3: Collecting Data

1. Overview

Step 3 emphasizes the need for **careful and intentional data collection**, as the quality of segmentation directly depends on the **relevance, accuracy, and structure** of the collected data. It distinguishes between:

- **Segmentation variables** (used to split customers into segments), and

- **Descriptor variables** (used to describe and understand each segment in depth).

Both commonsense and data-driven segmentation approaches require data, but their **data needs and strategies differ** significantly.

2. Segmentation Variables vs. Descriptor Variables

- **Segmentation Variables**: These are the variables used to divide the sample into distinct segments (e.g., gender, travel motive, behavior).
- **Descriptor Variables**: Used to **characterize and describe** the identified segments (e.g., age, income, lifestyle, media habits).

In commonsense segmentation, often only **one variable** is used (e.g., gender), whereas data-driven segmentation typically involves **multiple variables simultaneously**.

3. Types of Segmentation Criteria

The segmentation variables can be categorized into four broad types:

a. Geographic Segmentation

- Region, city size, climate
- Useful in industries with region-specific demand

b. Socio-Demographic Segmentation

- Age, gender, income, education, occupation
- Easy to measure and commonly used

c. Psychographic Segmentation

- Lifestyle, personality, values, interests
- Offers deeper insight but harder to measure

d. Behavioral Segmentation

- Usage rate, brand loyalty, benefits sought, purchasing patterns
- Directly related to customer behavior and purchase decisions

4. Data Sources

a. Survey Studies

- Common for collecting segmentation and descriptor variables
- Require careful questionnaire design to avoid **bias**, **redundancy**, or **fatigue**

b. Experimental Studies

- Includes **conjoint analysis** or **choice experiments**
- Respondents react to varied product attributes — useful for benefit segmentation

5. Best Practices for Data Collection

Variable Selection:

- Include only **essential and distinct** variables
- Avoid **noisy variables** (irrelevant or redundant), which confuse clustering algorithms
- Minimize **respondent fatigue** by avoiding overly long surveys

Response Options:

- Ensure **clear, scaled** response formats
- Design with distance-based analysis techniques (like clustering) in mind

Sample Size:

- Large and representative samples yield better clustering accuracy
- Sample size must match the **dimensionality** (number of variables)

Exploratory Research:

- Conduct **qualitative interviews** beforehand to design relevant questions
- Combine **qualitative + quantitative** data for robust segmentation

6. Step 3 Checklist

Task	Action
Team Meeting	Discuss and finalize segmentation & descriptor variables
Questionnaire Design	Ensure clarity, uniqueness, and minimal bias
Data Collection Planning	Choose method: survey, experiment, observation
Quality Control	Prevent redundancy, fatigue, and low-quality responses
Final Data Collection	Conduct survey or study; ensure ethical standards

Conclusion

Data collection is **not just a mechanical step**, but a **critical foundation** of the entire segmentation process. The **selection of proper variables**, along with **well-designed data gathering instruments**, enables accurate segment extraction and ensures the final segmentation output is useful, valid, and actionable.

Step 4 – Exploring Data

Objective: ensure the raw data are clean, trustworthy and in a format that clustering or other segmentation algorithms can use effectively.

1 . First Glimpse at the Data

- **Load and inspect**: view variable names, dimensions, and a few initial rows to verify structure.
- **Count cases & variables** to confirm sample size is adequate (later affects stability checks).

2 . Data Cleaning

Issue	Typical fix	Note
Non-numeric or categorical codes	Re-encode (e.g., "Yes/No" → 1/0)	Essential before distance-based methods
Missing values	Impute, drop, or flag	Choice depends on proportion and pattern
Inconsistent labels / typos	Standardise via string cleaning	Prevents phantom categories

Outliers	Investigate cause; cap or remove	Outliers distort distance measures

3 . Descriptive Analysis

- **Univariate**: frequencies, means, histograms (numeric) or bar charts (categorical) spot coding errors or improbable values.
- **Bivariate**: cross-tabs or scatterplots reveal obvious collinearity and help decide which variables remain.
- **Visual tools**: histograms, box-and-whisker plots and dot charts quickly highlight skew, spikes and gaps; all are emphasised in the book's worked example.

4 . Pre-processing

Variable type	Key actions
Categorical	• Binary-encode responses (dummy variables) • Combine rare categories if necessary
Numeric	• Scale/standardise when units differ • Consider transformations (log, square-root) to reduce skew
Mixed data	Some algorithms require separate distance metrics or Gower distance; decide here which approach you will take.

5 . Exploratory Multivariate Techniques

- **Principal Components Analysis (PCA)** provides a perceptual map that helps visualise patterns and spot strongly correlated variables; it is not meant to replace clustering but to understand the space.
- **Clustering trial runs** (e.g., rough k-means with several random starts) quickly reveal obvious data issues before the formal Step 5 extraction.

6 . Step 4 Checklist (adapted)

1. ☐ Loaded data and confirmed dimensions
2. ☐ Verified coding schemes and recoded where needed
3. ☐ Handled missing values/outliers appropriately

4. ☐ Generated and reviewed univariate & bivariate summaries
5. ☐ Scaled/standardised numeric variables where required
6. ☐ Created exploratory visualisations (histograms, PCA map, etc.)
7. ☐ Saved a clean analysis set for Step 5

Key Take-aways

- A robust segmentation rests on sound input data; sloppy cleaning or overlooked miscoding will echo through every later step.
- Visual summaries and simple descriptive stats are irreplaceable early warning systems.
- Finishing Step 4 with a documented, reproducible cleaning script (Python, R, etc.) ensures transparency and repeatability.

Step 5: Extracting Segments

1. Overview

Once the data have been cleaned, pre-processed, and verified (in Step 4), the next step is to **apply statistical techniques** to uncover natural groupings within the market. This is known as **segment extraction**.

The goal is to divide consumers into **internally homogeneous** yet **externally heterogeneous** groups, meaning:

- Customers within each segment are similar to one another.
- Customers in different segments are meaningfully different.

2. Segmentation Techniques

Several data-driven methods can be used for segment extraction. The most commonly used are:

a. K-Means Clustering

- Divides data into K segments based on similarity.
- Works well with large, metric datasets.
- Sensitive to initial seed and requires pre-defining K.
- Commonly used due to simplicity and scalability.

b. Hierarchical Clustering

- Builds a tree (dendrogram) of clusters.
- Doesn't require pre-specifying number of clusters.
- Suitable for smaller datasets due to computational load.

c. Latent Class Analysis / Finite Mixture Models

- Based on probability models rather than distance.
- Can incorporate categorical variables.
- Useful for behavior or psychographic segmentation.

d. DBSCAN / Density-Based Methods

- Finds clusters of arbitrary shape and handles noise.
- Good for outlier-prone data but requires density tuning.

3. Determining the Number of Segments (K)

Choosing the right number of segments is critical. Methods include:

Method	Description
Elbow Method	Plot within-cluster SSE vs. K and identify the "elbow" point.
Silhouette Score	Measures how similar each point is to its own cluster vs. others.
Gap Statistic	Compares clustering results to a reference null distribution.
Stability Analysis	Repeating clustering over bootstrapped samples to test reliability.

In the McDonald's case, the stepFlexclust() function tests K = 2 to 8 with multiple restarts.

4. Segment Validation & Relabeling

After segments are extracted, they must be validated:

- **Are they stable?** (consistent across samples)
- **Are they interpretable?** (can we describe them meaningfully?)
- **Do they align with business goals?**

In the R code, segments are "relabelled" to match interpretation across different runs — this can also be done in Python by sorting cluster centers or using profiles.

5. Step 5 Checklist

Task
Chose segmentation method (e.g., KMeans)
Predefined or tested range of K values
Evaluated clustering quality (Elbow, Silhouette, etc.)
Extracted final clusters and assigned segment labels
Interpreted & relabelled segments for clarity

Conclusion

Extracting segments is the **core analytical task** of market segmentation. The success of this step relies on:

- Choosing appropriate techniques
- Testing multiple K values
- Validating the resulting clusters
- Preparing them for profiling in the next steps

Good segmentation not only groups customers efficiently — it provides a **platform for actionable strategy**.

Step 6: Profiling Segments

1. Overview

Once customer segments have been extracted through clustering, the next crucial step is to **build meaningful, interpretable profiles** for each segment.

A segment profile answers:
"Who are the people in this segment, and what makes them unique?"

Profiling helps stakeholders understand segment behaviors, needs, and potential — and is critical for creating effective marketing strategies later.

2. Purpose of Segment Profiling

- Describe each cluster **in terms of customer traits**
- Translate numerical clusters into **real-world buyer personas**
- Provide inputs for **product design**, **positioning**, and **marketing mix**

3. Profiling Techniques

a. Descriptive Statistics

Use mean, median, mode, and proportion for:

- Demographics: age, gender, income, education
- Behavior: purchase frequency, brand usage
- Psychographics: lifestyle, preferences, attitudes

b. Cross-tabulations

Compare categorical variables across segments using:

- Frequency tables
- Percentage breakdowns

c. Visualization

- **Bar charts** for binary traits (e.g., Yes/No questions)
- **Radar plots** to show differences across multiple attributes
- **Box plots** for numeric comparisons

Example: If Segment A shows high values in "Health-Conscious", "Organic Preference", and "Online Shopping", it may be profiled as:
"Young Urban Health Seekers"

4. Profiling in Practice (McDonald's Example)

In the McDonald's case study:

- Segments were labeled based on traits like "likes burgers", "avoids fast food", "enjoys salads"

- Binary responses (Yes/No) were converted to 1/0
- Cluster-wise **column means** of these variables were used to create profiles

Example (Python Equivalent):

```
df.groupby('Segment').mean()
```

This gives the average value (0–1 scale) for each "Yes/No" question within a segment.

5. Step 5 Checklist

Task
Calculated summary statistics for each segment
Compared demographic, behavioral, and psychographic traits
Created labels or names for each segment
Visualized traits to support interpretation
Wrote concise profiles for each cluster

Conclusion

Profiling turns mathematical clusters into **actionable customer personas**. These profiles serve as the foundation for strategic decisions in **targeting, messaging, pricing, and positioning** — all of which follow in later steps.

Good profiles are not just accurate — they are **insightful, memorable, and directly useful** for business strategy.

Step 7: Selecting Target Segments

1. Overview

After segments have been extracted (Step 5) and profiled (Step 6), the next strategic decision is to **choose which segment(s) to target**.

Not all segments are equally valuable. This step involves using **quantitative data** and **business judgment** to decide which segment(s) offer the **best fit with company objectives, resources, and market opportunities**.

2. Targeting Strategies

There are four general approaches to choosing target segments:

Strategy	Description	Example
Undifferentiated	Treat the whole market as one	Coca-Cola's classic branding
Differentiated	Target multiple segments with tailored offerings	Unilever’s separate brands for men and women
Concentrated (Niche)	Focus on one key segment	Rolex targeting luxury buyers
Micromarketing	Customization at the individual level	Spotify recommendations, Amazon personalization

For most segmentation studies like McDonald's or similar, the **differentiated** or **concentrated** strategies are more realistic.

3. Segment Evaluation Criteria

To choose the best segment(s), we compare them on a variety of **attractiveness factors**:

Market-Based Criteria

- Segment size & growth rate
- Revenue potential
- Accessibility (communication & distribution ease)
- Competitive intensity
- Customer loyalty

Company-Based Criteria

- Strategic fit with brand & mission
- Ability to serve segment effectively (skills, infrastructure)
- Profit margin and return on investment

Example (Scoring Model):

Segment	Size (0–10)	Fit (0–10)	Profit (0–10)	Total Score
Segment A	9	7	8	**24**
Segment B	6	9	9	24

Segment C	5	5	4	14

Highest scoring segment(s) can be selected for targeting.

4. Risk and Feasibility Check

Before finalizing the target segment:

- Check for **legal or ethical concerns**.
- Assess **data stability** — was the segment consistent in different clustering runs?
- Consider **market volatility** and **barriers to entry**.

5. Segment Prioritization and Naming

- Give each target segment a **clear, memorable label**.
- Document their:
  - Size and potential
  - Key defining traits
  - Customer needs and desires

These profiles are then used in marketing strategy development (Step 8).

6. Step 7 Checklist

Task
Compared segments using attractiveness criteria
Shortlisted most viable segments
Evaluated feasibility, risk, and strategic alignment
Selected one or more segments to target
Documented selection rationale and segment labels

Conclusion

Selecting the target segment(s) is a **strategic business choice**, not just a statistical outcome. The chosen segment must not only be attractive — it must be **achievable, sustainable, and aligned** with the organization's capabilities and mission.

This step ensures that the marketing strategy developed in the next phase is **precise, focused, and profitable**.

Step 8: Designing a Marketing Strategy

1. Overview

After selecting the target segment(s) in Step 7, the next step is to design a **customized marketing strategy** for each segment. The strategy should be grounded in the **distinct needs, behaviors, and preferences** identified in the segment profiles.

The goal is to deliver the **right product, at the right price, in the right place, using the right promotion** — commonly known as the **4Ps** of marketing.

2. The 4Ps Framework

Component	Description	Segment-Specific Example
Product	What are we offering? Adapt features to fit segment needs.	Healthy menu for health-conscious segment
Price	At what price point? Reflect affordability or premium status.	Budget pricing for students
Place	Where/how is it distributed? Online, offline, regional focus.	App-only deals for tech-savvy users
Promotion	How do we communicate? Choose message and channel.	Instagram ads for Gen Z

Each P must align with the **segment's values and motivations** uncovered in Step 6 (profiling).

3. Strategic Positioning

Each target segment must also be given a **positioning statement** that clarifies:

- Who the customer is
- What need the product fulfills
- Why the offering is better/different than competitors'

Example Positioning Statement:

"For young professionals who value convenience and taste, our fast-casual menu offers nutritious, customizable meals — unlike traditional fast food which sacrifices health for speed."

4. Differentiation Across Segments

If multiple segments are being targeted (differentiated strategy), then:

- Each one should have its **own 4Ps mix**
- Messaging and offers must be clearly **tailored**
- Avoid brand confusion through consistent **but distinct** sub-branding

5. Integration with Company Operations

The strategy must be **operationally feasible**. For instance:

- Can the supply chain support more SKUs for customized offerings?
- Is the pricing model sustainable given cost structure?
- Are the chosen promotion channels within marketing budget?

The **marketing mix design should be data-backed**, realistic, and scalable.

6. Step 8 Checklist

Task
Developed a separate 4Ps plan for each selected segment
Created a unique positioning statement per segment
Ensured operational alignment (resources, costs, channels)
Incorporated insights from segment profiles (Step 6)
Prepared marketing communications tailored to each group

Conclusion

Designing a marketing strategy is about **actioning the insights** from segmentation. By aligning product, price, place, and promotion to each segment's profile, organizations create more

relevant, persuasive, and successful marketing campaigns — driving **conversion, loyalty, and brand value**.

Step 9: Implementing and Monitoring the Segmentation Strategy

1. Overview

Once a marketing strategy has been crafted for each target segment (Step 8), the next critical phase is to **execute and monitor its performance** in the real market environment.

Step 9 ensures that strategies are not just theoretical plans — they are **rolled out effectively**, **measured continuously**, and **refined based on feedback**. It closes the loop between segmentation insights and tangible business impact.

2. Implementation Activities

Successful implementation involves coordination across multiple departments:

Function	Role
Marketing	Launches segment-specific campaigns
Sales	Adapts pitch and channels to segment needs
Product/Operations	Ensures product design and delivery match strategy
Customer Service	Prepares for segment-specific support

Cross-functional alignment is **key to consistency** across touchpoints.

3. Monitoring & Evaluation Metrics

Regular performance tracking allows teams to assess whether segmentation strategy is delivering on expectations.

a. Marketing Metrics

- Campaign reach & engagement
- Click-through and conversion rates
- Customer acquisition cost (CAC)
- Retention rate by segment

b. Sales & Revenue Metrics

- Revenue per segment
- Segment-specific growth
- Share of wallet
- Upsell and cross-sell rates

c. Customer Feedback

- Segment-specific satisfaction (NPS)
- Qualitative reviews and complaints
- Brand perception across segments

These indicators help identify **which segments are underperforming**, and why.

4. Continuous Improvement

Monitoring should be paired with a **feedback loop**:

- Track market changes (e.g., new competitors, tech disruption)
- Re-cluster segments if behaviors or preferences shift
- Refine targeting or reposition products when needed

This ensures the strategy remains relevant over time.

5. Automation and Tools

Modern businesses rely on **analytics dashboards**, **CRM systems**, and **real-time data feeds** to:

- Visualize metrics
- Trigger alerts when KPIs drop
- Enable A/B testing of strategies

Popular tools include:

- Google Analytics
- Power BI / Tableau
- Salesforce / HubSpot

- Custom Python dashboards with matplotlib, seaborn, streamlit, etc.

6. Step 9 Checklist

Task
Coordinated rollout of marketing plans by segment
Defined KPIs and monitoring frequency
Implemented data tracking tools and dashboards
Collected and analyzed performance & feedback
Made periodic adjustments to strategy based on insights

Conclusion

Implementation and monitoring bring **strategic segmentation to life**. This step transforms abstract analysis into market results. By continuously evaluating what's working — and what's not — organizations ensure their segmentation strategy is **adaptive, data-driven, and long-term sustainable**.

GitHub Link (Python Replication) :

Ishan534/mcdonalds-segmentation