MARKET SEGMENTATION ANALYSIS

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INTRODUCTION:

Strategic and Tactical Marketing:

Strategic marketing and tactical marketing are two essential components of an organization's marketing planning process. Strategic marketing involves setting long-term goals and determining the direction of the organization. It involves identifying consumer needs and desires, assessing internal strengths and weaknesses, and analyzing external opportunities and threats through methods like SWOT analysis. Strategic marketing also involves making critical decisions about target market segmentation and positioning.

Tactical marketing, on the other hand, focuses on short-term actions that support the long-term strategic plan. It translates the strategic decisions into specific instructions for product development, pricing, distribution channels, and promotion. Tactical marketing covers a period of up to one year and aims to meet the needs and desires of the target market.

Definitions of Market Segmentation:

Market segmentation is a crucial tool for marketing managers in selecting a target market and designing an effective marketing mix. It involves dividing a heterogeneous market into smaller, homogeneous segments based on consumer characteristics or preferences. The goal is to identify groups of consumers who share similar needs and desires, allowing companies to tailor their products and marketing efforts to meet those specific needs. Market segmentation is essential for marketing success, as it enables organizations to better understand their target audience and deliver products and messages that resonate with them

Steps of Market Segmentation Analysis

Step 1: Deciding (not) to Segment:

1.1 Implications of Committing to Market Segmentation

The decision to pursue a market segmentation strategy should not be taken lightly, as it requires a long-term commitment from the organization. Market segmentation is not a short-term endeavor but a long-term commitment that involves substantial changes and investments. The organization must be willing and capable of making these changes to effectively implement the strategy. Implementing market segmentation incurs costs such as research, surveys, focus groups, and designing multiple packages and advertisements. Therefore, the expected increase in sales should justify the expenses associated with developing and using the segmentation strategy.

Implementing market segmentation involves various changes within the organization. This includes the development of new products, modifying existing products, adjusting pricing and distribution channels, and adapting communication strategies. These changes can significantly impact the internal structure of the organization, requiring adjustments to align with the targeted market segments. To maximize the benefits of market segmentation, it is recommended to organize the organization around market segments rather than organizing around products.

Establishing strategic business units focused on specific segments ensures ongoing attention to the evolving needs of those segments.

Given the significant implications and long-term commitment required, the decision to explore market segmentation should be made at the highest executive level. It is crucial for this decision to be systematically communicated and reinforced across all organizational levels and units. Effective implementation of market segmentation requires the support and understanding of all stakeholders within the organization. Continuous communication and reinforcement of the segmentation strategy help maintain alignment and commitment throughout the organization.

1.2 Implementation Barriers:

Implementing market segmentation in organizations can face several barriers that hinder its successful rollout. The first set of barriers is related to senior management. Lack of leadership, commitment, and involvement from senior leadership can undermine the success of market segmentation. Insufficient allocation of resources by senior management for the segmentation analysis or long-term implementation can also impede the strategy's effectiveness. Organizational culture can be another barrier, including a lack of market or consumer orientation, resistance to change, limited creative thinking, poor communication, and a lack of information sharing across units. Lack of training and understanding of market segmentation fundamentals among senior management and the segmentation team can contribute to failure.

The absence of a formal marketing function or a qualified marketing expert within the organization can pose significant hurdles. The greater the market diversity and organization size, the more crucial formalization becomes. Additionally, the lack of a qualified data manager and analyst can be a major obstacle. Objective restrictions, such as limited financial resources or the inability to make necessary structural changes, can also impede the implementation of market segmentation. Process-related barriers include unclear objectives, inadequate planning, a lack of structured processes, insufficient allocation of responsibilities, and time pressure.

At the operational level, the challenge lies in ensuring that management understands and accepts the techniques employed in market segmentation. Simplifying the analysis and presenting results in a visually appealing and easily interpretable manner can help overcome this barrier. It is important to identify these barriers early in the market segmentation study and proactively address them. If barriers cannot be removed, the option of abandoning the exploration of market segmentation as a strategy should be considered.

If proceeding with market segmentation, it is recommended to approach the process with a resolute sense of purpose, dedication, patience, and an understanding of the inevitable challenges that may arise during implementation. It is crucial to maintain a strong commitment to the strategy and appreciate the need for ongoing adjustments and problem-solving throughout the process. By recognizing and addressing these barriers, organizations can enhance their chances of successful market segmentation implementation.

Step 2: Specifying the Ideal Target Segment:

2.1 Segment Evaluation Criteria

The third layer of market segmentation analysis heavily relies on user input, highlighting the importance of involving users throughout the process to generate valuable results for the organization. User input should extend beyond a mere briefing at the beginning or developing a marketing mix at the end. The user's involvement should span multiple stages, intertwining with the technical aspects of market segmentation analysis. Once an organization commits to exploring segmentation in Step 1, it must make a significant contribution to the analysis in Step 2. This contribution, while conceptual, guides subsequent steps, particularly Step 3 (data collection) and Step 8 (selecting target segments). In Step 2, the organization establishes two sets of segment evaluation criteria: knock-out criteria and attractiveness criteria. Knock-out criteria are non-negotiable features that segments must possess to be considered as potential targets. Attractiveness criteria, on the other hand, are used to assess the relative appeal of the remaining segments that meet the knock-out criteria. The literature offers various segment evaluation criteria without clearly distinguishing between knock-out and attractiveness criteria. Table 2.1 provides a selection of proposed criteria, which are discussed separately in Sections 2.2 and 2.3. The knock-out criteria are essential and cannot be negotiated by the segmentation team. They automatically eliminate segments from consideration. Conversely, the attractiveness criteria form a comprehensive list for the segmentation team to choose from, and the team must determine the relative importance of each criterion to the organization. The team negotiates and applies these attractiveness criteria to assess the overall relative attractiveness of each market segment in Step 8. By considering user input and utilizing both knock-out and attractiveness criteria, organizations can enhance the effectiveness of their market segmentation analysis and ultimately make informed decisions regarding target segments.

2.2 Knock-Out Criteria:

Knock-out criteria play a crucial role in determining whether market segments resulting from market segmentation analysis qualify for assessment using segment attractiveness criteria. The initial set of knock-out criteria proposed by Kotler includes substantiality, measurability, and accessibility. Over time, additional criteria have been suggested by various authors, such as segment homogeneity, distinctiveness, size, compatibility with organizational strengths, identifiability, and reachability. These criteria serve as non-negotiable features that segments must possess to be considered for further evaluation. The segment must exhibit homogeneity, indicating that its members are similar to one another, while also being distinct from members of other segments. Additionally, the segment must be of sufficient size to warrant the allocation of resources for customized marketing efforts. It should align with the strengths of the organization, ensuring that the organization can effectively meet the needs of segment members. Identifiability and reachability are essential, as the segment must be identifiable in the marketplace, and there must be a means to communicate with and make the customized marketing mix accessible to segment members. Understanding these knock-out criteria is crucial for senior management, the segmentation team, and the advisory committee involved in the analysis. While most criteria do not require further specification, certain aspects, such as determining the minimum viable target segment size, may need to be specified. By applying these knock-out criteria, organizations can refine their segmentation analysis and focus on segments that meet the essential requirements for effective targeting and customization.

2.3 Attractiveness Criteria:

Unlike knock-out criteria, attractiveness criteria are not binary but involve rating each market segment based on its level of attractiveness for specific criteria. The overall attractiveness of a segment, determined by its performance across all criteria, influences the decision of selecting it as a target segment in Step 8 of the analysis.

2.4 Implementing a Structured Process:

The segmentation literature emphasizes the importance of following a structured process when evaluating market segments, with scholars like Lilien and Rangaswamy (2003) and McDonald and Dunbar (2012) supporting this approach. One popular structured method involves using a segment evaluation plot, which assesses segment attractiveness along one axis and organizational competitiveness along the other axis. The values for attractiveness and competitiveness are determined by the segmentation team since there is no universal set of criteria applicable to all organizations. The identification of factors representing both attractiveness and competitiveness requires careful negotiation and agreement within the team. It is recommended to consider no more than six factors for calculating these criteria.Ideally, a team of individuals should be responsible for market segmentation analysis, with a core team proposing an initial solution and presenting it to the advisory committee comprising representatives from various organizational units.

At the end of this step, the market segmentation team should have approximately six segment attractiveness criteria with assigned weights indicating their relative importance. The typical approach for weighting involves team members distributing 100 points across the criteria, followed by negotiation until agreement is reached. It is advisable to seek approval from the advisory committee, considering their diverse perspectives and input from multiple organizational units.

Step 3: Collecting Data:

3.1 Segmentation Variables:

Empirical data plays a crucial role in both commonsense and data-driven market segmentation approaches. In commonsense segmentation, the data is used to identify or create market segments based on a single characteristic of the consumers, known as the segmentation variable. For example, gender can be used as the segmentation variable to split the sample into segments of men and women. On the other hand, data-driven market segmentation relies on multiple segmentation variables to identify naturally existing or artificially created market segments that are useful to the organization. By sorting the data using these variables, segments can be identified based on the shared set of benefits sought. Socio-demographic variables such as gender, age, and the number of vacations taken serve as descriptor variables.

The quality of empirical data is vital in developing valid segmentation solutions in both commonsense and data-driven approaches. In commonsense segmentation, data quality is essential for accurately assigning individuals to the correct market segment and describing the segments accurately. This enables customization of products, pricing strategies, distribution channels, and communication channels. Similarly, in data-driven market segmentation, data quality determines the quality of the extracted segments and the descriptions of these segments. Therefore, good market segmentation analysis relies on high-quality empirical data.

Empirical data for segmentation studies can be obtained from various sources, including survey studies, observations such as scanner data, and experimental studies. While surveys are commonly used as a source of data for market segmentation studies, they may not always accurately reflect consumer behavior, particularly when it involves socially desirable actions. Therefore, it is important to explore multiple data sources and select the one that closely aligns with actual consumer behavior.

Table 3.1 Gender as a possible segmentation variable in commonsense market segmentation

Sociodemographics		Travel behaviour	Benefits sought				
gender	age	N° of vacations	relaxation	action	culture	explore	meet people
Female	34	2	1	0	1	0	1
Female	55	3	1	0	1	0	1
Female	68	1	0	1	1	0	0
Female	34	1	0	0	1	0	0
Female	22	0	1	0	1	1	1
Female	31	3	1	0	1	1	1
Male	87	2	1	0	1	0	1
Male	55	4	0	1	0	1	1
Male	43	0	0	1	0	1	0
Male	23	0	0	1	1	0	1
Male	19	3	0	1	1	0	1
Male	64	4	0	0	0	0	0
segmentation variable		descriptor variables					

Table 3.2 Segmentation variables in data-driven market segmentation

Sociodemographics		Travel behaviour	Benefits sought				
gender	age	N° of vacations	relaxation	action	culture	explore	meet people
Female	34	2	1	0	1	0	1
Female	55	3	1	0	1	0	1
Male	87	2	1	0	1	0	1
Female	68	1	0	1	1	0	0
Female	34	1	0	0	1	0	0
Female	22	0	1	0	1	1	1
Female	31	3	1	0	1	1	1
Male	55	4	0	1	0	1	1
Male	43	0	0	1	0	1	0
Male	23	0	0	1	1	0	1
Male	19	3	0	1	1	0	1
Male	64	4	0	0	0	0	0
descriptor variables		segmentation variables					

3.2 Segmentation Criteria:

Before extracting segments or collecting data, organizations must make a crucial decision regarding the choice of segmentation criterion. The segmentation criterion refers to the nature of the information used for market segmentation, such as geographic, socio-demographic, psychographic, or behavioral factors. This decision cannot be easily outsourced as it requires prior knowledge about the market. Among the various segmentation criteria available, the choice of the best

criterion depends on the specific marketing context. Bock and Uncles (2002) identify several relevant differences between consumers for segmentation, including profitability, bargaining power, preferences, barriers to choice, and consumer interaction effects. However, there are few clear guidelines on which criterion is most appropriate. The key is to choose what works for the product or service at the lowest possible cost, as emphasized by Cahill (2006).

3.2.1 Geographic Segmentation:

Geographic segmentation is often the most appropriate and simplest approach for market segmentation. It involves using the consumer's location of residence as the criterion to form market segments. Assigning consumers to geographic units allows for targeted communication and selection of appropriate communication channels. However, a disadvantage is that living in the same area does not necessarily mean people share other relevant characteristics. For example, preferences for products or benefits sought may vary among individuals within the same geographic segment. Despite its limitations, geographic information has seen a revival in international market segmentation studies aiming to extract segments across different regions.

3.2.2 Socio-Demographic Segmentation:

Socio-demographic segmentation criteria, such as age, gender, income, and education, are commonly used in various industries. They can be particularly useful in sectors like luxury goods, cosmetics, baby products, retirement villages, and tourism resorts. The advantage of socio-demographic segmentation is its ease of determining segment membership for consumers. However, it is important to note that while socio-demographic factors may explain certain product preferences, they often do not provide sufficient market insights for optimal segmentation decisions. Other factors like values, tastes, and preferences tend to have a greater influence on consumers' buying decisions than socio-demographics, which only account for a small portion of the variance in consumer behavior.

3.2.3 Psychographic Segmentation:

Psychographic segmentation involves grouping individuals based on their psychological criteria such as beliefs, interests, preferences, aspirations, and desired benefits when making a purchase. It is a more complex approach compared to geographic or socio-demographic segmentation because it requires multiple variables to capture the psychographic dimension of interest. Psychographic segmentation provides insights into the underlying reasons for consumer behavior, allowing marketers to understand motivations and tailor their strategies accordingly. Behavioural Segmentation

Behavioral segmentation involves extracting segments based on similarities in behavior or reported behavior. This approach utilizes various behavioral indicators such as prior product experience, purchase frequency, amount spent, and information search behavior. Using actual behavioral data as segmentation variables provides a key advantage, as it directly captures the behavior of interest and groups individuals based on the most relevant similarity. Behavioral segmentation has been found to outperform geographic variables in tourism studies. The use of behavioral data eliminates the need for developing measures for psychological constructs. However, behavioral data may not always be readily available, especially when including potential customers who have not previously purchased the product.

3.3 Data from Survey Studies:

3.3.1 Choice of Variables:

The careful selection of variables used as segmentation criteria is crucial for the quality of market segmentation solutions. In data-driven segmentation, relevant variables related to the segmentation criterion must be included, while unnecessary variables should be avoided. Unnecessary variables can lead to respondent fatigue, lower response quality, and increased complexity without adding relevant information. Noisy variables, which do not contribute to identifying the correct market segments, can hinder segmentation algorithms.

3.3.2 Response Options:

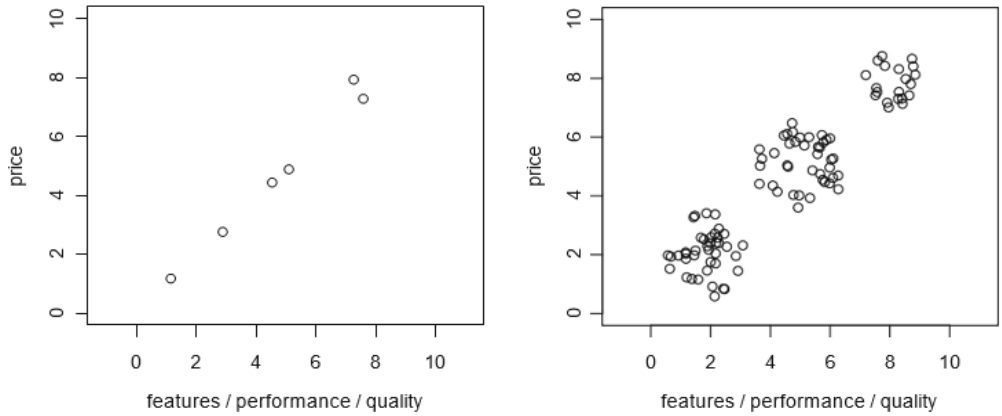
The scale of data available for segmentation analysis depends on the answer options provided to respondents in surveys. Binary or dichotomous responses generate binary data, while responses from unordered categories correspond to nominal variables. The most common response format, involving ordered answer options with unclear distances between them, generates ordinal data. To ensure optimal analysis, it is preferable to provide binary or metric response options when meaningful.

3.3.3 Response Styles:

Survey data is susceptible to response biases and styles, which can impact segmentation results. Response biases refer to systematic tendencies to respond to survey items based on factors unrelated to the item content. Response styles, on the other hand, represent consistent biases displayed by respondents over time. Common response styles include using extreme answer options, selecting the midpoint, or agreeing with all statements. These response styles can distort segmentation outcomes, as algorithms struggle to differentiate between genuine beliefs and response styles

3.3.4 Sample Size:

Fig. 3.1 Illustrating the importance of sufficient sample size in market segmentation analysis



The sample size plays a crucial role in market segmentation analysis. Insufficient sample sizes can make it difficult to determine the correct number and nature of market segments, while larger sample sizes improve the accuracy of segment extraction. Various studies have explored the sample size requirements for effective segmentation analysis. Formann (1984) suggested a rule of thumb of at least 2p (or better, five times 2p) sample size, where p represents the number of segmentation variables. Qiu and Joe (2015) recommended a sample size of at least ten times the number of segmentation variables multiplied by the number of segments. Dolnicar et al. (2014, 2016) conducted extensive simulation studies and recommended a sample size of at least 60p or 70p, depending on the complexity of the data. They also highlighted the influence of market characteristics, such as the number and size of segments, and data characteristics, including response biases, response styles, and correlations between items, on the sample size requirements.

3.4 Data from Internal Sources:

Organizations now have access to significant amounts of internal data that can be utilized for market segmentation analysis. This includes data like scanner data from grocery stores, booking data from airline loyalty programs, and online purchase data. The advantage of using such data is that it reflects actual consumer behavior, eliminating the biases associated with self-reported data. Additionally, this data is often readily available without the need for additional data collection efforts. However, a potential drawback is that internal data may be biased towards existing customers, lacking information about potential future customers with different consumption patterns.

3.5 Data from Experimental Studies:

Experimental data, whether from field or laboratory experiments, can serve as a valuable source for market segmentation analysis. This data can be obtained by testing consumer responses to advertisements, conducting choice experiments, or performing conjoint analyses to determine consumer preferences based on specific product attributes and attribute levels.

Step 6: Profiling Segments:

6.1 Identifying Key Characteristics of Market Segments

The profiling step is essential in data-driven market segmentation to understand the resulting segments. In commonsense segmentation, where predefined profiles like age groups are used, this step is unnecessary. Profiling involves characterizing the market segments individually and comparing them to other segments. It helps identify the defining characteristics of each segment based on the segmentation variables. However, data-driven segmentation solutions can be challenging to interpret, and many managers struggle with understanding them. Graphical statistics approaches can make profiling less tedious and prone to misinterpretation, addressing the need for clearer presentation and meaningful insights for strategic marketing decisions.

Table 6.1 Six segments computed with the neural gas algorithm for the Australian travel motives data set. All numbers are percentages of people in the segment or in the total sample agreeing to the motives

	Seg. 1	Seg. 2	Seg. 3	Seg. 4	Seg. 5	Seg. 6	Total
Rest and relax	83	96	89	82	98	96	90
Change of surroundings	27	82	73	82	87	77	67
Fun and entertainment	7	71	81	60	95	37	53
Free-and-easy-going	12	65	58	45	87	75	52
Not exceed planned budget	23	100	2	49	84	73	51
Life style of the local people	9	29	30	90	75	80	46
Good company	14	59	40	58	77	55	46
Excitement, a challenge	9	17	39	57	76	36	33
Maintain unspoilt surroundings	9	10	16	7	67	95	30
Cultural offers	4	2	5	96	62	38	28
Luxury / be spoilt	19	24	39	13	89	6	28
Unspoilt nature/natural landscape	10	10	13	15	69	64	26
Intense experience of nature	6	8	9	21	50	58	22
Cosiness/familiar atmosphere	11	24	12	7	49	25	19
Entertainment facilities	5	25	30	14	53	6	19
Not care about prices	8	7	43	19	29	10	18
Everything organised	7	21	15	12	46	9	16
Do sports	8	12	13	10	46	7	14
Health and beauty	5	8	10	8	49	16	12
Realise creativity	2	2	3	8	29	14	8

6.2 Traditional Approaches to Profiling Market Segments

In the Australian vacation motives data set, segments were extracted using the neural gas clustering algorithm. However, presenting data-driven segmentation solutions can be challenging. Typically, they are either oversimplified high-level summaries or complex tables with exact percentages for each segment. Table 6.1 illustrates the latter approach, showing the mean values and percentages of segment members for each travel motive. Interpreting the segments based on this table requires comparing numerous numbers, making it a

tedious task. If multiple segmentation solutions are presented, the number of comparisons becomes even more overwhelming. While statistical significance may be provided, it is not appropriate for assessing differences between segments since they are created to be maximally distinct.

6.3 Segment Profiling with Visualisations:

Traditional methods of presenting market segmentation solutions often neglect the use of graphics, despite the importance of data visualization in statistical analysis. Graphics provide valuable insights into complex relationships between variables and offer a simple way to monitor trends in large datasets. Researchers have advocated for the use of visualization techniques to enhance the interpretation of market segmentation analysis results. Visualizations can effectively depict segment profiles and aid in assessing the usefulness of segmentation solutions. Previous studies have demonstrated the benefits of visualizations in cluster analysis and market structure analysis. Incorporating visualizations in the data-driven segmentation process assists analysts and users in making critical decisions.

6.3.1 Identifying Defining Characteristics of Market Segments

Visualizations, such as segment profile plots, are effective tools for understanding the defining characteristics of market segments. These plots visually represent how each segment differs from the overall sample across all segmentation variables. By comparing the segment profiles to the overall mean values, insights can be gained into the unique characteristics of each segment. Marker variables, which deviate significantly from the overall mean, are highlighted in color, making them easily identifiable. This graphical representation of segmentation solutions is much easier and faster to interpret than traditional tabular presentations.

The use of visualizations in market segmentation analysis has been recommended by researchers as they provide intuitive insights into complex relationships and facilitate the interpretation of segment profiles. The order of variables in the plot can be rearranged based on meaningful patterns or hierarchical clustering to improve visualization. Additionally, marker variables can be defined based on absolute or relative differences from the overall mean.

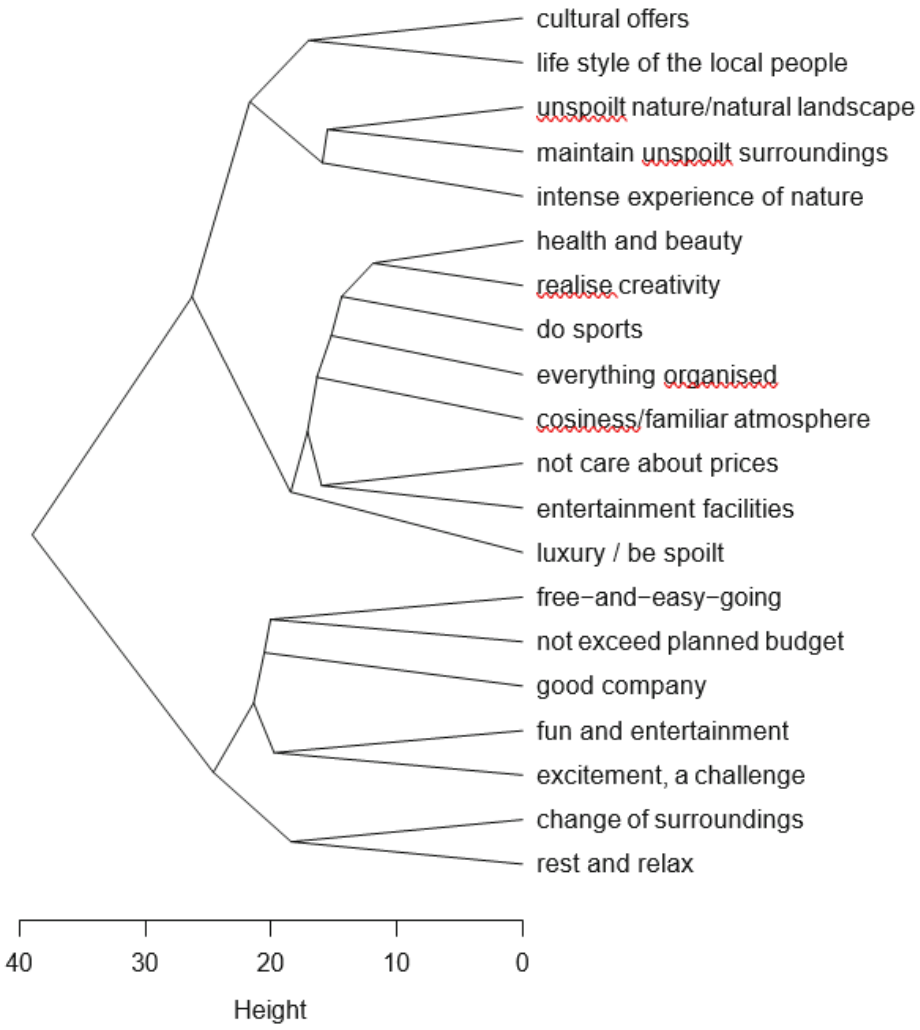
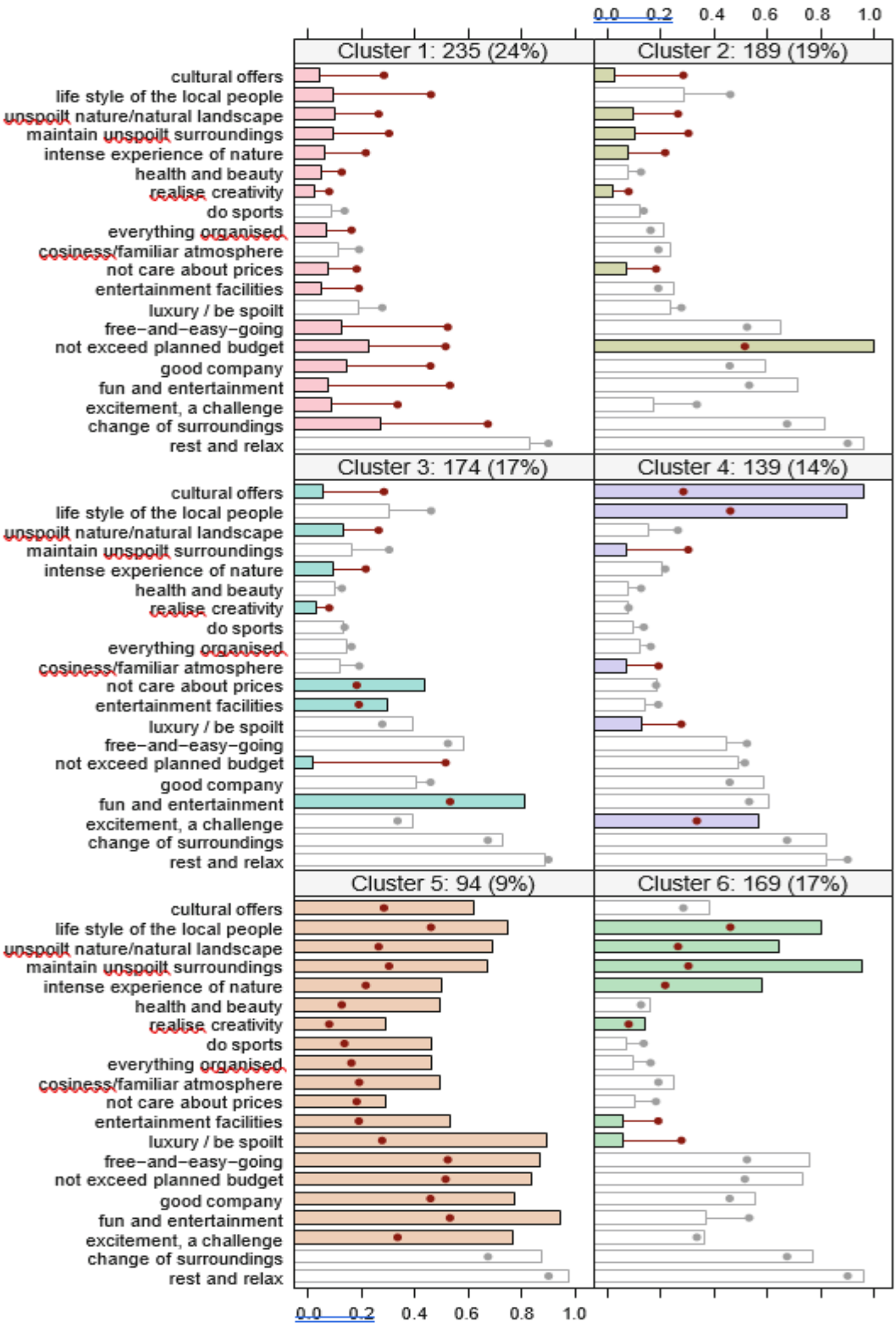


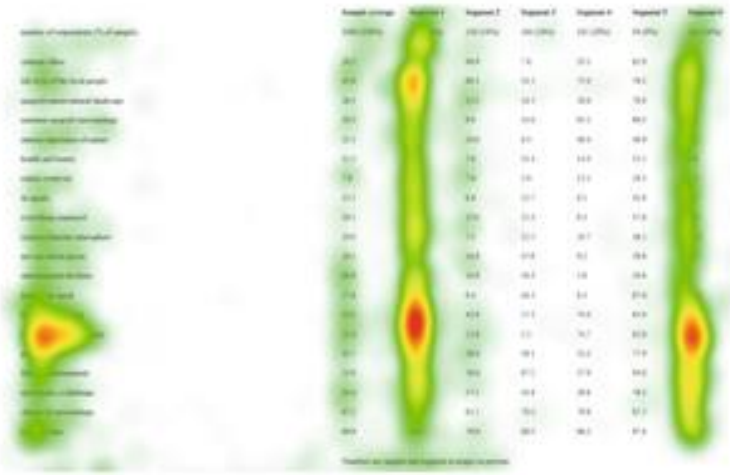
Fig. 6.2 Hierarchical clustering of the segmentation variables of the Australian travel motives data set using Ward's method

Comparing the effectiveness of tabular and graphical presentations, an eye-tracking study showed that participants spent less time and cognitive effort interpreting segment profile plots compared to tables. The heat map analysis indicated that individuals needed to process a smaller area and invested less effort to find the required information in the segment profile plot. This demonstrates the value of well-designed visualizations in facilitating comprehension and decision-making by managers.

Fig. 6.3 Segment profile plot for the six-segment solution of the Australian travel motives data set

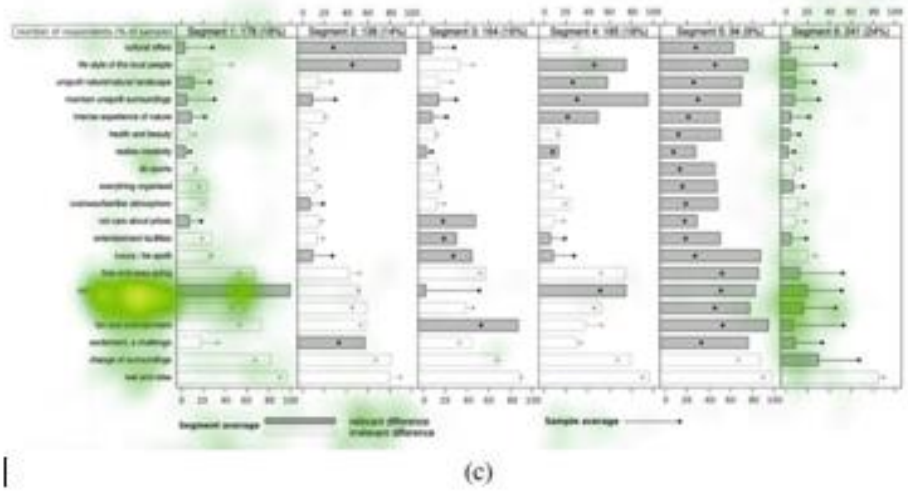


Overall, incorporating visualizations in market segmentation analysis offers a high return on investment by enhancing the interpretability of results and aiding in strategic decision-making. Good visualizations allow managers to make informed decisions based on segmentation insights, which can have significant financial implications for implementing segmentation strategies.



(a)

(b)



(c)

Fig. 6.4 One person's eye tracking heat maps for three alternative ways of presenting segmenta- tion results. (**a**) Traditional table. (**b**) Improved table. (**c**) Segment profile plot

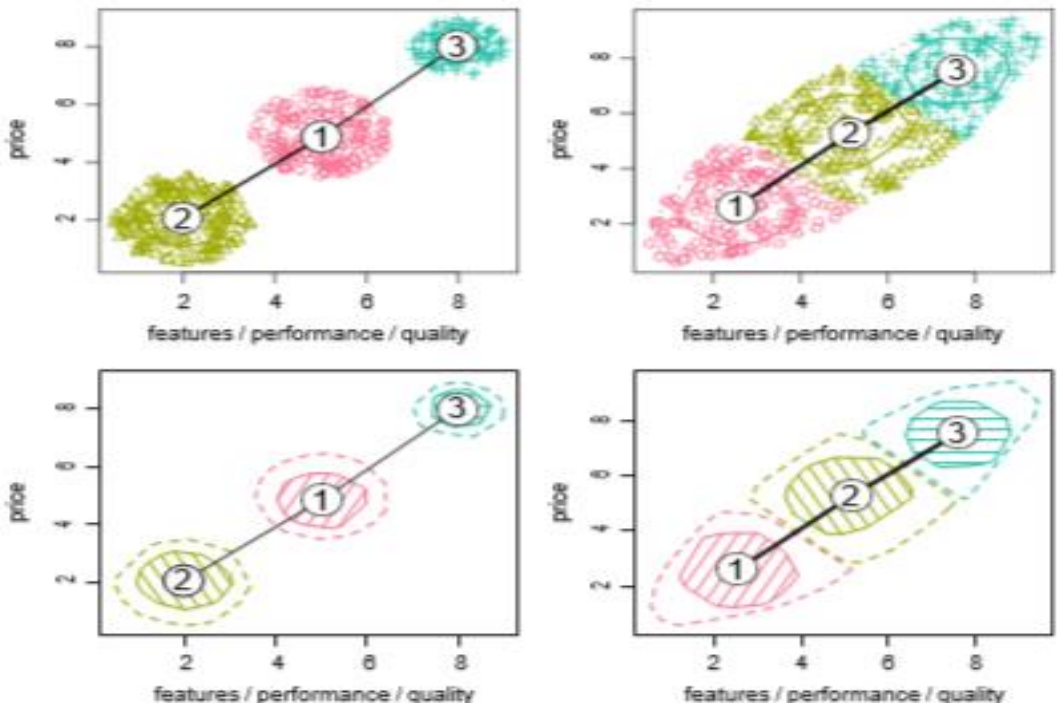


Fig. 6.5 Segment separation plot including observations (first row) and not including observations (second row) for two artificial data sets: three natural, well-separated clusters (left column); one elliptic cluster (right column)

Segment separation plots are visual representations that depict the overlap of segments in market segmentation analysis. These plots offer a quick overview of the data situation and the segmentation solution, allowing data analysts and users to assess the separation between segments. Examples of segment separation plots provided in Fig. 6.5 demonstrate their effectiveness in two-dimensional data sets.
In these plots, scatter plots depict the observations colored by segment membership, while cluster hulls represent the shape and spread of the true segments. Neighbourhood graphs indicate the similarity between segments, with numbered nodes representing segment centers and black lines connecting them based on the closest segment centers for observations. Thicker lines indicate higher similarity based on the number of observations sharing the closest centers.

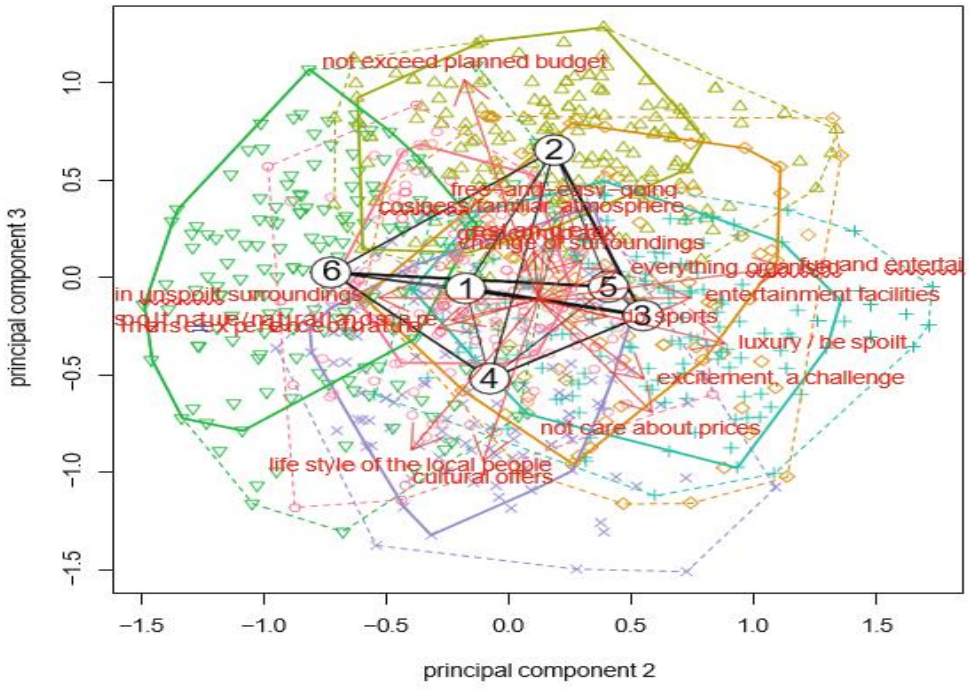


Fig. 6.6 Segment separation plot using principal components 2 and 3 for the Australian travel motives data set

For higher-dimensional data sets, projection techniques are employed to project the data onto a smaller number of dimensions. Principal components analysis is one such technique used in Fig. 6.6, where the resulting plot shows the projected segmentation variables. By enhancing the plot with directions of the projected variables using projAxes(), the advantages of segment separation plots and perceptual maps are combined.

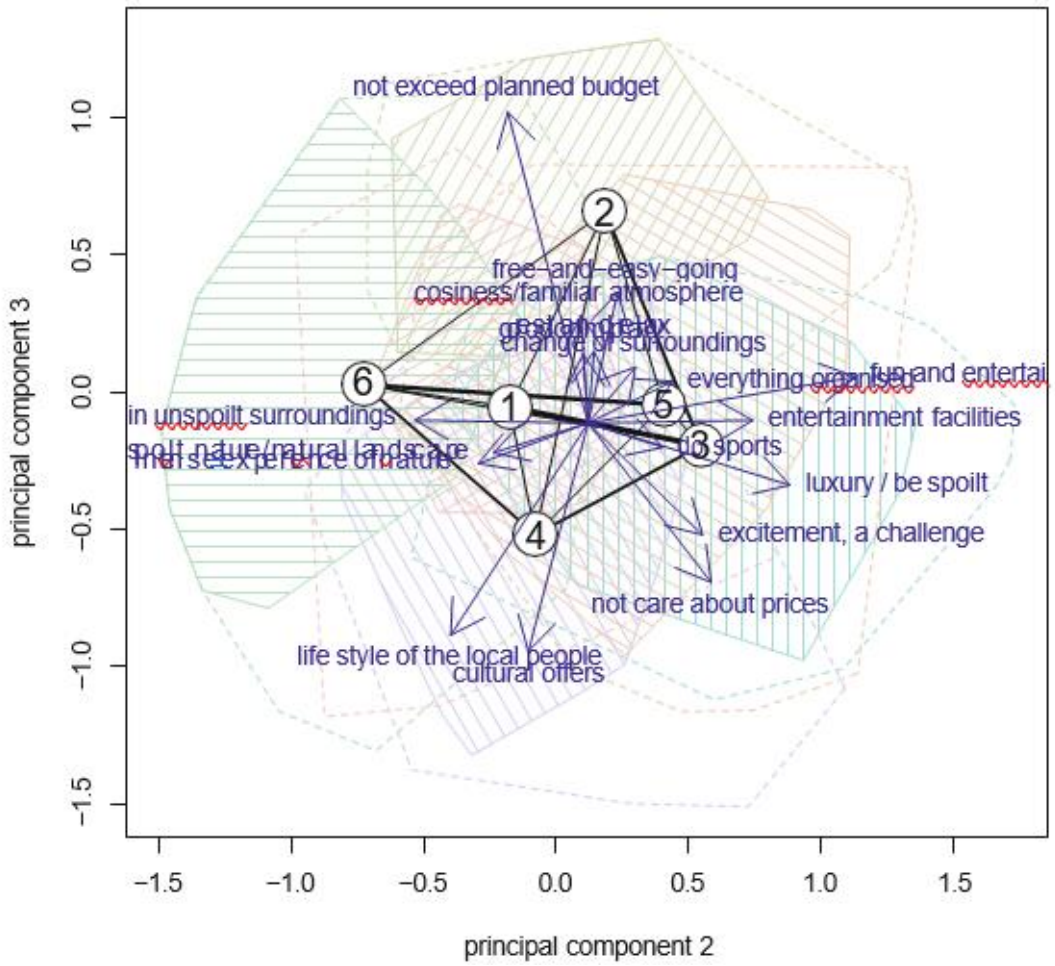


Fig. 6.7 Segment separation plot using principal components 2 and 3 for the Australian travel motives data set without observations

Due to segment overlap and the sample size, the plots can become messy and challenging to interpret. However, modifying colors, omitting observations, and highlighting only the inner area of each segment in Fig. 6.7 create a cleaner version for interpretation. This plot reveals the characteristics of different market segments, such as their preferences for maintaining unspoilt surroundings, luxury experiences, budget considerations, cultural offers, and local lifestyle.

It is important to note that each segment separation plot represents a specific projection of the data, and the presence or absence of overlap in a particular projection does not indicate overlap in all projections. However, based on this single projection, it can be concluded that segments 6 and 3 represent distinct types of tourists with different travel motives.

Segment separation plots serve as valuable tools for visualizing and understanding segment overlap in market segmentation analysis. They provide insights into the distinct characteristics of market segments and aid in the interpretation of complex data structures. While interpretation can still be challenging, these plots offer a valuable means of assessing segment separation and informing strategic decision-making based on segmentation results