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**SUMMARIZATION OF STEP 6**

## STEP 1: Deciding (not) to Segment

### Implications of Committing to Market Segmentation:

- Market segmentation is an important marketing strategy, but it may not always be the best approach. Before investing in segmentation analysis, it's essential to understand the implications of choosing this strategy. The key implication is that the organization must commit to the segmentation strategy in the long term, making significant changes and investments.
- Implementing market segmentation incurs costs, such as research, surveys, design, and communication expenses. It's recommended to pursue segmentation only if the expected increase in sales justifies these costs. Market segmentation may require changes in products, pricing, distribution channels, and communication to align with target segments. Organizing the organization around market segments, rather than products, can maximize the benefits.
- Due to the significant and long-term implications, the decision to pursue market segmentation should be made at the highest executive level. It's crucial to communicate and reinforce this decision across all levels and units of the organization consistently.

### Implementation Barriers:

- There are various barriers that can hinder the successful implementation of a segmentation strategy, which can be grouped into different categories.
- The first group of barriers relates to senior management. Lack of leadership, pro-active championing, commitment, can undermine its success. Insufficient allocation of resources for the implementation of the strategy can also impede implementation.
- The second category pertains to organizational culture, like Lack of consumer orientation, resistance to change, poor communication, short-term thinking, information sharing among organizational units and office politics can prevent successful implementation of market segmentation.
- Lack of training is another potential problem. If senior management and the segmentation team lack a fundamental understanding of market segmentation or are unaware of its consequences, the attempt to introduce it is likely to fail.
- The absence of a formal marketing function or a qualified marketing expert within the organization is closely linked to these barriers. Formalization becomes more important in organizations with greater market diversity and size. Additionally, the lack of a qualified data manager and analyst can pose significant obstacles.
- Objective restrictions and process-related barriers such as unclear objectives, inadequate planning, limited financial resources or an inability to make necessary structural changes and time pressures can also hinder implementation.
- At an operational level, management may resist using techniques they do not understand. To address this challenge, market segmentation analysis should be made easy to understand, and results should be presented in a way that facilitates interpretation by managers, including the use of graphical visualizations.
- Identifying these barriers from the outset of a market segmentation study allows for proactive removal. If barriers cannot be overcome, the option of abandoning the exploration of market segmentation as a potential future strategy should be considered seriously.

- If proceeding with market segmentation analysis, a resolute sense of purpose, dedication, patience, and a willingness to acknowledge and address inevitable problems in implementing the conclusions are recommended.

## **Step 2: Specifying the Ideal Target Segment**

### **Segment Evaluation Criteria:**

- The third layer of market segmentation analysis relies heavily on user input. User involvement should extend beyond the initial briefing and the development of the marketing mix. Users should be engaged in various stages of the analysis process, integrating with the technical aspects of segmentation analysis.
- In Step 2 of the analysis, Two sets of segment evaluation criteria are determined:
  - Knock-out criteria are non-negotiable features that segments must possess to be considered as targets.
  - Attractiveness criteria are used to evaluate the relative appeal of remaining segments that meet the knock-out criteria.
- The literature does not clearly differentiate between these two types of criteria but offers a variety of suggested segment evaluation criteria at different levels of detail. The knock-out criteria are essential and cannot be negotiated by the segmentation team. The attractiveness criteria, on the other hand, provide a broader range of options for the segmentation team to consider. The team must select the relevant attractiveness criteria and determine their relative importance to the organization.
- Overall, user input and active involvement throughout the segmentation analysis process are crucial for producing valuable results for the organization.

### **Knock-Out Criteria:**

Knock-out criteria are used to determine if market segments resulting from segmentation analysis qualify for assessment using segment attractiveness criteria. Kotler (1994) proposed a set of knock-out criteria, including substantiality, measurability, and accessibility. Other authors have suggested additional criteria falling under this category.

The knock-out criteria consist of the following:

1. Homogeneity: Members within the segment should be similar to each other.
2. Distinctiveness: Members within the segment should be significantly different from members of other segments.
3. Large size: The segment should be large enough to justify allocating resources for customizing the marketing mix.
4. Matching with organizational strengths: The organization must possess the capability to fulfill the needs of segment members effectively.
5. Identifiability: The segment members should be identifiable within the marketplace.
6. Reachability: There should be a feasible way to connect with segment members and make the customized marketing mix accessible to them.

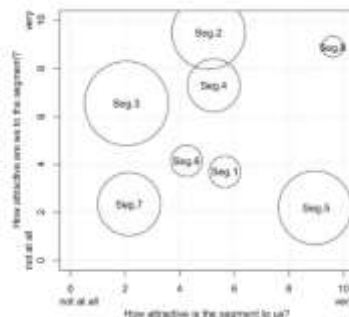
It is essential for senior management, the segmentation team, and the advisory committee to understand these knock-out criteria. While most criteria do not require further specification, certain aspects, such as the minimum viable target segment size, need to be explicitly defined.

### **Attractiveness Criteria:**

Unlike knock-out criteria, attractiveness criteria are not binary in nature. Instead of being categorized as either compliant or non-compliant, each market segment is evaluated and rated based on its attractiveness for a specific criterion. The overall attractiveness of a market segment, considering all the criteria, determines whether it is chosen as a target segment in Step 8 of the market segmentation analysis.

### **Implementing a Structured Process:**

- The segmentation literature emphasizes the benefits of following a structured process when evaluating market segments (Lilien and Rangaswamy 2003; McDonald and Dunbar 2012). A widely used approach for assessing and selecting target markets is the segment evaluation plot, which depicts segment attractiveness on one axis and organizational competitiveness on the other. The values for attractiveness and competitiveness are determined by the segmentation team, as there is no universally applicable set of criteria.



**Fig 1: Segment evaluation plot**

- Both segment attractiveness and organizational competitiveness factors need to be negotiated and agreed upon. It is recommended to consider no more than six factors for these criteria. Ideally, a team of people should be involved in this process, with a core team proposing an initial solution and consulting with an advisory committee composed of representatives from different organizational units for discussion and potential adjustments.
- Including representatives from various units is important because they offer diverse perspectives on the organization's business, and the segmentation strategy will impact all units. Thus, all units are key stakeholders in the market segmentation analysis.
- Although the segment evaluation plot cannot be completed in Step 2 since no segments are available yet, selecting the attractiveness criteria early on ensures that the relevant information is captured during data collection (Step 3) and simplifies the task of selecting a target segment in Step 8.
- By the end of this step, the segmentation team should have approximately six segment attractiveness criteria with assigned weights indicating their relative importance. The typical approach for weighting is to distribute 100 points among the criteria, with allocations being negotiated until agreement is reached. It is advisable to seek approval from the advisory committee, considering their diverse perspectives, in finalizing the segment attractiveness criteria.

### STEP 3: Collecting Data

#### Segmentation Variables:

- Empirical data is essential for both commonsense and data-driven market segmentation. It is used to identify or create market segments and provide detailed descriptions of these segments. In commonsense segmentation, a single characteristic, such as gender, is used as the segmentation variable to split the sample into segments. Other personal characteristics serve as descriptor variables to describe the segments in more detail.
- Data-driven market segmentation, on the other hand, uses multiple segmentation variables to identify naturally existing or artificially created market segments. For example, instead of using gender, segmentation variables could be focused on a common set of benefits sought by tourists. Descriptor variables, such as socio-demographics, are still used to provide additional information about the segments.
- The quality of empirical data is crucial for developing valid segmentation solutions. It ensures accurate assignment of individuals to the correct segments and enables correct descriptions of the segments. This, in turn, helps in developing customized products, determining pricing and distribution strategies, and selecting effective communication channels for advertising and promotion.
- Empirical data for segmentation studies can be obtained from various sources, including surveys, observations (e.g., scanner data), and experimental studies. While surveys are commonly used, they may not always accurately reflect behavior, especially for socially desirable actions. Therefore, researchers should explore different data sources to ensure data closely reflects actual consumer behavior.
- Overall, good market segmentation analysis requires high-quality empirical data that accurately represents consumer behavior.

#### • Geographic Segmentation:

- Geographic segmentation is considered the original criterion for market segmentation. It involves using the consumer's location of residence as the basis for forming market segments. This approach is often appropriate and practical, especially when targeting consumers from neighbouring countries or regions with language or cultural differences.
- The advantage of geographic segmentation is that it allows for easy assignment of consumers to specific geographic units. This makes it convenient to target communication messages and select relevant communication channels, such as local newspapers or radio stations, to reach the desired geographic segments.
- However, a key disadvantage of geographic segmentation is that living in the same area does not necessarily mean people share other relevant characteristics for marketers, such as their product preferences or benefits sought. Differences in consumer behavior and preferences can exist within the same geographic location. For example, people in luxury suburbs may have different product preferences based on socio-demographic factors rather than their geographic proximity.
- Despite its limitations, geographic information has regained importance in international market segmentation studies that aim to extract segments across geographic boundaries. However, conducting such studies presents challenges, as the segmentation variables need to be meaningful across different cultural backgrounds, and biases can arise when surveys are completed by respondents from diverse regions.

- An example of an international market segmentation study is provided by Haverila (2013), who identified market segments of young mobile phone users across national borders.
- **Socio-Demographic Segmentation:**
  - Socio-demographic segmentation criteria, such as age, gender, income, and education, are commonly used in market segmentation. They can be valuable in certain industries where consumer behavior is strongly associated with these characteristics. For example, luxury goods may be linked to high income, cosmetics often target specific genders, and retirement villages cater to a particular age group.
  - Similar to geographic segmentation, socio-demographic criteria offer the advantage of easily determining segment membership for each consumer. In some cases, socio-demographic factors can provide insights into specific product preferences. For instance, having children may be the reason why families choose a certain type of vacation destination.
  - However, socio-demographic criteria alone may not fully explain or predict consumer behavior. Research suggests that demographics only account for a small portion (around 5%) of the variance in consumer behavior. Some experts argue that values, tastes, and preferences play a more influential role in consumers' buying decisions, making them more useful for segmentation purposes.
  - In summary, while socio-demographic segmentation criteria have their merits, they may not provide sufficient market insights for optimal segmentation decisions, especially when other factors like values and preferences are more influential in shaping consumer behavior.
- **Psychographic Segmentation:**
  - Psychographic segmentation involves grouping people based on psychological criteria such as beliefs, interests, preferences, aspirations, or the benefits they seek when purchasing a product. Benefit segmentation and lifestyle segmentation are two popular approaches within psychographic segmentation.
  - Psychographic criteria are more complex compared to geographic or socio-demographic criteria because it is challenging to find a single characteristic that provides deep insights into a person's psychographic dimension. Therefore, most psychographic segmentation studies utilize multiple segmentation variables, such as various travel motives or perceived risks.
  - The advantage of the psychographic approach is that it delves into the underlying reasons for differences in consumer behavior. For example, tourists motivated by a desire to learn about other cultures are more likely to choose cultural holidays at destinations rich in cultural treasures. Consequently, travel motives have been extensively used for data-driven market segmentation in the tourism industry.
  - However, the psychographic approach has certain disadvantages. It involves increased complexity in determining segment memberships for consumers. Moreover, the effectiveness of the psychographic approach relies heavily on the reliability and validity of the empirical measures used to capture the relevant psychographic dimensions.
- **Behavioural Segmentation:**
  - An alternative approach to segment extraction is to focus on similarities in behavior or reported behavior. This can involve analyzing various behaviors such as prior experience with a product, purchase frequency, amount spent on purchases, and

information search behavior. In comparisons of different segmentation criteria, behavioral variables derived from tourists' reported behavior were found to be superior to geographic variables.

- The primary advantage of behavioral approaches is that they use the actual behavior of individuals as the basis for segment extraction. This ensures that the segmentation groups people based on the most relevant similarity. For example, studies have used actual consumer expenses or purchase data across product categories as segmentation variables. Brand choice behavior over time has also been utilized for segmentation purposes. Using behavioral data can eliminate the need for developing valid measures for psychological constructs.
- However, obtaining behavioral data may not always be easy, particularly when including potential customers who have not yet purchased the product. This is because such data is often limited to existing customers of the organization.

#### **Data from Survey Studies:**

- Market segmentation analyses commonly rely on survey data due to its affordability and ease of collection, making it a feasible approach for any organization. However, compared to data obtained from observing actual behavior, survey data can be influenced by various biases. These biases can have a detrimental impact on the quality of segmentation analysis outcomes. Several crucial considerations must be taken into account when utilizing survey data, which are discussed below.

- **Choice of Variables**

The careful selection of variables is crucial for the quality of market segmentation solutions, whether it's through common-sense segmentation or data-driven segmentation. In data-driven segmentation, all relevant variables related to the segmentation criterion should be included, while unnecessary variables should be avoided. Unnecessary variables make questionnaires longer and tiresome for respondents, leading to lower response quality. They also increase the dimensionality of the segmentation problem without providing valuable information, making it harder to extract optimal market segments. These unnecessary variables, known as noisy or masking variables, can hinder the identification of the correct segmentation solution. To avoid this issue, it is important to develop survey questions carefully and select segmentation variables thoughtfully. Redundant questions should be avoided, as they interfere with the ability of segmentation algorithms to identify the correct market segments. Conducting exploratory or qualitative research helps in developing a good questionnaire and ensures that no critical variables are omitted.

- **Response Options:**

The options provided to respondents in surveys determine the scale of the data available for subsequent analysis, and this scale affects the suitability of different analytic techniques. Binary or dichotomous data is generated when respondents can choose only one of two options, which can be represented as 0s and 1s in a dataset. Nominal variables arise when respondents select an answer from a range of unordered categories, such as occupation, and can be transformed into binary data. Metric data, which allow for statistical procedures and distance measurement, are generated when respondents provide numerical responses like age or nights stayed at a hotel. The most

commonly used response format in surveys is a limited number of ordered options, resulting in ordinal data. However, the distance between adjacent answer options is not clearly defined, making it challenging to apply standard distance measures to such data without making strong assumptions.

Ideally, binary or metric response options should be used when meaningful for the question at hand to avoid complications related to distance measures in data-driven segmentation analysis. Although ordinal scales are common, using binary or metric response options is often not a compromise. Visual analogue scales, where respondents indicate a position along a continuous line, can capture fine nuances and generate metric data. Binary response options have been shown to outperform ordinal options in many contexts, especially when formulated in a level-free manner.

➤ **Response Styles:**

Survey data is susceptible to biases, including response biases and response styles. Response bias refers to a consistent tendency of respondents to answer questionnaire items based on factors unrelated to the item content. When such biases persist over time and are independent of the survey questions asked, they indicate a response style. Response styles can manifest in various ways, such as using extreme answer options, consistently selecting the midpoint, or agreeing with all statements.

These response styles can impact segmentation results because common algorithms used for segment extraction cannot differentiate between a respondent's genuine beliefs and their response style. This can lead to misinterpretations of market segments. For example, an acquiescence bias, where a respondent tends to agree with all questions, may result in a segment appearing to have high agreement with all items, which could be misleading. To minimize the risk of capturing response styles during data collection for market segmentation, it is crucial to address and mitigate these biases. If attractive market segments emerge with response patterns potentially influenced by a response style, additional analyses are needed to determine if this is the case. Alternatively, respondents affected by such response styles may need to be excluded before targeting such market segments.

➤ **Sample size:**

The sample size in market segmentation analysis is crucial for obtaining accurate results. Insufficient sample sizes make it difficult to determine the correct number and nature of market segments, while larger sample sizes enable easier identification of segments.

Research has provided some guidelines for sample sizes in segmentation analysis. Formann (1984) recommends a sample size of at least  $2^p$  (or preferably five times  $2^p$ ), where  $p$  represents the number of segmentation variables. Qiu and Joe (2015) suggest a sample size of at least ten times the number of segmentation variables times the number of segments ( $10 \cdot p \cdot k$ ). Dolnicar et al. (2014) conducted extensive simulation studies and recommend a sample size of at least  $60 \cdot p$  for typical scenarios and  $70 \cdot p$  for more challenging data.

Additionally, Dolnicar et al. (2016) expanded the research to consider market characteristics and data characteristics. Factors such as unequal segment sizes and overlapping segments make it harder for algorithms to extract correct



segments. Survey data characteristics like sampling error, response biases, response styles, low data quality, different response options, inclusion of irrelevant items, and correlation between blocks of items also affect segment recovery.

The simulation study by Dolnicar et al. (2016) emphasizes the importance of sufficient sample sizes for accurate segment identification. A sample size of at least 100 respondents per segmentation variable is recommended. It is also essential to collect high-quality, unbiased data that includes all necessary items, excludes unnecessary items, contains no correlated items, and has binary or metric measurements.

In summary, for optimal market segmentation results, it is important to have a suitable sample size, collect high-quality data, and meet specific criteria such as item relevance, absence of correlation, appropriate measurement scales, and absence of response styles.

#### **Data from Internal Sources:**

- Organizations now have access to large volumes of internal data that can be utilized for market segmentation analysis. This data includes information from sources like scanner data in 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 rather than relying on consumer statements or intentions, which can be influenced by imperfect memory and response biases.
- Internal data is often automatically generated and readily available if stored in an easily accessible format. This eliminates the need for additional data collection.
- However, there is a potential drawback to using internal data, as it may be biased towards existing customers. It lacks information about other potential consumers that the organization aims to attract in the future, who may have distinct consumption patterns compared to current customers. Therefore, caution should be exercised to ensure that the internal data used for market segmentation analysis is representative of the broader target market.

#### **Data from Experimental Studies:**

- Experimental data, whether collected through field or laboratory experiments, can serve as a valuable source for market segmentation analysis. These experiments can involve various scenarios, such as testing people's responses to specific advertisements. The response to the advertisement can then be used as a basis for segmenting the market.
- Experimental data can also be generated through choice experiments or conjoint analyses. In these studies, consumers are presented with carefully designed stimuli that include different levels of specific product attributes. Participants indicate their preferences among the products characterized by various attribute combinations. Conjoint studies and choice experiments provide insights into the influence of each attribute and attribute level on consumer choice. This information can be used as a segmentation criterion, enabling organizations to tailor their marketing strategies based on consumer preferences and attribute importance.

## STEP 6: Profiling Segments

### Identifying Key Characteristics of Market Segments:

- The profiling step in data-driven market segmentation analysis helps understand the identified market segments. However, when predefined segments are based on criteria like age groups, the profiling step is not necessary.
- In data-driven segmentation, segments characteristics are unknown until after data analysis. Profiling involves examining each segment individually and comparing them, but a characteristic that applies to one segment may not differentiate it from others.
- Exploring alternative segmentation solutions is crucial specially when natural segments don't exist and a reproducible or constructive approach is needed. Accurate profiling aids in interpreting segments correctly and making effective strategic marketing decisions.
- Managers often struggle to interpret data-driven segmentation solutions, finding them complex and like a black box. Traditional and graphical statistical approaches are discussed as ways to address these challenges and facilitate segment profiling, providing a more intuitive and visual representation of the segmentation results.

### Traditional Approaches to Profiling Market Segments:

- This part discusses the use of the Australian vacation motives data set for market segmentation analysis, employing the neural gas clustering algorithm to extract segments, with a range of 3 to 8 segments and multiple random restarts were performed resulting in a segmentation solution for analysis.
- Presenting data-driven segmentation solutions to users or managers poses challenges. Oversimplified high-level summaries or large tables with precise percentages are commonly used. However, these tables are difficult to interpret and lack quick insights.
- Table 1 provides an example, showing the mean values (percentages) of segmentation variables for each segment and the overall mean values. Comparing the percentage values of each segment with others or the total value can help identify defining characteristics. For example, segment 2 is motivated by rest and relaxation, adheres to the travel budget, values a change of surroundings, but not cultural offers. Segment 1 is a response style segment, showing consistently lower agreement percentages for travel motives compared to the overall percentage.
- Profiling all six market segments based on Table 1 would involve comparing a large number of numbers (120 when compared to the total and 300 when comparing segments). If multiple segmentation solutions were presented, the number of comparisons would significantly increase (e.g., 2100 pairs of numbers for five alternative solutions with six segments each).
- To address the scale of the task, statistical significance is sometimes provided to assess differences between segments for each segmentation variable. However, this approach is not statistically correct since segment membership is derived directly from the segmentation variables, and the segments are intentionally created to be maximally different, rendering standard statistical tests unreliable for assessing the significance of differences.

	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

Table 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

### Segment Profiling with Visualisations:

- This part emphasizes the underutilization of graphics in presenting market segmentation solutions, despite the importance of data visualization in statistical data analysis. Graphics provide valuable insights into complex relationships between variables and facilitate trends monitoring in large datasets over time.
- Several authors and researchers recommend using visualizations to enhance the interpretation of market segmentation analysis as They offer more intuitive and insightful understanding compared to tabular formats. Prior studies have demonstrated the effectiveness of visualizations in interpreting segmentation solutions.
- Visualizations play a significant role in the data-driven market segmentation process, allowing detailed inspection of segments and aiding in the interpretation of segment profiles and assessment of segmentation solutions' usefulness. With multiple alternative solutions generated during segmentation, visualizations assist data analysts and users in making critical decisions regarding which solution to choose.

### - Identifying Defining Characteristics of Market Segments:

- Segment profile plots visually display how each market segment differs from the overall sample across various variables. The order of variables can be rearranged for improved visualizations, based on their meaningful order or clustering similarities in answer patterns.
- Generated using statistical software, segment profile plots provide a panel view of each segment, with centroids representing segment characteristics. The plot includes reference points like total mean values for comparison. Marker variables, significantly deviating from the mean, are highlighted to emphasize their importance, determined by predefined thresholds.
- Compared to traditional tabular presentations, segment profile plots offer a more accessible and efficient way to interpret segmentation results. They enable quick identification of segment characteristics and provide a comprehensive overview. An eye-tracking study demonstrated participants spent less time interpreting plots compared to tables, indicating the ease and efficiency of visualizations.

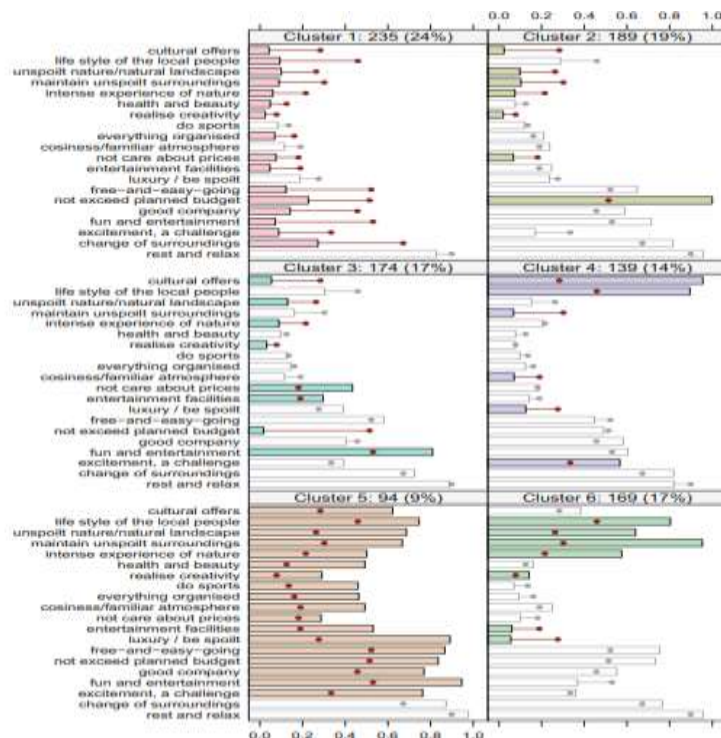


Fig 2: Segment profile plot for the six-segment solution of the Australian travel motives data set

- In conclusion, well-designed visualizations are valuable for presenting segmentation analysis results. They facilitate interpretation by decision-makers and offer a high return on investment, particularly in guiding long-term strategic decisions involving significant financial commitments.
- **Assessing Segment Separation:**
  - Segment separation plots provide a visual overview of segment overlap in a data space. They include scatter plots with colored observations, cluster hulls indicating segment shape, and neighborhood graphs representing segment similarity.
  - The complexity of these plots increases with the number of variables. Techniques like principal components analysis can reduce dimensionality and aid in plot creation, as shown in Figure 3 with distinct and elliptic data sets. The top row displays scatter plots with colored observations and cluster hulls, while the bottom row shows only cluster hulls. Neighborhood graphs with numbered nodes indicate segment similarity.

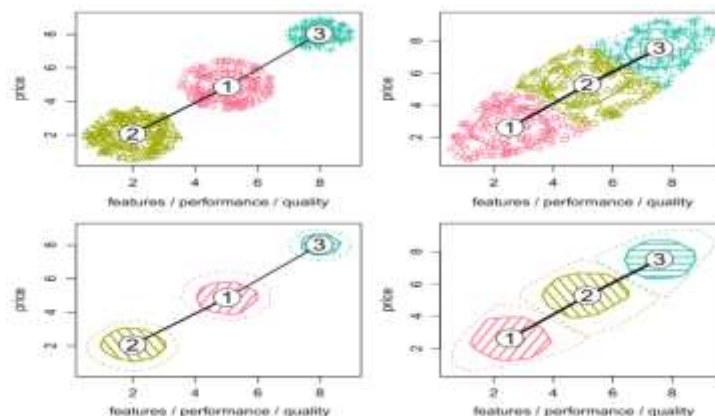
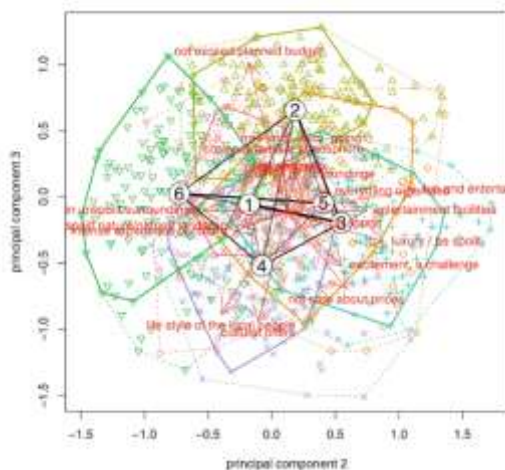
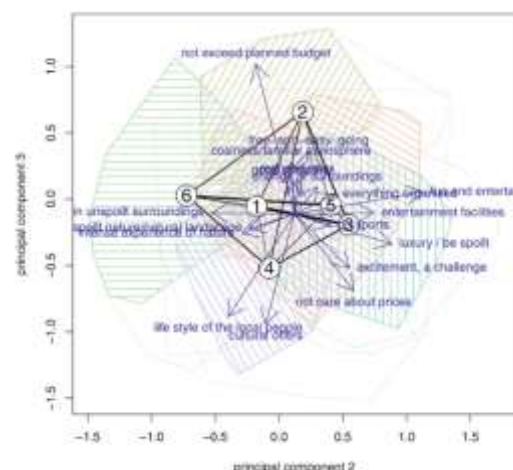


Fig 3: Segment separation plot including observations (first row) and not including observations (second row) for two artificial data sets: three natural, well-separated clusters (left column); one elliptic cluster (right column)

- Neighborhood graphs use black lines to connect segment centers that are closest for at least one observation, with line width reflecting the number of observations with those closest centers. Including either observations or cluster hulls in the visualization enhances the assessment of segment separation and understanding segment distinctness.
- To improve segment separation plots, techniques like principal components analysis can add directions of projected variables, combining segment separation plots with perceptual maps. However, overlapping segments and large sample sizes can make the plots messy and difficult to interpret.



**Fig 4: Segment separation plot using principal components 2 and 3 for the Australian travel motives data set**



**Fig 5: Segment separation plot using principal components 2 and 3 for the Australian travel motives data set without Observations**

- Modifications like adjusting colors, omitting observations, and highlighting inner segment areas can create cleaner versions of the plots, facilitating interpretation of market segments by identifying distinct preferences and characteristics.
- It's crucial to consider that each segment separation plot represents a specific projection, and overlapping segments in one projection may not overlap in others. Thus, conclusions about segment separation should rely on multiple projections rather than a single visualization.