Outline

- The concept of product positioning
- Conducting a positioning study
- Perceptual mapping using principal component analysis
- Incorporating preferences into perceptual maps
Learning goals

- Explain the concept of positioning, understand the fundamental issues in positioning, and be able to write a positioning statement
- Know the steps in designing a positioning study
- Construct a perceptual map using principal component analysis and interpret the resulting map
- Incorporate vector or ideal preferences into perceptual maps and derive marketing insights based on the distribution of preferences
STP – Segmentation, Targeting, Positioning

Marketing mix
- Product
- Price
- Communication
- Distribution

Target marketing and positioning

All consumers in the market
Target market segment(s)

Marketing strategies of competitors

Positioning
A brand’s positioning should tell customers

- what the brand is – what category need it satisfies (brand-market positioning),
- who the brand is for – what the intended target audience is (brand-user positioning), and
- what the brand offers – what benefits it provides (brand-benefit positioning)

The selection of benefits to emphasize should be based on

- importance (relevance of the benefit to target customers’ purchase motives in the category),
- delivery (the brand’s ability to provide the benefit), and
- uniqueness (differential delivery of the benefit)
What is positioning?

Positioning

Category

Need

What the brand is?

What the brand offers?

Who the brand is for?

User

Benefit(s)

Brand
Positioning statement

- To [the target audience]
- _________ is the (central or differentiated) brand of [category need]
- that offers [brand benefit(s)]. The positioning for this brand
  - should emphasize [benefit(s) uniquely delivered],
  - must mention [benefit(s) that are important “entry tickets”],
  - and will omit or trade off [inferior-delivery benefits].
Illustrative positioning statement for Volvo automobiles

- To upper-income car buyers
- Volvo is a (differentiated) brand of prestige automobile
- that offers safety, performance, and prestige. The positioning for this brand
  - should emphasize safety and performance,
  - must mention prestige as an entry ticket to the category,
  - and will downplay the previous family-car association.
You know when your migraine pain starts, you’ve got to act fast. Introducing Advil Migraine. It’s the first and only FDA-approved Migraine medicine on the market that comes in liquid filled capsules. It gets into your system fast. Take control of your migraine before it takes control of you.
Issues to consider when thinking about positioning

- What are the central dimensions that underlie customers’ perceptions of brands in the product class?
- How do customers view our brand on these dimensions?
- How do customers view our competitors?
- Are we satisfied with the way our customers view our brand relative to the competition, or are changes required? Are there opportunities for new product introductions?
- How do perceptions relate to preferences?
- How can we improve our competitive position (market share) given the distribution of preferences in the market?
# A simple positioning example: Perceptions of PA beers

<table>
<thead>
<tr>
<th></th>
<th>Perceptions</th>
<th>Positioning</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Otto’s) Apricot Wheat</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>(Victory) Hop Devil</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Penn Pilsner</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>(Happy Valley) Stratus</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Troegenator</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Yuengling Lager</td>
<td>3</td>
<td>3</td>
</tr>
</tbody>
</table>
Perceptual map of PA beers
Positioning

Implications

- Assumes that maltiness and bitterness are the two relevant attributes in this market
- Tells us how customers perceive the various brands on the two dimensions
- Brands that are close on the map compete for the same customers
- If we want to differentiate a brand, the map tells us which attributes to focus on
- The map suggests where there is white space and what we have to do to fill the white space (assuming there is demand for this type of product)
Positioning in practice

- Perpendicular axes assume that the two attributes are uncorrelated
  - Attributes could be positively correlated
  - Attributes could be negatively correlated
- If there are more than two attributes, we cannot (easily) plot the raw data
  - Solution: use a data reduction method (e.g., principal components/factor analysis)
- Perceptions are useful, but we also have to incorporate customers’ preferences
  - Solution: joint perceptual/preference mapping
Conducting a positioning study

- Design the study
  - What are the relevant brands?
  - What are the relevant perceptual dimension and preference measures?
  - What are the relevant (potential) customers?
- Collect the data
- Analyze the data
  - Perceptual mapping (principal component/factor analysis)
  - Joint perceptual/preference mapping
How to construct a perceptual map: Principal component analysis (PCA)

- PCA as a data reduction technique: what are the central dimensions underlying customers’ perceptions of brands on more specific attributes?

- Questions in PCA:
  - How many dimensions should be retained?
  - How should the dimensions be interpreted?
  - How can both brands and attributes be represented in the reduced perceptual space?
How to construct a perceptual map: PCA (cont’d)

- Assume we have \( n \) brands that are rated on \( p \) attributes by a sample of representative respondents.
- The original data are usually averaged across respondents, so the input data consist of average perceptions of the brands on the attributes of interest.
- It is difficult to map the brands in \( p \) dimensions, but if the attributes are correlated, we might be able to summarize the essential information contained in the original data in a space of reduced dimensionality.
## Positioning

<table>
<thead>
<tr>
<th></th>
<th>Maltiness</th>
<th>Bitterness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HopDevil</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R1</td>
<td>8</td>
<td>8</td>
</tr>
<tr>
<td>R2</td>
<td>6</td>
<td>8</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Maltiness</th>
<th>Bitterness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Troegenator</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R1</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>R2</td>
<td>7</td>
<td>2</td>
</tr>
</tbody>
</table>

Aggregation across respondents

<table>
<thead>
<tr>
<th></th>
<th>Maltiness</th>
<th>Bitterness</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HopDevil</strong></td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td><strong>Troegenator</strong></td>
<td>8</td>
<td>4</td>
</tr>
</tbody>
</table>
How to construct a perceptual map: PCA (cont’d)

- The basic idea is to redefine the dimensions of the space such that the first dimension (component, factor) captures as much variation in the ratings as possible, the second dimension is perpendicular to the first dimension and captures as much of the remaining variation in the ratings as possible, etc.
- If a few of the new dimensions capture a large amount of the total variation in the data, the analysis can be simplified by retaining only 2 or 3 dimensions.
- Look at the amount of variance explained by each factor – hopefully, a few factors will capture a substantial portion of the total variance.
- If we can summarize the data with a few dimensions, we can graph the data in a low-dimensional space even if there are many different attributes.
Summarizing attribute information using components/factors

![Graph showing the relationship between bitterness and maltiness for different beers.]

- Yuengling
- ApricotWheat
- PennPilsner
- Stratus
- HopDevil
- Troegenator
Summarizing attribute information using components/factors
Positioning

Principal component analysis of PA beers

Perceptual Data
Average score each brand achieves on each attribute from your sample of respondents.

<table>
<thead>
<tr>
<th>Attributes / Brands</th>
<th>HopDevil</th>
<th>Troegenator</th>
<th>Yuengling</th>
<th>Apricot Wheat</th>
<th>PennPilsner</th>
<th>Stratus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maltiness</td>
<td>7</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Bitterness</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

Variance Explained
Variance explained as a function of the number of dimensions.

<table>
<thead>
<tr>
<th>Dimensions / Items</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total variance explained</td>
<td>0.820</td>
<td>0.180</td>
</tr>
<tr>
<td>Cumulative variance explained</td>
<td>0.820</td>
<td>1.000</td>
</tr>
</tbody>
</table>
Principal component analysis (cont’d)

- How to interpret the retained factors?
  - Look at the correlations of the original attributes with the new dimensions (components, factors). They are called loadings and are summarized in a factor pattern matrix. Variables that load highly on a factor suggest what the factor means and how to name it.
  - The solution based on the reduced number of factors can also be rotated to increase the interpretability of the solution (i.e., we try to find an orientation in which each variable loads highly on a single factor).
# Interpreting the factors

<table>
<thead>
<tr>
<th>Dimensions / Attributes</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maltiness</td>
<td>0.9058</td>
<td>0.4238</td>
</tr>
<tr>
<td>Bitterness</td>
<td>0.9058</td>
<td>-0.4238</td>
</tr>
</tbody>
</table>
How to construct a perceptual map?

- Plot the correlations of the original attributes with the retained factors (the factor loadings) using vectors emanating from the origin; the (relative) length of the vectors indicates the amount of variance in a variable explained by the factors;
- Plot the brands in the same factor space;
- The projection of a brand on the attribute vectors or the factors (dimensions) indicates how the brand rates on the attributes or factors relative to other brands;
Positioning

**Principal component analysis of PA beers**

*Coordinates*

Coordinates of each item in the new reduced space.

<table>
<thead>
<tr>
<th>Dimensions / Brands</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>HopDevil</td>
<td>0.6691</td>
<td>-0.4432</td>
</tr>
<tr>
<td>Troegenator</td>
<td>0.2976</td>
<td>0.8065</td>
</tr>
<tr>
<td>Yuengling</td>
<td>-0.3547</td>
<td>-0.077</td>
</tr>
<tr>
<td>ApricotWheat</td>
<td>-0.5808</td>
<td>-0.0493</td>
</tr>
<tr>
<td>PennPilsner</td>
<td>-0.0091</td>
<td>-0.3601</td>
</tr>
<tr>
<td>Stratus</td>
<td>-0.0221</td>
<td>0.1231</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dimensions / Attributes</th>
<th>1</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maltiness</td>
<td>0.9058</td>
<td>0.4238</td>
</tr>
<tr>
<td>Bitterness</td>
<td>0.9058</td>
<td>-0.4238</td>
</tr>
</tbody>
</table>
Perceptual Map of PA Beers

- **Troegenator**
- **ApricotWheat**
- **Yuengling**
- **PennPilsner**
- **HopDevil**

Axes:
- **I (82%)**
- **II (18%)**

Lines:
- Maltiness
- Bitternes
Perceptual Map of PA Beers

I (82%)

II (18%)

Troegenator

Maltiness

Bitterness

Apricot Wheat

Stratus

Yuengling

PennPilsner

HopDevil
Positioning

**Office Star data**

- Four different stores are rated on five attributes;
- The stores are Office Star (the target store), Paper & Co., Office Equipment, and Supermarket;
- The attributes are large choice, low prices, service quality, product quality, and convenience;
- 24 customers rated all stores on all attributes on a scale from 1 to 6 (e.g., the extent to which Office Star offers large choice);
- We also know customers’ overall preferences for the four stores (rated on a 1-5 scale);
### Input data

<table>
<thead>
<tr>
<th></th>
<th>OfficeStar</th>
<th>Paper and Co</th>
<th>Office Equipment</th>
<th>Supermarket</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large choice</td>
<td>5.2</td>
<td>4.4</td>
<td>3.9</td>
<td>2.3</td>
</tr>
<tr>
<td>Low prices</td>
<td>2.1</td>
<td>4.5</td>
<td>2.6</td>
<td>4.1</td>
</tr>
<tr>
<td>Service quality</td>
<td>4.2</td>
<td>2.3</td>
<td>3.1</td>
<td>1.8</td>
</tr>
<tr>
<td>Product quality</td>
<td>3.7</td>
<td>2.6</td>
<td>3.1</td>
<td>2.9</td>
</tr>
<tr>
<td>Convenience</td>
<td>2.7</td>
<td>1.4</td>
<td>4.7</td>
<td>5.1</td>
</tr>
</tbody>
</table>
**Positioning**

Executes a positioning analysis.

### Positioning data

- **Perceptual data**
- Include preference data

### Positioning map

- **Number of dimensions**
  - Output the first 2 dimensions if they explain 80% of the variance or more. Otherwise, output 3 dimensions.

### Focal brand

- Additional analyses will be performed on the focal brand if you identify one
  - Include focal brand
  - **OfficeStar**

- Advanced

- Help
- Cancel
- Run
## Perceptual data

<table>
<thead>
<tr>
<th></th>
<th>OfficeStar</th>
<th>Paper and Co</th>
<th>Office Equipment</th>
<th>Supermarket</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large choice</td>
<td>5.2</td>
<td>4.4</td>
<td>3.9</td>
<td>2.3</td>
</tr>
<tr>
<td>Low prices</td>
<td>2.1</td>
<td>4.5</td>
<td>2.6</td>
<td>4.1</td>
</tr>
<tr>
<td>Service quality</td>
<td>4.2</td>
<td>2.3</td>
<td>3.1</td>
<td>1.8</td>
</tr>
<tr>
<td>Product quality</td>
<td>3.7</td>
<td>2.6</td>
<td>3.1</td>
<td>2.9</td>
</tr>
<tr>
<td>Convenience</td>
<td>2.7</td>
<td>1.4</td>
<td>4.7</td>
<td>5.1</td>
</tr>
</tbody>
</table>

Note: Values in red if below their column mean minus one standard deviation and in green if above their column mean plus one standard deviation.
Positioning

**Attribute histograms**

<table>
<thead>
<tr>
<th>Convenience</th>
<th>Large choice</th>
<th>Low prices</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supermarket</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Office Equipment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paper and Co</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OfficeStar</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Product quality</th>
<th>Service quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supermarket</td>
<td></td>
</tr>
<tr>
<td>Office Equipment</td>
<td></td>
</tr>
<tr>
<td>Paper and Co</td>
<td></td>
</tr>
<tr>
<td>OfficeStar</td>
<td></td>
</tr>
</tbody>
</table>
Percentage of variance explained by each principal component (dimension)

Variance explained
Variance and cumulated variance explained, by dimension.

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Variance explained</th>
<th>Cumulative variance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimension 1</td>
<td>66.9%</td>
<td>66.9%</td>
</tr>
<tr>
<td>Dimension 2</td>
<td>30.8%</td>
<td>97.7%</td>
</tr>
<tr>
<td>Dimension 3</td>
<td>2.3%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Dimension 4</td>
<td>0.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
## Coordinates for objects (stores) and attributes

<table>
<thead>
<tr>
<th>Object</th>
<th>Dimension I</th>
<th>Dimension II</th>
</tr>
</thead>
<tbody>
<tr>
<td>OfficeStar</td>
<td>0.895</td>
<td>-0.023</td>
</tr>
<tr>
<td>Paper and Co</td>
<td>-0.358</td>
<td>-0.644</td>
</tr>
<tr>
<td>Office Equipment</td>
<td>0.131</td>
<td>0.294</td>
</tr>
<tr>
<td>Supermarket</td>
<td>-0.668</td>
<td>0.373</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Dimension I</th>
<th>Dimension II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large choice</td>
<td>0.620</td>
<td>-0.623</td>
</tr>
<tr>
<td>Low prices</td>
<td>-0.674</td>
<td>-0.450</td>
</tr>
<tr>
<td>Service quality</td>
<td>0.985</td>
<td>0.006</td>
</tr>
<tr>
<td>Product quality</td>
<td>0.510</td>
<td>0.305</td>
</tr>
<tr>
<td>Convenience</td>
<td>-0.159</td>
<td>0.917</td>
</tr>
</tbody>
</table>
Positioning

Perceptual map for Office Star data
Positioning

Perceptual map for Office Star data
Assignment for next class

- Next Tuesday
  - ISBM Segmentation case

- Next Thursday
  - Read LRB Chapter 4
  - Positioning Tutorial (Enginius)
Recap: Perceptual mapping

- We have average perceptions for a number of brands on (many) different attributes/benefits;
- We want to map both the attributes and the brands in a space of low dimensionality without losing too much of the original information;

<table>
<thead>
<tr>
<th>Brands / Attributes</th>
<th>Mahalacto</th>
<th>Nutrine</th>
<th>Mentos</th>
<th>Mint-O-Fresh</th>
<th>Chlormint</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exciting</td>
<td>7.3</td>
<td>6.8</td>
<td>4.4</td>
<td>6.0</td>
<td>7.0</td>
</tr>
<tr>
<td>Cooling Effect</td>
<td>4.0</td>
<td>4.2</td>
<td>7.7</td>
<td>6.5</td>
<td>6.4</td>
</tr>
<tr>
<td>Chewy</td>
<td>5.0</td>
<td>7.6</td>
<td>6.3</td>
<td>8.0</td>
<td>8.5</td>
</tr>
<tr>
<td>Hard</td>
<td>8.1</td>
<td>7.1</td>
<td>6.9</td>
<td>7.2</td>
<td>6.0</td>
</tr>
<tr>
<td>Long Lasting</td>
<td>6.0</td>
<td>3.0</td>
<td>7.0</td>
<td>6.2</td>
<td>6.1</td>
</tr>
<tr>
<td>Fresh</td>
<td>4.0</td>
<td>3.3</td>
<td>5.5</td>
<td>4.0</td>
<td>4.8</td>
</tr>
<tr>
<td>Flavours</td>
<td>7.0</td>
<td>3.0</td>
<td>5.3</td>
<td>6.5</td>
<td>8.0</td>
</tr>
</tbody>
</table>
Positioning

- Mentos
- Mint-O Fresh
- ChloroMint
- Mints Candies
Recap: Deciding on the number of dimensions

Variance Explained

Variance explained as a function of the number of dimensions.

<table>
<thead>
<tr>
<th>Dimensions / Items</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total variance explained</td>
<td>0.502</td>
<td>0.265</td>
<td>0.194</td>
<td>0.039</td>
<td>0.000</td>
</tr>
<tr>
<td>Cumulative variance explained</td>
<td>0.502</td>
<td>0.767</td>
<td>0.961</td>
<td>1.000</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Statistics (for two dimensions)

Descriptive statistics about the input data.

<table>
<thead>
<tr>
<th>Attribute</th>
<th>Mean</th>
<th>Variance</th>
<th>Proportion Variance Explained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exciting</td>
<td>6.30</td>
<td>1.043</td>
<td>0.499</td>
</tr>
<tr>
<td>Cooling Effect</td>
<td>5.76</td>
<td>1.432</td>
<td>0.942</td>
</tr>
<tr>
<td>Chewy</td>
<td>7.08</td>
<td>1.270</td>
<td>0.918</td>
</tr>
<tr>
<td>Hard</td>
<td>7.06</td>
<td>0.671</td>
<td>0.911</td>
</tr>
<tr>
<td>Long Lasting</td>
<td>5.66</td>
<td>1.376</td>
<td>0.918</td>
</tr>
<tr>
<td>Fresh</td>
<td>4.32</td>
<td>0.757</td>
<td>0.909</td>
</tr>
<tr>
<td>Flavours</td>
<td>5.96</td>
<td>1.717</td>
<td>0.273</td>
</tr>
</tbody>
</table>
Recap: Interpreting the perceptual map of mints

Positioning Map

- **Mahalacto**
- **Nutrine**
- **Mentos**
- **Mint-O-Fresh**
- **Chlormint**

Dimensions:
- **I (50.2%)**
- **II (26.5%)**

Attributes:
- Chewy
- Cooling Effect
- Fresh
- Long Lasting
- Exciting
- Flavours
- Hard
Recap: Interpreting the perceptual map of mints

Positioning Map

- Nutrine
- Chlormint
- Mint-O-Fresh
- Mentos
- Mahalacto

Attributes:
- Exciting
- Chewy
- Cooling Effect
- Fresh
- Long Lasting

Dimensions:
- I (50.2%)
- II (26.5%)
Incorporating preferences into perceptual maps

- Perceptual maps tell us how customers perceive brands, but they are silent about which brands they prefer;
- In order to understand customers’ choices, we have to incorporate their preferences;
- Two types of preference models can be distinguished:
  - Vector preferences: an increase in the amount of the attribute increases preference;
  - Ideal point preferences: there is an ideal amount of the attribute at which preference is highest;
Vector vs. ideal point preferences

Vector preferences

Amount of attribute

Ideal point preferences

Amount of attribute
Incorporating preferences (cont’d)

- For vector preferences:
  - the brand whose (orthogonal) projection on a consumer’s preference vector is farthest from the origin (in the direction of the arrow) is the consumer’s preferred brand;

- For ideal point preferences:
  - the brand that is closest to a consumer’s ideal point is the consumer’s preferred brand;
A simple way to incorporate preferences

- For vector preferences:
  - calculate the average preference of target customers for each brand; add these averaged preferences as another “attribute” to the analysis; alternatively, we could use the market shares of the brands as a proxy indicator of preference;
  - the preference vector in the resulting map shows the direction of increasing preferences in the market;

- For ideal-point preferences:
  - introduce a hypothetical ideal brand and have respondents rate this ideal brand on all the attributes;
  - the location of the ideal brand in the map indicates the most preferred combination of attributes;
## Using averaged preferences in the map

### Perceptual Data with Average Preference Vector

Average score each brand achieves on each attribute from your sample of respondents.

<table>
<thead>
<tr>
<th>Attributes / Brands</th>
<th>HopDevil</th>
<th>Troegenator</th>
<th>Yuengling</th>
<th>ApricotWheat</th>
<th>PennPilsner</th>
<th>Stratus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maltiness</td>
<td>7</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Bitternes</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Pref</td>
<td>5.33</td>
<td>4.83</td>
<td>4.00</td>
<td>4.17</td>
<td>5.00</td>
<td>5.33</td>
</tr>
</tbody>
</table>
Positioning Map for PA Beers with Average Preference as an Attribute

Note: This assumes average preferences for HopDevil, Troegenator, Yuengling, Apricot Wheat, Penn Pilsner, and Stratus of 5.33, 4.83, 4.00, 4.17, 5.00, and 5.33.
Positioning Map for PA Beers with Average Preference as an Attribute

- HopDevil
- Troegenator
- Yuengling
- ApricotWheat
- PennPilsner

Axes:
- I (79.1%)
- II (12.6%)

Attributes:
- Maltiness
- Bitternes
- Pref
## Positioning

### Using an ideal brand in the map

#### Perceptual Data with Ideal Brand

Average score each brand achieves on each attribute from your sample of respondents.

<table>
<thead>
<tr>
<th>Attributes / Brands</th>
<th>HopDevil</th>
<th>Troegenator</th>
<th>Yuengling</th>
<th>Apricot Wheat</th>
<th>PennPilsner</th>
<th>Stratus</th>
<th>IdealBrand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maltiness</td>
<td>7</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Bitternes</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>
Note: This assumes the ideal brand has ratings of 7 and 6 for maltiness and bitterness, respectively.
Note: This assumes the ideal brand has ratings of 7 and 6 for maltiness and bitterness, respectively.
Incorporating (individual) preferences into perceptual maps more explicitly

- If we have data about consumers’ preferences toward the brands, we can try to explain the preferences based on the location of the brands on the dimensions of the map;
- The variance accounted for in a consumer’s preferences indicates how well the preference ratings can be predicted based on the position of the brands on the dimensions;
- Once we have preference vectors or ideal points, we can also predict a brand’s market share:
  - First-choice rule
  - Share of preference rule
- We can also simulate changes in market share if we reposition the brand;
# ME input for PA beers example

## Perceptual Data

Average score each brand achieves on each attribute from your sample of respondents.

<table>
<thead>
<tr>
<th>Attributes / Brands</th>
<th>HopDevil</th>
<th>Troegenator</th>
<th>Yuengling</th>
<th>Apricot Wheat</th>
<th>PennPilsner</th>
<th>Stratus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maltiness</td>
<td>7</td>
<td>8</td>
<td>3</td>
<td>2</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Bitternes</td>
<td>8</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

## Preference Data

Preference score data obtained for each brand from each respondent.

<table>
<thead>
<tr>
<th>Respondents / Brands</th>
<th>HopDevil</th>
<th>Troegenator</th>
<th>Yuengling</th>
<th>Apricot Wheat</th>
<th>PennPilsner</th>
<th>Stratus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Respondent 1</td>
<td>9</td>
<td>7</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Respondent 2</td>
<td>7</td>
<td>8</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Respondent 3</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>5</td>
</tr>
<tr>
<td>Respondent 4</td>
<td>1</td>
<td>2</td>
<td>5</td>
<td>6</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Respondent 5</td>
<td>5</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>Respondent 6</td>
<td>8</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
</tbody>
</table>
Which brands do these 6 consumers prefer: Vector preference model
Positioning

Preference Mapping Vector Model

Component 1 (82.04%)

Component 2 (17.96%)

R1

R2

R3

R4

R5

R6

Troegensator

Apricot Wheat

Stratus

Yue Rating

Penn Pilsner

Hop Devil
Which brands do these 6 consumers prefer: Ideal point model
Positioning
Positioning

Joint map for PA beers (vector model)

Market Share

I (82%)

R1

R3

R4

R5

R6

Maltiness

Bitternes

Troegenator

Stratus

ApricotWheat

Yuengling

PennPilsner

HopDevil
Joint map for PA beers (vector model)
Positioning

**Office Star data**

- Four different stores are rated on five attributes;
- The stores are Office Star (the target store), Paper & Co., Office Equipment, and Supermarket;
- The attributes are large choice, low prices, service quality, product quality, and convenience;
- 24 customers rated all stores on all attributes on a scale from 1 to 6 (e.g., the extent to which Office Star offers large choice);
- We also know customers’ overall preferences for the four stores (rated on a 1-5 scale);
## Input data

### Perceptual data

<table>
<thead>
<tr>
<th>Perception</th>
<th>OfficeStar</th>
<th>Paper and Co</th>
<th>Office Equipment</th>
<th>Supermarket</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large choice</td>
<td>5.2</td>
<td>4.4</td>
<td>3.9</td>
<td>2.3</td>
</tr>
<tr>
<td>Low prices</td>
<td>2.1</td>
<td>4.5</td>
<td>2.6</td>
<td>4.1</td>
</tr>
<tr>
<td>Service quality</td>
<td>4.2</td>
<td>2.3</td>
<td>3.1</td>
<td>1.8</td>
</tr>
<tr>
<td>Product quality</td>
<td>3.7</td>
<td>2.6</td>
<td>3.1</td>
<td>2.9</td>
</tr>
<tr>
<td>Convenience</td>
<td>2.7</td>
<td>1.4</td>
<td>4.7</td>
<td>5.1</td>
</tr>
</tbody>
</table>

### Preference data

<table>
<thead>
<tr>
<th>Name</th>
<th>OfficeStar</th>
<th>Paper and Co</th>
<th>Office Equipment</th>
<th>Supermarket</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lori</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Mary</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Radjeep</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Antoine</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Yoshi</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Hubert</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Michael</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Elisabeth</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Mike</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>2</td>
</tr>
</tbody>
</table>

* This data contains preference data for 24 respondents.
Positioning

Executes a positioning analysis.

**Positioning data**

- Perceptual data
- Include preference data
- Segment preference data
- Current market shares
- Decision rule for market share predictions

**Positioning map**

- Number of dimensions
  - Output the first 2 dimensions if they explain 80% of the variance or more. Otherwise, output 3 dimensions.

**Focal brand**

- Additional analyses will be performed on the focal brand if you identify one
- Include focal brand: OfficeStar

[Run]
## Average store preferences

<table>
<thead>
<tr>
<th></th>
<th>Average preference</th>
</tr>
</thead>
<tbody>
<tr>
<td>OfficeStar</td>
<td>3.46</td>
</tr>
<tr>
<td>Supermarket</td>
<td>3.42</td>
</tr>
<tr>
<td>Office Equipment</td>
<td>3.21</td>
</tr>
<tr>
<td>Paper and Co</td>
<td>2.71</td>
</tr>
</tbody>
</table>
Positioning

Perceptual-preference map
## Customer preferences (excerpt)

<table>
<thead>
<tr>
<th></th>
<th>Dimension I</th>
<th>Dimension II</th>
<th>Dimension III</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lori</td>
<td>0.099</td>
<td>-0.089</td>
<td>-0.991</td>
</tr>
<tr>
<td>Mary</td>
<td>-0.176</td>
<td>-0.040</td>
<td>-0.984</td>
</tr>
<tr>
<td>Radjeep</td>
<td>-0.523</td>
<td>0.391</td>
<td>-0.757</td>
</tr>
<tr>
<td>Antoine</td>
<td>-0.073</td>
<td>0.522</td>
<td>-0.850</td>
</tr>
<tr>
<td>Yoshi</td>
<td>-0.134</td>
<td>0.415</td>
<td>-0.900</td>
</tr>
<tr>
<td>Hubert</td>
<td>0.707</td>
<td>-0.074</td>
<td>0.704</td>
</tr>
<tr>
<td>Michael</td>
<td>0.720</td>
<td>0.613</td>
<td>-0.324</td>
</tr>
<tr>
<td>Elisabeth</td>
<td>-0.050</td>
<td>0.105</td>
<td>0.993</td>
</tr>
<tr>
<td>Mike</td>
<td>0.607</td>
<td>0.362</td>
<td>-0.707</td>
</tr>
<tr>
<td>Hal</td>
<td>-0.208</td>
<td>-0.361</td>
<td>-0.909</td>
</tr>
</tbody>
</table>
Positioning by segment

Positioning

Executes a positioning analysis.

Positioning data

Perceptual data

Include preference data

Segment preference data

Column with segment id

Current market shares

Decision rule for market share predictions

Positioning map

Number of dimensions

Output the first 2 dimensions if they explain 80% of the variance or more. Otherwise, output 3 dimensions.

Focal brand

Additional analyses will be performed on the focal brand if you identify one

Include focal brand
<table>
<thead>
<tr>
<th>Name</th>
<th>OfficeStar</th>
<th>Paper and Co</th>
<th>Office Equipment</th>
<th>Supermarket</th>
<th>Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lori</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>Segment A</td>
</tr>
<tr>
<td>Mary</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>5</td>
<td>Segment B</td>
</tr>
<tr>
<td>Radjeep</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>5</td>
<td>Segment B</td>
</tr>
<tr>
<td>Antoine</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>Segment C</td>
</tr>
<tr>
<td>Yoshi</td>
<td>3</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>Segment C</td>
</tr>
<tr>
<td>Hubert</td>
<td>4</td>
<td>2</td>
<td>3</td>
<td>1</td>
<td>Segment A</td>
</tr>
<tr>
<td>Michael</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>3</td>
<td>Segment A</td>
</tr>
<tr>
<td>Elisabeth</td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>3</td>
<td>Segment B</td>
</tr>
<tr>
<td>Mike</td>
<td>5</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>Segment A</td>
</tr>
</tbody>
</table>

* This data contains the preference data, but each respondent has been pre-assigned to a segment. To use this data, go to the Positioning model, and select the following options: Advanced, then Segment preference data, then Specified in data, then select ‘Segment’ from the dropdown list.
Segment-specific individual preferences
Segment-specific average preferences
# Average store preference by segment

<table>
<thead>
<tr>
<th></th>
<th>Average preference</th>
<th>Segment A</th>
<th>Segment B</th>
<th>Segment C</th>
</tr>
</thead>
<tbody>
<tr>
<td>OfficeStar</td>
<td>3.46</td>
<td>4.60</td>
<td>2.50</td>
<td>3.00</td>
</tr>
<tr>
<td>Supermarket</td>
<td>3.42</td>
<td>2.40</td>
<td>3.90</td>
<td>4.75</td>
</tr>
<tr>
<td>Office Equipment</td>
<td>3.21</td>
<td>3.20</td>
<td>3.40</td>
<td>2.75</td>
</tr>
<tr>
<td>Paper and Co</td>
<td>2.71</td>
<td>1.90</td>
<td>4.00</td>
<td>1.50</td>
</tr>
</tbody>
</table>
Positioning

Average store preference by segment

- Office Star
- Supermarket
- Office Equipment
- Paper and Co

Segment A, Segment B, Segment C
Positioning

Market share predictions based on preferences

![Chart showing market share predictions based on preferences]

Legend:
- 0-5
- 5-10
- 10-16
- 16-21
- 21-26
- 26-32
- 32-37
- 37-42
Recap: Ideal vs. vector preferences

Positioning

Ideal brand

Brand A

Brand B

Preference vector
Recap: Preference mapping with an ideal brand

Positioning Map

- Mahalacto
- Nutrine
- Mentos Mint-O-Fresh
- Chlormint Chewy
- Ideal Mint
- Exciting Flavours
- Fresh Long Lasting
- Cooling Effect

I (41.2%)

II (27.1%)
Recap: Vector preferences for 3 respondents

Positioning Map

- Nutrine
- Chlormint
- Mint-O-Fresh
- Mentos
- Mahalacto

Positioning

Market Share

I (50.2%)

II (26.9%)
Recap: Vector preferences for 3 respondents

Positioning Map

- **Positioning**
- **Recap: Vector preferences for 3 respondents**

- **Positioning Map**
- **Market Share**
- **I (50.2%)**
- **II (26.9%)**

- **R1**
- **R2**
- **R3**

- **Nutrine**
- **Chlormint**
- **Mentos**
- **Mahalacto**

- **Exciting**
- **Chewy**
- **Cooling Effect**
- **Fresh**
- **Long Lasting**
- **Flavours**
Assignments for next week

- **Tuesday: Satisfaction measurement**
  - Download the overheads (satisfaction.pdf or satisfaction.pptx)
  - Read Fornell et al., The American Customer Satisfaction Index (available on Electronic Reserve)
  - Look at [http://www.theacsi.org/](http://www.theacsi.org/) (explore the information on this web site, esp. the material under About ASCI)

- **Thursday: Case discussion**
  - Infiniti positioning case (Team 1: Ansley et al.)
Positioning the Infiniti G20

1. Describe the two (or, if applicable, three) dimensions underlying the perceptual maps that you generated. Based on these maps, how do people in this market perceive the Infiniti G20 compared with its competitors?

2. Infiniti promoted the G20 as a Japanese car (basic version $17,500) with a German feel, basically a car that was like the BMW 318i ($20,000), but lower priced. Is this a credible claim, given the perceptions and preferences of the respondents?

3. Which attributes are most important in influencing preference for these cars in the three segments (S1, S2 and S3) shown on these maps? To which segment(s) would you market the Infiniti G20? How would you reposition the Infiniti G20 to best suit the chosen segment(s)? Briefly describe the marketing program you would use to target the chosen segment(s).

4. What ongoing research program would you recommend to Infiniti to improve its evaluation of its segmentation of the market and positioning of its G20?

5. Summarize the advantages and limitations of the software provided for this application.

[Focus on the first three questions]