



# **Cluster Analysis**

I SAID COKE ZERO

OFFER ME DIET COKE, AGAIN  
I DARE YOU

The advertisement features a man in a dark suit and red tie standing on a basketball court, pointing towards the camera. He is positioned next to a basketball with the words "COKE ZERO" on it. To his right is a bottle of Coca-Cola Zero. In the background, there is a large screen displaying the text "COACH ZERO" and "NCAA® BASKETBALL". A banner in the top right corner reads "NOW POURING AT OUTBACK STEAKHOUSE". The main slogan on the right side of the image is "REAL Coca-Cola TASTE AND ZERO CALORIES". At the bottom, there is a navigation bar with links: HOME, MARCH MADNESS®, NASCAR, COKE vs COKE ZERO™, SUE-A-FRIEND, TASTE ACTIVISM, and MY COKE REWARDS. Below the navigation bar are links for SOUND ON, CONTACT US, TELL-A-FRIEND, PRIVACY, and TERMS OF USE.

HOME

MARCH MADNESS®

NASCAR

COKE vs COKE ZERO™

SUE-A-FRIEND

TASTE ACTIVISM

MY COKE REWARDS

SOUND ON

CONTACT US

TELL-A-FRIEND

PRIVACY

TERMS OF USE



PRODUCTS

DIET COKE STORY

ADS & DOWNLOADS

CONTACT US

## Join Diet Coke in Supporting Women's Heart Health

Learn more about the Diet Coke partnership with *The Heart Truth* [>>](#)



### Reward Yourself

Exchange your My Coke Rewards points for an amazing designer red dress. [Go Now.](#)



### Great Taste Has Its Benefits

Tune in to a video about the benefits of Diet Coke Plus  
[Watch Now](#)  
[More Ads & Downloads](#)



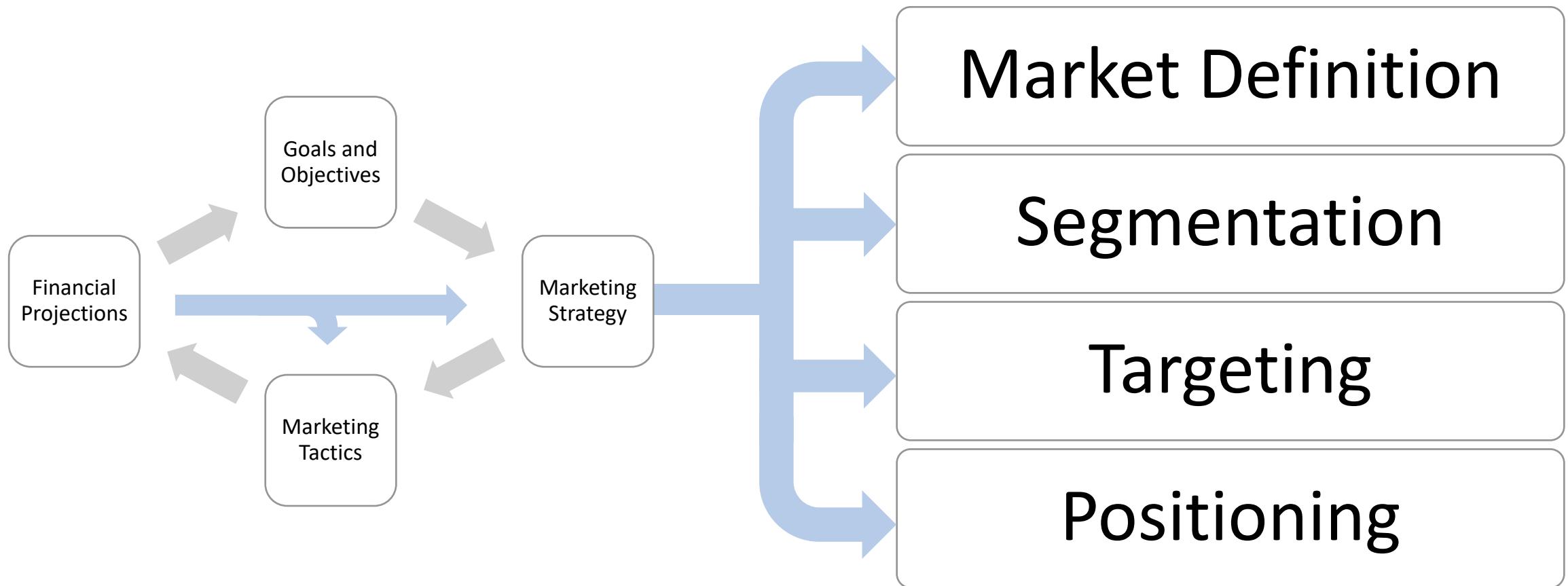
### Send a Diet Coke e-Card

Share great taste with friends and family.

# The Marketing Plan



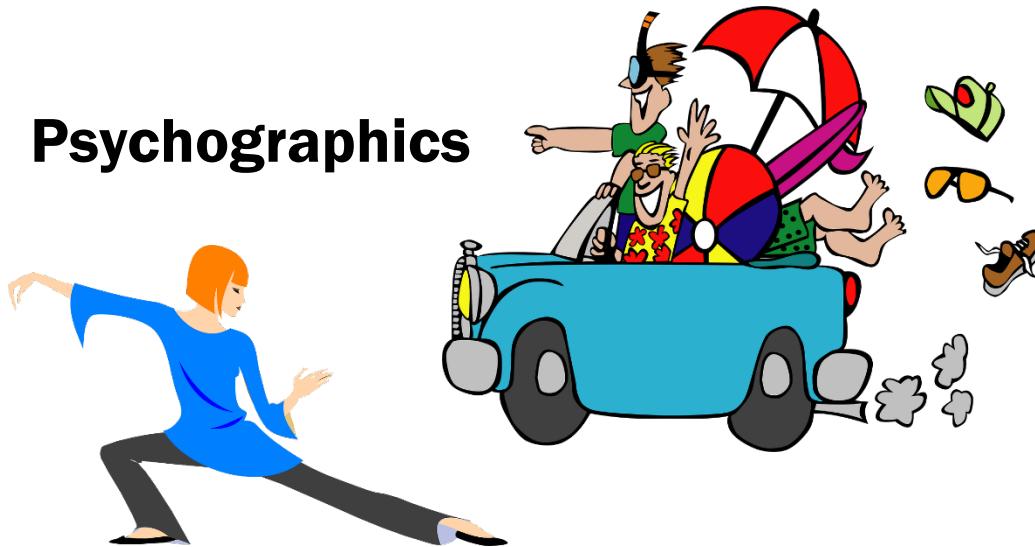
# The Marketing Plan



# Identifying Segments: Possible Bases for Segmenting Consumers and Customers



**Demog**



**Psychographics**

**Purchase Behavior  
and Product Use**



**Desired  
Benefits/Needs**

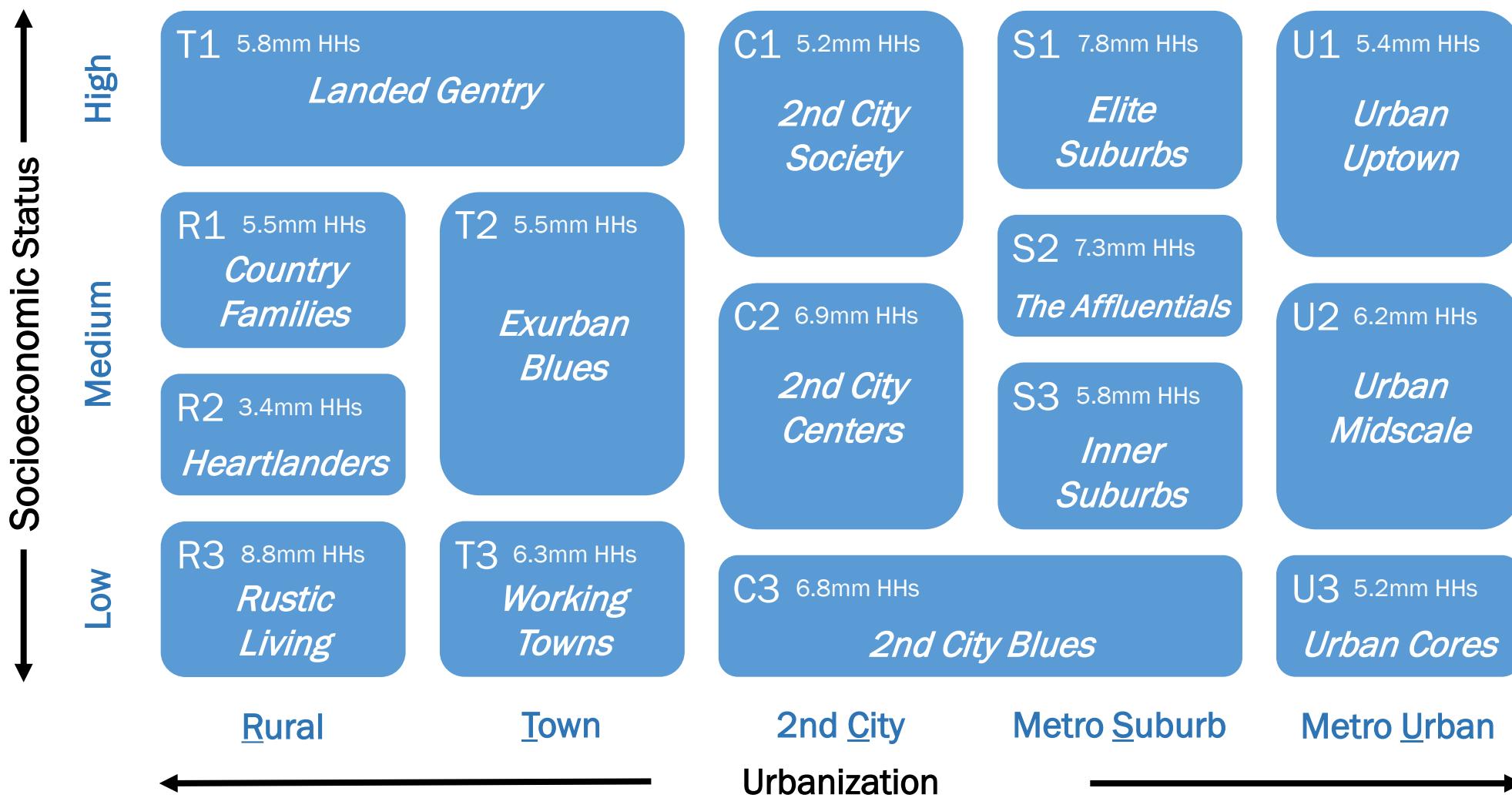


# Multi-Attribute Segmentation

- The PRIZM® Methodology: Neighborhood Lifestyle Segmentation
  - “Birds of a feather flock together”
  - “People with similar cultural backgrounds, needs, and perspectives naturally... chose to live in neighborhoods that offer affordable advantages and compatible lifestyles.”
  - “These neighborhoods can be grouped into ‘clusters’ that exhibit similar demographic and behavioral characteristics. These neighborhood clusters can then be used to identify and locate marketing targets.”
- [https://claritas360.claritas.com/mybestsegments  
/#zipLookup](https://claritas360.claritas.com/mybestsegments/#zipLookup)



# PRIZM® by Claritas



# Cluster Analysis

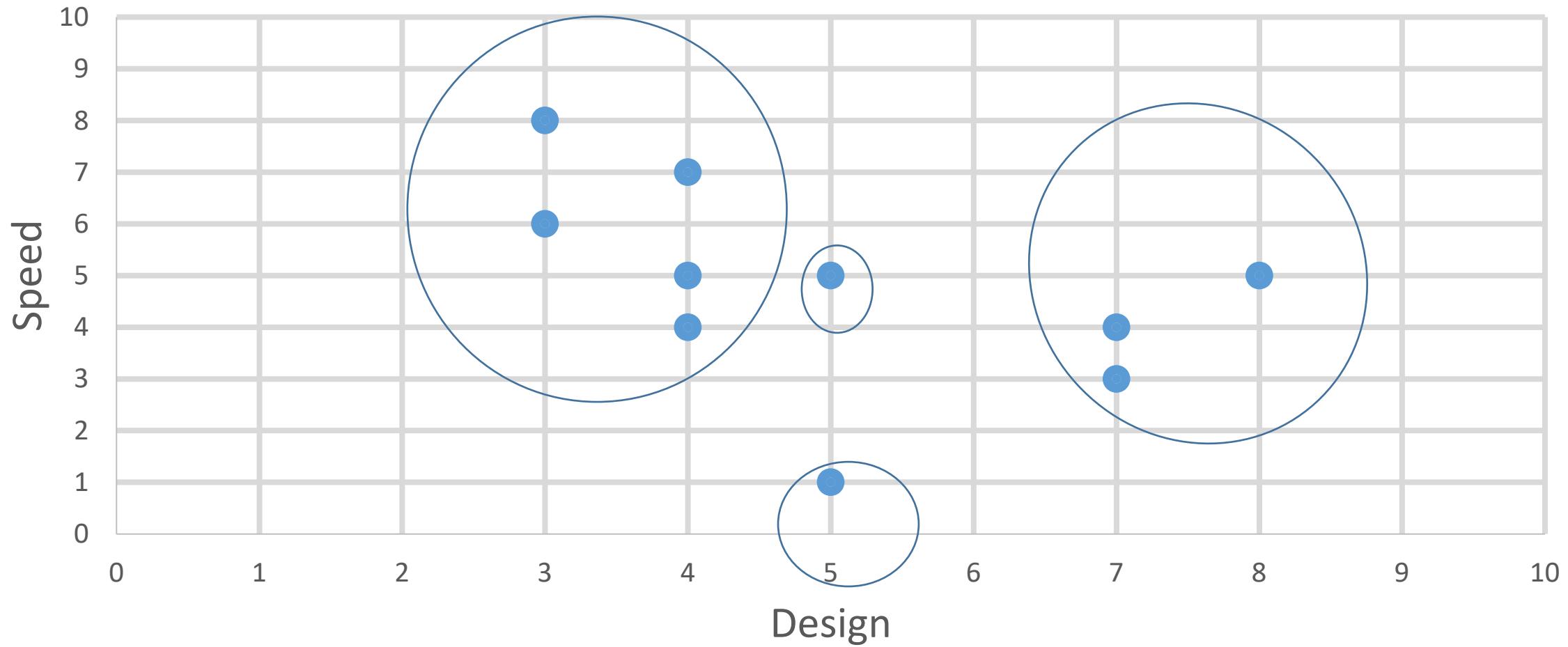
- Deriving Clusters and Assessing Overall Fit
  - Decide on Clustering Algorithm
    - *Many algorithms are available*
    - *More coming all the time*
- **Main goal:** maximize differences between clusters relative to variation within clusters

# Customer Preferences

Customer	Design	Speed
1	5	1
2	7	3
3	4	4
4	7	4
5	4	5
6	5	5
7	8	5
8	3	6
9	4	7
10	3	8

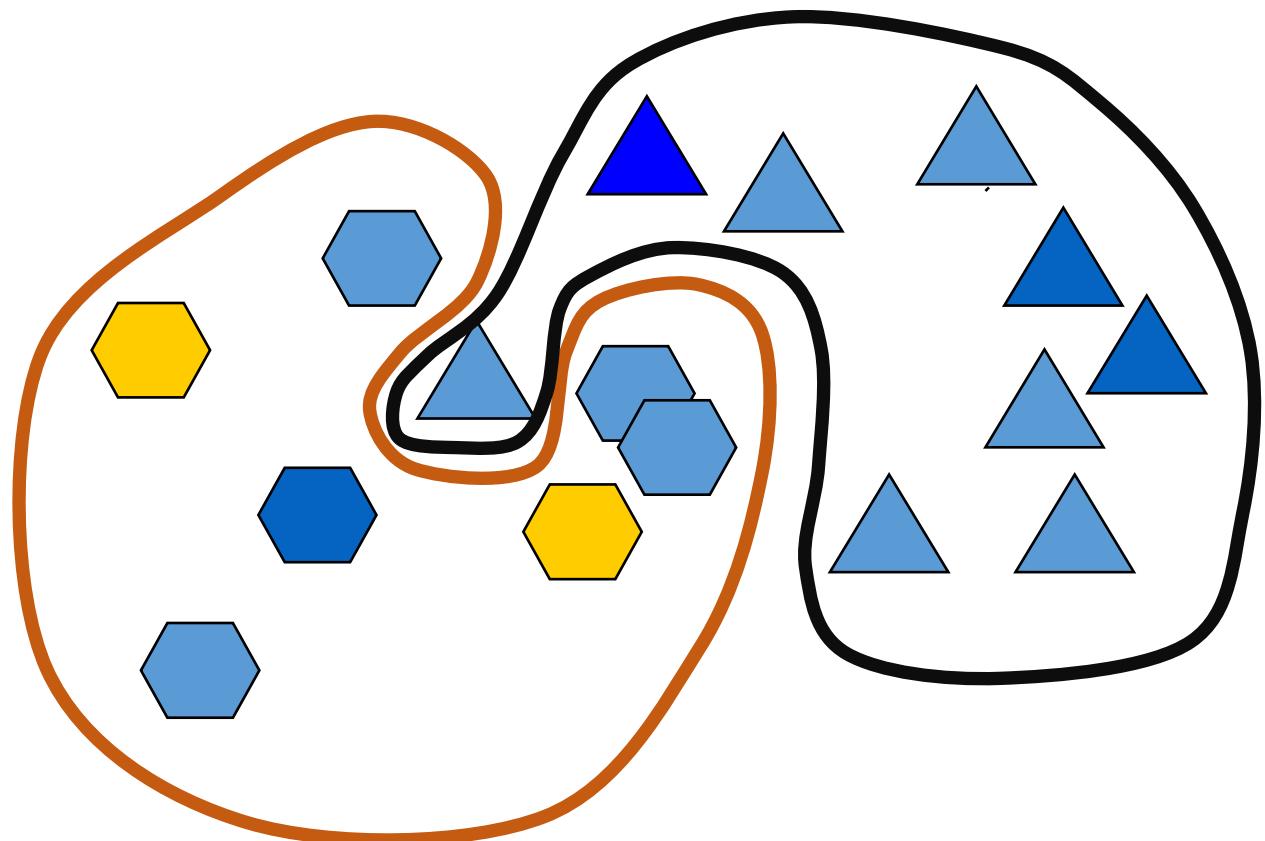
**Preference on a 10-point scale, 10 most preferred and 1 least preferred for Design and Speed of a laptop**

# Customer Preferences



# Evaluating Your Segmentation Scheme

- Two acid tests:
  - Is there heterogeneity between segments?
  - Is there homogeneity within segments?



# No Segmentation



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# Two Segments

This combines camo and soda pop beans wv3



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Images Credit: Mike Mozart, <https://www.flickr.com/photos/jeepersmedia/>

# Ideal Segmentation

Within variance highest (10)

Between variance lowest (1)

$$[\text{within/between}] = 10/1 = 10$$



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Images Credit: Mike Mozart,  
<https://www.flickr.com/photos/jeepersmedia/>

Within variance lowest (1)

Between variance highest (10)

$$[\text{within/between}] = 1/10 = .10$$



By brandi sims (originally posted to Flickr as jelly belly)  
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Wikimedia Commons

# Number of Clusters: Elbow Plot

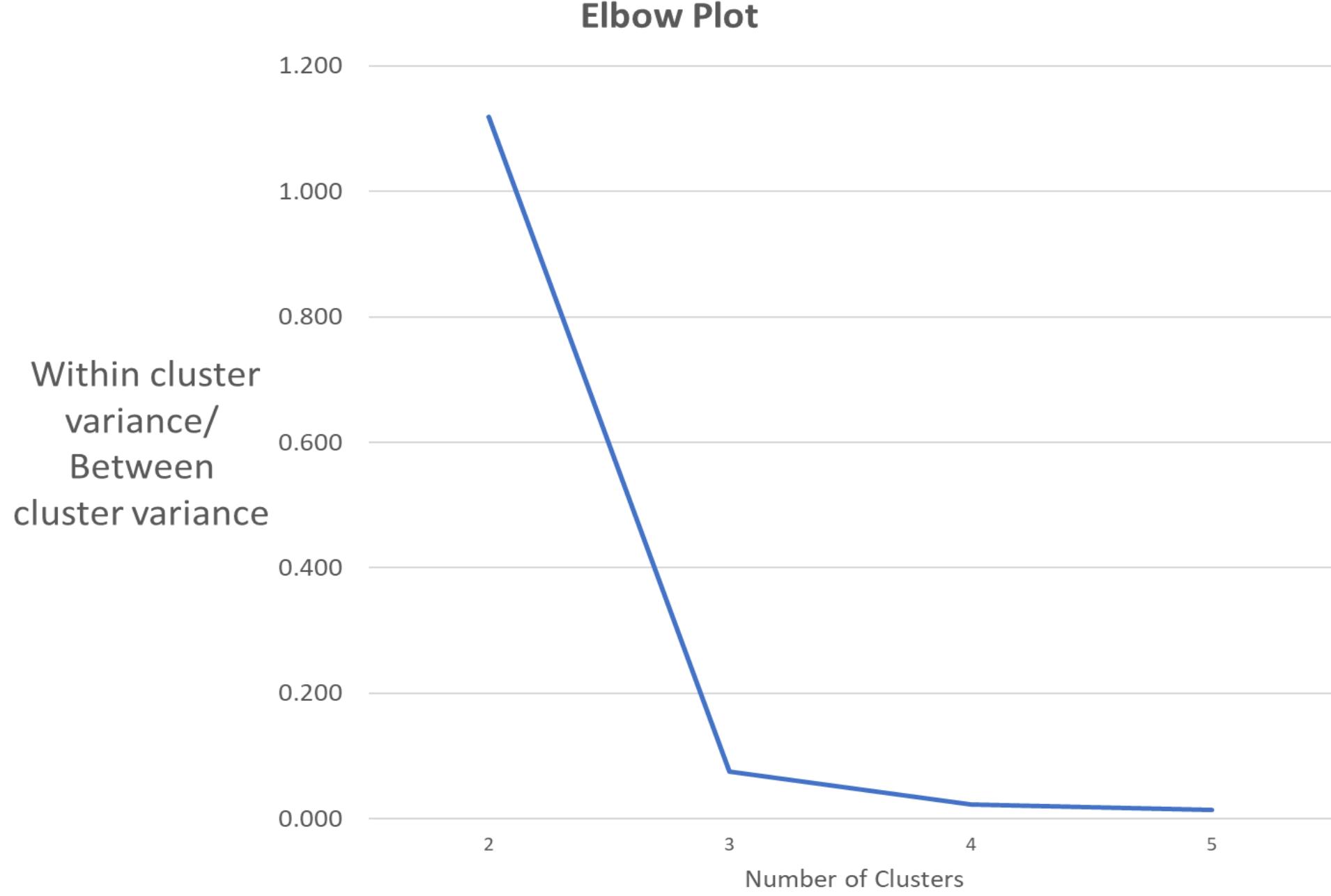
- {Within variance}/ {Between Cluster Variance}
  - is plotted against the number of clusters.
- The point at which a sharp bend occurs indicates the number of clusters



Lets try to find segments with three dimensions and 150 responses....

cnum	speed	design	brand	age	income	segment
0	6	1	3	22	3	1
1	5	1	3	29	3	1
2	5	1	3	20	4	1
3	6	1	3	23	3	1
4	5	1	3	20	3	1
5	5	1	3	22	4	1
6	6	1	3	20	3	1
7	6	1	3	23	4	1
8	5	1	3	26	3	1
9	5	1	3	22	4	1
10	5	1	3	21	4	1
11	6	1	3	21	4	1
12	6	1	3	26	3	1
13	5	1	3	22	4	1
14	6	1	3	27	4	1
15	6	1	3	25	4	1
16	6	1	3	21	3	1

# Elbow Plot for Simulated Data



# Profiling Segments



- How can we identify the segments with commonly available demographics?
- How big is the segment?
- Is it a growing segment?
- Etc.

## Profiles for simulated data

Segment Number	Segment Average				
	Income	Age	Speed	Design	Brand
1	3.35	23.00	5.35	0.96	2.88
2	6.00	49.67	1.00	3.00	5.65
3	1.00	34.04	3.00	5.53	1.00

# Criteria for Effective Segmentation

- Are segments:
  - Identifiable?
    - *Through demographics, etc.*
  - Sustainable?
    - *Are the segments big enough for marketing programs to be profitable?*
  - Accessible?
    - *How to reach the segments through promotion and distribution?*
  - Actionable?
    - *Will the segmentation help develop effective marketing message?*
  - Responsive?
    - *Will they react uniquely to promotion?*



# Customer Centricity at Best Buy



Barry	Jill	Helen and Charlie	Carrie	Ray
Affluent Tech Enthusiast	Busy Suburban Mom	Empty Nesters	Young Single Woman	Price-Conscious Family Guy
Image Credit Steve Jurvetson <a href="https://www.flickr.com/photos/jurvetson/8200336388/">https://www.flickr.com/photos/jurvetson/8200336388/</a>	Image Credit Bill & Vicki T <a href="https://www.flickr.com/photos/iluvcocacola/15582114874/">https://www.flickr.com/photos/iluvcocacola/15582114874/</a>	Image Credit Adrien Pâris <a href="https://www.flickr.com/photos/25146904@N06/3411097311/">https://www.flickr.com/photos/25146904@N06/3411097311/</a>		

# A Few Bumps in the Road at Best Buy

- *Fortune Magazine, March 2006*

- ...the first few dozen stores it segmented, where same-store sales grew at three times the rate of regular stores, Best Buy stepped on the accelerator
- ...it then tinkered ceaselessly to get the mix of products and employees just right [...] Anderson and his executives assumed subsequent stores could just flip a switch and convert to centricity.
- “When we gave the operating manual to the stores for the fall,” he says ruefully, “it was four inches thick.” Adds executive vice president John Walden, Anderson’s point man for centricity: “The way we deployed was too confusing.”
- Instead of jumping as it had in previous quarters, same-store sales growth at the renovated stores was only slightly better than the chainwide average (5.4 percent vs. 3.3 percent). The poor results persuaded him to freeze centricity rollouts for the fourth quarter. (They resumed in March.)

# Upcoming...

- **Sticks Kebob Segmentation**
  - Submit before week 3 session
- **Be prepared to present your submission in class**
  - Deck should be no more than 8 slides
  - Focus on the main insights and decision of the case
  - Move technical details of the k-means clustering to the appendix

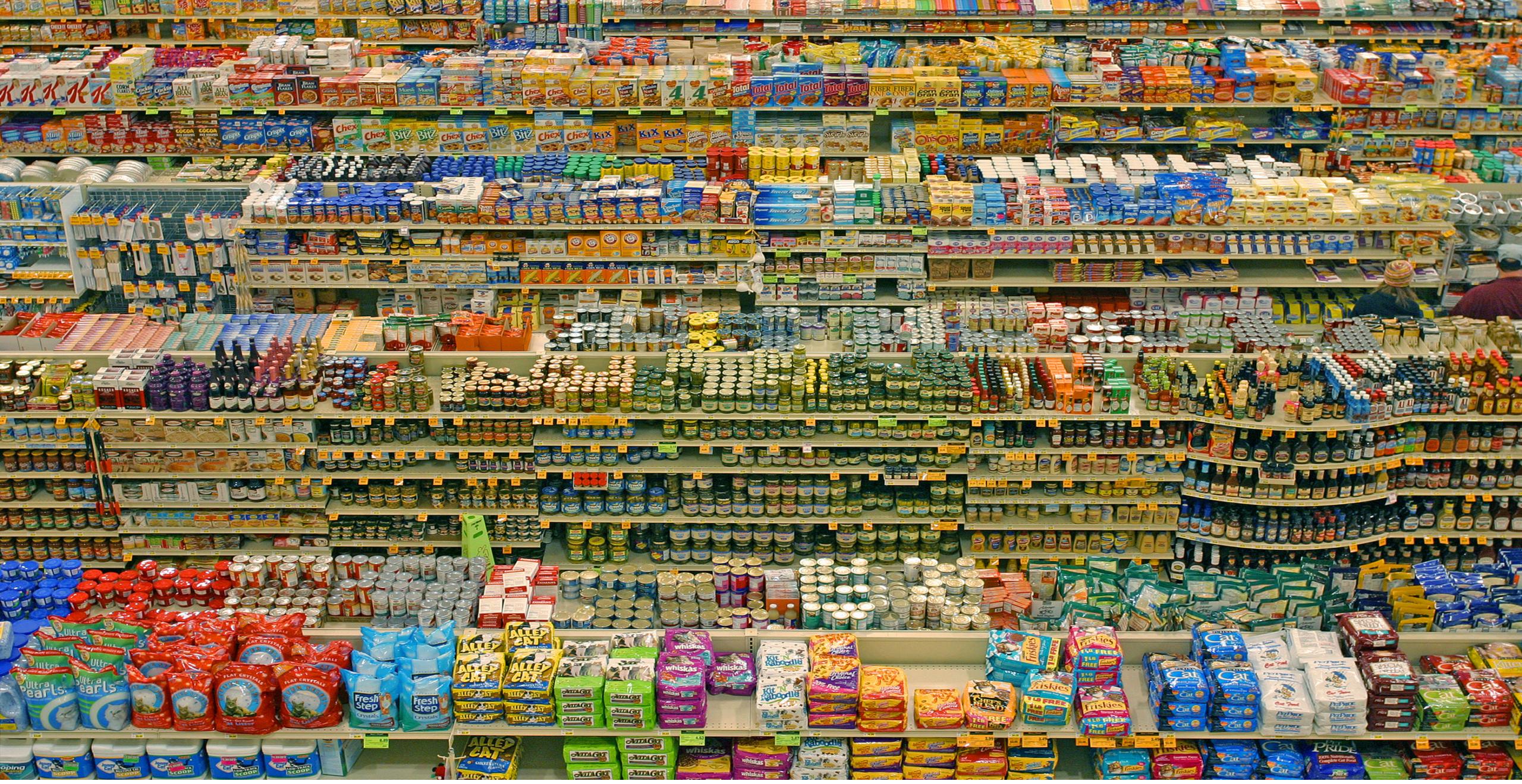
# Questions for Segmentation

- **4 Columns in Sheet 1 of M-0866X**

- I tend to plan things very carefully.
- I sometimes have trouble controlling my spending.
- I think it is important to purchase products that are made locally.
- I carefully consider the health benefits of what I eat.

# Questions for Profiling

- How many times in the last week did you do the following? –
  - Make/eat lunch at home
  - Bring lunch to work
  - Buy lunch at work
  - Buy lunch at restaurant
  - Skipped lunch
  - Other
- Please specify the top five restaurants you have visited in the last six months in order of visit frequency. Most preferred.
- Please specify the top five restaurants you have visited in the last six months in order of visit frequency. Second most preferred.
- Please specify the top five restaurants you have visited in the last six months in order of visit frequency. Third preferred.
- What is your gender?
- What is your age?
- What is your approximate average annual household income?



# You are what you buy...but not everyone understands that yet

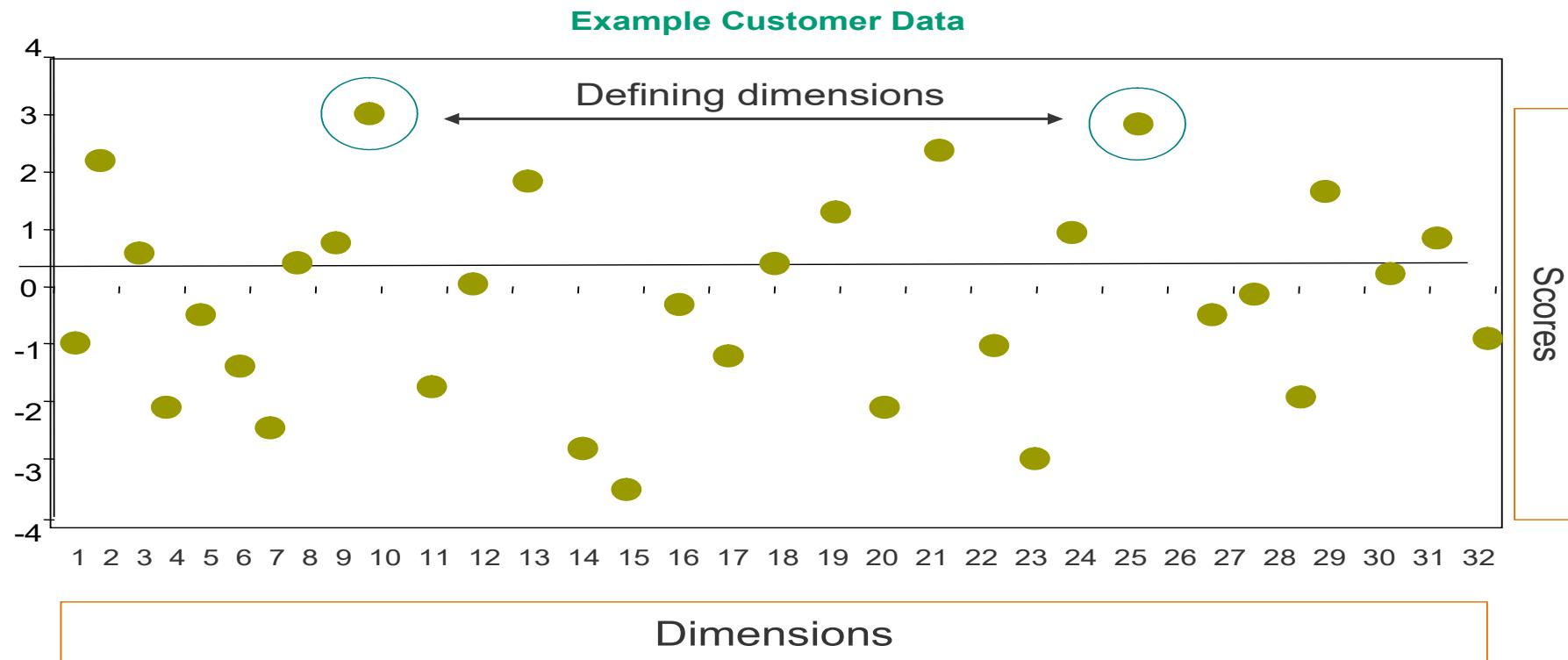
Model	AKA	Used by	Real Consumer
You are what you earn	Demographics / Social class	Mass market media buyers	I spend very differently from my “peer.”
			
You are where you live	Geodemographics	“Targeted” marketing industry	I can’t eat at Jane’s house: No organics!
			
You are what you say you are	Lifestyle questionnaires	Many CPGs and research firms	I try to tell the truth ... as best I recall it.
			
You are what you do	Behavior-based targeting	Some leading retailers and CPGs	OK ... now you’ve got me!

To deliver on this, we look at billions of transactions from 200 million households worldwide...something no one else can do



# Each consumer's DNA is different

- Each dimension describes a particular element of a customer's needs and wants
- Each customer has a different degree of involvement with each of these dimensions – which we capture with a dimension score



Dimension examples: High price, Low price, Asian, Baby, Big Box, Bulk, Canned, Cat, Dog, Diet, Elderly, Ethnic, Fresh, Frozen, Gourmet, Healthy, Hispanic, Home Baking, Home Cooking, Kosher, Low Carb, Meat, No time, Organic, Snacking



When you understand what your shopper is doing and why, it is much easier to connect



This is a friend I know, she is....

- ...a busy young lady
- ...looks after her health
- ...loves fresh produce
- ...shops on Saturday mornings
- ...reads People Magazine
- ...has a cat
- ...doesn't particularly care about price
- ...but does look out for promotions
- ...pays by credit card
- ...only occasionally uses self-scanning

**I know 50m+ people in the US as well as I know her**

# When Segmentation Fails

- Using same segmentation scheme for different business objectives
  - Different advertising or different products?
- Too much focus on techniques
- Using only psychographic or demographic variables
- Not focusing on differences in customer needs
- Static segmentation schemes
- Lack of senior management buy-in

