State of the Art Market Segmentation in Healthcare

Pharmaceutical Market Research Summit

April 2006

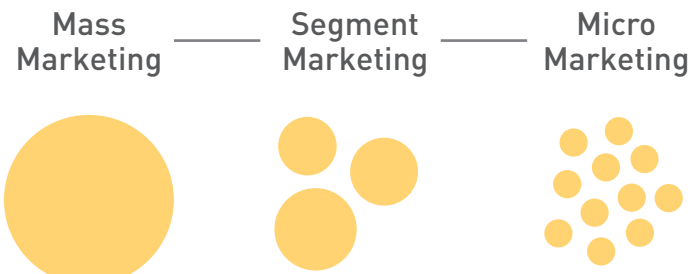
Agenda

- Segmentation: concept and philosophy
- Basics of attitudinal segmentation
- Advanced approaches to attitudinal segmentation
- Best practices for interpreting solutions
- Getting the most from post-study segment assignments

Agenda

- Segmentation: concept and philosophy
- Basics of attitudinal segmentation
- Advanced approaches to attitudinal segmentation
- Best practices for interpreting solutions
- Getting the most from post-study segment assignments

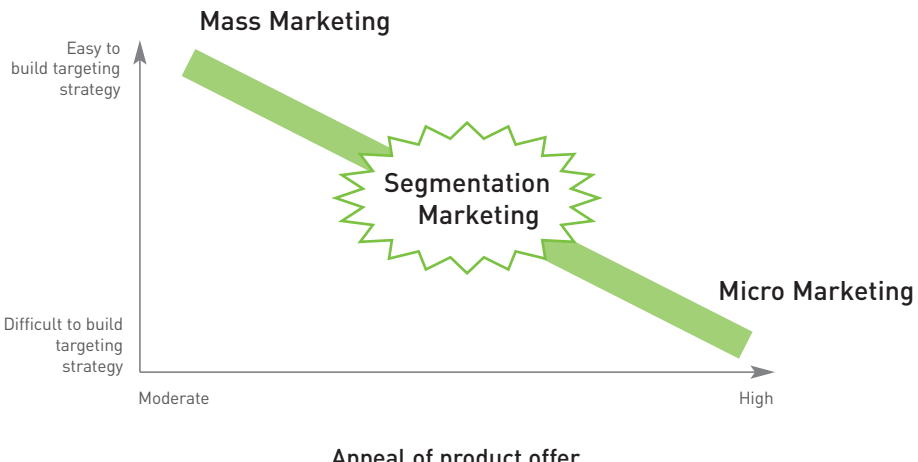
Across industries, marketing has evolved toward increasingly precisetargeting of customers



This evolution has reflected a changing perspective on meeting customer needs

- Mass Marketing → Least common denominator leads to greatest sales
  - Product, not customer differentiation
- Segmentation Marketing → Meet the needs of the most valuable groups
  - Balance product and customer/messaging differentiation
- Micro Marketing → Meet the needs of each individual consumer
  - Customer service, extreme product differentiation

Segmentation marketing represents an attractive balance between two extremes

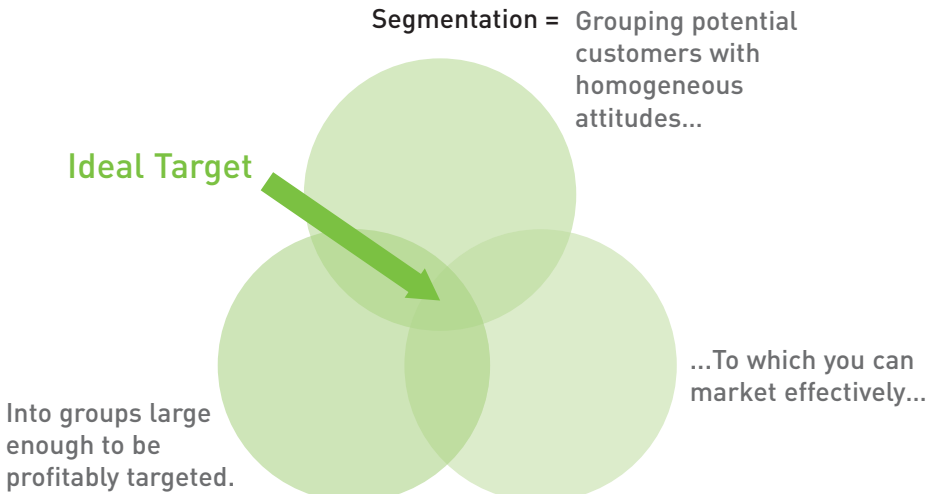


What is Segmentation?

- Objective: Grouping potential customers into homogeneous groups that are large enough to be profitably cultivated

Basic Philosophy: The world is too large and filled with too many diverse people for any single marketing mix to attract everyone

What is Segmentation?



So, why segment?

We segment markets because:

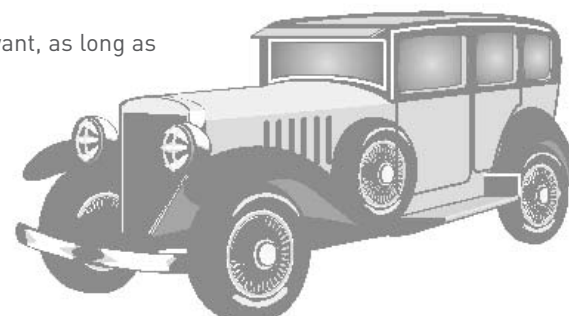
1 It gives us the ability to more efficiently manage our sales andmarketing resources

2 It allows us to make our marketing and sales efforts more effective by customizing our messages and sometimes our product and pricing strategies to the needs and wants of the most easily influenced and most lucrative customer groups.

This is the promise of segmentation

Classic Case of Failing to Segment

- **Henry Ford resisted market segmentation**
  - Ford insisted that "Model T" was all that car buyers needed
- **Focus was on mass marketing**
  - "You can have any color you want, as long as it is black"

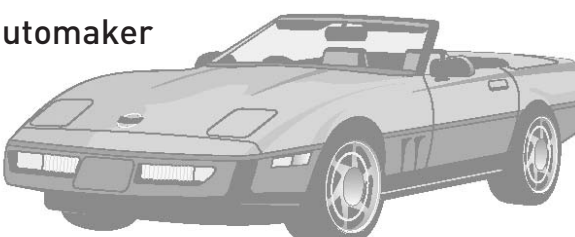


Classic Case of Failing to Segment

- Henry Ford resisted market segmentation
  - Ford insisted that "Model T" was all that car buyers needed

- Alfred Sloan of General Motors implemented a segmentation strategy
  - Specific models for different customer groups

GM rose to be the #1 U.S. automaker



So, why doesn't everyone segment all the time?

Marketers almost always segment, just not always in sophisticated or even effective ways:

- The most common segmentation schemes: Specialty, Rx Volume, Decile
- Attitudinal segmentation is sometimes avoided because:

1 It is difficult to implement–"How do I find these segment members?"
2 Sales forces resist segmentation tools
3 The segments don't always ring true to people in the field
4 What other reasons?

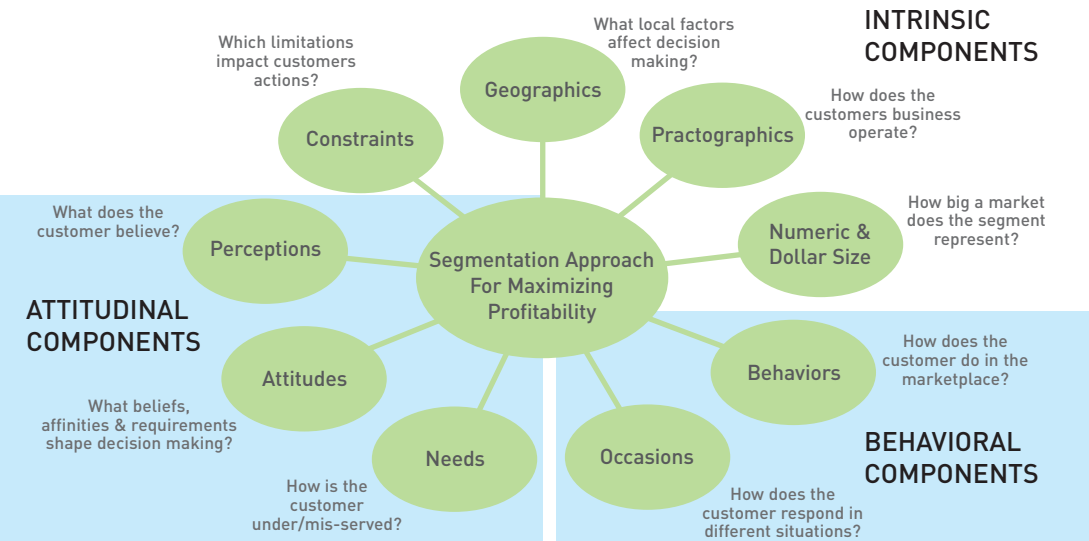
So, what are the dangers in segmenting

- **Biggest danger is waste**
  - Time
  - Money
  - Reputation
- **Reasons for waste**
  - Sales and marketing have different expectations
  - Concerns of all stakeholders not considered
  - Team holds no criteria up front for a successful segmentation
  - There is no plan for validating the results with key stakeholders
  - There is no plan for implementing the results
  - Others?

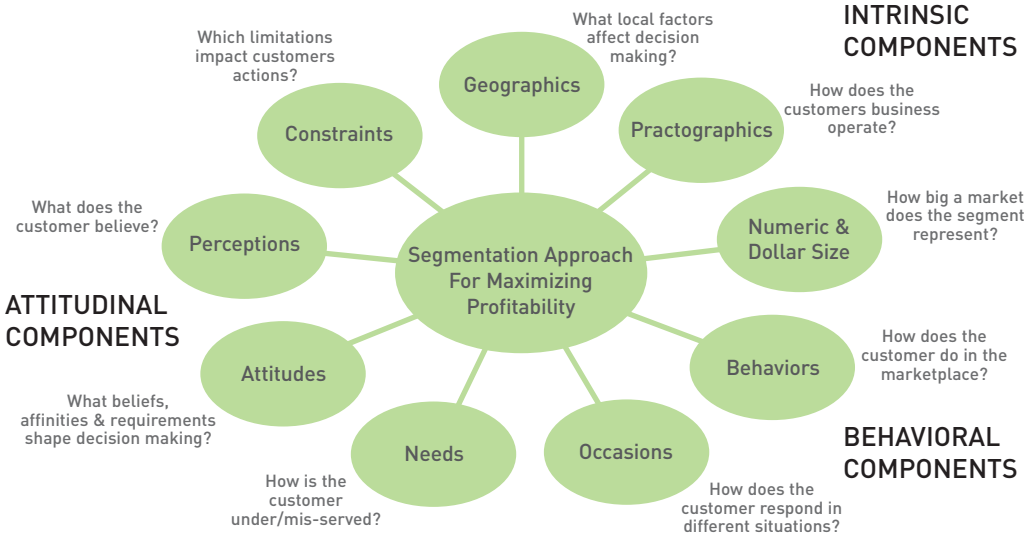
What kinds of segmentation are there?

- **Demographic**
  - Specialty
- **Behavioral**
  - E.g., Spreader, Grower, etc
- **Psychographic**
  - E.g., "Pain avoiders," "Narcotic phobic"
- **Hybrid**
  - A blend of the others

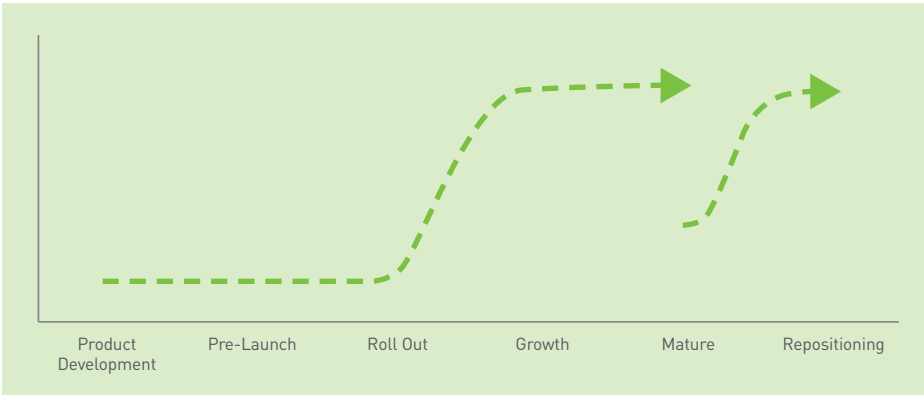
Effective segmentation requires balancing three overlapping forces



Each of the three primary forces consists of a variety of elements



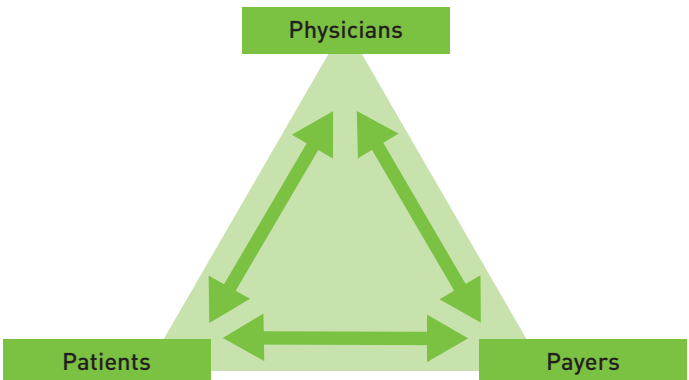
When is Segmentation Appropriate?



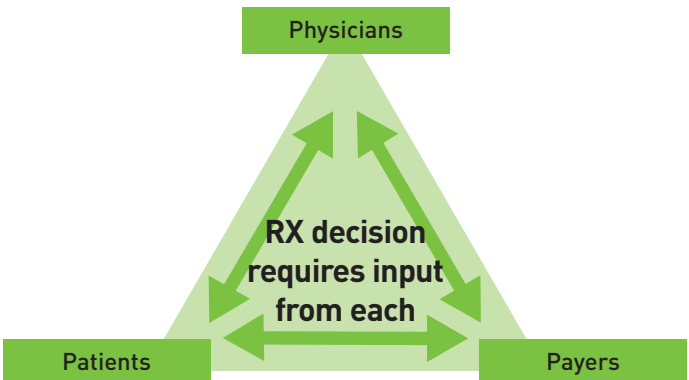
Segmentation Issues by Stage

- **Pre-launch/Launch (spur rate of adoption)**
  - Identify potential early adopters, cautious enthusiasts, laggards
  - Identify issues and concerns by segment
  - Positioning by segment
- **Growth Stage - (Less appropriate, "Playing Catch-Up")**
  - Message development and tracking by segment
- **Maturity and Decline (New growth curve)**
  - Repositioning, identify new segments (niche markets)
  - Customer satisfaction by segment

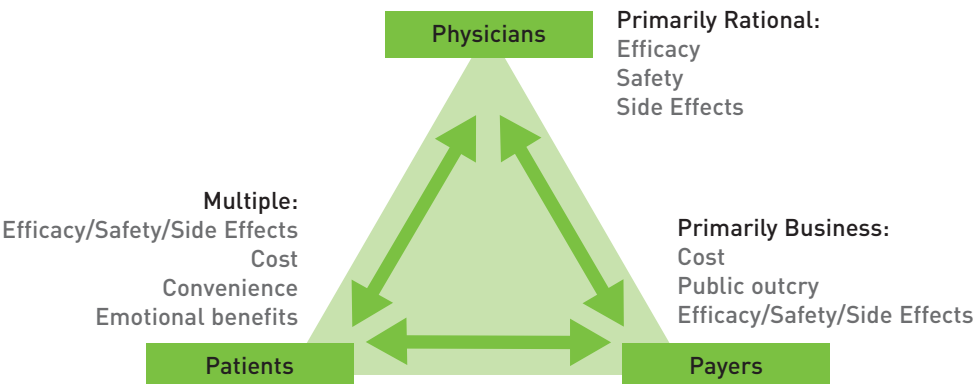
Multiple decision makers create targeting challenges



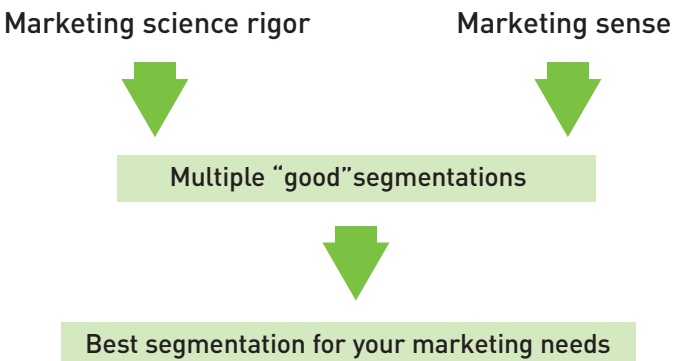
And distributed decision making makes matters worse



. . . And, different audiences make decisions using distinct criteria



Segmentation is both art and science



Making segmentation actionable is a delicate balancing act

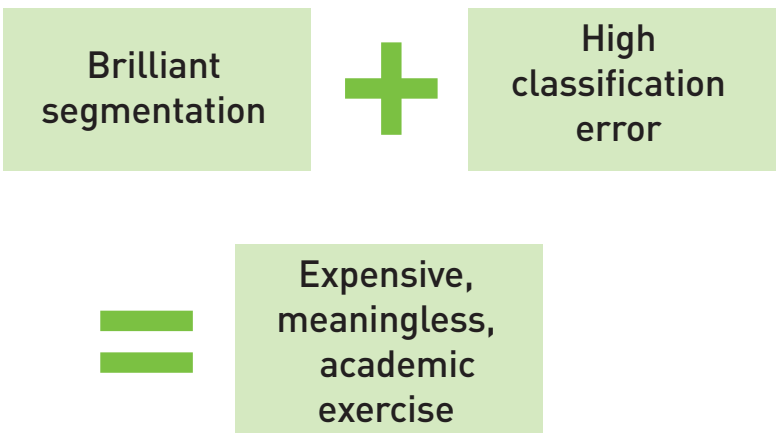
Attitudes

Why they do

Behaviors

What they do

. . . Made more difficult by the need to access segments in the real world



All of this results in a handful of key challenges facing marketing researchers

1 Addressing the right decision makers

2 Matching decision drivers to decision makers

3 Addressing the decision making structure

4 Balancing attitudes with behaviors

5 Accessing market segments

Agenda

- Segmentation: concept and philosophy
- Basics of attitudinal segmentation
- Advanced approaches to attitudinal segmentation
- Best practices for interpreting solutions
- Getting the most from post-study segment assignments

Great segmentation is built around three core ideas

1 Segmentation is a balance between art and science
- Find solution that is optimal for your marketing needs

2 Creative, rigorous application of advanced methods produces the best results
- Both Qual and Quant

3 When identifying optimal solutions, focus on:
- Revenue/Profit potential
- Actionablity

What is attitudinal segmentation

Grouping potential customers into segments that are homogeneous in their psychological makeup and view of the world. Attitudinal segmentation typically focuses on Attitudes, Opinions, and Interests as they relate to a product category or therapeutic area.

Types of attitudinal segmentation

- Psychographic
- Need based
- Situation-specific attitudes

What is psychographic segmentation?

- **Psychographic segmentation:**
  - Identifying market segments based upon attitudes, interests, opinions, and preferences.
  - Advantage: Provides a rich description of market segments and structure. Recognizes that attitudes are the driver of behavior.
  - Drawback: May be more interesting than actionable.

What experiences do you have with psychographic segmentation?

What is need-based segmentation?

- **Need-based segmentation:**
  - Building a segmentation scheme by looking at the unmet needs of customers and prospects
  - Advantage: Some claim it is superior to psychographic segmentation because unmet needs may be more direct drivers of decision making than general beliefs and psychological traits.
  - Drawback: Unmet needs alone do not always provide very rich descriptions of market segments.

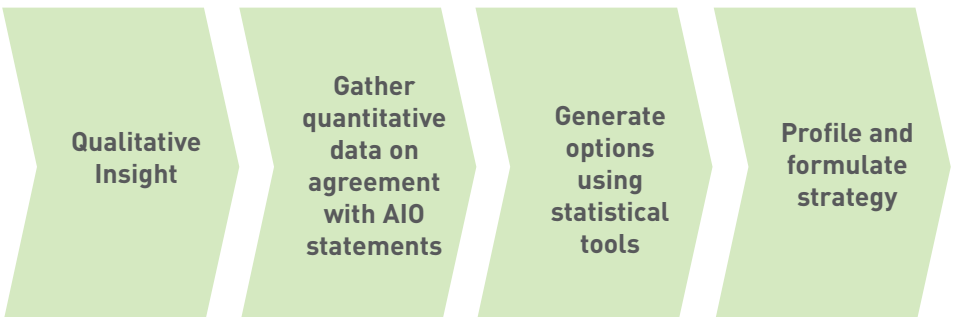
What experiences do you have with need-based segmentation?

What is situation-specific segmentation?

- **Situation-specific segmentation:**
  - Identifying market segments by analyzing how their attitudes, opinions and (often) behaviors change depending upon the situations in which they are making purchase decisions.
  - Advantage: Adds the power of context to understanding of market structure. May produce stronger attitude-behavior relationship.
  - Drawback: Can be difficult to use to build marketing strategy, because situations vary within people.

What experiences do you have with situation-specific segmentation?

Basic architecture of attitudinal segmentation



Qualitative insight sets the stage

Goals of Qualitative Phase

1 Hypothesize market segments

2 Identify relevant decision makers

3 Identify attitudes, opinions, interests, and needs that drive segmentation
- Identify for each decision maker
- Organize into categories (constructs)

Generating attitudinal statements: characteristics of good statements

Attitude statements are the heart and soul of attitudinal segmentation!

- To write great attitudinal batteries, remember:
  - Focus on the main drivers of differences in decision-making in your market
  - Each item is imperfect
    - Specification error: You don't always measure what you think you do
    - Measurement error: People don't use rating scales perfectly or consistently
  - Use multi-item scales to drive your segmentation
    - Never rely upon single item measures, they create error

Writing great attitude statements

There are 10 characteristics of great attitude statements

1. They are single-barreled
2. They are short
3. They are specific
4. They will translate accurately
5. They use a consistent tense and voice

Writing great attitude statements

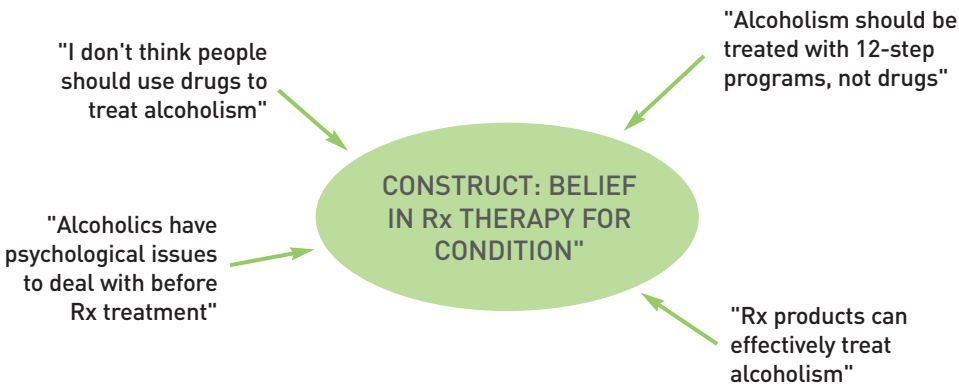
There are 10 characteristics of great attitude statements

6. Include both functional and emotional attributes

These are key!

7. Include only important differentiators
8. Cover whole market, not just your brand
9. Allow for differences between brands
10. Express benefits and motivators, not facts

How single-item measures create error



Traditional ways of measuring attitudes

- Items are typically measured using ratings scales
- 5, 7, 10 point scales are all acceptable
- Be sure that each point on the scale is anchored
  - Ensures that all respondents mean the same thing by a "6 out of 10"
- Typical metric: agree/disagree

disagreeHow do you typically measure? What metric? What scale?

Testing attitude statements before study launch

- Constructs can be tested using pre-test or soft-launch data
- Takes a few days, but can dramatically improve results
- Testing is accomplished by:
  - Factor analysis to confirm hypothesized factors
  - Reliability analysis (e.g., Cronbach'salpha)
    - Can be done for each construct
    - Measures inter-item correlation and breadth of coverage
    - Reliability of .8 or higher is acceptable

Don't be afraid to ask vendors for a reliability analysis on the hypothesized constructs. But, let them know up front because there are timing implications

Group Exercise: Generating attitudinal batteries

- **Break into groups**
  - Each group is provided a construct to measure in the anti-infective market
  - Groups develop a battery of attitude items designed to tap their construct
- **Group presentations**
  - Each group presents their attitude items
  - Other groups attempt to identify the underlying construct
- **Discussion:**
  - What makes the construct easy or hard to identify?
  - Which items are most central to the construct? Which are more peripheral? (Is this the right question?)

Before segmentation analysis begins, an analyst should carefully prepare the data to ensure quality results

- Constructs should be re-validated after full fielding
- Factor analysis or PCA should be used to explore possible new constructs that emerge in data collection
- Scales or indexes should be created
  - Use averages or additive indexes
  - Do not use factor scores
    - Can lead to "capitalizing on decimal points"–making segment decision based upon factor-analytic estimation error

Plan on asking about these indexes...they will give you a more stable picture of your segments

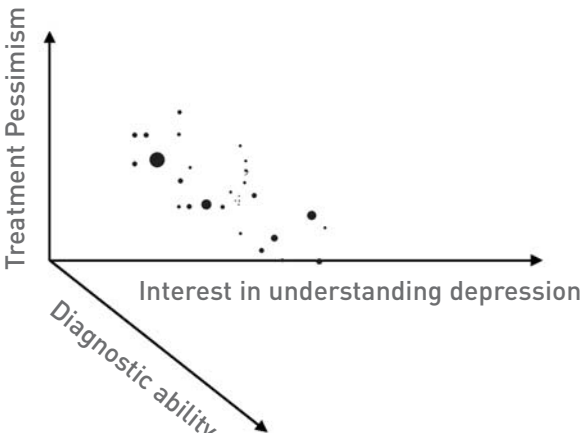
Why this is important

1. Because in single item measures are VERY error prone...its better to rely on triangulation
2. Because cluster analysis is based on distance, outliers can have a big impact on results
3. Because cluster analysis is based upon distance, unevenly sized constructs can have a big impact on results

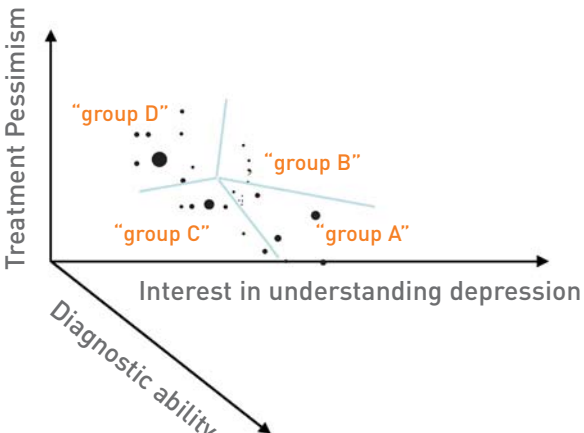
Cluster analysis basics

- Cluster analysis is NOT a statistical technique.
- Cluster analysis is a family of algorithms that use 'fuzzy logic' to determine into which segment an individual respondent falls.
- "Fuzzy logic"is a way of making decisions based on levels of similarity, rather than black-and-white commonalties and differences.
  - e.g., "This respondent belongs in 'group A'because she is most like that group."

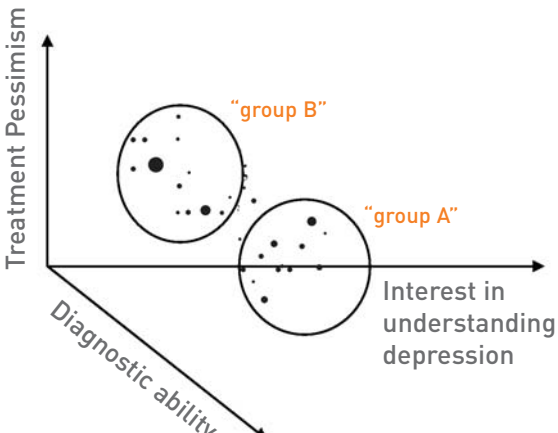
How fuzzy logic worksInterest



How fuzzy logic works (cont)



How fuzzy logic works (cont)



There are 2 main types of cluster analysis

- Hierarchical Methods
  - E.g., Ward's method, Average Linkage, Density Linkage
  - Start with 1 cluster, then divide into 2, 3, 4 etc. clusters based upon proximity in multidimensional space
    - Different algorithms use different rules
- Iterative Methods
  - E.g., K-means, CAST (Cluster Affinity Search Technique), Iterative Partitioning
  - Various techniques that allow individuals to be re-assigned as algorithm progresses
  - Most popular is K-means: Start with cluster centers and set number of clusters, then assign and reassign individuals until clusters meet a criteria
    - Different algorithms use different criteria

The best practice uses the two types of cluster analysis together to obtain reliable results

Hierarchical segmentation

- Top down
  - Begins with one segment of all respondents
  - Breaks sample in to additional segments
  - Segments determined so that distance between clusters is maximized relative to distance within clusters
  - Continues until there are as many segments as respondents

Give a good sense of how many clusters and where they are centered

K-means segmentation

- Bottom up
  - Begins with segments determined hierarchically
  - Iteratively adds/removes clusters to/from segments
  - Segments determined so that distance between clusters is maximized relative to distance within clusters
  - Continues until very few re-assignments are created

Purifies clusters by moving outliers to more appropriate segments

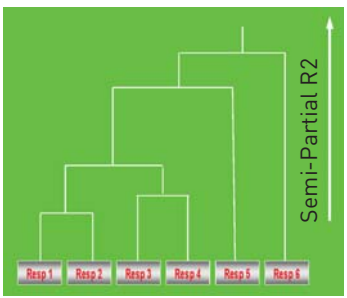
Even using this practice, analyst decision have an important impact on the segments identified

identifiedDecisions affecting segmentation solution

- Variable choice
- Centering and standardizing
- Weighting
- Mathematical balancing of independent and dependant variables
- Algorithm choice
  - Round v. oblong clusters
- Number of segments

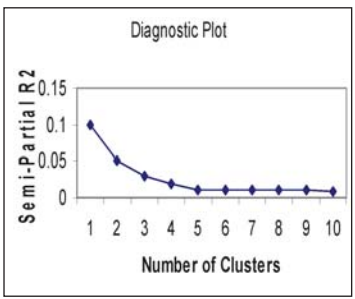
Determining the number of segments is one of the most important decisions. This is an art . . . With some new tools

Dendogram



The Classic Tool

Scree Diagnostic



Something Better

. . . And some old standbys

Migration Tables

	Three Segments			
Four Segs	Seg 1	Seg 2	Seg 3	% Samp
Seg 1	0%	0%	11%	11%
Seg 2	6%	23%	7%	37%
Seg 3	13%	7%	5%	25%
Seg 4	22%	4%	2%	27%
% Samp.	42%	33%	25%	

Your Brain

ziment

30 minute break

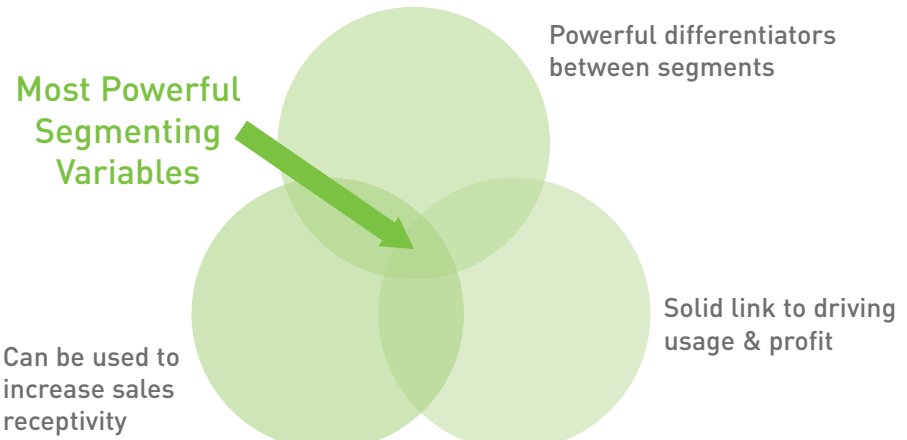
Agenda

- Segmentation: concept and philosophy
- Basics of attitudinal segmentation
- Advanced approaches to attitudinal segmentation
- Best practices for interpreting solutions
- Getting the most from post-study segment assignments

The most advanced approaches to attitude segmentation share 4 characteristics

1. They employ only segmenting variables that have been proven to be powerful differentiators
2. They focus on 'dependent variable' behaviors–outcomes that we care about from a marketing point of view
3. They focus on attitudes that drive those meaningful behaviors
4. They do not focus too much on any one algorithm, approach or technique

One framework for finding the most powerful segmenting variables

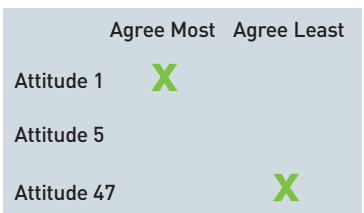


To quantify the most powerful drivers of differentiation, use targeted analytics

Goal	Technique
Measure agreement with a large range of attitudes, interests, and opinions	Raschscaling of agreement with attitudes, interest, and opinions
Understand which attitudes, interests, and opinions truly differentiate between segments	"Beta segmentation" uncovers statements that consistently differentiate
Understand which potential drivers have a link to usage & profitability	Regression analyses to determine which statements significantly tie to usage & profitability

Raschscaling can efficiently provide data used to quantify the power of a broad range of potential differentiators

Respondents choose statements they agree with most & least from a set determined by experimental design



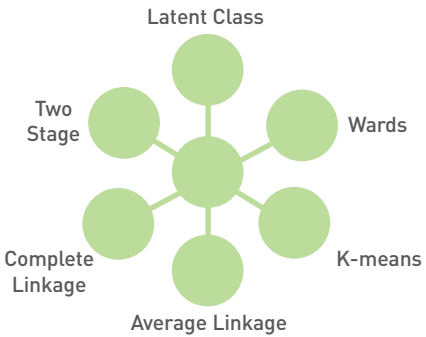
Enables rapid evaluation of many segmentation variables

Produces attitude agreement scores for each respondent

ziment

“Beta segmentation”applies many segmentation approaches to agreement scores to triangulate

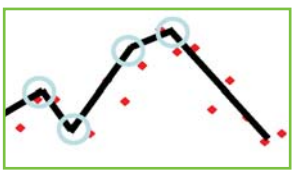
Agreement Scores



Produces a measure of differentiating power independent of technique

Regression analyses ensure selected variables link to usage, profitability, & other strategic criteria

Agreement Scores



High strategic-impact attitudes

Refines differentiating attitudes to those that truly drive marketing strategy

ziment

When searching for solutions, the most advanced approaches combine techniques to find the best solutions

Goal	Technique
Transform attitudes, interests, and opinions to maximize relationship to strategic criteria	Dimension reducing variant analysis
Identify powerful, reliable segmentation schemes that make marketing sense	Iterative segmentation using the best of cluster analysis and latent class

There are two dominant approaches to segmentation

	Cluster Analysis	Latent Class
	Most common approach	Cutting-edge model-based approach
	Searches for internally homogenous clusters using distance	Models indicator variables to produce segments with no internal correlation
Key Benefit	Very flexible; Great for balancing attitudes and behavior	Based on well-studied statistical model, so less subjective

Regardless of the technique used, the key to great analysis is finding attitudinal differentiation that drives behavior

Attitudes Behaviors

ziment

One way relies upon a commonly cited ‘weakness’of cluster analysis

- Euclidean distance measures are very sensitive to item magnitude
- Weighting changes magnitude
- Weighting changes variable impact on clusters

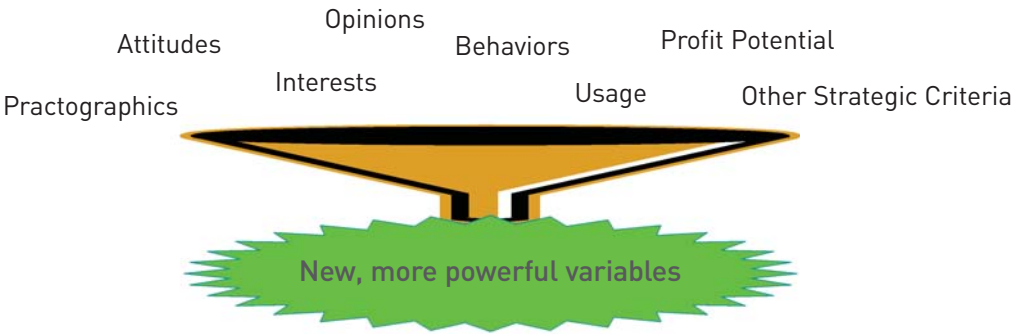
- Iterative gradient search algorithms can search for item weightsthat optimize meaningful dependent variables
  - Requires time and computing power

Another way segments using variables describing shared variance

- Several approaches exist for locating shared variance
  - Partial Least Squares Regression
  - Structural Equation Modeling
  - Canonical Correlation
  - Optimal Scaling

- Be careful:
  - Shared variance may be small part of total variance
  - Sample size can be an issue
  - The roots you choose make a difference

Transforming attitudes to maximize relationship with strategic criteria ensures powerful differentiation



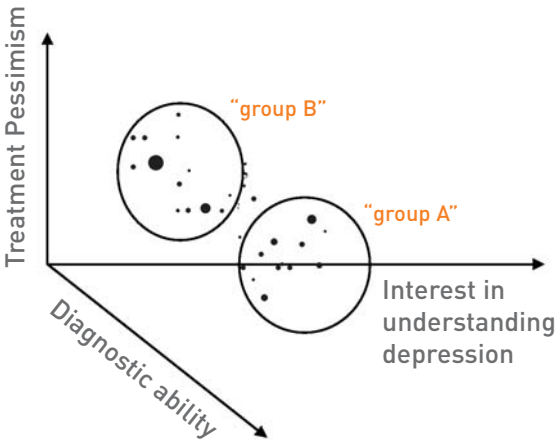
Transformations focus segmentation solutions on the differentiation that matters

Unlike cluster analysis, LCA is based upon rigorously tested statistical models

- LCA works by modeling the structure of the correlations between multiple indicator variables
  - Indicators are dependant measures that “indicate”the existence of unseen (Latent) segments

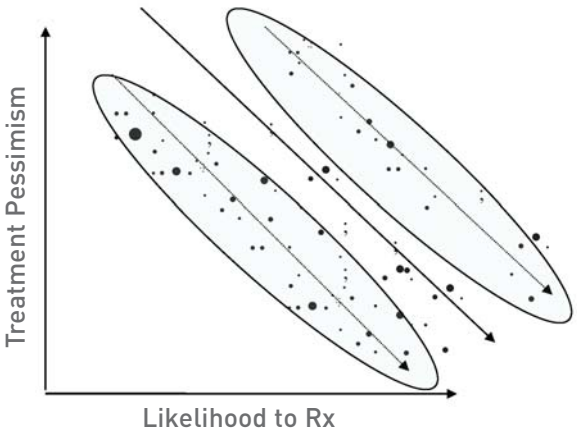
LCA produces segments with the same characteristics as those sought by cluster analysis

Key characteristic of LCA:
No correlation between attributes within clusters

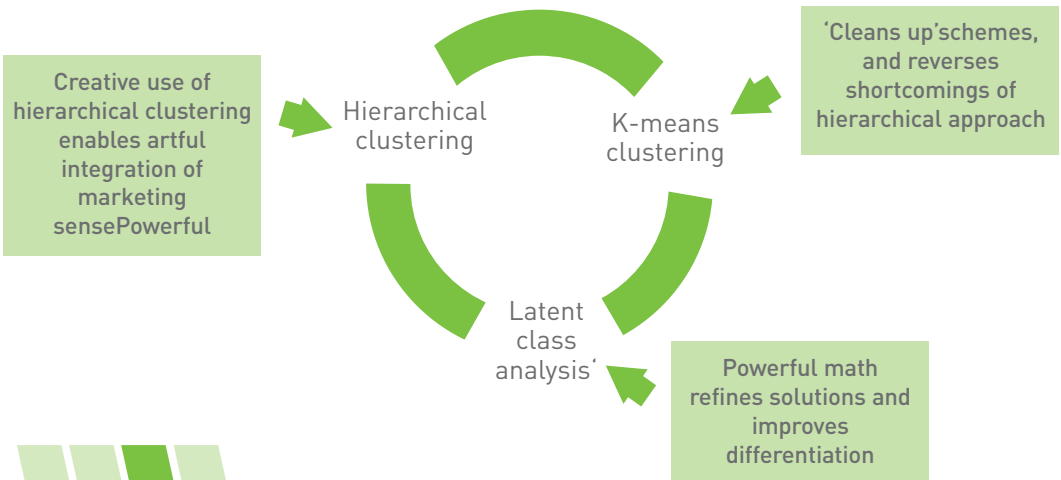


But LCA'spurity comes at a cost

With a little imagination, LCA can be used artistically



An even better approach takes uses iterative analysis to identify robust segmentation schemes



Agenda

- Segmentation: concept and philosophy
- Basics of attitudinal segmentation
- Advanced approaches to attitudinal segmentation
- Best practices for interpreting solutions
- Getting the most from post-study segment assignments

Two major steps in profiling segments

1 Understanding the segments

- Reviewing cross-tabs
- Reviewing F-Tables
- Graphical approaches

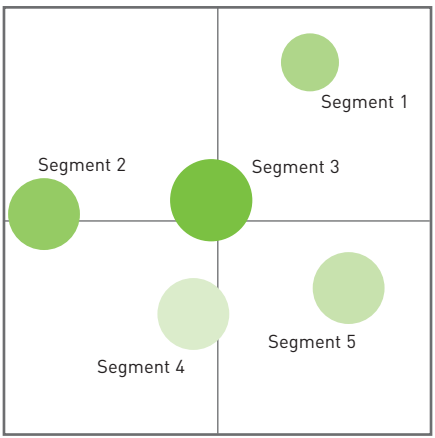
2 Explaining the segments to others

- Top down / inverted pyramid

When profiling segments using f-tables and cross-tabs, it is important to be rigid and consistent

- Review the most powerful differentiators first
- Set up clear rules and templates for reviewing
  - Watch out for relative thinking when evaluating
- Evaluate based upon absolute criteria
  - High is high
  - Not: "Well, its high relative to everyone else"
- Use relative criteria too, but be explicit and deliberate when you do
  - "Its high relative to everyone else" is ok, as long as we know that it is low in an absolute sense

Discrimination mapping provides initial, high-level insight into segment character, augmenting detailed tabular analysis



Note: Bubble size is proportional to segment size75% of variance explained in two dimensions

Group Exercise

- **Break into groups**
  - One set of groups reviews a solution based upon tabs
  - One set of groups reviews a solution based upon F-table
  - One set of groups reviews a solution using standardized tool output
- **Group presentations**
  - Each group presents a profile of the segments
    - Profiles captured on easel paper
  - Profiles compared
- **Differences discussed**
- **Segmentation differentiation map presented and discussed**
  - How well does it summarize the segments?
  - What does it leave out?

Once you understand the profiles, how do you help others understand?

- The basic formula is:

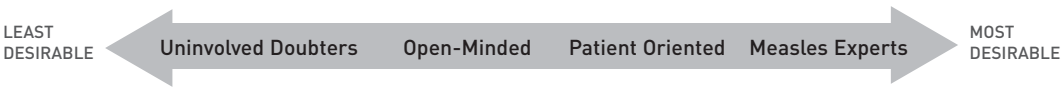
1 Go from the big to the small–these groups are not intuitively obvious, so big picture profiles first

2 Compare and contrast to add texture

3 Stack up against clear criteria

Three key targets are Measles Experts, Patient Oriented and Open-Mindeds

Example



Compared to other segments, Uninvolved:
- Are least likely to be ID specialists
- Skew older and havemore experience
- Spend less time teaching
- Are least likely to be in solo practice
- Are less likely to be associated with Measles clinic or center of excellence

Compared to other segments, Doubters:
- Skew younger and have less experience
- Have fewer patients withmanaged care and more with Medicaid
- Are more likely to be in solo practice and less likely to be in a group

Compared to other segments, Open-Minded:
- Are less likely to be ID specialists
- Skew younger and have less experience
- Have more patients with no Rx coverage who pay cash
- Are least likely to be associated with Measlesclinic or center of excellence

Compared to other segments, Patient oriented:
- Are most likely to be ID specialists
- Spend more timeteaching
- Have more patients without Rx coverage

Compared to other segments, Measles Experts:
- Are more likely to be ID specialists
- Are older and more experienced
- Are more likely to be in a group practice
- Spend less time teaching
- Have fewer Medicaid patients

Each of these five segments is characterized by a unique set of attitudes and behaviors

Example

Measles Experts
- Least likely to switch
- Most comfortable treating Measles
- Biggest New Drug Rxers
- Least likely to switch

15% OF POPULATION

Patient Oriented
- If patient sees apnea as a problem, they must treat
- Believe specialists should initiate Measles treatment
- Most likely to honor patient request for New Drug
- Most likely to Rx New Drug

19% OF POPULATION

Uninvolved
- Have inadequate understanding of Measles
- Are not comfortable treating Measles
- Have weakest image of main Rx treatments
- Refer the most patients
- Least likely to discuss Measles with patients

16% OF POPULATION

Open-Minded
- Most likely to switch
- Believe Measles is serious threat
- Believe PCPs can initiate and manage apnea treatment
- Currently Rx the least New Drug
- Have biggest potential

23% OF POPULATION

Doubters
- Don't believe any drug is effective against Measles
- Don't believe apnea affects quality of life
- Have weakest image of New Drug
- Find Measles description least accurate and believable
- Write fewer Rxsfor apnea

27% OF POPULATION

Agenda

- Segmentation: concept and philosophy
- Basics of attitudinal segmentation
- Advanced approaches to attitudinal segmentation
- Best practices for interpreting solutions
- Getting the most from post-study segment assignments

Once meaningful segments are identified, tagging doctors in the field is the biggest barrier

Approaches to assigning segment membership

Survey Based

Uses attitudes, opinions, interests to assign new respondents to segments

- Requires sales-reps to ask questions

Discriminant-function analysis

Data Based

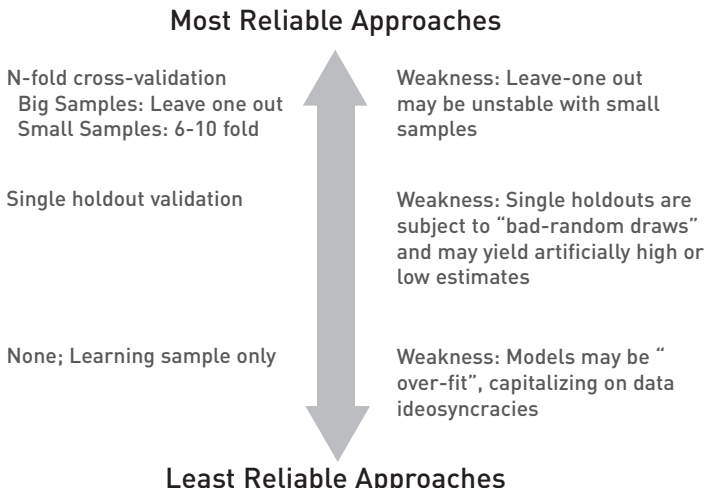
Uses data that you already have to classify entire call deck

- Requires sales-reps to react to tagged list

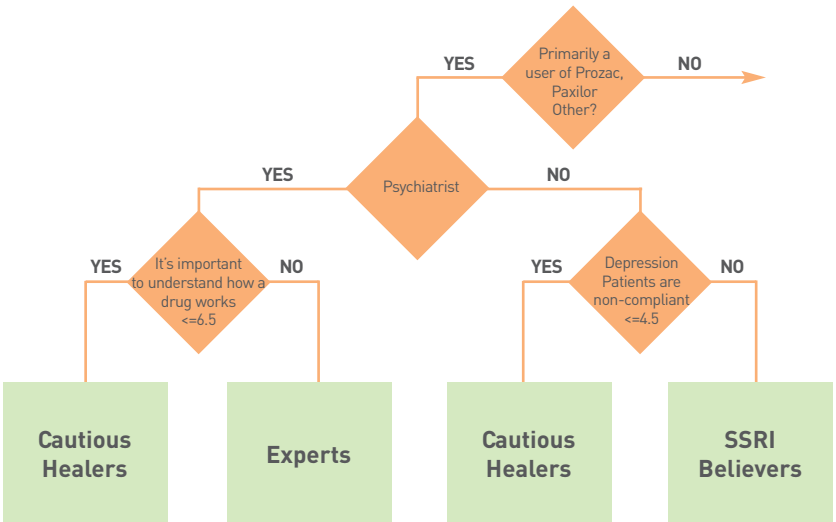
Predictive tagging

Regardless of the approach used, pay careful attention to how accuracy is determined

Overview of approaches to classification validation



Survey-based methods often generate tree-like algorithms



Tree-algorithms have pros and cons

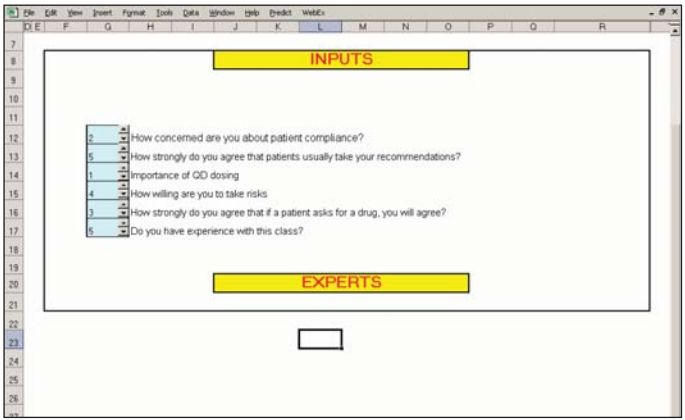
Advantages

- Transparent–can be easily understood
- Conceptually easy to implement
- Can produce high accuracy rates
  - 70+% is generally acceptable

Disadvantages

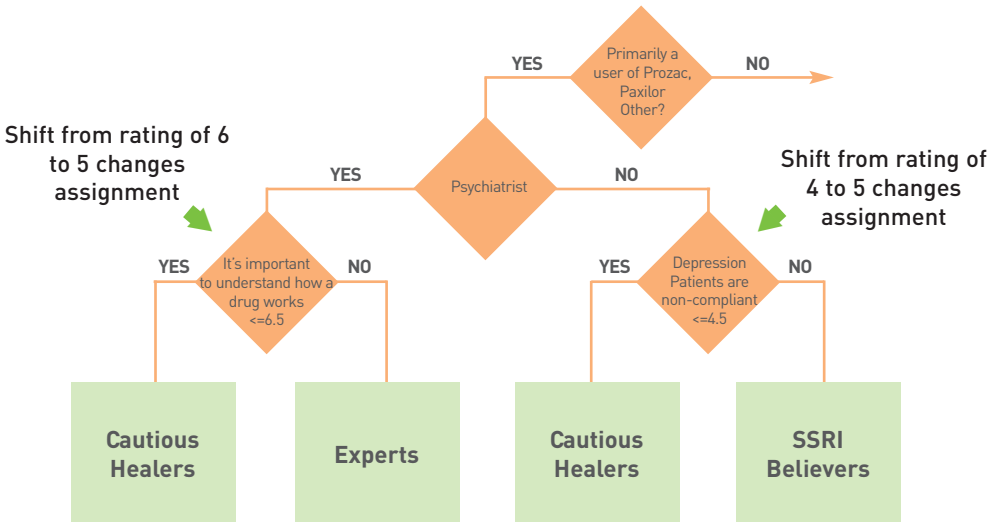
- Can be complex in practice
- Reps often resist using them in day-to-day setting
- Accuracy rates are deceptively high
  - Ignore test-retest reliability of measures

Discriminant function analysis sometimes provides better accuracy, but requires an interactive simulation tool



But…DFA also suffers from test/re-test reliability issues

Test/re-test reliability issues can severely compromise accuracy



Test/re-test reliability issues can severely compromise accuracy, cont.

80% accuracy rate

x

75% re-test reliability

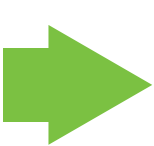
=

60% accuracy rate

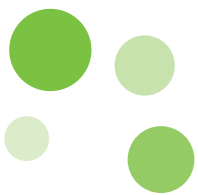
Another approach uses historical data to assign cluster membership

Secondary Data

Rx history
Calls
Couponing
Etc.



Segment Members

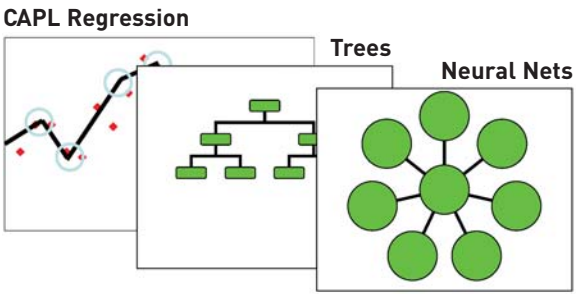


The problem is that building these models is very difficult

Applying the historical data approach is very challenging

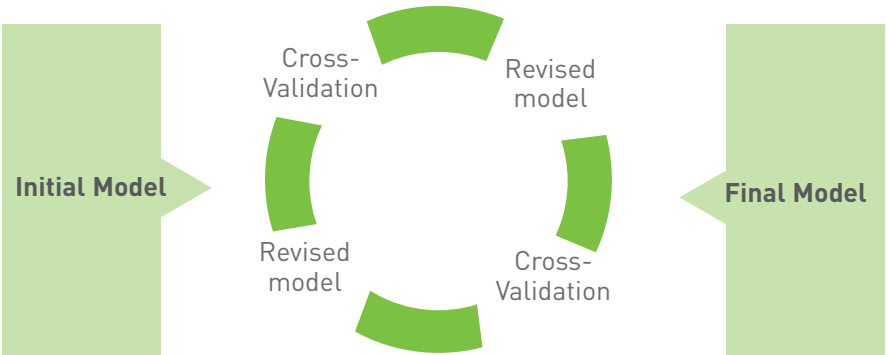
Secondary Data

Rx history
Calls
Couponing
Etc.



Using the latest data-mining techniques can help make these models possible

Over-fitting is the main danger in these models...so they should be carefully cross-validated



Historically-based models also have pros and cons

Advantages

- Eliminates test/re-test reliability problems
- Very easy to use for reps
- Can produce high accuracy rates
  - 70+% is generally acceptable

Disadvantages

- Not transparent–can feel black box
- If not done well, models can be over-fit–leading to overstated accuracy rates

Case Study: Tagging a physician call deck

Closing remarks

- This is as much art as it is science
  - But, the scientific stuff makes a big difference in results
- It's not all about attitudes...its about the drivers of the behaviors you care about
- Profiling is tricky–need to be rigid and consistent
- It's all for nothing if you can't find these people in the real world–easily...
  - Watch for the test/re-test trap
  - Be careful of over-fitting

Closing remarks

- **Finally, make sure your organization is ready for segmentation**
  - Align expectations of sales and marketing before segmenting
  - Involve all stakeholders in the process
  - Set criteria up front for a successful segmentation
  - Have a clear plan for validating the results with key stakeholders
  - Have a clear plan for implementing the results


ziment