

Common Problems, Shared Frustrations

*Building effective and efficient
business market segmentations.*

A key points summary from the initial meeting of the
ISBM Business Marketing Segmentation/Customer Value Management
Consortium

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A summary compiled by
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- [A new customer value segmentation resource: \[www.valueharvest.com\]\(http://www.valueharvest.com\)](#)

“OPEN MIKE” ROUNDTABLE ON MEMBER ISSUES:

A summary of business market segmentation issues and challenges, organized by key issues, discussed by meeting participants in a roundtable forum moderated by Gary L. Lilien, ISBM Research Director. As Dr. Lilien put it at the end of the meeting: “We’re all in the lifeboat together, seeking solutions. But we haven’t see the shore yet.”

Climbing the segmentation learning curve:

- Marketing is just 11-years old in our company. We’ve gone through several segmentation frameworks and haven’t understood how to use segmentation effectively yet.
- We are just doing our first detailed survey for segmenting a key business market. We hope to learn how purchasing influencers make decisions, beyond the price and physical chemistries of our products.
- At our company, a newly spun-off manufacturing unit, we still haven’t got a satisfactory segmentation model in place.

- We have had some successes with profiling competitive responses to market segments, but a very tactically oriented management doesn't use the models.

Multi-dimensional segmentation:

- We typically defined segments on one dimension, such as industry.
- Segmentation frameworks must be specific to the needs of a business unit, addressing multiple criteria that will differ SBU to SBU.
- We're pondering whether and how to include customer's partners in our segmentation plan. For example, should we include ad agencies along with the clients to whom we sell communications services?
- Our current strategy seeks segmentation of our channels and how they serve their markets. So far, we've got substantial market overlaps and channel conflict.

Segmentation and value assessment:

- We are just learning about the power of segmenting markets by the value we deliver.
- When a company has just a handful of customers, should it bother to segment them?
- We have the problem of needing lots of information from key purchasing influences: presenting a lengthy question to already heavily oversampled individuals.
- We need to understand the complex relationships among the individuals who contribute to the purchasing decision yet who perceive value in different ways within the same organization.
- Internally, segmentation should lead us to a value-pricing model.
- Segmentation increasingly is recognized as a profit-optimization tool, not just a tool for identifying homogenous clusters.
- If you start the segmentation process working with product groups, you'll get multi-product confusion, each demanding a tailored plan. Start by looking at the customers first. Develop a "customer knowledge center" all product groups can tap

Selling segmentation frameworks within the company:

- Our marketing department doesn't demand segmentation models, and our sales force wouldn't know how to use them anyway.
- We are seeking a strong demonstration of segmentation effectiveness before taking the plunge with a company-wide program.
- Segmentation information must be actionable, and brand-specific to get the attention of product managers.
- You must prove that the segmentation framework provides useful information you cannot get otherwise.
- This consortium should address the needs of segmentation researchers and marketing users alike.
- Our segmentation framework contains 15 groups, which management rejects as too complicated a model to act upon. So we went back to market strategy by SICs.
- We've worked on our segmentation model for a year, and spent 10 months of that trying to sell it to management. Everyone agrees on the objectives of the segmentation, but agreement on the business objectives served is less clear.

- We are considering internal focus groups to understand how managers react to segmentation models. How to communicate with early adopters, and blockers, for example.
- We need to promote success stories internally.
- We had brand managers sit in on all segmentation program planning meetings, which was very helpful to everyone.

Segmentation and more efficient, profitable marketing:

- When we segmented by profitability, we found many of our wholesale accounts were not profitable. But in a volatile market, that short-term approach might be naïve. We need a different segmentation framework to identify desirable customers for the long haul.
- Segmentation must be stable, but still flexible enough accommodate, even anticipate, customer growth, change, and segment-to-segment migration. It is not a good idea to change the segmentation plan every two years or so. Rather, continuous improvement in the plan should be the goal.
- We are turning to segmentation to improve our approach to that half of our customer base that we service through wholesalers.
- We are trying to segment more than 385,000 small firms that are potential customers for our management consulting services. Our segmentation model with eight groups is not actionable. We need to drill down to differentiate management attitudes.

Segmentation research and data sources:

- Our budget constrains our research. But we have found that syndicated market data mixed with our customer volume records looks promising for future model building.
- Our segmentation framework will have to provide the common thread for integrating our company's disparate databases of information from sales and other sources.
- We've used PRIZM and Claritas on the consumer side. What's the equivalent on the B2B side?
- How do we build on legacy databases never designed for segmentation modeling?

Segmentation implementation barriers:

- We have a two-tier segmentation plan: a series of micro segments classified within several "families" of segments. It's easy to talk about the micro segments at the strategic level, but product managers want to talk about family segments for their products, which are easier to conceptualize. Unfortunately, families are not granular enough for product planning.
- Our business units organize around customer SIC codes, period.
- Product managers do not understand how segmentation affects their pocketbooks, so segmentation is not part of business unit goals.
- Getting feedback from sales even when they use segmentation information is difficult.
- Segmentation plans that are not refreshed become stale and unusable.
- To be feasible, our segmentation plan must cover several brands. But each brand wants its own custom study. But salespeople, selling several brands to the same account, need the umbrella segmentation model.

- Segmentation is very much a tailor-made product. Off-the-shelf models simply are not useful.
- In many B2B organizations, sales still has the legacy power running marketing. But segmentation requires a different ownership—the broader view of the marketing department. That will require a big change in thinking for many companies, especially where “marketing” is considered to be mainly sales support.

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Member Firm Practice Overview:

Customer Targeting at Grainger: Yesterday, Today, and Tomorrow

Steve Danko

Market Manager—Direct Response
Grainger Industrial Supply, W.W. Grainger, Inc.
Lake Forest, Illinois

Grainger background:

- Grainger Industrial Supply is a \$4 billion division of \$4.5 billion W.W. Grainger, Inc.
- The largest distributor of facilities maintenance products.
 - A nationwide network of stores offers “product always in the pipeline” for immediate delivery to customers.
 - 1.4 million active customers in the U.S.
- W.W. Grainger units service large customers via the sales force, and small and mid-size customers through stores and direct marketing.
 - Grainger Consulting tailors solutions for major customers. Some outsource their tool rooms to Grainger.
 - Grainger’s online offerings:
 - Grainger.com accesses the industrial catalog with its 235,000 SKUs.
 - Order Zone provides a portal for several companies supplying MRO products.
 - FindMRO is a web search facility.

- Grainger's auction site handles excess inventory liquidation.
- Grainger has thousands of competitors, most local jobbers. A few wide-line competitors.
- Improved technology and logistics have eroded the competitive advantage of "get it now" availability through local branches.

Market segmentation at Grainger:

- How we think about segmentation.
 - Segmentation is an approach to dividing up customers so we can manage them and market to them more effectively.
 - Historically the domain of sales force and branch location managers.
 - The segments must be homogenous within the segments and heterogeneous from each other, easily identifiable, accessible and actionable. From here, we try to determine how we can have an impact on changing customer perception, attitude and ultimately their behavior.
 - Our segmentation goals include gaining a better understanding of customers so we can increase sales to our existing customers and retain those customers and sales over time. Number of customers has declined, making retention a major priority.
 - Historically in our transaction-oriented marketing, the customer has been defined as an account number.
 - We strove to sell to every business, compensating salespeople on the basis of volume, regardless of profitability of an account.
 - Concentrating on the most profitable accounts will be a big change for the organization.
 - Now paying more attention to needs of the individual buyer.
 - We find that we need to use a number of different segmentations to improve accuracy, and not just adopt one and ride with it, blinders on.
 - We are recognizing that customers do not see our different business units as separate entities. They see one company.

Segmentation in the past:

- Product usage segmentation, until 1989.
 - We knew what customers purchased, from our 17 product categories. These included motors, tools, safety products, lighting, etc. Some customers are product focused as well, on critical purchase categories.
 - Internally the focus was on selling more of the same product to those customers. Also trying to get customers to buy into different product categories. Programs sometimes in league with major manufacturers
 - This does not address the reason why a customer does or does not buy a specific product category from us. Being too product focused results in poor resource allocation and having a product focused approach vs. customer focus.
 - Key learning: Suppliers with significant product categories influenced our marketing (product) focus. We didn't understand the key drivers of customer behavior.
- SIC Code/Industry Segmentation, adopted in 1989.

- Sales force-driven approach.
- Differences exist between most industries, with contractors being the most different. There were four categories: Contractor (HVAC, Electrical), Commercial (Hotels, Motels and Property Management, Industrial and Institutional (Health Care, Education and Government)).
- Internally we tailored our communications by industry and the sales force segmented by sales specialists. It was easy to measure and track results.
- All customers are not created equal in industry segments. If sub-segmented too finely, this is not a cost-effective approach.
- Key learning: SIC code segments were easy to identify but hard to understand as a segment. Success was the result of sales specialists managing accounts rather than the segment. Many commonalities were discovered across SIC segments.
- Company Size Segmentation, in 1992.
 - Customers were
 - “Mega” and sold to by National Accounts,
 - “Large” and called on by Sales Reps using SIC Code segmentation,
 - “Small” customers managed by a direct marketing approach. Small customers segments were made up of Best of the Best Customers, Best Customers, Emerging Customers, Light Customers, Borderline and Inactive Customers, New Customers and Unmarketable Customers. Each segment had sub-segments.
 - Internally, the Sales Reps could shift customers back and forth between the two segment approaches, hoping to keep best accounts for themselves and not turn them over to direct marketing
 - The attributes defining the segments caused them to be dynamic, with segment populations changing regularly. This made it hard to track and measure results of our marketing efforts.
 - Key learning: The direct marketing approach did not create homogenous segments Success was a matter of trial and error.
- Value Package Segmentation, in 1996
 - Customers were divided into “Value Package” groups including:
 - Custom, served by Grainger Consulting
 - Integrated Supply receiving tailored solutions
 - Standard. Standard Solution customers were then segmented based on the method of managing the relationship.
 - Direct marketing only
 - Telesales (outbound supporting field sales) and direct marketing
 - Sales rep and direct marketing
 - Sales rep, telesales, and direct marketing.
 - Internally, the Sales Reps could shift customers back and forth between the direct marketing segment and the sales rep segment. They receive compensation for direct marketing sales in their territories.
 - With the mobility of the segments, they were not stable, making it hard to track and measure results.

- Key learning: A key part of segmentation is “segment stability.” We were starting to allocate resources based on ROI of the customer group. Also, goal alignment was a key to success.
- Needs-Based Segmentation, begun four years ago.
 - Customers were divided into tiers, the first being employee size, the second based on customer needs, as reported by a survey with a 28-page questionnaire. A model assigned segment category. This application was used for the smaller direct marketing accounts.
 - Internally, the segmentation was understood and used by Direct Marketing Managers. Application and implementation of the segmentation was more complex than what we had used before. We did not have the infrastructure and technology in place to gather and analyze information about all points of customer contact. Transaction-based segmentations were not accurate predictors.
 - Key learning: Going through this exercise once could help us develop and implement a better segmentation process. Also, it is important to know what barriers there are to making segments functional.
- Other approaches we considered but did not implement:
 - Loyalty status/at-risk segments identify which customers are more likely to switch to a competitor. Difficult to determine customer status without face-to-face contact.
 - Buying style segments identify if a customer is a price shopper, risk-averse shopper, relationship shopper, etc., which in part depends on application criticality. Difficult to determine customer status without face-to-face contact and segmentation is at the contact level.
 - Approach requires that salespeople operate differently
 - Operating variable segments identify which service outputs are important to the customer. This requires extensive field input to enable accurate management of customer needs.

Segmentation today and tomorrow:

- Modeled Segmentation today
 - Marketing programs are developed and audiences are selected using predictive models. Contact names for the targeted accounts are selected using criteria based on a hierarchy of questions.
 - Models are used to provide the marketing department and field with information to help provide direction and identify opportunities for growing and retaining customers.
 - Key learning: Modeling has helped us achieve better program response and helped in allocation of resources. Segmentation still does not address customer wants and needs.
- Contact Strategy Code Segmentation today
 - Customers are divided into three groups, based on sales volume. The two top groups are managed by the Sales Rep, the bottom group by Direct Marketing. The Sales Reps have modeled reports to help them prioritize and manage their accounts.

- Customers are further segmented by the SIC codes and industries which offer us the greatest opportunities.
- The objectives of this approach include allocating resources based on customer value, building and maintaining relationships with customers we value and achieving our growth and retention goals.
- Key learning: Our research has helped us gain a better understanding of customer behavior. A planning process is in development to help us attain our goals.
 - Progress comes slowly. So far salespeople have provided only 1 percent of the information required for the customer product-needs database we are building through an outside party.
 - Salespeople do not use the system for their own account planning.
 - How well will salespeople handle any future use of a sophisticated CRM system?
- Tomorrow's customer targeting
 - Application of Predictive Models
 - Find Customers that will respond or perform better than average.
 - Investment: Determine frequency of promotion, funds allocated (more or less expensive)
 - Application of Segmentation Models
 - Create clusters of customers that are similar to each other and dissimilar to other segments
 - Offer/Message: Different segment profiles may require different marketing approaches
 - Key learning: Determine how to integrate various segmentation approaches to support management responsibility, EDA (profiling), communications and investment.

- Example of a possible application:
 - Customers within an SIC code segment of manufacturing would be further sub-segmented using cluster analysis in relation to their behavior/demographics. For instance:

	# Contacts	Recency (days)	GP \$
The Big Dogs	4.5	19	\$3,800
Over Achievers	1.9	67	\$900
Undesirables	1.7	131	\$100

- If there is an understanding of customer needs (customized pricing, free delivery, and special stocking), those offers would be made to those specific customers within the sub-segment.
- The challenge is in integrating the right offers across these segments to gain the maximum efficiency and effectiveness.

What we have learned:

- Customers are not unidimensional and customer segments should not be either.
- Various segmentation strategies are just tools to achieve a desired objective.
- There is no one single approach to segmentation that will do everything a company wants to do.
- Our approach to segmentation is constantly evolving as we learn from past and current approaches...what we are doing today will most likely change tomorrow.
- Possible barriers could develop if segments are viewed only as vertical customer groups. We need to ask “What are the opportunities across segments?”
- Segmentation is an on-going learning process to be applied to our business.

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Featured Research Overview:

**Trouble in Paradise:
Problems With Traditional Market
Segmentation for Business-to-Business
Marketing**

Wayne DeSarbo

Analytika Marketing Sciences, Inc.
and
Smeal Chair Professor of Marketing
The Pennsylvania State University
University Park, Pennsylvania

New segmentation approaches needed:

- Millions of dollars spent on B-to-B market segmentation annually.
- Clients tend to be typically left underwhelmed at the results. Segmentation produces “nice stories” that very often are hard to implement.
- Most segmentation studies do not satisfy necessary criteria for effectiveness.
- All commercial software usually inadequate. A “put your quarter in the machine and get a result” approach.
- Segmentation requires new “tailor made” approach, and hours of management work.

Segmentation defined:

- The subdividing of a market into distinct subsets of customers, where any subset may be selected as a market target to be reached with a distinct marketing mix.
- Segmentation is the first step in marketing management and strategy.
- Segmentation steps:
 - Identify segmentation variables and segment the market.
 - Develop profiles of resulting segments.
- Market targeting steps:
 - Evaluate attractiveness of each segment.
 - Select the target segment(s).
- Market positioning steps:
 - Identify possible positioning concepts for each target segment.
 - Select, develop, and communicate the chosen positioning concept.
- The benefits:
 - Easier marketing; better able to satisfy customer needs, attractive prospects easier to find, etc.
 - Niche marketing: identify new market opportunities earlier.
 - The top reason for segmentation: more efficient resource allocation; focus on best segments based on your mix.
 - More precise objectives setting.

The criteria for segmentation plans:

- The constraints that bound segmentation models.
- *Existence:* There are behaviorally “different” segments.
 - Are there segments that behave differently with respect to some key buying related attribute?
 - Example of poor segmentation: You have 5 market segments that are distinct from an SIC code perspective, yet they are nearly identical in terms of the amounts purchased and competitors who supply them.

- *Identification:* We can identify who they are.
 - Can we identify and accurately classify the members of each of our derived market segments in the population? Is it feasible to link specific customers to specific segments?
 - Example of poor segmentation: You have 5 different market segments that are heterogeneous with respect to their buying and the various competitor suppliers they use. However, to identify them, you need to measure their attitudes towards risk on a 10-scale battery.
- *Reachability:* We can reach them.
 - Can we communicate to the members of our target segments using different communication/advertising vehicles and messages?
 - Example of poor segmentation: You have 5 different market segments that are different in buying behaviors and we can identify who they are. But, there are no patterns of differences in terms of which trade journals, shows, magazines, etc each segment is most exposed to.

- *Profitability/Substantiality*: They are both big and profitable enough.
 - Are the derived segments large enough and profitable enough to market to?
 - Example of poor segmentation:

Segment	Size
1	40%
2	30%
3	27%
segment too small	
4	3%

- *Responsiveness*: They respond differentially to our marketing mix.
 - Do the derived market segments respond differently to a specified marketing mix (e.g., pricing, discounts, quality, delivery, etc...)?
 - Example of poor segmentation: Having a set of derived market segments in a commodity type of industrial setting with no observable price-quality elasticity differences.
- *Actionability*: They are consistent with our goals.
 - Are the derived market segments formed with respect to (optimizing) established corporate objectives, or are they consistent with respect to what we know about our business operations?
 - Example of poor segmentation: Suppose you operate a business where the sales territories are necessarily geographically contiguous due to the nature of the business. If your derived segments are then geographically dispersed, there may be a problem! You might have to impose constraints on the segmentation.
- *Stability*: They are stable over time or across different objectives.
 - Are the market segments the same when they are derived over subsequent stationary periods of times, or with respect to other similar elements of the product line? A major shock or change in the marketplace probably requires a new segmentation framework.
 - Then again, different statistical approaches can produce different segmentations from the same data set.
 - Example of poor segmentation: You are in a mature market with no new technology since the past decade. Last year, your market research identified 3 segments; this year you have 5.

Other segmentation issues:

- Are segment boundaries non-overlapping, or do segment boundaries overlap, so that some customers are members of more than one segment?
- Are segment boundaries fuzzy? Most segmentation procedures assign a business customer to a single segment, although they should allow assigning different parts of customer firms to different segments.
- Additional constraints appropriate to business segmentation and the business needs of the organization. The best segmentation makes business sense because it's actionable and saleable to the organization, even if it's not a perfect statistical fit.
 - Minimum segment size.

- Geographical contiguity.
- Revenue equalization.
- Operationalize a priori business knowledge.
- A popular constraint: segment to optimize profitability.
- Devise segments comprehensible by salespeople
- etc...
- The goal of segmentation is efficiency in marketing.
- Do not assume that all members of a segment are identical.

Segmentation approaches—How to do it:

- *A Priori Segmentation:* Use intuition, analysis of secondary data or internal databases, or prior post-hoc segmentation to decide in advance how to categorize buyers in the market. Goal then is to better understand (or profile) segments.
- *Post-Hoc Segmentation:* Define segments after the fact by grouping respondents on a set of “relevant” characteristics such as benefit sought, need, or attitudes. Then, profile the segments. *This is the most frequently used type of segmentation.*

Information we use:

- Classification variables tell us why segments differ. You select bases that are the most highly related to actual customer purchase behavior.
 - Consumer classification variable examples:
 - Demographics.
 - Geography
 - Psychographics
 - Behavioristic variables (purchase occasion, user status, usage rate, loyalty, readiness stage, responsiveness to marketing, etc.).
 - Business classification variable examples:
 - Firmographics (industry, company size, location).
 - Operating variables (technology, use status, customer capabilities).
 - Purchasing approaches (centralized purchasing, power structure, nature of existing relationships, general policies, purchasing criteria).
 - Situation factors (urgency, specific applications, size of order).
 - Personal characteristics (buyer-seller similarity, attitudes towards risk, loyalty).
- Descriptor profile variables are characteristics that help us later find and reach segments; e.g. consumer age, income, etc.; business industry, size, location, etc.
- Analytic techniques:
 - C.H.A.I.D. / C.A.R.T.
 - Cluster Analysis
 - Latent Class/Structure Techniques
- Normative Segmentation Model – New. It allows embedding constraints into the segmentation model.
- Other techniques, depending on type of data and to validate or simplify classification (discriminant analysis, multiple regression, log-linear models).

Attendee Straw Poll

(an informal show of hands):

Who uses which techniques?

CHAID	~1/2 of meeting attendees
CART	~1/3
Cluster analysis	all attendees
Latent class/structure techniques	~1/3
Discriminant analysis	~1/2
Multiple regression	all
Log-linear models	~1/3

Post-hoc segmentation methods (from easiest to most difficult):

- Approach #1 - Clustering
 - Popular and most widely used.
 - Factor analysis (to reduce data before cluster analysis).
 - Cluster analysis to form segments.
 - Discriminant analysis to describe segments.
- Approach #2 – CHAID, a decision-tree approach.
- Approach #3 - Latent Class (a/k/a “Latent Structure Analysis”)
 - Multiple Regression to predict behavior.
 - Simultaneous Clustering based on coefficients.
- Approach #4 - Normative (Combinatorial Optimization)
 - Evolutionary algorithms based on optimizing multiple criteria simultaneously with constraints.
 - Designed by Dr. Wayne DeSarbo.

Comparing the three approaches to post-hoc segmentation:

- Clustering Segmentation
 - Pros:
 - Easily available software.
 - May give global optimum results.
 - Can be adapted to large samples.
 - Easy to compute.
 - Cons:
 - Many choices for algorithm.
 - Algorithm choice is arbitrary.
 - Number of segments is arbitrary.
 - Pre-processing affects results.
 - Sensitive to outliers.
 - Each algorithm gives different results.
 - 3 stages each optimize a different function.
 - Disconnected from marketing objectives.

- Can't enforce strategic criteria on results.
 - Attitudinal segments rarely linked to behavior or demographics.
- CHAID
 - Pros:
 - Software becoming available.
 - Easy to Understand Tree.
 - Can be adapted to large samples.
 - Flexible to accommodate a variety of objective functions.
 - Cons:
 - Many choices for algorithm.
 - Algorithm choice is arbitrary.
 - Number of segments is arbitrary.
 - Discretization of Variables affects results.
 - Sensitive to Marginal Distribution of Categories
 - Each algorithm gives different results.
 - Disconnected from marketing objectives.
 - Can't enforce strategic criteria on results.
 - Capitalizes on Chance.
- Latent Class Segmentation
 - Pros:
 - Model reflects underlying behavior.
 - Can determine number of segments.
 - Uses maximum likelihood function.
 - Estimates segments and model parameters at the same time.
 - Cons:
 - Derived segments rarely relate to profile variables.
 - Number-of-segments heuristics are problematic.
 - Degenerate solutions can occur with a higher number of segments extracted.
 - Hard to compute, with local but not global optima.
 - Parametric assumptions rarely hold.
 - Conditional independence hard to assess.
 - Cannot enforce strategic criteria on results.
- Normative Segmentation
 - Pros:
 - Can tailor segmentation schema to corporate goals.
 - Can link segments to marketing behaviors.
 - Can enforce constraints to meet criteria.
 - Can include multiple sets of variables.
 - Can involve multiple brands.
 - Fully nonparametric.
 - Cons:
 - Hard to compute: Analysis takes days to execute properly.
 - More up-front work on the part of managers.
 - Can generate local optima.

- Number of segments is ad hoc.

Comparing approaches by segmentation criteria:

	Cluster	CHAID	Latent Class	Normative
1. Different?	?	Yes	Yes	Yes
2. Identifiable?	?	?	No	Yes
3. Reachable?	?	?	No	Yes
4. Profitable?	?	?	?	Yes
5. Responsive?	?	?	?	Yes
6. Actionable?	?	?	?	Yes
7. Stable?	?	?	?	?

A normative segmentation example:

- Full study report: See Wayne DeSarbo, Kamel Jedidi, and Indrajit Sinha, “An Empirical Investigation of the Structural Antecedents of Perceived Value in a Heterogeneous Population,” ISBM Working Paper Series Report 18-1998 (Sept. 1998).
 - Report abstract: “In recent years, Customer Value Management (CVM) has become a major focus in both consumer and business-to-business marketing as a core strategy underlying all loyalty generating programs. We develop a new approach for the structural analysis of the antecedent factors of perceived value, (i.e., perceived quality and perceived price) through a recursive simultaneous equation model that is formulated to accommodate heterogeneity. In particular, the proposed latent structure methodology allows one to estimate the relative effects and integration rules of perceived value drivers at the market segment level, as well as to simultaneously determine the (unknown) segments themselves. We demonstrate the utility of the proposed methodology via an actual commercial application involving a CVM study for a large electric utility company. Finally, we discuss the contributions of our research and how it may be extended in the future.”
- Study objectives:
 - Designed to integrate customer requirements throughout the entire organization: an electric utility with commercial and industrial customers.
 - Measure company performance and improvement over time. Focal measure: perceived overall quality.
 - Identify aspects of the business with the most impact on overall customer opinion.
 - Examine product/attribute service performance.
- Background:
 - Notification letter to respondents one week prior to a 20-minute phone interview.
 - Five quarters of data from 1,509 valid cases analyzed.
- Key measures: How well do Xs drive Y, and can segments be described by Zs?
 - Dependent variable: Overall quality (Y)
 - Independent variables: Relative Price, Power reliability, Preventive maintenance, Repair Services, Account Representative, Technical Support, Customer Service, Record Keeping, Billing (X)
 - Variables are constrained to ≥ 0 .
 - A variety of firmographics/demographics (Z)

- Minimum size constraints placed on derived segment sizes.
- Rather than modeling based on a priori segment definitions, post hoc analysis may be required for the best segmentation fit producing reachable segments each with different drivers of overall perceived quality.
- Results of applying different traditional approaches:
 - None of the traditional approaches (hierarchical clustering, K-means clustering, CHAID, and latent structure regression) produce all desired outcomes.
 - Researchers found few significant relationships between segmentation schemes derived on the same data by these different methods!
 - Lesson: Do not blindly apply traditional segmentation approaches.
 - Lesson: We needed a specialized approach to meet the criteria and address issues for this particular application.
- A different approach: A generalized combinatorial optimization methodology for market segmentation.
 - Employs genetic algorithms, simulated annealing, heuristics, etc. for multipurpose optimization.
 - Accommodates:
 - Multiple Criteria Objectives
 - Model and/or Profile Bases
 - Prior Information
 - Constraints
 - Different Types of Segmentation
 - A Priori or Post Hoc Concepts
 - Allows the user to estimate an application-specific appropriate segmentation scheme given the information/needs at hand.
 - Fully Non-Parametric
 - Provides a framework for comparison of alternative segmentation schemes
 - Extensions to be able to perform normative segmentation (max profit)
 - Accommodates a variety of models/objectives
- Application specifics:
 - Client desires segmentation scheme that is
 - model based: $Y = f_k(X) = XB_k + e$
 - Segments identifiable and reachable
 - No segment size $< .10N$
 - All coefficients > 0
 - Post hoc Scheme, but test against a priori segmentation by region.
 - Client wants to derive segments that can differ with respect to both level of perceived quality (L) as well as with respect to the “drivers” of perceived quality P_i .
 - Objective Function: $\max L = u(P_1) + (1-u)P_2$
 - where: $0 < u, P_1, P_2 < 1$
 - $P_1 = R\text{-Square}(Y, YH = XB_k)$ (i.e. low variance in model)
 - $P_2 = 1 - \text{Det}(W(Z))/\text{Det}(T(Z))$

- u = weighting of importance of variable type to the organization. How much relative weight does management want to put on the classification variables and how much on the descriptor variables?
- Results:
 - Plain regression on entire sample produces:

Aggregate Regression Analysis: K=1 Segments

intercept:	0.000	
price	: 0.064**	
product	: 0.398**	L = 0.225
maintan	: 0.108**	P₁ = 0.450
repair	: 0.083**	P₂ = 0.000
acct rep	: 0.157**	
tech sup	: 0.086**	
cust srvc	: 0.026	
records	: 0.051*	
billing	: 0.096**	

ANALYTICAL MARKETING SCIENCES, INC.

- Every driver appears to be significant.
- Variance is 45 percent.
- P_2 implies no discriminability between segments.
- The normative approach produces three segments, with results compared to the latent class approach results:

Combinatorial Optimization Segmentation:

	SEGMENTS :			
	1	2	3	
intercept:	-0.088*	0.095*	-0.022	<u>Normative:</u>
price :	0.159**	0.000	0.132**	L = 0.824
product :	0.000	0.846**	0.388**	P ₁ = 0.655
maintenc:	0.247**	0.000	0.115**	P ₂ = 0.992
repair :	0.000	0.206**	0.144**	
acct rep :	0.000	0.372**	0.204**	
tech sup :	0.117**	0.000	0.112**	<u>Latent Class:</u>
cust srvc :	0.108**	0.000	0.000	L = 0.373
records :	0.072**	0.016	0.000	P ₁ = 0.718
billing :	0.107**	0.095**	0.063	P ₂ = 0.027
Sizes :	44%	35%	21%	
Avg Y :	-0.091	0.098	0.038	

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- Latent class model accounts for much more variance, 71 percent, but discriminability is still near zero. Segments may differentiate behavior and how they view perceived quality, but they are not firmographically different, so how can we identify segment members?
- Normative model produces accounts for slightly less variance, 65 percent, than the latent class model, but it provides near perfect discriminability between segments.
 - A small sacrifice in variance produces a much more actionable segmentation result. Give up optimizing on one criterion alone, you get more actionable results on other criteria. Note, for example, the high relative importance of product reliability (electrical service reliability) to segment 2.
 - Normative model maximizes expected perceived quality levels more than twice as much as the latent class model.
 - Normative model produces three segments with nearly equal average perceived quality ratings (Y). Drivers of perceived value—what management must know to market more efficiently—determine the segments, not perceived value levels.
- The procedure “lets the data do the talking.”
 - Salespeople can use segment descriptors, below, to identify a customer’s segment, because the normative model constrains the analysis to provide accessible descriptors.

Segment Descriptions:

<u>Segment 1</u>	<u>Segment 2</u>	<u>Segment 3</u>
Region A	Regions B & F	Region C
Account W	Account V	Account Y
-----	Non-Manuf	Manuf
Sr. Mgr	Mid. Mgr	Techn
Other Supl	None	None
Hi Emp	Lo Emp	Hi Emp
New Cust	Old Cust	New Cust
Lo Rev.	Hi Rev.	Lo Rev.

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- Management can vary the relative importance of classification and descriptor variables to best meet its needs.

Summary:

- Business to business market segmentation approaches are complex.
- There are criteria that derived segments must satisfy.
- Segmentation must also embed a priori knowledge of the business.
- Market segmentation must be a custom job. It is not a generic process to be implemented the same way across companies.
- No one software procedure is capable of doing all segmentation work.

Normative segmentation via evolutionary algorithms is the best approach to date! But it will not appear in a software package to run right from the box. It's an organizationally intensive approach requiring substantial tailoring to the specific segmentation problem.

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A NEW CUSTOMER VALUE SEGMENTATION RESOURCE

- www.valueharvest.com, a new concept in providing marketing practitioners and academics practical concepts and tools to calculate, create and claim customer value in an increasingly digitized world. A “work in progress” site to provide information and online analytical software to business marketers.
- Information:

- Sample chapter and chapter summaries of a forthcoming book: Grahame Dowling, Gary L. Lilien, Arvind Rangaswamy, and Robert J. Thomas, *Harvesting Customer Value: Understanding and Applying the STP Process (Customer-Value Based Segmentation)*
- Provide the software that makes HCV happen
- Provide an overview of books.
- Purchase books online
- Access teaching material
- Provide access to HCV resources (publications, data bases, research supplies)
- Provide Access to a HCV discussion forum to post questions and get advice.
- Online software tools:
 - Positioning Analysis (Perceptual Analysis)
 - Cluster Analysis
 - Choice Modeling (Logit analysis)
 - Trade-off Analysis (Conjoint Analysis)
 - Value-in-Use Analysis
 - GE/McKinsey Portfolio Analysis (GE/McKinsey)
 - Resource Allocation (ReAllocator)
- Contact the ISBM for user registration and access.

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**The next meeting of the ISBM Marketing
Segmentation/Customer Value Management Consortium is
tentatively scheduled for Oct. 6, 2000.
*Watch for more information, location, etc.***