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Segmentation: A Hard Look at Its Promises and Its Performance

Including Case Study and Validation Data

DSS White Paper Series

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Decision Support Sciences, formerly Market Advantage Consulting, was founded in 1990. DSS is an advanced market research consultancy that has performed research engagements in over 40 countries worldwide. Our distinctive is the use of marketing science insights to re-engineer the classical approaches to marketing problems. We ask old questions in new ways. DSS has deployed the largest segmentation initiative ever performed in the financial service industry, and deployed more advanced value-based segmentation initiatives than any other research firm worldwide.

THE PROMISE vs. THE REALITY OF SEGMENTATION INITIATIVES

"Any fool can make things bigger, more complex, and more violent. It takes a touch of genius--and a lot of courage--to move in the opposite direction." - Albert Einstein

The simple truth about segmentation is that it was never intended to be a destination, but only the means to a greater end. Compellingly, that end has always been the same - to present the customer or prospect with a value proposition that speaks to their need. Simply said - when companies build products that meet needs, prospects become customers and existing customers don't become exiting customers. Segmentation, in its original formulation was developed to do just that - to target a customer need and then meet that need with the appropriate product or service.

But somewhere along the way a metamorphosis occurred. The clear conceptual idea behind segmentation became clouded in the process of implementing it in the real world. Many practitioners who have spent time in the trenches have learned that the reality of a deployed segmentation is often very different from what they hoped when they signed on the dotted line. Most segmentation deployments, in fact, have resulted in little real sales differential after implementation. Despite this checkered history of success, many firms have become "serial implementers" - they have implemented one segmentation scheme after another, hoping the next one will improve upon the less than stellar results of the previous generation.

What happened?

In this white paper we will examine the original powerful idea behind segmentation and what happened to it. Specifically, we will do three things.

1) Examine the first principles of segmentation to recover its original power.
2) Briefly trace the history of segmentation schemes.
3) Demonstrate with case studies and ROI that new enabling approaches have been developed that finally fulfill the promise of segmentation. These approaches achieve segmentation's original goal – arriving at "segments of one".

BACK TO THE BASICS

Segmentation began as two simple ideas: "Different individuals have different types of needs" and "Sell to those needs and you will do better than firms who make undifferentiated offers". Embedded in these two statements are three axioms that make segmentation powerful.

1) Segmentation is about individuals, not groups.
2) Segmentation is about needs not products.
3) Segmentation is about tactics, not strategy. (It must be deployed.)

The problem is that segmentation has historically developed entirely differently from its own axioms. In fact, segmentation today is often about groups, products and strategy –rather than individuals, needs and tactics. Let's take a closer look at these axioms.

Axiom One: ***Segmentation is about individuals not groups***. The best way to make a sale, bar none, is to find out what a single individual needs and give it to him or her. Period. That's called one-to-one marketing, and it produces the highest capture ratio of any form of sales. The problem, of course, is that one-to-one marketing is cost prohibitive. This axiom has two implications. If finding out the individual need is paramount, we must measure needs at the individual level. This demands primary research. Second, in deployment we must use individual information about the customer to inform us as to which likely need they have. That is, at both the beginning of the process (primary research) and the end of the process (the targeting phase) we must use individual information to inform the sales effort. Only then will we be designing and deploying our sales effort to approximate one to one

marketing – selling to "segments of one." More about this will be discussed in the "reengineered approach" section below.

Axiom Two: ***Segmentation is about needs not products***. This second axiom no longer sounds as revolutionary as it once did. The idea, in fact, has become an emerging reality in leading companies over the last five years. The idea is really very simple. Clients really don't go to a financial service firm because they like you. They don't go because they think your products are clever. They certainly don't go to altruistically help out your bottom line. They buy from you because your product meets their need better than somebody else's products. In fact, your product doesn't have to be great. It just needs to be ***better enough*** for prospects to buy from you rather than someone else.[1] Many strategists are arriving at an epiphany – one that would have been heresy a decade ago. They are realizing that the product itself is secondary. The product is the handmaiden of the need, and not the other way around. The take-away is that we must do the heavy lifting of finding out what customers really want. Again, this demands primary research, but a special form of primary research: needs-based measurement. Needs-based research measures the top 20-25 needs of each customer and casts those needs in terms of operational characteristics of the product or service we are selling. In so doing we uncover - at the "segment of one" level – how to meet the customer's needs in the real world. "Customer centricity," "needs-based research," and the "customer conversation" are all stepchildren of this second axiom. Other characteristics of best of breed research will be described in the "reengineering approach" section below.

Axiom Three: ***Segmentation is about tactics, not merely strategy***. Segmentation engagements have historically excelled at providing wonderfully satisfying and intuitive "names" for subgoups in the market. We often nod approvingly at the results because the segment names have described the market so well. So what's the problem?. These segmentation schemes very often do nothing other than sit regally on our shelves. We literally can't do anything with these fancy names because *there is no quick and valid way to attach them unambiguously to each customer.* Let's give a real world example. Assume that a powerful segmentation initiative has developed six very distinct value propositions. Assume also that it is our job to pick up a phone and contact a customer and offer them one of these value propositions. The academic knowledge that there are six value proposition segments is nice, but if we can't unambiguously offer them the right one, then what's the point? To truly finish the job of segmentation, therefore, we must accurately and comprehensively connect (or score) each individual in our data mart or datastore with the need that they actually have. This second step –generalizing the primary research to the entire customer set is where most modern segmentation methods fail. It is easy to come up with a great sounding segmentation scheme. What is not so easy is to generalize that segmentation to each record in the datamart. In point of fact, the methods typically used to generalize segments to the datamart constitute one of the theoretically weakest quantitative exercises in marketing. While this is a bold statement, the reality is that the two leading methods of generalization, crosstabulation similarity and categorical inference,[2] simply have very poor reproducibility. In addition, in many cases these methods leave up to 50 percent of the data mart unscored because only a small percent of the customer base is significantly associated with the product or need being generalized. These two criteria (accuracy and comprehensiveness) are the ***central evaluative criteria*** for quantifying the "goodness" of any segmentation scheme. As we mentioned above, a deeper discussion of the accuracy criteria is found in the reengineered approach to segmentation defined below.

LEARNING FROM THE CHECKERED PAST OF SEGMENTATION

This history of segmentation is a four act play. Act One is demographic segmentation. Act Two is behaviorally-based segmentations. Act Three is life-stage/life-style segmentation. Act Four is the emerging reality of needs-based segmentation. Each of these four approaches to segmentation contributes an important piece in understanding the market, yet each of these approaches displays significant limitations. In each "act" we will describe the segmentation approach and identify its weakness and limitations.

[1] This is the entire concept behind the utility and choice based research which has grown remarkably in the last twenty years. The incremental value (sum of utilities) of your product must be higher than the competition's. If it is, prospects will buy your product.

[2] Typically CHAID, or CART or decision rule based methods.

Act One: Age and Income segmentations. Quite early on in the analysis of customer behavior, people began to notice that demographics mattered. For instance, it is trivial to state that only high income customers buy high income products. But it is not so trivial to notice that more complex *combinations* of demographics can dramatically improve target marketing. For instance, if a prospect is wealthy ***and*** they live along the water, and have a good deal of free time, they are rational candidates for a power boat or even a yacht. Extrapolating on this demographic insight, segmentation firms have developed deep classification schemes. Many are cleverly titled such as "young up and comers" or "yearning boomers" or even "fat and happy seniors." The marketing of these segmentation schemes to the financial service, retail and automotive industries has developed into the most lucrative business idea ever devised in the segmentation industry. Yet, despite these snappy titles, we have the right to ask a tough question. How much specific insight do these schemes actually produce? Elementary statistical theory tells us that a sufficiently granular demographic segmentation will produce associations of product purchase with certain submarkets. That is, even randomly generated demographic buckets, if there are enough of them, will be associated with product behaviors such as purchase. Seen in this light, demographic schemes are hardly insightful. If we actually line up demographic purchased segmentation schemes against the two central criteria we mentioned above (comprehensiveness and accuracy) these purchased segmentation schemes perform poorly. The problem lies in their omnibus nature. In effect they are designed to classify people on the basis of demographics first. Segmentation proper first finds an association in the market to a given real-world outcome (e.g. purchase) and *then* develops the association with demographics.

Act Two: Behavioral segmentation. The second segmentation schema has been around since segmentation began. The concept is simple. Certain behaviors are associated with other behaviors. If we can associate behaviors with product purchase and if that individual has not yet purchased – then that individual has a higher probability of purchase. This logic results in applying rule-based insight to identify targets who have a high propensity to purchase. Historically, the classical tool used in behavioral segmentation is cross-tabulation or tree-based classification tools such as CHAID or CART. Cross tabulation associates behaviors with other behaviors and known demographics. In essence, it classifies a customer into a "bucket" based upon whether that customer is similar to other customers who have performed that behavior in the past. The problem with these methods is that they are getting long in the tooth. In many instances, behavioral segmentation approaches have been superseded by more modern data mining (modeling-based) approaches to customer targeting. The overall advantage of modeling approaches is their specificity, they produce a probability score for each customer or prospect. This allows the segmentation analyst to prioritize within a given "bucket" who is most likely to perform the behavior (e.g., purchase a given product.). Data mining approaches, therefore, have technically, superseded traditional behavioral segmentation approaches to customer targeting because they not only place a customer in a "bucket," but identify which customers in the bucket we should contact first. If your business objective is to best identify customers who will perform a given behavior, then it may be appropriate to perform data mining to predict the behavior rather than to try to use segment "buckets" to predict the behavior.

Act Three: Life-Cycle Segmentation (LCS). LCS is actually a form of demographic segmentation. It attempts to determine customer (or prospect) targets based on different combinations of demographics. This is a very intuitive approach to segmentation because customers do buy different products at different stages of their life cycle. For instance, first mortgages are highly associated with prospects in their mid- to upper-20s, and home equity loans are highly associated with customers in their 40s with children entering college. The major difficulty with life-cycle segmentation approaches is their product-specificity. Since products differ by life phase, a life-cycle segmentation must be developed for each product. Moreover, since life-phase or life-cycle segmentations are demographic segmentations, all the limitations related to demographic segmentations mentioned above apply here as well.

Act Four: Needs-Based Segmentation (NBS). Needs-based Segmentations are also called Value-based or Attitudinal Segmentations. It seeks to discover the needs behind the customer decision. Fundamentally, a needs-based segmentation is qualitatively different than any other segmentation approach and holds far more promise than other segmentation approaches. This is because if we uncover something fundamental about the customer, that tends to impact how that customer approaches ALL purchases not just a given purchase. If, for instance, a customer is a "High-Touch" customer, the company that treats this customer with "tender loving care" is likely to reap disproportionate results. Just as compellingly, over 20 national and super-regional studies undertaken by DSS have demonstrated that needs-based segments tend to be exclusive. That is, a customer who is high in one need tends to be low in his or her need for all the other value propositions. For instance, while it costs more to make a relationship

sale, the “High touch” customer tends to be price ***insensitive***. He wants more service, but he is willing to pay for it. The rationale behind this type of segmentation is very sound; it recognizes not only that ***needs underlie products*** but that ***attitudes drive behavior***. Perhaps most importantly NBS provides what no other segmentations scheme has ever provided – the customized pitch that gets the customer to act. Combined with data mining (which classically matches a person to a product), NBS (which matches the person to the pitch) provides the complete offer to the customer or prospect. Moreover, combining the right product with the right pitch at the individual level achieves the original intention of segmentation. It gets us back to the basics of segmentation defined in the preceding section.

Yet, in segmentation as in life, there is no free lunch. That is, as with the other segmentation schemes, there are difficulties with needs-based segmentation schemes as well. First, implementation normally attempts to use performance data to develop the segments. While performance data *does* tell us how respondents *think* we are doing, it tells us precious little about what respondents actually will *do*. Another type of data, importance or preference data, is much more suited for projecting what a respondent will actually *do*. Second, most attitudinal segmentations are developed using cluster analysis. Cluster analysis is a very powerful approach, but it is "brittle." No single cluster method always works best, but often only one particular type of cluster analysis is run on the data. Third, even if the cluster is well separated from the other clusters, attitudinal segments are generally more difficult to classify by simple cross-tabulation, as compared to behavioral clusters. So, again the issue of generalization raises its hoary head. Once we have developed the powerful needs-based segments, how do we generalize them to the entire datamart?

DSS AND THE REENGINNERING OF SEGMENTATION

Decision Support Sciences was founded in 1990 as an advanced market research consultancy. We have performed research engagements for Fortune 500 companies in over 40 countries worldwide. Our distinctive is the use of marketing science based insights to reengineer the classical approaches to marketing problems. Specifically, we identify from the theoretical and applied mathematical literature where similarly constrained problems have been efficiently solved in other disciplines, then we import and adapt that method to a particular business challenge. In essence, we ask old questions in new ways.

In 1992 we turned our attention to segmentation. We recognized that what was then the emerging paradigm of segmentation (life cycle segmentation) was just a reworked version of demographic segmentation. Consequently, it retained all of the weaknesses of demographically based segmentations. Consequently, we posited that needs-based segmentation could dramatically outperform other segmentations schemes. We then adapted conventional conjoint research using three proprietary methods. First, we upgraded the microcomputer adaptive pairwise profile conjoint methodology of Rich Johnson by parameterizing the design so that “nonsense” pairs were eliminated. Second, we used optimization mathematics to calculate the utility scores. This yielded a much higher fit to real world behavior. Last, we developed and trademarked a proprietary approach to developing the segments. This approach, multi-modal cluster analysis (MMCA) uses 13 cluster algorithms in concert to determine the best needs-based segments. This overcame the “brittleness” of cluster techniques. These three advances produced a remarkable synergy. Technically, the ratio of the separation between cluster centers divided by the spread within each clusters was over 300% higher than other published best practice segmentation schemes. Moreover, we noticed a remarkable reproducibility across studies; the same needs segments appeared again and again regardless of where we did the analysis. This led us to realize we were on to something.

This achievement garnered the attention of Andersen Consulting (which has since become Accenture). Consequently, Andersen Consulting underwrote the largest segmentation research ever performed in the financial service industry. The research, published in 1994, was called the “National Retail Banking Buyer Value Study.” It demonstrated that regardless of business line (mortgage, checking, saving, home equity, trust, or investment) there were consistent needs-based segments that were developed. The research demonstrated, and over 20 other national studies have confirmed, that customers (regardless of industry) fall into 4-6 reproducible segments. Classically, these segments are: price-sensitivity, service sensitivity, speed/convenience sensitivity, channel sensitivity, and feature sensitivity. Each customer “fits” in only one segment. That is, each individual has a predominant need. While drilling down into the findings from that research are beyond the scope of this white paper, it is sufficient to note that the publication of those findings launched the Buyer Value business line in the financial services industry. DSS performed more than 20 million dollars of segmentation engagements in over 20 engagements in the financial

services industry in the 1990's. To date we have deployed more advanced value-based segmentation initiatives in banking than any other research firm worldwide. Yet, these findings are not limited to banking. Value based segmentation works regardless of industry because it finds the values of the ***customer***. These values are collected using the attributes of the product or service being considered. Since each product or service being considered has price, speed/convenience, feature, and channel attributes, value based segmentation works equally well in any industry.

But….let's get back to our story. As time went on the success of buyer value segmentation grew. In addition to producing an intuitive segmentation BVS yielded excellent strategic simulation models which told executives how to reengineer their lines of business to meet consumer needs. We reengineered the business lines of many major banks in the US and Canada using the buyer value approach. Yet, the approach began to be tarnished by a major limitation – namely, BVS only operated at the level of strategy and not tactics. Specifically, it achieved the principles described by axiom one and two in this white paper, but it failed at axiom three. More infuriatingly, when we tried to generalize the buyer value segments to the data mart using standard cross tabulation approaches we found only small associations with demographics. Said specifically, any given segment of customers (e.g. price sensitive) was relatively homogeneously distributed across all ages, incomes and almost all other demographics. So how could we make this powerful, strategic approach tactically useful?

Just about this time we had been developing an advanced data mining approach in our R&D efforts at DSS. This approach sets up, runs, scans and evaluates ***millions*** of mathematical models per week. Standard manual approaches only run several dozen. Our approach generated all these millions of models by rotating algorithms, sub-algorithms, iterations, criteria, and transforms against the problem. These models deeply penetrated the solution space. We then wondered if the same deep computational approach we developed in data mining could solve our "generalization" problem in buyer value segmentation.

In essence we asked, "What if I try to predict the needs segment of my customers using ALL the fields of the data mart as predictors?" That is, can we predict something as fundamental as a buyer value need using the deep data marts of the financial service industry as a test case? The answer came back a resounding "yes." Now we can generalize buyer values to the data mart resulting in a scoring model for every need. This produces scores for every record of the data mart. This closed the book on the last limitation facing needs-based segmentation. To date we have deployed needs-based segmentation engagements in dozens of engagements for Fortune 500 firms.

With this insight we launched the AIM business line. AIM stands for Attitudinal Imputation Modeling. It not only generalizes needs based segments to the data mart but also stripes other attitudinal fields onto the data mart as well. These fields constitute a veritable treasure chest of missing data that banks have wanted on their data mart for decades. The success of AIM underscores the centrality of the insight mentioned by Einstein at the beginning of this white paper. The most profound movements forward in applied science often come from the simplest ideas.

In the remainder of this white paper we will do three things: We will:

1) Outline the core concept behind generalizing any attitude to the data mart
2) Demonstrate the ROI of deploying offers that meet a clients needs
3) Provide case study-based performance data from previous AIM engagements

GETTING MORE THAN YOU PAY FOR – THE POWER OF AIM TO ACCOMPLISH OUTCOMES IN ADDITION TO SEGMENTATION: AN EXAMPLE FROM THE BANKING INDUSTRY

AIM, as mentioned above, adds the attitudes that drive behaviors onto behavioral datamarts. AIM fills a long-standing need recognized by academicians and practitioners alike – namely, if attitudinal triggers are added to campaigns, offer capture ratios improve dramatically. The fields AIM adds to the datastore include but are not limited to:

- Share of wallet at other providers.
- Consolidation likelihood (likelihood to sweep the relationship to us)
- Consolidation trigger offer (what to offer to sweep up the relationship)
- Values-based segment scores (e.g. price sensitivity, service, convenience, etc.)

Most importantly, the values-based segment scores, in particular, allow campaigns to be mounted that sell to a person's buying appetite (e.g., price sensitivity, channel sensitivity, service sensitivity, etc.). This long sought-after outcome is described below.

HOW AIM WORKS

For at least a decade now, datamining has been the premier targeting methodology driving acquisition, growth, and retention efforts at leading U.S. financial service institutions. However, most bank executives know that datamining has at best fulfilled only half of the role originally envisioned for it. A recent ABA survey showed that for many leading banks, return on investment in data marts and data mining was often "disappointing." Practitioners and academicians are increasingly moving toward a consensus as to the causes behind this disappointment.

As designed, datamining was intended as the engine to drive strategic understanding of the customer AND a means to create a compelling, targeted sales offer. Additionally, as designed, the datamining offer should include two things: 1) matching a product to an individual and 2) selling the individual on the components of the product or service that meet his or her need. To date, however, conventional data mining only delivers on the first part of the sales offer. Consequently, current outbound or inbound campaign offers don't include or stress the features of the product or service (e.g. price, convenience, speed, personal service, etc.) customized to the individual. It should not be surprising, then, that in today's current offer environment, a prospect who is sensitive to personal service will ***not*** get messaging stressing the personal service features of the product. (Nor will a price-sensitive person hear how competitively priced the product is, etc.) Instead they will receive *the same generic offer*. So why does conventional datamining offer only the "what" to the customer, but not the "why"?

The answer to the question above lies in the type of data typically stored in the enterprise itself. Current generation datastores contain behavioral data, but are almost completely devoid of feature level importance and other attitudes that drive those behaviors. The answer, quite obviously, is to enhance the data mart information base with customer-level attitudinal information. This "second wave" of data mart evolution is one in which "behaviors are predicted by linking transaction data…with customer marketing (survey) data."[3]

The AIM initiative provides the missing information links to the individual customer. How does AIM work? Conceptually, AIM is very simple. AIM collects attitudes and behaviors of current customers and prospects via a deeply detailed survey. Next, AIM uses comprehensive data mining to predict these attitudes as a function of all other fields in the data market. This produces an equation developed from the representative survey database. With representative sampling and a carefully constructed design, this equation can be validly applied to the complete datastore. The result? Share of relationship (wallet), consolidation, and values scores added to *each individual record* of the datastore.

[3] The Gartner Group

AIM: Financial and Business Case Data

Financial Justification: Figure 1 is a sanitized multi-business line business case produced by one of our clients describing the benefits of AIM. The datastore size is 1.5 million households. Partial Implementation refers to just the imputation of share of wallet scores. Complete Implementation refers to both the imputation of wallet share and buyer values (the value message to which they are sensitive.). Complete Implementation with Call Center Redesign adds call center efficiencies in which the calling effort is redeployed only against profitable business lines.

AIM Business Case

	Current Baseline Datamining	Partial Implementation	Complete Implementation	Complete Implementation with Call Targeting Redesign
Total New Balances	$481,491,153	$723,826,485	$954,672,216	$1,067,921,224
Margin on Balances	$12,136,724	$18,370,166	$24,547,613	$35,668,565
Total Expenses	$9,981,576	$9,981,576	$9,981,576	$9,981,576
Total Profit	$2,155,148	$8,388,590	$14,566,037	$25,686,989

Figure One

Imputation Validity: We have a right to ask if imputation actually works. Below are sanitized but representative data from a recent AIM engagement for a top ten U.S. bank. Figure 2 compares the likelihood of correct prediction of buyer value messages by chance alone compared to the actual prediction obtained in the AIM initiative. This imputation resulted in over eighty percent correct prediction of the lead buyer value message.

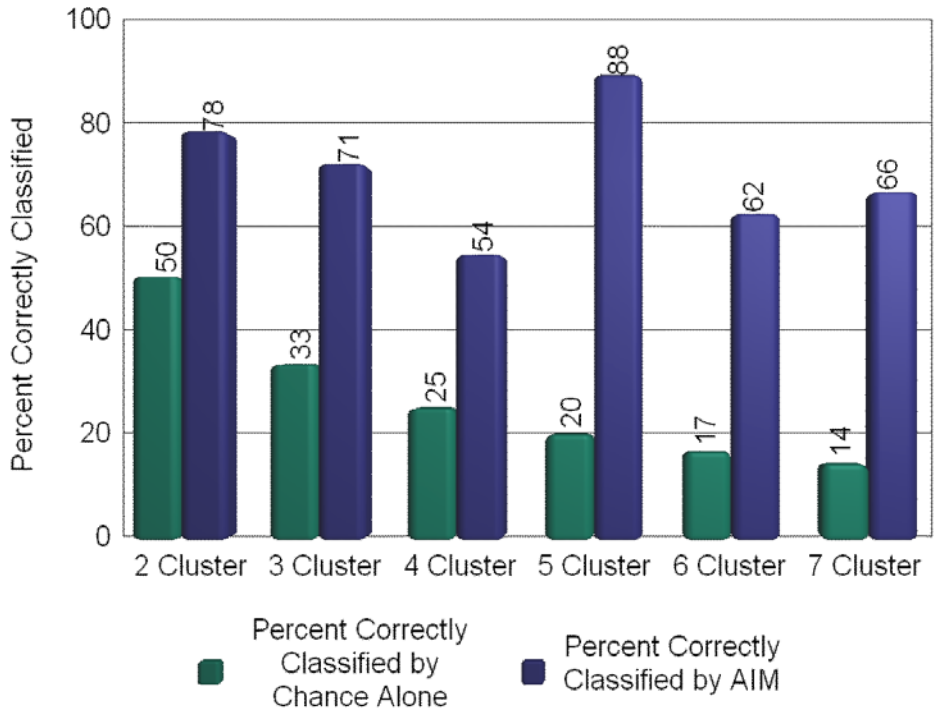

Figure Two

CONCLUSION

In the perennial struggle for competitive advantage and sales efficiency, segmentation has rightly been seen as a powerful arrow in the quiver of the savvy marketer. Problematically, however, the vast majority of segmentation approaches fail because they produce little or no sales or revenue results. Regrettably, many segmentations being designed today are making the same mistakes. In this paper we have underscored three points:

First: For a segmentation scheme to be fully successful, it must be about individuals, not groups, about needs not products, and about tactics, not strategy.

Second: The most powerful emerging segmentation approach is value- or needs-based segmentation. This type of segmentation "scratches a person where they itch." It customizes the otherwise undifferentiated offer by stressing the aspect(s) of the product that matters to that individual

Third. By extension from the data we have shown here, it can now be seen that if new generation segmentation schemes are individual, needs-based, and tactically deployable, they constitute at the same time a significant form of datamart enhancement. In a very real sense then, needs based segmentation deployed on the datamart and encoded onto each customer record, converges synergistically with datamining. Some have rightly called adding needs-based fields (as well as adding other critical attitudinal fields) to the datamart "the second wave of datamart evolution".

