

Nimbus Represents A New Wave of Market Research

“Shopper Insight” Marketing Research

There is a growing realization that the traditional forms of consumer oriented market research which rely heavily on separate sets of attitudinal and behavioral studies are inadequate in the dynamic and global marketplace today.

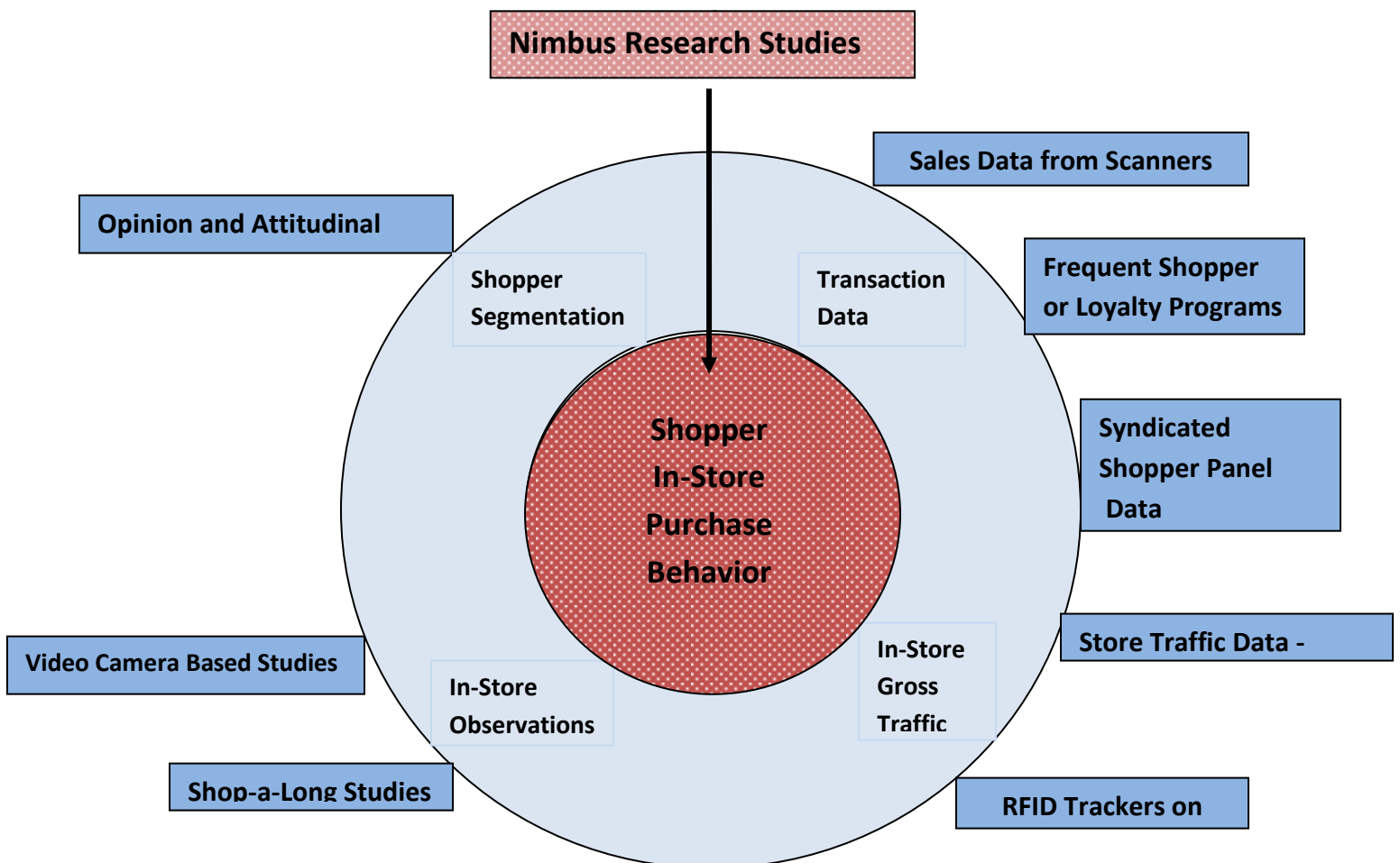
The traditional divisions between quantitative and qualitative consumer research which were designed to measure different dimensions even though the consumer might be one and the same individual are inadequate to respond to the challenges of channel consolidation and economic turmoil. There is a need to gain greater insight into how shoppers make their purchase decisions. A need that is even more critical for the fast moving consumer packaged goods companies (CPG's) and their retail customers.

Leading companies are discarding the traditional approach to research which means they are discarding what has been the bread and butter livelihood of many third party research organizations. Within the world of CPGC's, giant inroads have already been made with the almost universal adoption of scan data and the growth of syndicated panel data which provide the industry with reams of information on items bought and the shoppers who buy them.

Figure 1 on the following page illustrates the range of market research studies that are currently employed by CPG's and retailers. While there are studies that measure consumers outside of the store in great detail and there are tracking studies within the store to identify which aisles are being traversed, there is no clear picture of what happens at the moment when the purchase decision is being made. Which products did the shopper view before selecting a given SKU? How did the aisle banner or blade sign impact whether the product was considered? To what degree was there comparison shopping between two or more products, and what were those products? How did price influence the

decision? Which elements of the package were associated with a positive impact on conversion from consideration to purchase? These and other questions are critical because in-store stimuli influence up to 70% of the shopping decision. Understanding these issues would give the marketer powerful insights into shopper purchasing behavior and lead to more effective presentation of product, better assortment of products and higher volume sales across the category.

Figure 1 - CPG Consumer Market Research



The red area in Figure 1 represents the critical piece that is missing in understanding consumer shopping behavior. 70% of the shopping decision is made in the store and in front of the category aisle. Nimbus was built from the ground up to measure all of the interactions of marketing stimuli that are in-store and on the shelf. Nimbus integrates eye tracking and virtual shopping into a single stream of behavioral data at such a fine granular level that it can delve deep into the purchase decision tree itself.

Nimbus is a Complete System

Nimbus is a new marketing research technology that offers a complete turnkey solution for clients seeking to understand consumer shopping behavior not just in-store but in front of the category aisle at the very moment the purchase decision is being made. For many clients the study begins with identifying the right respondents in the right geographic area who represent the category shoppers most relevant to the channel or retailer. Many CPG's have already identified those segments but may now need to realign those segments to correspond with the different segmentation schema employed by the retailer or they need to be able to quickly identify those neighborhoods that comprise the best geographic areas for the study. This is not a problem since Nimbus can utilize a proprietary cross-matrix database of detailed shopping data and retailer location data to pinpoint the geographic areas that need to be included in the study. This data module is even able to resolve issues of drive time to competing channel outlets within the neighborhood.

Once the right market areas have been identified, Nimbus utilizes highly portable equipment that can be set up anywhere so the right respondents may be recruited. The study may be conducted in a local research facility, in the parking lot of the outlet or in the home of the consumer. Control of the study is maintained by wireless connections so that last minute changes may be accommodated and the intermediate results of the study may be uploaded nightly.

Different shopping missions may be specified, and the conditions of the study may be customized to meet the research requirements of the client across a wide range of conditions. The virtual store environment is custom tailored to match the channel being analyzed.

Once the study has been completed the results may be applied through appropriate mathematical modeling to any market and any region of the country – in effect creating a strategy tailored to the neighborhood. This is accomplished using the cross-matrix data base described earlier.

Nimbus Offers Multiple Solutions

Nimbus technology can be utilized to investigate a wide range of marketing issues:

1. **Product concept testing** within a “real” environment with competing products. Unlike classic conjoint studies which create an artificial and arbitrary set of choices, Nimbus employs a virtual shopping environment exhibiting a rich interplay of stimuli and competing products. Since Nimbus uses a natural and intuitive interface, true shopping behavior is measured.
2. **Package designs or revisions** may be tested on the shelf for effectiveness with real viewing, considering and purchase metrics to clearly identify winners and losers. “Hotspots” on the label can be tracked and linked to the select/de-select decision thereby providing powerful insight into what the shopper is thinking.
3. **Category assortment** can be optimized easily with different arrangements being created within the virtual environment. There is almost no limit on the variations that may be test and all of the design work is done within a virtual environment saving time and money.
4. **Planogram realignment** can yield immediate benefits through increased volume without the need to introduce new products or to revise package designs. Tailoring the planogram to the most profitable category buying segment can result in 11 percent increase in volume. When the planogram is tailored to the most profitable segment on a neighborhood by neighborhood basis the increase in volume is another 8-9%.
5. **Promotion planning** benefits from the insights gained by examined shopper behavior in the face of competing offers, price points, signage and other POS tactics within the virtual environment that Nimbus offers.

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A Dozen Reasons to Conduct Your Research With Nimbus Technology

Background on Nimbus

Nimbus offers solutions for marketing issues faced by fast moving consumer packaged goods companies. One of the main areas of concern in today's economic environment is maximizing category sales as shoppers are consolidating their shopping trips and postponing the purchase of goods that aren't vital on an ongoing basis. Since more than 50% and possibly as much as 70% of the influence on what purchases to make occurs in the store there is a premium in understanding what influences the shopper to select a product while standing in front of the category shelves. These influencers or marketing stimuli range from shelf arrangement, category assortment, aisle banners, blade signs, price tags and of course the SKU package itself. Since the shopper comes face-to-face with the product only after navigating through the store and down the aisle there are associated stimuli that may impact the mind-set of the shopper and thereby affect the decision to select or deselect a given SKU. Therefore, any solution has to take the whole store environment as well as the shopping mission into account before it can be considered as meaningful, valid and robust.

The search for the right tools to measure what happens in the mind of the shopper during this critical period while in front of the category shelf has, like the search for the grail, been pursued with vigor, faith and hope. Up until now, the search has been stymied by under-developed technologies. A promising flurry of interest in eye tracking using wall projections and bulky eye tracking cameras proved unequal to the task. Second generation eye tracking systems overcame the transportability issues but required two separate studies – the first involving eye tracking and the second virtual shopping. Since the data streams were collected during separate responder sessions the whole issue of data validity arose. However much vendors might strain to justify the validity of their data overlays, it is all too apparent that since the responder was tested twice the search for gaining insight into the mind of the shopper at the moment of purchase was thwarted – the responder was artificially and arbitrarily subjected to two separate moments of purchase with unforeseeable changes in mindset and perceived stimuli.

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Solution Requirements

It is clear that the requirements for a valid solution must include the following considerations:

1. **Customizable store environment** with multiple aisles so that the respondents can exercise independent choice as they navigate the aisles. Only in this way can the objectives of the shopping mission be fully incorporated into the study. In the real world, the store is a busy and sometimes confusing place with shoppers skipping aisles and failing to find their intended purchases. That same complexity must be present in the virtual shopping environment.

Nimbus has the technological headroom to build a center store with 16 aisles and stock the shelves with a million objects. The look and feel of the store can be tailored to match the particular channel whether a c store or a Wal-Mart.

2. **Intuitive and natural interface** using those senses that the shopper normally employs during a real shopping trip – the eyes to look and the hands to push the cart and select/deselect SKU's. Many alternate ways of monitoring and measuring shoppers fail this test. Older generation eye tracking systems require the responder/shopper to look at a keypad or to read navigation instructions in a sidebar. This interrupts the shopper's decision-making process and interjects discontinuities into the dataset being captured.

Nimbus utilizes a high precision IR camera that mounts unobtrusively below the viewing screen. There are no bulky headsets or wires hooked up to the shopper/respondent. Movement down the aisles is controlled by a joystick. Objects are selected by looking at the object and activating the joystick trigger. This motion keeps that eye-hand combination in the same critical role as the real shopping trip.

3. **Dynamic and interactive eye tracking** is required in order to delve into the mind of the shopper. Studies that depend on the shopper verbalizing choices are really measuring verbal skills not shopping behavior. The eyes don't lie. The eyes go to areas of interest based upon attributes of the object (size, shape and color) as well as natural paths which are determined by adjacencies and deviations from eye-level.

Nimbus incorporates a continuous feedback loop system that measures where the eye is looking 60 times a second. This ensures a continuous stream of eye gaze trail data that reveals the subtlest interactions between the objects being viewed. The interaction of price tags, blade signs, aisle banners, product

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packaging, labeling and adjacencies can be carefully delineated because of the fine granularity of data. Most important, this data flows continuously and reflects the thought processes behind the eye and hand movements.

4. **Integrated data stream** between eye tracking and shopping behavior, i.e. examining SKU's and subsequently selecting or de-selecting them, is an absolute necessity so that the interpretation of the eye gaze trail is firmly tied to purchase behavior. This is a fatal flaw in the two-stage research still being conducted by some vendors since bringing the two sets of data together ends up being a judgemental exercise.

Nimbus was built from the ground up with seamless integration between eye tracking and virtual shopping. All observable metrics are aligned on a single time scale that reiterates the exact sequence of eye movements and selection decisions. This integration ensures data validity and enables the generation of shopper insights that were unattainable before.

5. **Portable field systems** that can be set up across the country including at local store locations to intercept shoppers right where the action is.

Nimbus can run on workstations in any location around the globe. Nimbus runs equally well on a laptop and the study can be administered outside a specific store or even in the respondent's home.

6. **Seamless zooming** to view the product more closely is required to replicate the real world. Older 2nd generation eye tracking systems utilize separate sets of images that show up as jarring interruptions in the visual image as a series of higher zoom pictures overlay one another. This introduces a noticeable change in shopper behavior that bears no relation to the desired behavior being measured.

Nimbus utilizes a proprietary 3D technology that achieves seamless zooming from aspects that include the entire category to a close-up of the product as it is taken from the shelf for closer examination. This advanced technology makes the entire operation of selecting and de-selecting an SKU transparent to the respondent thus leading to a more natural interaction with the planogram or the SKU.

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7. **High resolution and wide screen deployment** provide the respondent with a richer environment which engenders more choices that are based upon the stimuli under study.

Nimbus incorporate the latest hardware technology and utilizes flat panel monitors that are 24 inches wide with a resolution of 1920 by 1200 pixels. Signs and price tags are seen more clearly and more items are in view so that comparative shopping is possible. Even package labeling can be read easily when an SKU is brought closer for examination. This extremely high resolution coupled with an extremely precise eye tracking system allow “hot spots” on a package label to be identified thus leading to more insight into the selection/de-selection process.

8. **Flexible aisle configuration and shelf stocking** are necessary for two reasons, the first is to speed up the setup process and allow the research study to get into the field as soon as possible. The second reason is that last minute changes to a new package design can be accommodated in the field in a more responsive manner.

Nimbus has a sophisticated infrastructure that provides for fast setup. Custom configurations involving free standing displays and special end-caps can be accommodated. This flexibility allows projects to get fielded sooner and shopper insights to be generated more quickly.

9. **Shopper metrics** need to be provided in multiple formats to support the many different users of the research data. Category managers are looking for spreadsheet data that can be uploaded into category templates. Brand managers are looking for charts, tables and graphs that tell the story of how the brand is faring versus the competition. Planogram designers are looking for a visualization of the research data that can be applied directly to their task at hand which is tailoring the planogram to the relevant shopper segment in order to maximize sales. Promotion managers are looking for “lift” data that indicates which promotional tactics are working best. Package designers are looking for feedback on which elements of the package are working and which aren’t.

Nimbus generates a full range of data output to serve the needs of all users:

- a. **Critical viewing, examining, selecting and de-selecting data is assembled into spreadsheet files for further data manipulation. The tables can be uploaded to**

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sophisticated templates constructed to give category managers a bottom up view.

- b. Key trend data is assembled in preformatted charts and graphs that lend themselves to being used to tell a story of how the brand is performing and what the underlying trends are.
 - c. Nimbus generates planographs that present the research data in the form of visualizations that correspond to the planogram. These visualizations allow the planogram designers to quickly spot areas of concern and to re-specify the planogram based upon shopper insights revealed through the visualizations.
 - d. The “lift” of promotional tactics are reported in specially formulated output that takes into account sample size and confidence levels. This results in reliable measurement of even complex promotional tactics involving multiple stimuli in a single coordinated project.
 - e. Shopper decision tree analysis is performed to identify barriers to purchase. These barriers may be in any preceding stage of the shopper process from failing to pass down the aisle with the category to
 - f. Product images are captured during the close-up examination of the SKU with gaze trails overlaid on the product package. These gaze trails reveal where the responders were looking just when the selection/de-selection decision was being made.
10. **Mathematical modeling** of the data is a critical requirement for two reasons; the model is used to implement the desired strategy across the entire country, and second to capture long term value from each and every project beyond the immediate questions of the current project. The ability to convert the research into mathematical models builds a foundation of learning that will accrue to the client over the long term.

Nimbus data intrinsically lends itself to mathematical model building for two reasons: the granularity of the data allows the data to be modeled in a number of ways. Examinations can be modeled by shopper characteristics, location on shelf, adjacencies, presence of signage and type of package. Purchases can be modeled based on shopper mission, characteristics of shopper, number and duration of views, number and duration of exams, price checks, category assortment and category adjacencies. The appropriate planogram can be associated with each shopper segment and the resulting association applied through Nimbus’ cross-matrix database to any retail chain in the country so that planogram is used in the appropriate neighborhoods.

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11. **Category shopper prescreening** according to the research protocol is necessary, otherwise the data is meaningless. The research methodology not only has to include the appropriate screening questionnaire but the technology used can't be allowed to bias the results by favoring one demographic over another.

Nimbus was tested under field conditions with responders ranging in age from 18 to 81 years of age. Females and males were tested equally. Only abnormal eye conditions resulted in rejected responses. There was no problem with glasses or contact lenses. Subjects who were unfamiliar with the operation of a joystick were given sufficient practice time to begin navigating the virtual store with confidence.

12. **Realignment of shopper segments from manufacturer to retailer** is imperative for implementation to occur. Most studies currently performed today are conducted without a framework to link the results to an easily executable plan. Thus the insights gained from the research are never implemented.

The Nimbus System includes linkages to sophisticated marketing databases that provide powerful tools for realigning manufacturer segments to retailer segments, or vice versa. The same set of databases includes modules that identify or profile the effective trading area around the stores within a specific channel or retailer. The trading area is defined by sophisticated drive-time algorithms which allow the specification of neighborhoods at a very precise level. The net result is that Nimbus projects result in actionable plans and can be customized to any channel or chain.

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Jerry Johnson

Jerry specializes in the use of advanced research technology to produce remarkable brand insights and award-winning advertising campaigns. Stories of his clients' resulting successes have been featured on National Public Radio's All Things Considered, The New York Times, Advertising Age, and Adweek. Jerry is a frequent speaker, lecturer, and radio talk show guest on marketing and brand development topics. He received his B.A. in Government from Harvard University.

Juho Arens

Juho's use of cutting-edge data analysis technology and database marketing has been applied to the consumer packaged goods industry on behalf of retailers like Publix Super Markets as well as manufacturers. He has more than 20 years of experience with other clients including Transamerica, Sprint, Honda, Citigroup, Bank One, The Disney Company, Kaiser Permanente, National Geographic Magazine, and many more. Juho served as President of Transamerica Marketing Services and was Vice President of Planning for Doremus & Company in New York, serving major clients such as First Boston Corporation and Salomon Brothers. He holds BA and MBA degrees from Boston University.



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