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The Use of Virtual Store Simulation in Marketing and Research

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I. Introduction

'Virtual Reality' as a technology has been evolving for over 90 years, but it is only recently that is has become sophisticated and cheap enough to deliver significant commercial returns for the Fast Moving Consumer Goods (FMCG) industry. The use of Virtual Reality for training and in some design-led industries like Architecture have long been proven commercially, while its use in FMCG as a Virtual Store has taken a little longer to establish. In this context, a 'Virtual Store' is the recreation of a retail outlet as a computer-generated environment that is navigable and editable by the user, and this adaptation of Virtual Reality technology into a Virtual Store format has primarily been used to help FMCG businesses 'win with shoppers'. More recently, the use of Virtual Stores for a number of other applications has begun to accelerate.The main drivers behind the recent growthare the levels of functionality and flexibility that the technology can now achieve, and the ever decreasing cost of entry. Having started out as a cute alternative to in store research,Virtual Store technology has matured into a multi-functional business-enabling tool, capable of working across multiple applications, geographies, categories and business models.

The main applications for Virtual Store today and their key commercial benefits are:

A. **Research**: Research can be done better, quicker and cheaper than most other methodologies, with cost savings of up to 70% when done online
B. **Design**: the technology enables much faster design iterations and greater creativity, reducing costs and time to market by up to 50%
C. **Merchandising**: the time and costs of range reviews can be cut by up to 2/3, as better data visualization enables faster and better-informed decisions
D. **Customer Collaboration**: when installed at the heart of a collaboration centre, this can enable sales growth of +4% to +7% with strategic customers
E. **Shopper Marketing**: this technology is perfectly suited for visualizing the 'path to purchase', and is more flexible than other comparable tools
F. **Training**: this is a natural extension of the other applications, with flexibility for both strategic and tactical training applications

Beyond the direct B2B applications of the software today, there is the longer-term potential to use Virtual Store for B2C applications, and specifically for online grocery shopping. The technical ability already exists to upgrade from today's grocery experience of 'shopping by list', to tomorrow's experience of 'browsing a store that mirrors your own local store'. With the accelerating pace of technology across other platforms such as mobile and Smart TV's, it is possible to imagine a
technically connected solution that drives grocery online shopping up from 4% of sales today to over 50% tomorrow.

Driving the demand for this technology

One of the most pressing demands for Virtual Stores comes from the increasing importance to businesses of winning at the 'First Moment of Truth' – ie winning with shoppers.Virtual Store technology is ideally suited to enable shopper marketing, as it visualizes the whole shopper 'path to purchase' from home to store to shelf, and provides a unique collaboration framework for the marketing and sales functions to work together on this discipline. It should be no coincidence then, that the same company that has been a thought leader in shopper marketing
has also been one of the most extensive pioneers for Virtual Store technology.

II. The Role Of Virtual Research

Positioned within the spectrum of existing marketing research, virtual store testing sits between the fields of traditional consumer research — focus groups, text-based online surveys, in- store intercepts — and historical methods of field work, such as market tests at retail, in-store ethnography (through video capture or personal observation) and controlled field experiments (in conventional or mock store environments). In "Making Shopper Marketing Work," an industry report issued in fall 2007 in conjunction with the Grocery Manufacturers Association, Deloitte Consulting praised the practice for "allowing for rapid and realistic scenario testing of merchandising, product and promotion designs and layouts with reduced need for field testing." Although there are a multitude of applications for virtual simulation tools, their most basic function is to provide the in-store context needed to understand product selection and other important aspects of shopping behavior. Traditional methods of consumer research do not provide such context; traditional methods of field testing can, but at comparatively higher costs (relative to scope) and in a slower, less efficient, and far less flexible manner.

To achieve that goal, practitioners are employing an array of tools that include:

• Visually basic but highly functional two-dimensional and video-based simulations of shelf sets and small-scale store environments that can run on any computer and are designed for online use on standard monitors;

• Visually basic 3-D simulations with pre-determined shopping paths and limited durations that are online-compatible

• Intermediate 3-D simulations of product categories and store departments with high-resolution graphics suitable for larger screens that can run on personal computers (although not online)

• high-quality, full-store 3-D simulations with special technology requirements that warrant site-specific interaction and are designed for display on large screens. Each of these options has its own benefits and potential drawbacks. In general, development costs increase along with the level of visual sophistication, but operational efficiency and flexibility of user location decreases. While the commercial availability of various 3-D software tools makes internal development of virtual store environments possible , most consumer product manufacturers and retailers have, to this point, hired outside vendors to do the work.

The functionality common to all environmental levels centers on the ability to "shop" by selecting specific products, either by clicking with a mouse, touching the screen or using a more advanced interactive device; doing so draws up a larger version of the product's packaging for closer inspection and consideration. Test subjects (or respondents) then have the option to "buy" the product or place it back on the shelf.

While more basic in terms of graphics and environmental scope, online simulations offer an efficient, effective method of researching a variety of shopping behaviors. (Image courtesy of Decision Insight)

Another common element is the delivery of both quantitative and qualitative information by combining data gathered through the virtual exercises with some mode of respondent survey or post-exercise question-and-answer component. This ability to deliver behavioral data and corresponding attitudinal insight has been a key selling point for the tools .Virtual store testing is a great tool for giving you both — without having to be in-store to get it." A consensus seems to have been reached among practitioners (referring both to suppliers and clients) that some level of in-store "atmosphere" beyond the shelf set in question is required to adequately establish context. Leading virtual suppliers, therefore, typically create exercises that begin outside the store in the parking lot and guide respondents through the entrance and over to the appropriate aisle.

Most virtual research currently involves the capture of SKU- or category-level data, including tests on packaging, price, product assortment and shelf organization. A number of companies also are testing the effectiveness of in-store marketing and merchandising concepts. Still fewer are using more robust virtual environments to examine category adjacencies and overall store layout. Perhaps the most common research application for virtual tools, and one that offers a simple way to compare the practice with other research methods, is package testing. In traditional consumer research, consumers are presented with one or more packaging concepts — either as two-dimensional renderings or physical prototypes — to ascertain their preferences and likelihood to purchase. For the most part, consumers are charged with forming their opinions of the package in isolation; at best, static renderings of the product within a competitive shelf set don't approximate the store experience at all.

Furthermore, researchers must rely on the validity of what respondents tell them: Questioned for this report, more than a few practitioners cited the axiom that "what people say they do is often very different from what they actually do." Taking a package test into the field, on the other hand, would provide the necessary in-store context, but at costs that make the option almost always prohibitive — even if all the attending logistical issues can be addressed. (See "Primary Benefits," page 7.) In contrast, even a fairly basic store environment presented to consumers online would provide enough real-world context to evaluate potential in-store performance, practitioners say. At Kellogg Co., adding shelf simulations to tests on new packaging concepts has provided valuable information about purchase incidence: Will the new design increase sales by better grabbing the attention of shoppers, or decrease sales because they can no longer find the old, familiar package? "Without the simulation, we couldn't do that," says Brian Seel, Kellogg's associate manager of market research for Pop-Tarts. Johnson & Johnson's McNeil Consumer Healthcare has been using online virtual environments to test the impact of new products on various shelf arrangements. Without the virtual option, the company would have to conduct "test & learn" studies at retail, a much costlier, more time- consuming alternative, according to Mike Pishvanov, associate director of shopper insights.

Three-dimensional environments provide a much greater degree of realism and, theoretically, results that more accurately capture real-world behavior. (Image courtesy of Fifth Dimension)

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III. Primary Benefits

In addition to providing context, current practitioners cite the following benefits of virtual store simulations:

Cost savings: Although initial development of virtual testing environments adds an additional layer of expenses onto a typical consumer research project (initial setup costs range from $10,000 to $20,000), they usually are far less expensive than market tests — especially when some of the subsequent benefits are taken into account. Also, costs generally decrease once a basic environment has been created. **Flexibility:** Project-to-project comparisons don't tell the entire story, however, because most practitioners cite the technology's facility in testing multiple scenarios simultaneously, or its ability to easily alter test stimuli, as a greater advantage than potential project-specific cost savings. "The flexibility is amazing. We can visualize what the store looks like at 5 p.m. on a Wednesday," says Kimberly Senter, who as director of category management at Unilever has been working with whole-store environments.

Speed: Although initial setup can take a few weeks longer than traditional research methods (primarily due to the collection and processing of product images and other required graphics), virtual tests are faster in the long term, especially in comparison with field tests.

Control: Virtual simulations let researchers completely manipulate both the environment and respondents' interaction with it. Weather, out of stocks, competitive activity and other variables that can often affect real-world tests are no longer factors — unless they are designed to be as part of the study.

New data streams: Real-world testing of in-store marketing effectiveness has too many obstacles — expenses, uncontrollable variables and retailer reticence, among others — to be cost- effectively scalable. Similarly, these limitations have made it almost impossible to conduct tests for several specific retail accounts simultaneously. Virtual simulations, therefore, can provide data that has been largely unattainable, according to several practitioners. "There was just no other way for us to generate that kind of information, no matter how much money we threw at it," says K-C's Thompson.

Confidentiality: Numerous practitioners point to the freedom they now have to conduct store tests in anonymity, outside of the store and away from the always vigilant eyes of competitors. They also note the ability to avoid the potential embarrassment of failed in-store tests, which can negatively affect relationships with retailers. Practitioners usually discuss several of these benefits in tandem when discussing the appeal of virtual simulations. Although he hasn't yet found significant cost savings in the practice, Energizer consumer research manager Donald Day notes that, because batteries have a long purchase cycle, "we would need to be in-store for about three months" to collect the requisite data. With virtual tests, "we can get the desired sample size in a couple of weeks by testing different cells," he says. Likewise, Coty Inc.'s first virtual project has been the development of an "optimal fragrance wall" for mass-market channels. With the level of "tweaking" necessary to build the ideal display, conducting in-store tests would be "extremely costly" when such factors as building, shipping and installing fixtures are considered. With virtual tests (conducted as mall intercepts in 10 cities), "we can do so much more, so much faster, with pretty much the same results," says Yelena Idelchik, Coty's director of retail experience, fragrance. "Something that would take you days to build [instead] takes you minutes to build." Without the virtual option, "we would have done it the old-fashioned way" by conducting in-store tests, says Michael Ferrara, Coty's vice president of sales strategy and customer marketing. "But that would have been very costly and, arguably, not all that effective, because we'd be limited to a small number of doors."

IV. Potential Obstacles

Costs: The costs of virtual-store testing, both real and perceived, are currently the single biggest barrier to entry. As noted earlier, virtual simulations require developmental expenses that aren't found in traditional forms of consumer research. And the production of full-store environments for more advanced projects range anywhere from several hundred thousand dollars to multiple millions — a price tag far higher than many companies are willing to spend. However, the sticker shock over high-end simulation technologies is largely related to the hardware costs associated with building fully immersive systems. And such systems are being undertaken for multiple business objectives, not just research.

Project Management Issues: Setting up a virtual test involves technological steps with which some research professionals are simply inexperienced. "It's definitely a lot of work on the client side. You have to provide a lot more resources," says Tristina Keith, vice president of operations and product development at OTX, a marketing research firm that acts as a client in the virtual world by contracting with a simulation specialist to create testing environments. **Lack of benchmarks:** The relative newness of the practice — and some of the companies providing it — means that researchers don't have the wealth of benchmarks and normative data with which they are accustomed. That can worry researchers used to supporting their new findings with existing data. "It takes a bit of a leap of faith," notes Thompson at K-C, which thus far has leapt farther into the virtual-reality world than perhaps any other practitioner.

Validity: The practitioners interviewed for this report all firmly believe that virtual store simulations mirror reality well enough to deliver actionable insights, despite what in most cases is an admitted lack of true scientific evidence. A number of companies on both the client and supplier sides have validated virtual results against market-share data, most commonly dollar and unit sales, and found the correlations to be excellent (with 0.9 the ratio most commonly cited). There has not been enough "research on research," however, to conclusively determine how accurately other aspects of shopping behavior are reflected.

FINDING VALIDATION One of the key obstacles in validating virtual results illustrates one of the very reasons the practice is so attractive to marketers: the difficulty in conducting in-store tests. The time-consuming, costly nature of market tests isn't conducive to parallel studies (although several companies are in the process of conducting them). "It's hard to generate the real-world data to validate the virtual data," notes Thompson. Still, Kimberly-Clark is taking that "leap of faith" in regard to shopping behavior "because the key measures [of sales] have been so strongly validated." While conducting a virtual test of layout concepts for its convenience store group in conjunction with Unilever, the Co-Operative Group (an omnibus organization for various U.K. retail channels) simultaneously tracked real-world shopping via in-store video cameras: Respondents first participated in a back-office virtual test, then were sent into the store to shop for real. According to Susan Beetlestone, Co-Operative Group's head of commercial marketing, results from the virtual tests were "absolutely validated on all the aspects we were looking for," including basket size and number of categories purchased. The virtual test accurately "identified hot and cold spots within the store," and ultimately provided the blueprint for a new prototype that has increased average basket size. One measure for which substantial normative data is available, dwell time, already has proved to differ substantially, because virtual shopping exercises are still a novel experience for most

Using Virtual Stores for Research

*Virtual Stores enable instore research better, quicker and cheaper than any other methodology. After 2 decades of case studies the concerns over validation have melted away,and this application for Virtual Store is the most widely used in FMCG.*One of the first recorded uses of Virtual Store for shopper research was by Goodyear Tire and Rubber Company in 1993iii, and since then the methods, technology and results have improved tothe point that research using Virtual Store is a widely used method for most leading FMCG companies. The key functional benefit of Virtual Stores is research 'in context' – the ability to provide the look and feel of a shopping environment that appears 'normal', along with the

flexibility to change any part of the visual scene to test alternatives. Virtual Stores therefore provide a cheaper and more controlled environment than 'real stores', while providing the shopping context that most consumer research methods cannot replicate.

How does it work ?

At the basic level Virtual Store research provides the visual context needed for the research topic, at the pack, shelf, aisle or store level. For instance, to do some pack research the minimum context needed is the shelf to place it on, and maybe the shelf above and below, while for more complex store layout research the whole store context is required. Most research uses a combination of 2D and 3D designs, in either a static shelf or navigable store context, and respondents are either
recruited in the field using a portable research station, or recruited online using an internet connection connected to a central server.

What data can Virtual Store research provide?

One of the key benefits of researching using Virtual Store methodologies is the ability to collectboth quantitative and qualitative data from the research process. Typically, most research methods favor either one of the other – but by using sufficient numbers of respondents to be statistically significant in quantity, and by asking them qualitative questions along the way, Virtual Store combines both to deliver insights that are richer than many other methodologies.

Virtual Store research can deliver insight into:

1. Shopping behavior – where they went, what they saw, how they shopped the store
2. Purchase behavior – what, where and how they bought, and at what price
   Attitudinal measures – why they bought; expectations, desires and intent to return
   What benefits come from using Virtual Stores for Research?

   As well as the rich data outputs, there are other benefits of carrying out virtual research, such as:

A. Speed – changing items in a virtual world takes much less time than it would in real stores
B. Control – all of the variables of the real world can be controlled in the virtual world
C. Flexibility – the same store context can test a wide variety of business issues
D. Confidentiality - Virtual Store research provides a 100% confidential environment, which can be useful for new to the world NPD and controversial products

10. Capability - The ability to carry out research that simply would not be possible any other way, such as the redesign of a total store layout.

But the biggest benefit of virtual research – saving money – is most evident when using online research methods, as 'the cost of doing research can be reduced by up to 70% when done online .

V. Using Virtual Stores for Shopper Marketing

By enabling businesses to better understand their shoppers, Virtual Stores are perfectly suited to facilitate shopper marketing in all its forms.

A Virtual Store is a wonderful tool for the shopper marketing function, as it brings together shopper insight, marketing and sales onto one platform. It is most effective when the other applications are also in use, as the best shopper initiatives will be based on strong shopper insight, well-designed brands, good merchandising principles, and a collaborative relationship with key suppliers, all of which are enabled by Virtual Stores. Some examples of VR enabling shopper marketing initiatives include Frito-Lay's use of VR to examine the impact of end-of-aisle displays on snack foods, Pepsico's research to place displays in the right area of convenience stores, J&J's use to help price a painkiller called Uristat, Reckitt Benckiser's use to define category growth drivers in the sexual wellness category – in fact virtually everything that influences the shopper along her path to purchase.

How does it work ?

At the most advanced level an entire shopper marketing initiative can be developed in VR, although most businesses are not yet set up for this. The typical process flow for most initiatives is:

1.Shopper Insight – this is the basis for the most successful shopper initiatives, and VR isone of the ways of generating the insight needed to inspire the initiative at the outset

2. **Initiative Design** – whether alone or with help from a specific agency, the design can be achieved much quicker and more creatively in VR than using alternative methods

3.Initiative Test – for some initiatives that involve a significant operational upheaval, such Sas re-arranging fixtures instore, proving that the change will benefit sales can be done

1. quicker and cheaper in VR than by using a physical store

2. **Initiative Review** – having finished the planning phase, VR enables a multi-functional
3. review at all levels much quicker and easier than by using physical models
4. **Initiative Sell** – whether this is done at the strategic level in a Collaboration Centre, or at
5. the field sales level using a video 'Look of Success', the use of VR provides a very effective means of selling the initiative, especially if the content is already produced in 3D.

The Commercial benefits of using Virtual Store for Shopper Marketing

1. **Visualises the Path to Purchase –** Virtual Stores do this better than any other tool
2. **Creates a compelling Look of Success** – for sharing using either video or still images
3. **Saves cost** – using VR for the whole approach makes efficient use of design material
4. **Saves time** – quicker and easier to develop and communicate material than other methods
5. **Flexibility** - use of VR enables high flexibility by brand and outlet

VI. Conclusion

Virtual Store technology is merely an **enabler** to achieve applications quicker, cheaper and better than other ways of doing them, and is not an end in itself. In the same way that the growth of online banking technology has replaced and improved the cheque book, so VR technology will enhance and improve existing needs and applications in FMCG, rather than invent new ones. But there is a drawback with this nature of technology, which is that there is no 'burning platform' to force a change and your board will be asking you: *if research and collaboration is already successful without VR, then why do we need to invest now?* There are many barriers to adopting Virtual Store technology in any given business, such as:

 Defining Value – how quickly can payback be justified, in a stagnant growth economy?

 Attributing Cost – how do you split the cost benefit between different functions using the technology, such as insight, design and sales?

 Selecting future-proof technology – can you be sure that the technology and supplier you choose will be operating successfully in 5-10 years time ?

 Enabling the organization – how quickly can you drive capability in your organization to get the fastest return?

All of these will need to be addressed before progressing, and you will need to provide a convincingresponse to these questions to ensure that they do not block an investment decision.On the other hand, the value of using Virtual Stores is increasing day by day, and when the technology is adopted as an industry platform for Merchandising then this will provide the impetus for much faster and wider adoption. Virtual stores may only be enablers, but when they can be proven to save time and money, be better than existing applications and in some case drive sales, then the case for adoption becomes increasingly compelling. On top of this is the promise of a B2C platform that could revolutionize the weekly shop, and Virtual Stores clearly have an exciting future. It is increasingly clear that those who invest smartly in this next generation technology will be the ones that profit the most from the next generation

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