

Executing the Demand Chain

There is nothing more frustrating than having foreknowledge and insight and not be able to act upon them. Consider the case of retail demand chain execution. Today's consumer goods manufacturers and retailers are richly blessed with unprecedented market intelligence. They have advanced demand forecasting and supply chain tools, syndicated market research, and they can even simulate potential impact of different pricing and allocation decisions. Retailers can act on these insights by updating the internal pricing system and communicating directly with trading partners. But when it comes to executing the demand chain – creating the demand that one knows is present through timely, targeted and effective print communications – the established craft-based practice and habits in print advertising emerge as a key stumbling block. Can anything be done to make print advertising a more seamless and effective part of the demand chain? Can print learn from supply chain, web e-commerce, and demand forecasting?

This white-paper will look at these questions by making the case for *demand chain execution*, based on new enablers and trends and point to some best practice recommendations.

Lessons from Supply Chain

Today's consumer goods manufacturers, distributors and retailers have worked extremely hard on optimizing their supply chain. Let's get the goods from the vendors into the warehouse and out to the distribution centers and stores; let's make sure the shelves have enough products to meet demand; let's make sure that we are capturing all the scan and loyalty data we can; and let's make sure we are leveraging that loyalty data at our call centers.

It hasn't been easy. For one thing, suppliers and retailers are eager to have the other party carry more of the burden (fortunately, there was enough burden for both!) There is also the small problem of product identification in the bold new world of global trade; shall we use the EAN or the UCC product code number? Who owns the standards?

There are widespread exceptions and discrepancies creating barriers to global trade and even affecting intra-company transparency.¹

Despite debate amongst various standards organizations and commercialized initiatives, common sense is prevailing and there is a real sense of collaboration throughout the industry. For example, the Collaborative Planning Forecasting and Replenishment (CPFR®) initiative is a best practices process recommendation for initiating, revising, delivering, measuring and communicating product orders. Services like UCCNET offer a practical way for trading partners to put these standards into action. More broadly, the 1999 Global Commerce Initiative www.globalcommerceinitiative.org is dedicated to improving global trade, and funded by manufacturing and retailing industry associations (AIM; CIES, GMA and FMI²), cross-industry collaboration initiatives (included the VICS and ECR³) and standards organizations (EAN International and Uniform Code Council).

In short, the move to industry-wide *product identification transparency*, the need for standardized ways to extend the product with necessary attribute information (if you don't know how big the box is, you won't know how many will fit on a shelf), and the creation of an effective electronic means to communicate instantly among partners⁴ *within an electronic workflow*, have led to the notion of a seamless supply chain as a both a goal and a principle. The consensus is to isolate and identify *barriers to information flow* and work across the trading partner community to resolve them.

¹ This is certainly not new to anyone in the retail or supply chain community, but for those who still think that a "universal product code" is what it claims to be, a supply chain equivalent of DNA, would do well to review the educational material at a commercial trade exchange vendor, www.udex.com.

² AIM is the European brands association; CIES, the Food Business Forum; FMI, Food Marketing Institute, non-profit grocery industry association; GMA, Grocery Manufacturers of America, industry research and lobby organization.

³ ECR, Efficient Consumer Response, an international collaborative supply chain movement.

⁴ C.f. XML-EDIFACT(<http://www.xml-edifact.org>); RosettaNet (<http://www.rosettanet.org/rosettanet/Rooms/DisplayPages/LayoutInitial>); BizTalk (<http://www.biztalk.org/home/default.asp>, currently hosted by Microsoft by slated to move elsewhere.); cXML (sponsored by Arriba <http://www.cxml.org/files/cxml.pdf>)

Lessons from E-commerce

The Internet and global e-commerce, while falling well short of the stratospheric claims made during the late 90's, have profoundly affected the world of retailing. The Internet has intensely complicated the supply chain question by moving the point of purchase and sale directly to the customer's home. The volume of direct-to-customer shipments has increased radically with the steady increase in e-commerce sites, thereby elevating the shopping experience from the once humble "mail order" category into one driven by multi-million dollar, e-commerce web sites, complete with gift registries, customer service instant messaging, target loyalty programs and, naturally, on-line ordering.

E-commerce initiatives have served to underline the importance of traditional fulfillment. The most successful e-commerce companies all share a significant investment in fulfillment as well as a very traditional approach to customer service. The ability to easily return products, for example, is critical. Part of Sears Canada's online catalog success is because its customers know they can conveniently return products by using the familiar, local, Sears Canada catalog drop-off centers (at over 2100+ locations including dry cleaners, drugstores, quick copy locations and corner stores...) Customers felt a sense of trust, knowing if they bought on-line, they could safely and easily return the product if they so wished.

The very experience of opening the package ordered on-line is one which retailers such as Target actually dedicated internal focus groups. How should the package be prepared or addressed? What level of marketing messages would be appreciated? How could Target extend a community-minded "welcome" message to its "guests" -- in *their* own home?

E-commerce demonstrated that one could deliver database-driven content as part of an overall merchandising program. Merchandisers saw that they could deliver customer-touch point advertising quickly (once they established a bridge between their item management or merchandising system and a web content management system...) far more quickly than in traditional print. Since web content is by definition structured and lends itself to systematized refresh, it is bound to be more responsive. The point,

however, is that data driven e-commerce raised the bar for print advertising which reaches and touches far more consumers but is not nearly as responsive or dynamic.

Forecasting Insight

The perennial problems within demand chain optimization are quite simply to:

- (i) maximize gross margin on inventory (sell what you have)
- (ii) increase turns relative to the competition (sell more than the other guy)
- (iii) ensure appropriate allocation across stores (carry what they want)
- (iv) effectively manage demand peaks (when they want it)

Anticipating demand, catching trends, and building customer loyalty are all achieved by listening to customers and understanding local as well as global market conditions.

Fortunately, the case for price optimization (determining when and whether or not to discount a product to increase turns and protect margins) can be made scientifically. JDA, Marketmax, Retek, DemandTech, KhiMetrics, Mercari, Spotlight and ProfitLogic all make arguments for the use of their computer-aided tools to predict demand, guide price mark-downs and optimize margins.⁵

The interest level in forecasting is higher than ever. Many retailers have installed pilot systems, but leading the merchandising horse to the water of statistically sound recommendations is one thing; getting them to drink is another. Many merchandisers still prefer to review sales results and ‘gut’ instincts to respond to shifting market conditions. They see retailing as a subjective art that a computer could never ‘learn’. Perhaps this is because it takes a ‘merchandise analyst’, or a ‘quant’, to use the tools, and quants are frequently accused of forgetting about the intangibles of brand and customer loyalty.

Nevertheless, the tools are becoming more visual and more tightly linked to legacy systems, such as pricing and promotion planning. Eventually, it will be this level

⁵ For a survey of industry interest, turn to <http://www.pricingsociety.com>

of predictive intelligence that will offer retailers clearly competitive advantages, and the quants will themselves be in high demand.

These analyses reveal a wealth of actionable information that a retailer can put into play – if only there were a means of doing so. Merchandisers (quants or not) are burdened by knowing that even if they fully subscribe to the recommendations, their ability to drive results out through the demand chain into the promotion marketing and advertising groups remains riddled with its own legacy of subjectivities and barriers.

All roads lead to print

The examples selected above -- supply chain infrastructure, the onslaught of comparably more efficient data driven web-based e-commerce, and the advances of demand optimization through statistical modeling and advanced forecasting – all point to the critical bottleneck of print advertising in demand chain execution. After newspaper and book and magazine publishers, retailers, CPG and catalogers are the world's largest print publishing groups.

Consider, for example, what we know about improving the efficacy of a print advertising campaign. We can improve its performance significantly, with exponential benefits with respect to customer retention and market share, if we are able to deliver on the following:

- More focused targeted versions of a product offer
- Featured product swaps in markets with inadequate supply
- Bringing new product offers to market (before the competition)
- Distinctive and consistent creative brand treatments
- Synchronized messaging across channels
- Special targeted ads for loyal club members
- Accurate product price and description
- Empowerment of local market overrides, early and late in planning
- More competitive pricing closer later to the print time of the catalog or ad
- Better product assortments that leverage up-sell synergy

- Proactive loyalty marketing
- Better utilization of trade allowance and vendor sponsored marketing
- Reduced space and feature treatment for low performing offers

Execution Denied

Print remains retail's dominant customer touch point including daily newspaper ads, direct mail, point of purchase display, insert flyers, catalogs, and packaging. The reality, however, is that while print advertising is critical for retailers and *essential for catalogers*, the impediments to demand chain execution are significant.

Craft-based workflow despite computer-based publishing tools

The best ads are still driven by artists who use traditional and simple tools (sketchpads and storyboards) to conceive, plan and share their ideas. The industry needs to empower these minds with tools that do nothing to impair their creativity but at the same time keep them as part of a demand chain workflow. This is a difficult balance, however, ergonomically sensitive and collaborative tools (such as Adobe's DesignTeam) and workflow-oriented content management tools (such as Engage's ContentServer, IBM's Content Manager or Documentum's 4i product) show us that it is possible to leverage technology to a common goal.

Rich Media Product Knowledge Repositories

While the global trading communities have worked hard to standardize on a unique product identifier and product attribute information, a key aspect of retailing is the marketing inflection, display attributes, and clustering that comprises a product representation. The need for repositories that can map global product identifiers to multiple image representations (beyond the typical planogram 'mug shots') and are capable of providing multi-lingual and multi-channel aspect versions is critical. To date, best practices in the industry have been to simply name images after the SKU or UPC, with complex and error-prone suffixes and prefixes stored within file-based workgroup folders on shared, local desktop servers (i.e., an unstructured and unsustainable practice). Similarly, marketing/advertising copy is time-sensitive, market-specific, and language

and media sensitive, with unique problems for international translation and revision control.

Proprietary creative formats

Regrettably, some vendors continue to privilege their own proprietary formats, thereby inhibiting collaboration. Both Quark and Adobe, for example, were late to and not yet fully XML-compatible. Of course, much of this has to do with the complexity of the issues (it is difficult to express notions such as a close-cut, runaround, aesthetic rag, or pre-press trapping values in a language not designed to handle it), but some of it has to do with their desires to perpetuate a software license position. This is understandable from a business point of view, but not from a demand chain execution perspective.

Business Rules

Related to the previous point, these technologies must also allow for business rules at the promotional level. One could, for example, ask the rules engine to observe a cell phone promotion and if it is destined for Illinois, automatically substitute cell phone manufacturer A for B, except in the three weeks prior to Christmas for those market areas in a specified as highly competitive. In other cases, retailers frequently offer special rebates, discounts and complex offers that cannot be tracked in the price management system. It would help if these business decisions, which are typically established at the ad level, could be encapsulated with the ad for later reconciliation and audit.

Currently, best practice in the industry is to deploy what I refer to as a “carbon-based, bionic neural net.” Simply put, key people who have through years of experience assimilated the myriad of complex, ever changing contextual ‘rules’. They are typically heroic in their unstinting dedication and spend vast amounts of hours ensuring accuracy – but the very need for such heroism reveals a dysfunctional system.

Certainly technologies such as Blaze Advisor from HNC (utilized by Blue Martini and IBM Websphere) offer us good examples of rules-based engines, though focused more on the e-commerce side. Finalization and rules-based presentation is much easier in e-commerce, but we need to see those rules integrated into print communications.

On the print side, encapsulating promotion rules and conditions for purposes of advertising requires an advanced object model that is sensitive to retailing. It also requires flexibility in expressing the message across channels, capacity for limitless versions (ranging from several dozen or hundred versions of an ad to direct one-to-one marketing) and enterprise availability so that it is not confined within either the advertising or merchandising domains. This, certainly, was the intent behind Engage's PromoPlanner product that has collaborative peers in JDA's AdPlan and in Marketmax's Space Planning tool used creatively for print planning.

Conditional formatting

In addition, a great deal of creative refinement is amenable to conditional formatting to automate typical design and format decisions within guidelines established by art directors. Relative white space, tolerance for sizing, positioning of logos, disclaimers, conditional and aesthetic rules-based formatting, and so on, are all bottlenecks. In order to support high-volumes of variable and targeted data, new tools and new openness are required to help streamline the workflow. There are good examples of conditional formatting on proprietary systems such as those from Barco, Bitstream, and CreoScitex for digital print, variable data publishing and from Founder Systems in Asia. All of these, however, frequently require propriety technologies. One hopes that plug-ins and extensions from Meadows, Woodwing, EM Software or San Sui might be able to address this gap or that Quark or Adobe might see fit to address these issues themselves. In the meantime, we are attracted to software providers such as Think 121, which provides Adobe Acrobat plug-ins that allow high-speed variable data directly within a PDF file.

Dependency on print suppliers for executing the versioning and targeting

The manual production of a versioned FSI (free-standing insert) is a significant barrier to improving the focus, quality, volume, and timeliness of print advertising. The multiplicity of different price zones and the frequency of merchandise substitutions between markets make the preparation of final printing plates a difficult process. A national campaign is truly a "palimpsest" – a deeply layered graphic arts nightmare riddled with data-driven exceptions and variables. Due to the complexity of this task,

many retailers rely on the printers, pre-press houses or distributors like Valassis and Advo, to help finalize their “printer zones” and help target their advertisements to achieve the optimal number of versions, with fewest redundancies and/or errors.

Most significantly, retailers must also curtail and self-censor their marketing campaign since every change will affect time and cost of execution. The irony is that while empowered with demand forecast intelligence, the retailer is hard pressed to actualize or take advantage of all that she could. This part of the market will be well served by advances being developed by companies such as Engage with partners in the Adobe and Quark plug-in development community. The goal of dynamically generated desktop publishing layers will finally be a reality in the fall of 2002.

Approvals

All ads need to be checked for accuracy and content; this is a process that ties up key decision makers, some of which are extremely frequent travelers. Coordinating and managing the approvals is a time-consuming process and one that typically remains paper-based and manual. This has a special impact on co-op revenue that cannot be recognized until there is a contractual sign-off and receipt of a proof of print.

Key delays in delivering late pricing and ensuring accuracy

Last minute pricing has a dramatic impact as well. If versions change, all prices need to be checked and confirmed. Fortunately, there are excellent extensions and plug-ins to accommodate data driven price updates (i.e. LinkUp, Autoprice, Xcatalog).

Unfortunately, the preparation and communication of price changes typically remains an “over the wall” process, rather than a single, seamless system; and, integrating this price linking technology into the retail and catalog enterprise is the next obvious step.

High-resolution file sizes and compound documents

There are multiple points of failure in a complex print advertisement. Not the least of these is the assurance of just-in-time delivery of constituent elements (linked images,

graphic files, fonts, etc.) within a complex and compound document file format. The ease of use of the desktop creative applications carries a price. Moreover, the file sizes associated with high-resolution scans taxes most computer networks, and frequently alternative approaches to managing high-resolution files are required (OPI, embedded JPEG compression, etc.). Systems such as IBM's new Content Manager 8 support the compound document within an enterprise repository. Engage's ContentServer provides similar functionality, but with embedded support for the Macintosh file system, desktop, and best-of-breed OPI solutions.

Inter-departmental friction related to paper-based change management

As a result of all of the impediments listed above, the opportunity to execute the demand chain is limited. Best practice in the industry, in fact, is to circumvent whatever "established" procedures might be in place by directly communicating product or price changes right to the creative operator's desktop, thereby breaking the data link as well as audit and accountability trail. It also sets up cyclical waves of redundant keystroking, and impairs the kinds of business process re-engineering required for marketing automation.

Conclusions

Put simply, *seamless execution* of the demand chain based on price optimization, with the same kind of dynamic responsiveness we have come to expect from the web, and with the same spirit of collaboration we have come to expect from the supply chain community, remains an elusive goal within print precisely because of these outstanding bottlenecks. The good news is that the technology has either arrived or is on the horizon. As retail organizations look to seriously weigh the benefits of advanced forecasting, they should take a close, enterprise view of the demand chain execution opportunity. No one would intelligently implement a supply chain solution with a state-of-the-art warehouse and replenishment system that is tuned to the precise shelf and stocking levels across the enterprise, but is forced to reduce the flow of products to the store because the loading

bays are narrower than the trucks ramp, and may only be loaded by hand through a single loading dock.⁶ The same holds true for demand chain execution.

Fortunately, the momentum to transparency, collaboration, internationalization and free and ready exchange of retail promotions is overwhelming. The established retail community understands this, if for no other reason than the compelling success of direct peer-to-peer simplicity – i.e., ebay (you got it; I want it). The imperative is clear; the retail industry demands open standards, open communications, rich media inflection, and dynamic just-in-time delivery. The result is a consumer-oriented model, where the reader is the writer, and where supply and demand can finally meet as equals.

⁶ True story, a North American DIY company who shall remain nameless. Problem has since been addressed.