



# The New Imperatives of Retail Forecasting 2.0

## Prospective View

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# Introduction

## Have the Rules Really Changed?

While investors have long chanted the mantra "Past results are not an indicator of future direction," the sentiment has never been more true than in our current "post-recession age." Consumer strategists are now confidently stating that consumer buying behavior has been significantly impacted by the global downturn, by responding more strongly to discounts and avoiding "unnecessary" purchases. Uncertainty continues to be the watchword for critical holiday seasons, both for the total spend consumers will commit to, as well as which products will reap the benefits. At no other time has it been *more* of a risk to start from "last year's plan" as the basis for this year's activities and ever hope to hit the mark on inventory, margin, or revenue.

This paper will examine the impact of the current retailing environment on forecasting as an input into the merchandise planning process. We will look at the business drivers causing retailers to re-examine the role of forecasting in their enterprise, as well as where forecasting is playing a critical role in helping retailers manage their business in the face of uncertain demand.

## Retail Winners and Why They Win

Throughout RSR's research, you will see us reference "Retail Winners." Our definition of Retail Winners is straightforward. We choose to follow top line performance. Retailers cannot cut their way to successful growth, and only those retailers that can consistently demonstrate that they understand and can meet the needs and desires of their customers are going to succeed.

Assuming industry average comparable store sales growth of three percent, we define retailers with sales above this hurdle as "Winners," those at this sales growth rate as "average," and those below this sales growth rate as "laggards" or "also-rans." It is consistent throughout much of RSR's research findings that Winners don't merely do the same things better, they tend to do different things. They think differently. They plan differently. They respond differently.

## Methodology

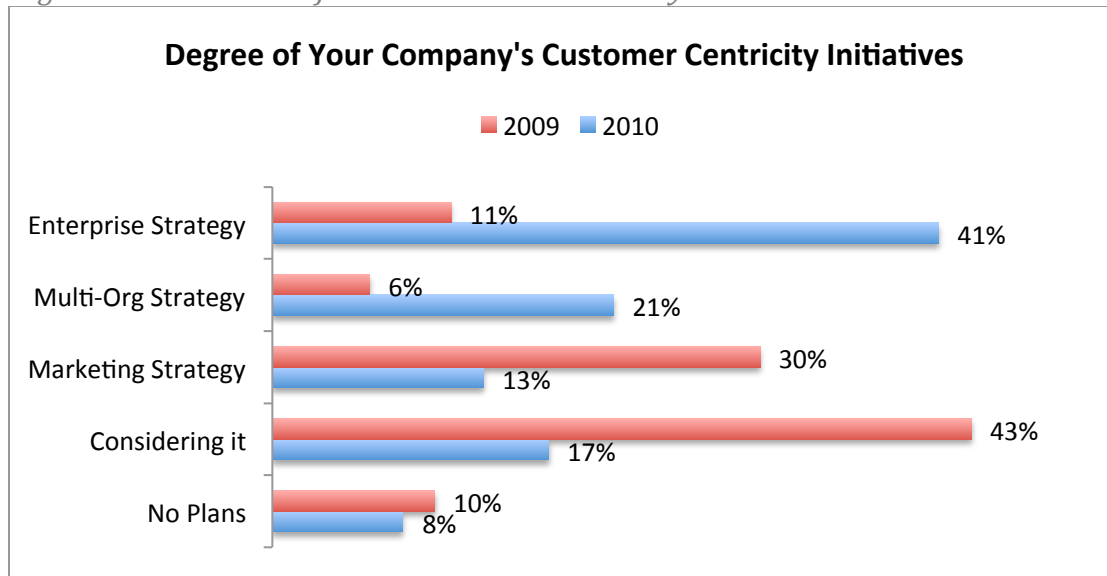
RSR's Prospective View methodology leverages multiple research topics to dig deeper into issues that cut across retail disciplines. Prospective views bring together these disparate data trends to provide not only a current-state perspective on a topic, but also to bring a more forward-looking viewpoint to the industry. For a list of the reports referenced in this research, please see Appendix A.

# The Business Challenges of Forecasting

While the **economic impact** of the last few years has certainly been an important driver in changing customer behavior and thus putting new pressures on merchandise planning, it is actually only one of three major factors that are coming together to completely change the way that retailers need to approach merchandise planning; the other two factors are **shopper-based localization** and **granularity**.

These factors have become important primarily through the ongoing transformation of retail from a product-centric industry to a customer-centric one, an effect accelerated by economic conditions and increased pressure to better leverage inventory (Figure 1).

*Figure 1: The Need for Customer Centricity Grows*



Source: "The State of Personalization in Retail," RSR Research, August 2010

Some retailers might argue that they have achieved a high degree of customer centricity already, either through store-based control over assortment and inventory levels, or through geographic organization of their businesses to account for cultural preferences across regions. However, even this concept of customer centricity is being challenged by the borderless world of the Internet, giving consumers access to products they might never have previously considered and giving them the opportunity to buy and ship products to people who once might not have had access to such things.

Customer centricity is exactly that - putting the *customer* at the center of the business. Retailers who can do this well will not let geographic lines stand in the way of common preferences and desires - and will reap the benefits of customers' perceptions of customized or preferential assortment alongside the bottom-line benefits of scale and sourcing opportunities available to central buying departments. But to be able to achieve these benefits, retailers must be able to master shopper-based localization, and assortment granularity, within the context of the recent economic singularity. The retailers that can navigate these new pressures - and make enough sense of what they mean to be able to anticipate future demand - will truly be the Retail Winners of the future.

### Shopper-Based Localization

In some retail verticals and some regions of the world, localization has been around for a long time and seems like nothing new. If you want to be successful in Europe, you cannot operate exactly the same in every country - what works in France will typically not fly in Germany. In the United States, what works in southern California will probably not achieve the same success in Mississippi. Before the advent of large chains, retailers implemented localization through local (as in "store") control of assortment and inventory. As retailers expanded, they took one of two paths: complete centralization - where assortment and inventory operated in a world of aggregation and

averages, or geographic localization - where assortment and inventory were, at best, centralized based on a geography or left to varying degrees within the local store manager's control.

Customer centricity is disrupting both of these models, by forcing retailers to consider their business not in terms of geography or raw demographics, but in terms of customers' needs and wants first, and their demographics second. In some ways, this is going back to the original basics of retailing. As retailers grew larger, they used geography as an easy "proxy" to identify large groups of common customer types, to the point that the underlying customer preferences and behaviors were lost to geographic generalities.

This challenge very much exists today. From RSR's research:

- When it comes to managing inventory, retailers report that consumers are demanding more localized assortments<sup>1</sup>;
- In RSR's merchandising research, localized assortments have rated as the most important opportunity for retail success for three years running, with well over 50% of respondents reporting it "very important"<sup>2</sup>; however,
- Retailers that operate across multiple geographies tend to disagree - European retailers in particular are much less likely to rate localization of the assortment as an important opportunity, because they already have it in place either through geographically-oriented lines of business or more local control at the store level<sup>3</sup>.

Technology creates major disruptions in a geographically-based assortment. First, the Internet enables consumers to easily cross boundaries that were once physically impossible. While the physical constraints still exist - import laws, international shipping requirements, the simple costs of cross-border business - even these constraints are constantly being eroded away over time through free-trade agreements or state-driven negotiations on the one hand, and clever entrepreneurs who constantly push at loopholes or breaks in regulations on the other.

This can be felt at both a macro and a micro level. At the macro level, trends and preferences - including fads - can sweep the globe at literally Internet speeds. The time lag between when a trend is identified on the streets of Paris and when a customer can purchase it off a rack in St. Louis, Missouri is shrinking rapidly, leaving retailers with less time to respond, and with greater risk of missing the mark. At a micro level, eCommerce threatens to unravel a retailer's internal geographic bounds: to which geography do you attribute a sale if it is purchased in one country or region, but shipped to another? What if it is a gift? What if that gift spawns additional purchases in the receiving region, indicating latent demand that you might never have identified otherwise?

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<sup>1</sup> *"Precision Inventory Management in the Age of Localization," Benchmark Report. Nikki Baird and Brian Kilcourse, RSR Research, August 2009. Retail survey respondents reported that "Consumers demand more localized assortments" was the #2 business challenge, followed by "Trading partners don't have the flexibility we need in supply chain."*

<sup>2</sup> *"Defining the Tenets of 21<sup>st</sup> Century Merchandising," Benchmark Report. Nikki Baird and Paula Rosenblum, RSR Research, September 2010.*

<sup>3</sup> *"Defining the Tenets of 21<sup>st</sup> Century Merchandising," Benchmark Report. Nikki Baird and Paula Rosenblum, RSR Research, September 2010.*

On the consumer side, developments in mobile technologies have addressed another challenge that has historically made it difficult to communicate with "customers" rather than with "regions." Despite years of loyalty programs, retailers have an extremely difficult time identifying and reaching specific customer segments. Even if retailers could reach certain segments uniquely and exclusively, that has not meant that they knew enough about those specific shoppers to say anything meaningful to them. Mobile is changing that, with downloadable (and configurable) apps, SMS campaigns and more, bringing retailers more opportunities to communicate in specific ways with specific customer groups than ever before.

In the end, geography was only a proxy for what we wanted all along: customer relevancy, no matter who that customer is or where they live. But without some of the more recent advances in technology, customer relevancy was impossible to achieve on both ends of the spectrum: it was impossible to centrally know customers well enough to attempt to be relevant to them at a level that mattered, and impossible to reach them and engage with them even if you did know what to say. As a result, geography became the shortcut for achieving exactly that. However, as geographic constraints erode, retailers who do not have strong customer-centric capabilities will find themselves at a distinct disadvantage.

## Granularity

In other industries, granularity is known more by another term: *fragmentation*. Media in particular have been hardest hit by fragmentation of audience. With more content available through more channels than ever before, it becomes easier and easier for micro-segments of audiences to find only the content that they really want to see or experience. For retailers, fragmentation has come more in terms of a desire to achieve more granular assortments - to achieve the benefits of meeting a micro level of consumer demand by getting rid of errors caused by operating at too much of a summary level of the business.

As processing power and computing technologies have improved, retailers and academics alike have tried to tackle the most granular kind of forecast there is in retail: a store/SKU forecast. The technology is there - it is certainly now possible to achieve this level of forecasting without investing in supercomputers. However, retailers' ability to act on that level of detail has not kept up.

This is evident in RSR's research as well. While consumers constantly expect more relevance, retailers struggle to make it happen with assortment planning - 56% of respondents report that they have used a forecast as the initial input into demand for more than a year, but only 36% of respondents report a bottoms-up planning capability, and only 34% say that they have long had the ability to reconcile both a top-down and a bottoms-up plan.<sup>4</sup>

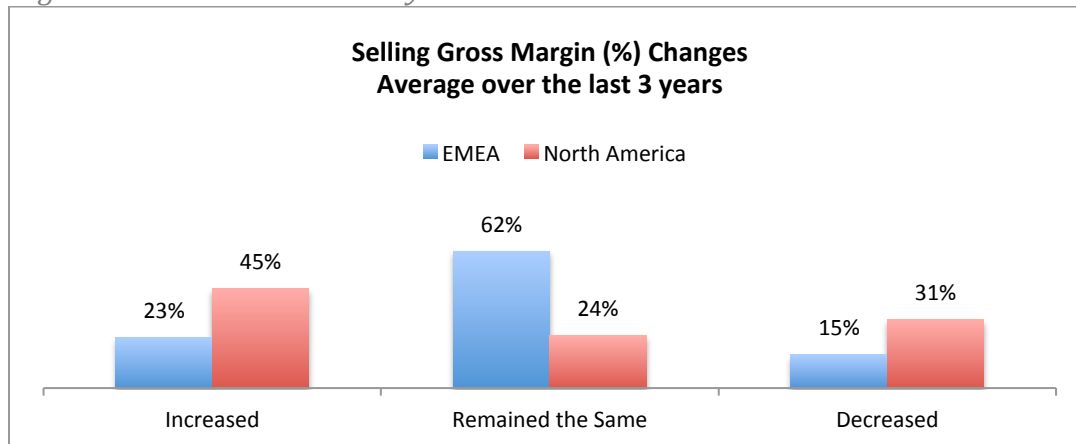
Again, geographically diverse retailers report more capabilities when it comes to bottoms-up planning - 56% of European retailers reported a bottoms-up planning capability vs. only 35% of North American retailers, but North American retailers report an aggressive pursuit of parity for this capability in the near future. Reconciliation of top-down against bottoms-up follows - 56% of European retailers report this capability today vs. 33% of North American retailers, but here European retailers seem to have a greater recognition of the need for reconciliation, with only 6% reporting no plans around this capability vs. 29% of North American retailers.

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<sup>4</sup> "Defining the Tenets of 21st Century Merchandising," *Benchmark Report*. Nikki Baird and Paula Rosenblum, RSR Research, September 2010.

Yet a bottoms-up advantage can rapidly become an inhibitor. European retailers may be more able to achieve granularity in their business today through their geographically local control, but it comes at a cost - a lack of efficiency (Figure 2). The true challenge of customer centricity is not to achieve granularity and a localized assortment, it is to do it in a way that captures the benefits of scale without giving up the "personalized" nature of the customer relationship.

*Figure 2: Localization Pays When It's Scalable*



Source: "Twenty-First Century Merchandising: Benchmark 2010," RSR Research, September 2010

Take pricing as one example. Pricing geographically limits opportunities to get creative with pricing segments because it forces optimization under a constraint. Without the constraint of geography, a retailer might be able to identify small consumer segments within a region that behave more like the dominant consumer segments in other regions, and find ways to reach these micro-segments. However, by limiting price optimization to a geographic-based view of demand, these micro-segments may be lost in the noise of other more dominant segments, never to be surfaced or reached. So while European retailers are more likely to price based on geography, North American retailers have moved closer to customer-specific offers or "personalized" pricing - in part because price transparency (driven by the openness of the Internet), particularly in the US, is forcing North American retailers to re-evaluate geography-based price strategies.<sup>5</sup>

### Singularity

How do you forecast for a singular event? For retailers, the speed in which the economy collapsed - and how quickly the impact spread to become a global phenomenon - was not something that could be predicted, either in the speed or the initial severity, as steep discounts to move inventory in the first calendar quarter of 2009 proved. The watchword of the downturn for retailers became "inventory" - how much are you stuck with, and what do you have to give up in margin in order to move it. Retailers that historically focused on out of stocks found themselves caught between a rock and a hard place: the distressing combination of out of stocks in categories that continued to sell well - electronics and groceries did well - while coping with excessive, slow-moving inventory in categories that were not selling well, like apparel.

<sup>5</sup> "Getting Back to Good: Retail Pricing 2010," Benchmark Report. Nikki Baird and Paula Rosenblum, RSR Research, January 2010.

Overall, retailers tend to over-estimate their ability to manage inventory - from RSR's Inventory research in 2009:<sup>6</sup>

- 52% of retail respondents agree that they are usually able to match inventory to consumer demand;
- However, 73% also agree that they are over-inventoried in slow-moving SKUs; AND,
- 53% agree that they are often under-inventoried in fast-moving SKUs.

The combination of out of stocks and underperforming inventory continues to haunt retailers today - with survey respondents indicating these as their top two respective business challenges in 2010 as well.

However, these answers are driven primarily by North American retailers. European retailers also feel challenged by underperforming inventory (#2 on their list of business challenges), but fractured planning processes - something that historically has dominated the list overall - remains their #1 issue by far (61% of EMEA retailers reported this as a top-three challenge vs. 44% of North American retailers). This is an interesting effect from localization without scale: inventory that is locked into a geography can't be easily sold in other places where demand might be better - and 44% of EMEA retailers reported that they are challenged on providing the right product/price combination in their merchandise assortment, making this third of their top-three issues. Local control and geographic boundaries exacerbate the challenge by building in fractured planning processes that cannot be easily overcome.

The bottom line for operating in the current economic environment: you can't rely on last year's plan. You also can't plan your business at a summary level and hope to have visibility into both the fast-movers and the slow-movers. You can miss out on one and do all right, but missing out on both can be deadly in retail. On the other hand, you can't push all control out to local managers either, because then you miss the big picture, and you lock yourself out of opportunities to leverage inventory from a slow-moving location into a fast-moving area. But in order to have the advantages of both, you have to be able to manage a lot of complexity - and the only way to do that is to inject more science and more automation into the planning process.

## A New Role for Forecasting

Science has found its way ever deeper into the enterprise, particularly around forecasting. Not only are there new places in the enterprise for using forecast data, new capabilities let retailers forecast where they may have never previously been able to. We will focus on three of these opportunities: assortment optimization, price and promotion optimization, and cross-channel.

### Assortment Optimization

**The Opportunity.** Much has been made of a "customer-driven assortment" but without a lot of discussion of what that really means. Typically, assortment decisions are made based off of model store assumptions ("urban" vs. "suburban" stores, for example) or geography ("hot" vs.

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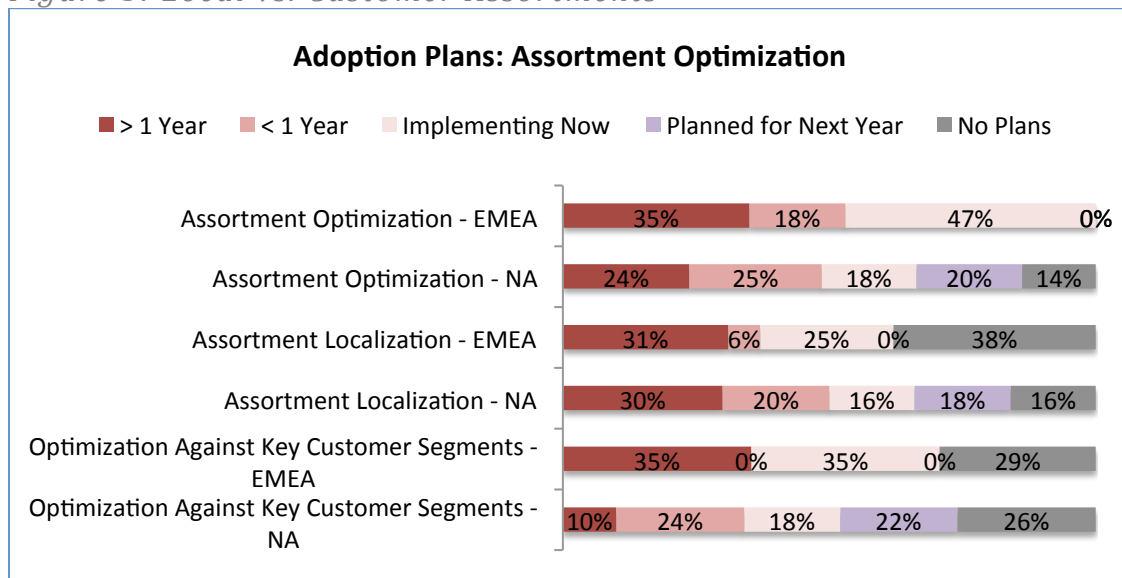
<sup>6</sup> "Precision Inventory Management in the Age of Localization," Benchmark Report. Nikki Baird and Brian Kilcourse, RSR Research, August 2009.

"cold"). Customer-driven assortment supplements those attributes with customer-based ones, either tagged to specific segments (the "Tina" assortment vs. the "Julie" assortment) or to specific characteristics of customer segments ("teen fashionista" vs. "traditionalist"). Assortment optimization becomes an exercise in making sure the assortment meets the needs or expectations of certain customer segments, in addition to ensuring that parkas are not sent to tropical locales.

But the economic environment has created a new imperative around assortment optimization, as retailers seek to narrow the choices that are presented to consumers through SKU rationalization. Localizing based on geography and without the benefit of customer attributes can be a risky endeavor in an environment of SKU rationalization - retailers must be careful not to rationalize away the assortment that appeals most to their best customers.

Adoption plans reflect something of a disconnect. While all retailers appear to be pursuing assortment optimization aggressively - European retailers slightly more so than North American retailers - significant differences emerge in the details of those plans (Figure 3).

Figure 3: Local vs. Customer Assortments



Source: "Twenty-First Century Merchandising: Benchmark 2010," RSR Research, September 2010

Both European and North American retailers plan to make great progress in terms of optimization against key customer segments. More EMEA retailers report that they have had the capability for more than a year - 35% vs. 10% of North American retailers. However, when it comes to assortment localization, roughly the same percent of respondents from each region report an existing capability, but 38% of EMEA retailers report no plans there vs. only 16% of North American retailers. Given that EMEA retailers are more likely to feel the pain of disconnected planning processes, a gap between customer segment forecasts and locality forecasts seems to perpetuate that disconnect, rather than address it.

Until retailers can achieve true cross-channel flexibility in inventory, ultimately assortment has to be connected to a geography in order to execute. Customer segment-based optimization will not replace or supersede other types of assortment optimization, but it does have to become an important part of the assortment balancing act.

**Implications.** The more ways that an organization looks at the assortment, the more flexible that organization's forecasting capability needs to become. Will we soon see a day of customer segment forecasts? Market basket forecasts? Such views into the business will indeed become critical as a way to manage the complexity of operating against both customer and physical distribution requirements. Ultimately, the idea is to understand the impact of assortment decisions against a more granular level of customer understanding and targeting.

But this makes reconciliation more important than ever, and not just between a top-down/bottoms-up planning process. Reconciliation becomes as much about reconciling assortment pruning against these new kinds of forecasts to ensure key customer segments are not negatively impacted. Alternatively, changes in demand for key customer segments will eventually need to be acted upon at certain locations. Whether the assortment is already localized or whether it is locally managed, without the central view and the connections in place to understand the implications of demand changes, no insights will ever be identified, let alone acted upon.

### Pricing and Promotion Optimization

**The Opportunity.** Price optimization continues to be one of the biggest margin opportunities, even 10 years after it first made its debut as a technology that could be applied to retail. Over the three years that RSR has researched pricing, retailers consistently report that they have not yet plumbed the depths of value that price optimization offers.<sup>7</sup> But the next level of opportunity requires a greater degree of granularity, primarily in the form of localized prices.

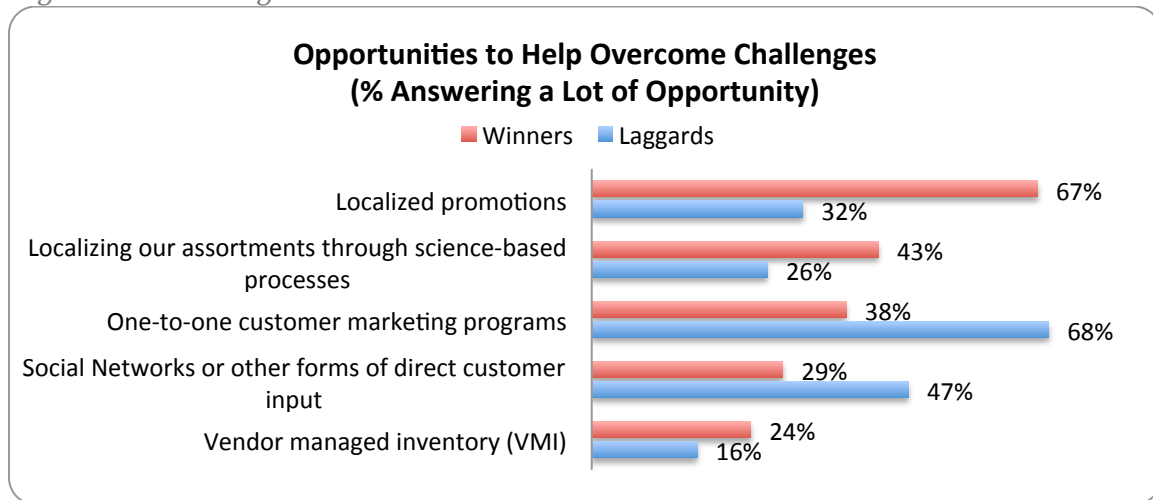
While localized prices can be achieved through regional pricing strategies to some degree, transparency challenges arise almost immediately, thanks to the Internet and particularly the rise of consumer mobile devices connected to the Internet. To combat transparency, retailers are experimenting with "personalized" prices - offers that focus on customer behavior, rather than a geographic mandate for pricing that will be challenged as soon as a customer accesses your website while standing at the shelf.

As retailers have tried to take advantage of more personalized offers and prices, they have realized an unintended consequence: when merchandising organizations plan "promotions" and marketing organizations plan "offers," the customer *really* wins - and margin loses. And there is a significant difference between "localized offers" and one-to-one marketing - as Retail Winners make clear (Figure 4).

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<sup>7</sup> "Getting Back to Good: Retail Pricing 2010," Benchmark Report. Nikki Baird and Paula Rosenblum, RSR Research, January 2010.

Figure 4: Getting More Than One-To-One



Source: "Retail Merchandising: Buckling Down in a Tough Economy, Benchmark 2009," RSR Research, September 2009

So while price optimization currently requires a historical view of price elasticity in categories and key products in order to build a clean forecast based on price assumptions, it now also requires the customer element - an identification of which customers will respond to a specific price "offer" and a forecast of their response.

**Implications.** It's no surprise, given the challenges inherent in the localized price opportunity, that retailers have reported that "measuring the impact of pricing decisions" is their top business challenge.<sup>8</sup> When one group is making price decisions based on products and categories and another is making price decisions based on customer segments and behaviors, trying to understand how these come together in terms of sales and margins gets complicated quickly. Right now, we're in the infancy of a focus on customer offers, but these offers are rapidly being made at a rate that impacts demand forecasting at a macro level. Just as Collaborative Planning, Forecasting, and Replenishment (CPFR) set up a process for communicating and collaborating between retailers and manufacturers around a demand forecast, marketing and merchandising within a retailer need the same kind of process for promotions.

Success here also requires a more formal assessment of which promotions and which offers to make, built off a process that includes evaluation of which past offers were successful. This means revisiting the forecast and calculating forecast accuracy at a promotion or offer level. It also means that retailers must do a better job keeping track of offers and redemption of offers made to specific customers in order to truly "denature" demand at the start of a price optimization process.

Ultimately, the forecast as part of a pricing process gives retailers much more power to balance supply and demand, not by moving product to match demand, but by moving price to influence the degree of demand - if they can figure out how to use that power wisely.

<sup>8</sup> "Getting Back to Good: Retail Pricing 2010," Benchmark Report. Nikki Baird and Paula Rosenblum, RSR Research, January 2010.

## Cross-Channel Optimization

**The Opportunity.** Just as enterprise-wide there is a desire to forecast and plan locally while buying in an aggregated fashion - to reap the benefits of scale - retailers are increasingly looking to bring the full leverage of inventory across channels as well. The opportunity is to eliminate the error that comes from having to forecast to a given channel, even though theoretically all inventory should be available to satisfy demand no matter where it happens to be located.

"Balanced channel" retailers - those that have an equal balance of direct business and store business - have long worried about how to forecast demand in an environment where online or direct sales are much more than merely a rounding error to store sales. Retailers, no matter the contribution of their online business, have an opportunity to get much more sophisticated here, leveraging cross-channel implications that come from driving demand from one channel to another, or using supply from one channel to meet unexpected demand in another.

Most retailers are still focused on the basics to help enable execution. From RSR's 2010 research on cross-channel strategy, cross-channel inventory and customer visibility, followed by distributed order management (a lynchpin for managing cross-channel inventory availability against customer demand) are still the tactical priorities, with forecasting taking a longer-term priority for now.<sup>9</sup>

**Implications.** The implications of cross-channel demand have not yet been fully explored - retailers tend to do a relatively poor job of driving demand across channels (or at a minimum of understanding how effective they are at driving that demand) so there is little information here in terms of understanding implications: When is it better to short the online channel to support unexpected demand in the store channel or vice versa? How will mobile change this picture? One implication is certain: if a retailer is forecasting separately for each channel, and not looking for synergy between those channels, then they are leaving themselves vulnerable to relatively unknown consumer behavior.

While it's ideal to plan and forecast at the lowest level possible to be useful, different drivers are needed to forecast for different channels - the online channel moves at a different speed than catalog, and both of them respond to different drivers than stores. As well, all of these channels react to each other in different ways. But at some point, an aggregated forecast is needed to become the basis for issuing purchase orders. This requires a far different kind of flexibility in forecasting infrastructure than typically needed to support store-based merchandising alone.

## Forecasting Imperatives

The three opportunity areas for forecasting examined above by no means represent the only three opportunities. Retailers are doing more around replenishment and in-season forecasts, as well as reaching deeper into the supply chain. However, these three opportunities - assortment optimization, price and promotion optimization, and cross-channel optimization - represent the three largest opportunities both in terms of the urgency of the need and benefits to the organization. In looking at these three, certain themes emerge:

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<sup>9</sup> "The Cross-Channel Wake-up Call: Benchmark 2010," *Benchmark Report*. Nikki Baird and Brian Kilcourse, RSR Research, July 2010.

## Flexibility

For all of the opportunities identified above, there is no single "demand forecast" that meets all of the needs for each. The time horizon, the units forecast, the drivers that go into the forecast all may differ significantly, because each area of opportunity has different requirements and different uses for the forecast. And even within each opportunity, there may be different requirements - the drivers that go into the demand forecast that underlies price optimization are different than the drivers that go into promotion optimization, for example.

This means the single most important thing that retailers need around their forecasts is flexibility - different ways to look at their business, different drivers for different circumstances, and different actions to take based off of this variety of inputs and assumptions. This is particularly true in circumstances where retailers are breaking new ground, such as in reconciling promotion-focused forecasts against merchandise plans, or cross-channel demand forecasts against individual channel requirements.

## The Pressure of Detail

Not only do retailers have to look at their businesses in increasingly diverse ways, they have to apply the results of the insights gained to a far more granular level of their business - managing business drivers behind online growth separately from store growth, for example, or looking at sub-groups of customer segments when performing price or promotion optimization. This has two implications for forecasting: that it must achieve a more granular level of forecast in different situations than most retailers have historically looked at, and that the forecast must be used in an environment that protects against the sub-optimization that can occur when the inputs to a forecast are too constrained - for example, when operating off of historical data for wildly intermittent or slow-moving demand at a certain location or across a customer segment.

## One Version of the Truth – What Does it Really Mean?

Whether operating in a geographically local environment or not, fractured planning processes continue to challenge retailers. While RSR has often seen indications of a desire for "one version of the truth" and "a single demand forecast" the reality of these desires often falls short - so many uses require so many different ways of looking at demand that a single demand forecast is extremely difficult, if not impossible, to achieve.

However all is not lost - what we have seen through this analysis is that while a single forecast may not be realistic, it is realistic - and required - to look at changes that surface in one part of the business and find ways to reconcile those changes (whether in assumptions or inputs to a forecast or in the outcomes of a forecast process) with other parts of the business.

In other words, a single forecast may not be possible, but a single version of the truth is not only possible, it's a requirement for a successful retail enterprise.

## Appendix A: RSR's Research Methodology

The following research reports were used in developing this Prospective View:

*"Precision Inventory Management in the Age of Localization," Benchmark Report. Nikki Baird and Brian Kilcourse, RSR Research, August 2009.*

*"Defining the Tenets of 21<sup>st</sup> Century Merchandising," Benchmark Report. Nikki Baird and Paula Rosenblum, RSR Research, September 2010.*

*"The Cross-Channel Wake-up Call: Benchmark 2010," Benchmark Report. Nikki Baird and Brian Kilcourse, RSR Research, July 2010.*

*"Getting Back to Good: Retail Pricing 2010," Benchmark Report. Nikki Baird and Paula Rosenblum, RSR Research, January 2010.*

## Appendix B: About Our Sponsor



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For further information, visit <http://www.sas.com/retail/>

## Appendix C: About RSR Research



Retail Systems Research (“RSR”) is the only research company run by retailers for the retail industry. RSR provides insight into business and technology challenges facing the extended retail industry, providing thought leadership and advice on navigating these challenges for specific companies and the industry at large. We do this by:

- **Identifying information** that helps retailers and their trading partners to build more efficient and profitable businesses;
- **Identifying industry issues** that solutions providers must address to be relevant in the extended retail industry;
- **Providing insight and analysis** about a broad spectrum of issues and trends in the Extended Retail Industry.

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